



Final Backcountry Access Plan / Wilderness Study / Final Environmental Impact Statement

November 2024



The National Park Service (NPS) has prepared this Final Backcountry Access Plan / Wilderness Study / Final Environmental Impact Statement (Final Plan/FEIS) in response to public comments received on the Supplemental Draft Backcountry Access Plan / Wilderness Study / Supplemental Draft Environmental Impact Statement (SDEIS), which was released to the public on August 12, 2022. The purpose of this Final Plan/FEIS is to provide management guidelines for backcountry access and use in Big Cypress National Preserve, Florida, and identify which parts of the original preserve, if any, should be proposed for wilderness designation by Congress. This Final Plan/FEIS carries forward the three alternatives analyzed in the SDEIS and adds alternative 4 (a modified version of alternative 3) as the NPS preferred alternative in the Final Plan/FEIS.

For more information, visit <https://parkplanning.nps.gov/bicybap>.

CONTENTS

Executive Summary	viii
Plan Purpose and Need	viii
Alternatives	ix
Alternative 1: No Action (Continue Current Management)	ix
Alternative 2	ix
Alternative 3 (Proposed Action)	x
Alternative 4 (Preferred)	xi
Chapter 1: Introduction	1
1.1 Brief Description of The Preserve	2
1.2 Purpose and Significance of the Preserve	5
1.3 Project Background	5
1.3.1 Backcountry Access Plan Scope	5
1.3.2 Wilderness Study	6
1.4 Purpose, Need, and Objectives	7
1.4.1 Purpose	7
1.4.2 Need	8
1.4.3 Objectives	8
1.5 Relationship to Other Plans, Policies, and Actions	9
1.5.1 National Park Service Plans, Policies, and Actions	9
1.6 Issues to be Addressed and Impact Topics Retained for Analysis	10
Chapter 2: Alternatives	11
2.1 Introduction and Definitions	11
2.2 How the Alternatives Were Developed	12
2.2.1 Alternatives Considered but Dismissed from Detailed Analysis	14
2.3 Elements Common to All Action Alternatives	16
2.4 Alternative 1: No Action	17
2.4.1 ORV Trails	19
2.4.2 Nonmotorized Trails	19
2.4.3 Camping	20
2.4.4 Stay Limits	20
2.4.5 ORV/Airboat Permitting	20
2.4.6 Street-Legal Vehicles	20
2.4.7 Closures and Adaptive Strategies	20
2.4.8 Wilderness	21
2.5 Alternative 2	21

2.5.1 ORV Trails	21
2.5.2 Nonmotorized Trails.....	23
2.5.3 Camping	23
2.5.4 Stay Limits	24
2.5.5 ORV/Airboat Permitting	24
2.5.6 Street-Legal Vehicles.....	24
2.5.7 Closures and Adaptive Strategies.....	24
2.5.8 Wilderness.....	24
2.6 Alternative 3 (Proposed Action)	25
2.6.1 ORV Trails	25
2.6.2 Nonmotorized Trails.....	28
2.6.3 Camping	29
2.6.4 Stay Limits	29
2.6.5 ORV/Airboat Permitting	29
2.6.6 Street-Legal Vehicles.....	29
2.6.7 Closures and Adaptive Strategies.....	30
2.6.8 Wilderness.....	30
2.7 Alternative 4 (Preferred Alternative).....	30
2.8 Activities Required to Implement the Action Alternatives	32
2.8.1 Reopening of Primary and Secondary ORV Trails, Airboat Trails, Nonmotorized Trails (including the FNST), and Destinations.....	32
2.8.2 Trail Markers and Signs.....	33
2.8.3 Routine Maintenance and Adaptive Management	33
2.8.4 Invasive Species Management.....	34
2.9 Management Objectives, Desired Conditions, Indicators, and Thresholds	34
2.10 Mitigation Measures.....	34
2.10.1 General	34
2.10.2 Vegetation and Habitat.....	35
2.10.3 Nonnative and Invasive Species.....	35
2.10.4 Wetlands	35
2.10.5 Special Status Species	36
2.10.6 Natural Soundscapes	45
2.10.7 Cultural Resources	45
2.11 Cost and Personnel Considerations.....	46
2.12 Wilderness.....	46
2.12.1 Wilderness Eligibility Assessment	47
2.12.2 Developing Wilderness Alternatives	48

2.13 The National Park Service Preferred Alternative.....	49
Chapter 3: Affected Environment	50
3.1 Soils	50
3.1.1 Soils at the Preserve	50
3.1.2 Soil Suitability for ORV Use	51
3.2 Vegetation and Habitat	52
3.2.1 Native Vegetation Communities and Habitat	52
3.2.2 Pine Flatwoods	53
3.2.3 Hardwood Hammocks	54
3.2.4 Disturbed Areas	54
3.2.5 Nonnative and Invasive Species	54
3.3 Wetlands.....	55
3.3.1 Cypress Systems	56
3.3.2 Freshwater Forested Wetlands	56
3.3.3 Freshwater Nonforested Wetlands: Prairie.....	57
3.3.4 Freshwater Nonforested Wetlands: Marsh	57
3.3.5 Marine and Estuarine Vegetated Wetlands: Mangrove Forests	57
3.4 Special Status Species.....	58
3.4.1 Animals	58
3.4.1 Florida Black Bear	59
3.4.2 Florida Panther	59
3.4.3 West Indian Manatee.....	60
3.4.4 Florida Bonneted Bat	61
3.4.5 Tricolored Bat	61
3.4.6 Cape Sable Seaside Sparrow	61
3.4.7 Everglade Snail Kite	62
3.4.8 Audubon’s Crested Caracara	62
3.4.9 Wood Stork	62
3.4.10 Eastern Indigo Snake	63
3.4.11 American Crocodile	63
3.4.12 American Bald Eagle.....	63
3.4.13 Red-Cockaded Woodpecker	64
3.4.14 Eastern Black Rail.....	64
3.4.15 Special Status Wading Birds.....	64
3.4.18 Everglades Bully	67
3.4.19 Florida Prairie Clover.....	68
3.4.20 Florida Pineland Crabgrass.....	68

3.5 Wilderness Character	69
3.5.1 Eligible and Proposed Wilderness in the Preserve	70
3.6 Visitor Use and Experience.....	70
3.6.1 Off-Road Vehicle Use.....	71
3.6.2 Camping	72
3.6.3 Hunting	74
3.6.4 Wildlife Viewing	75
3.6.5 Hiking.....	76
3.6.6 Paddling (Canoeing/Kayaking)	76
3.6.7 Motorboat Use, Including Airboats	76
3.7 Natural Soundscapes	77
3.8 Ethnographic and Archeological Resources.....	78
Chapter 4: Environmental Consequences.....	81
4.1 Introduction	81
4.2 Analysis Methods and Assumptions.....	81
4.2.1 Special Status Species	82
4.2.2 Cultural Resources and Section 106 of the National Historic Preservation Act	82
4.3 Cumulative Impacts Analysis.....	83
4.4 Soils	85
4.4.1 Basis of Analysis.....	85
4.4.2 Impacts of Alternative 1	87
4.4.3 Impacts of Alternative 2	89
4.4.4 Impacts of Alternative 3 (Proposed Action) and Alternative 4 (Preferred Alternative)	90
4.4.5 Cumulative Impacts	92
4.5 Wetlands.....	93
4.5.1 Basis of Analysis.....	93
4.5.2 Impacts of Alternative 1	97
4.5.3 Impacts of Alternative 2	99
4.5.4 Impacts of Alternative 3 (Proposed Action) and Alternative 4 (Preferred Alternative)	101
4.5.5 Cumulative Impacts	103
4.6 Vegetation and Habitat	104
4.6.1 Basis of Analysis.....	104
4.6.2 Impacts of Alternative 1	106
4.6.3 Impacts of Alternative 2	107
4.6.4 Impacts of Alternative 3 (Proposed Action) and Alternative 4 (Preferred Alternative)	108
4.6.5 Cumulative Impacts	109
4.7 Special Status Species	110

4.7.1 Special Status Species – Plants	110
4.7.2 Special Status Species – Animals	111
4.8 Wilderness Character	125
4.8.1 Basis of Analysis.....	125
4.8.2 Impacts of Alternative 1	126
4.8.3 Impacts of Alternative 2	127
4.8.4 Impacts of Alternative 3 (Proposed Action)	128
4.8.5 Impacts of Alternative 4 (Preferred Alternative)	130
4.8.6 Cumulative Impacts	131
4.9 Visitor Use and Experience.....	132
4.9.1 Basis of Analysis.....	132
4.9.2 Impacts of Alternative 1	133
4.9.3 Impacts of Alternative 2	135
4.9.4 Impacts of Alternative 3 (Proposed Action) and Alternative 4 (Preferred Alternative)	136
4.9.5 Cumulative Impacts	138
4.10 Natural Soundscapes	138
4.10.1 Basis of Analysis.....	138
4.10.2 Impacts of Alternative 1	141
4.10.3 Impacts of Alternative 2	141
4.10.4 Impacts of Alternative 3 (Proposed Action) and Alternative 4 (Preferred Alternative)	143
4.10.5 Cumulative Impacts	144
4.11 Ethnographic and Archeological Resources.....	145
4.11.1 Basis of Analysis.....	145
4.11.2 Impacts of Alternative 1	146
4.11.3 Impacts of Alternative 2	146
4.11.4 Impacts of Alternative 3 (Proposed Action) and Alternative 4 (Preferred Alternative)	147
4.11.5 Cumulative Impacts	148
Chapter 5: Consultation, Coordination, and Public Participation.....	150
5.1 The Scoping Process	150
5.1.1 Public Scoping	150
5.1.2 Internal Scoping.....	152
5.2 Preliminary Alternative Development	152
5.2.1 Public Preliminary Alternative Development Workshops	152
5.2.3 Preferred Alternative Workshop	153
5.2.4 Release of Draft Plan/DEIS for Public Review and Comment	154
5.2.5 Release of Supplemental Draft Plan/SDEIS for Public Review and Comment	154
5.2.6 Consultation and Compliance.....	154

Appendix A: Abbreviations	A-1
Appendix B: Impact Topics Retained for and Dismissed from Detailed Analysis	B-1
Appendix C: Comparison of Alternatives	C-1
Appendix D: Visitor Capacity Determination	D-1
Appendix E: Wilderness Eligibility Assessment, 2022	E-1
Appendix F: Big Cypress National Preserve Trail Monitoring Protocol.....	F-1
Appendix G: Programmatic Agreement Regarding Implementation of Big Cypress National Preserve Backcountry Access Plan.....	G-1
Appendix H: Biological Assessment and USFWS Concurrence	H-1
Appendix I: Affected Environment Reference Map.....	I-1
Appendix J: Response to Public Comments.....	J-1
Appendix K: List of Preparers and Consultants	K-1
Appendix L: List of Recipients of the Final plan/ Environmental Impact Statement.....	L-1
Appendix M: Literature Citations.....	M-1

FIGURES

Figure 1-1. Big Cypress National Preserve Location	3
Figure 1-2. Management Units within the Preserve.....	4
Figure 2-1. No-Action Alternative	18
Figure 2-2. Alternative 2	22
Figure 2-3. Alternative 3	27
Figure 2-4. Alternative 4	31

TABLES

Table 2-1. Alternatives and Concepts Considered but Dismissed.....	15
Table 2-2. Alternative 1 Summary.....	19
Table 2-3. Alternative 2 Summary.....	23
Table 2-4. Alternative 3 and Alternative 4 Summary	28
Table 2-5a. Management Objectives and Desired Future Conditions:	37
Table 2-5b. Management Objectives and Desired Future Conditions: Water Resources.....	38
Table 2-5c. Management Objectives and Desired Future Conditions: Cultural Resources	38
Table 2-5d. Management Objectives and Desired Future Conditions: Cultural Experiences	38
Table 2-5e. Management Objectives and Desired Future Conditions: Visitor and Public Enjoyment.....	39
Table 2-6. Indicators, Thresholds, and Adaptive Management Actions.....	40
Table 3-1. Substrate Suitability in the Preserve	51
Table 3-2. Vegetation Communities in the Preserve	52
Table 3-3. Listed Plant Species in the Preserve.....	66

Table 3-4. Current Primary Trail Network in the Preserve	72
Table 3-5. Campgrounds in the Preserve	73
Table 3-6. Typical Sounds in the Preserve.....	78
Table 4-1. Summary of Soil Substrate Suitability of Trails and Destinations.....	86
Table 4-2. Percentage of Total Acreage Affected	87
Table 4-3. Trails and Destinations in Preserve Wetlands	95
Table 4-4. Acres of Wetlands Covered by ORV Trails in Original Preserve	96
Table 4-5. Summary of Trails and Destinations Crossing Pine Flatwoods and Hardwood Hammocks	105
Table 4-6. Potential Impacts on Habitat Used by Special Status Species.....	116
Table 4-7. Percentage of Motorized and Nonmotorized Trails in Suitable Habitat for Special Status Species	117
Table 4-8. Number of Backcountry Camping Permits Issued by Year.....	133
Table 4-9. Acreage of Natural Soundscape Impacted within 1,600 Feet of the ORV Trail Network.....	139
Table 4-10. Acreage of Natural Soundscape Impacted within 15,000 Feet of the Airboat Trail Network	139
Table 4-11. Percentage of Natural Soundscape Affected in the Preserve.....	140
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.....	140

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EXECUTIVE SUMMARY

The United States Department of the Interior, National Park Service (NPS) has prepared this Final Backcountry Access Plan / Wilderness Study / Final Environmental Impact Statement (Final Plan/FEIS) to provide management guidelines for backcountry access and use in Big Cypress National Preserve, Florida (the preserve) and to identify which parts of the original preserve and adjoining Western Addition, if any, should be proposed for wilderness designation by Congress. This Final Plan/FEIS formally amends previous planning documents at the preserve by (1) providing definitions of certain key terms (specifically, “primary off-road vehicle (ORV) trail,” “secondary ORV trail,” “airboat trail,” and “backcountry destination”), (2) modifying the nature and purpose of the secondary ORV trail system, and (3) giving supplemental management direction regarding backcountry recreation.

This Final Plan/FEIS has been prepared taking into consideration public comments received on the Draft Backcountry Access Plan / Draft Environmental Impact Statement (Draft Plan/DEIS), which was released to the public on October 26, 2020, and on the Supplemental Draft Plan / Wilderness Study / Supplemental Draft Environmental Impact Statement (SDEIS), which was released to the public on August 12, 2022. The Final Plan/FEIS has been 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 Final Plan/FEIS 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 Final Plan/FEIS is to provide management guidelines for backcountry access and use while protecting the preserve’s natural and cultural resources. The Final Plan/FEIS is also intended to determine which parts of the original preserve and adjoining Western Addition, if any, should be proposed for wilderness designation by Congress.

The Final Plan/FEIS 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 ORV 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 ORV use, hunting, hiking, and other activities.
- Clarify definitions of key terms (specifically, primary ORV trail, secondary ORV trail, airboat trail, and backcountry destination) 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 2010a).
- Determine which parts of the original preserve and adjoining Western Addition are eligible for wilderness designation and which of those lands, if any, should be proposed for designation by Congress.

ALTERNATIVES

This Final Plan/FEIS carries forward the three alternatives analyzed in the SDEIS and adds alternative 4 (a modified version of alternative 3) as the NPS preferred alternative in this Final Plan/FEIS.

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 and airboat use, hunting, hiking, and other activities.

The motorized trails described in alternatives 2, 3, and 4 are mostly cross resilient to highly resilient substrates. The resiliency determinations in this Final Plan/FEIS are based on both remotely sensed vegetation data and conditions in the field as personally observed by staff from the preserve's resource management division. Each ORV trail (terrestrial motorized trail) described in this document has been assessed for substrate resiliency along its entire length. To protect the preserve's natural and cultural resources while establishing an ORV trail system that is sustainable over time, this Final Plan/FEIS includes only those ORV trails that mostly cross resilient to highly resilient substrates. Similarly, all of the airboat trails described in this document cross resilient to highly resilient substrates.

The Final Plan/FEIS, 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 and airboat 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. 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 and adjoining Western Addition.

Alternative 2

Alternative 2 offers visitors slightly increased access compared to the no-action alternative. The existing system of primary ORV and airboat trails, 278 miles total, would remain unchanged, as would the ORV/airboat 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 the 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 identifies approximately 190,528 acres of land (32% of the original preserve and adjoining Western Addition) to be proposed 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 reopen 15 additional miles of primary ORV trail and 39 additional miles of airboat trail on preexisting routes, bringing the total mileage of primary ORV and airboat trails in the preserve to 331 miles. Alternative 3 would also reopen 53 miles of secondary ORV trails. About 73% of the additional miles of primary ORV trail, over 99% of additional miles of airboat trail, and 90% of the additional miles of secondary ORV trail would traverse highly resilient to resilient substrate types. The approximately 39 miles of reopened airboat trail would be located in Stairsteps Unit Zones 3 and 4. Of the 15 reopened miles of primary ORV trail, 10 miles would link the Addition to the original preserve at Bear Island, and 3 miles would link the Addition to the original preserve through Mullet Slough. Off-road vehicle/airboat 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 114 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 87 new backcountry destinations in the original preserve and close one existing site in the Stairsteps Unit to protect resources. The 87 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 identifies approximately 147,910 acres of land (25% of the original preserve and adjoining Western Addition) to be proposed as wilderness. The proposal generally covers the areas known as Mullet Slough, Deep Lake, and the Loop Unit.

Alternative 4 (Preferred)

Alternative 4 is identical to alternative 3 minus the wilderness proposal. As in alternative 1, no areas would be proposed for wilderness designation in the original preserve and adjoining Western Addition.

NPS preferred alternative. Alternative 4 is the NPS preferred alternative because it achieves the best balance between increased public access and substrate sustainability while being responsive to the concerns expressed by the Seminole and Miccosukee Tribes during Tribal consultation. While this alternative does not include a wilderness proposal, the wilderness study helped inform the NPS about where to place certain activities, such as ORV use, in a way that is sustainable over the long term without affecting the integrity of the most delicate and primitive areas of the preserve. Alternative 4 achieves the best combination of increased visitor access, long-term resource protection, and management flexibility.

Chapter 1

Introduction



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CHAPTER 1: INTRODUCTION

The US Department of the Interior, National Park Service (NPS) has prepared this Final Backcountry Access Plan / Wilderness Study/Final Environmental Impact Statement (Final Plan/FEIS) to (1) provide management guidelines for backcountry access and use in Big Cypress National Preserve, Florida (the preserve), (2) establish a system of secondary off-road vehicle (ORV) trails and destinations in the original part of the preserve (original preserve) (see figure 1-2), and (3) determine which parts of the original preserve and Western Addition, if any, should be proposed for wilderness designation by Congress.

This Final Plan/FEIS takes into consideration public comments received on the Draft Backcountry Access Plan / Draft Environmental Impact Statement (Draft Plan/DEIS), which was released to the public on October 26, 2020, and the Supplemental Draft Backcountry Access Plan / Wilderness Study / Supplemental Draft Environmental Impact Statement (Supplemental Draft Plan/SDEIS), which was released to the public on August 12, 2022. The NPS has developed this Final Plan/FEIS in accordance with the preserve's enabling legislation; management plans; NPS policies; and applicable federal, state, and local laws and regulations. This includes the NPS Organic Act of 1916, through which Congress directed the US Department of the Interior and the NPS to manage units "to conserve the scenery, natural and historic objects, and wild life in the System units and to provide for the enjoyment of the scenery, natural and historic objects, and wild life in such manner and by such means as will leave them unimpaired for the enjoyment of future generations" (54 United States Code [USC] 100101). Some parts of the Final Plan/FEIS 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 Final Plan/FEIS carries forward the three alternatives from the Supplemental Draft Plan/SDEIS and adds alternative 4—a modified version of alternative 3 that was developed in response to public comments and Tribal consultation. The environmental impacts of alternatives 1, 2, 3, and 4 are reviewed and assessed in this document. Alternative 3 is the NPS proposed action while alternative 4 is the preferred alternative.

This Final Plan/FEIS evaluates three action 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 ORV use, hunting, hiking, and other activities. In addition, the Final Plan/FEIS formally amends two of the preserve's existing plans by (1) providing definitions of certain key terms (specifically, "primary ORV trail," "secondary ORV trail," "airboat trail," and "backcountry destination"), (2) modifying the nature and purpose of the secondary ORV trail system, and (3) giving supplemental management direction regarding backcountry recreation. The plans amended by this document are the *Final Big Cypress Recreational Off-Road Vehicle Management Plan / Supplemental Environmental Impact Statement* (2000 Recreational ORV Management Plan) (NPS 2000a) and the 2010 *Final Big Cypress Addition General Management Plan / Off-Road Vehicle Management Plan / Wilderness Study / Environmental Impact Statement* (Addition GMP) (NPS 2010a).

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 Final Plan/FEIS 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 in the national park system, the preserve represents a unique management concept where resource protection, public recreation, and specific consumptive/extractive 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 forested wetlands, nonforested wetlands (prairies and marshes), shrublands, hardwood hammocks, pine flatwoods, and estuaries. These diverse ecosystems encompass a dynamic mixture of tropical and temperate plant communities and wildlife. The preserve protects 11 federally listed (including one proposed) 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, Tribes, 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 were 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 recognizes the rights of the Miccosukee Tribe of Indians of Florida and the Seminole Tribe of Florida to their 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 Final Plan/FEIS analyzes alternatives covering the entire preserve, including each of the individual management unit specified above. However, ORV trails in the Addition are addressed in the 2010 Addition GMP.

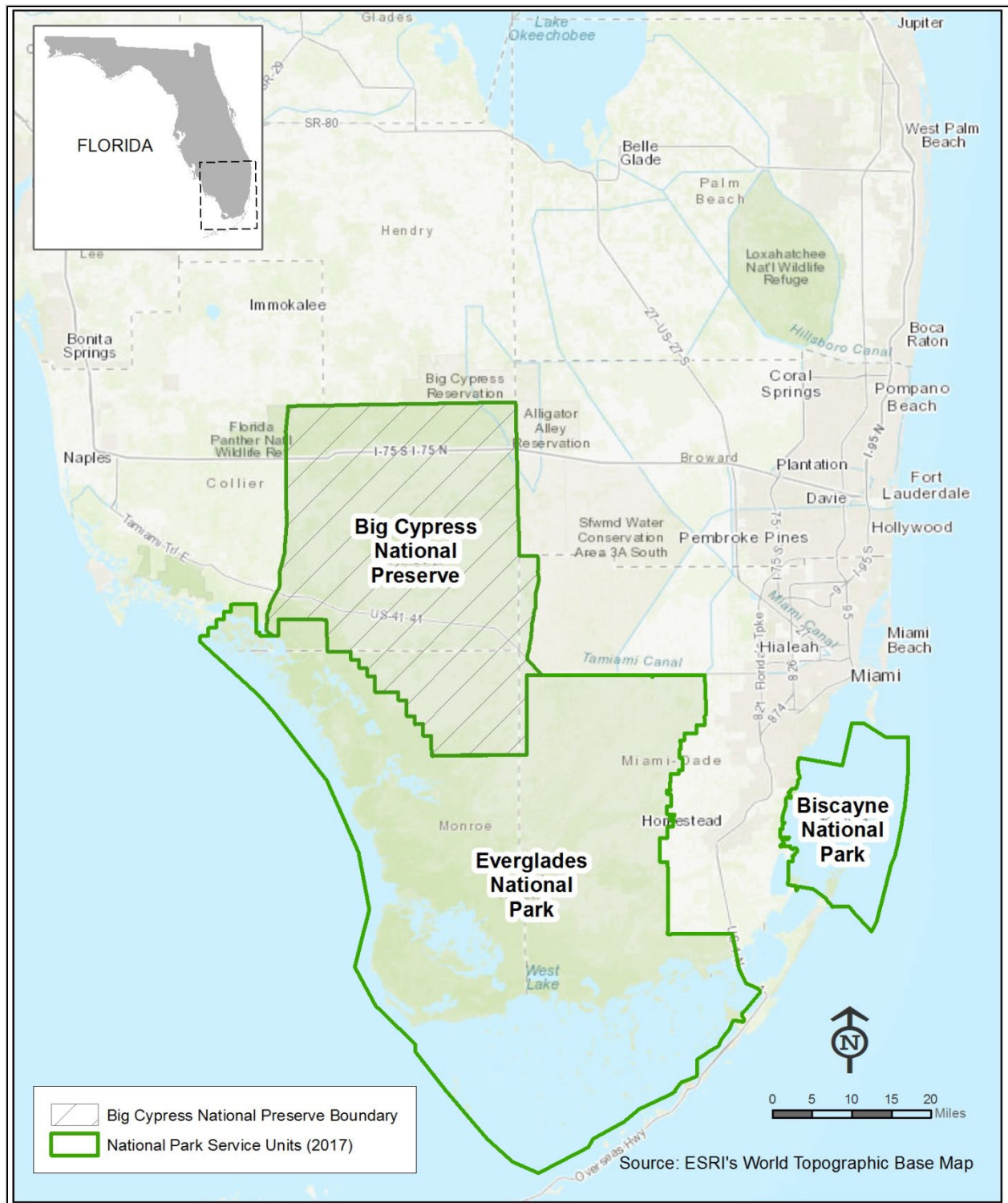


FIGURE 1-1. BIG CYPRESS NATIONAL PRESERVE LOCATION

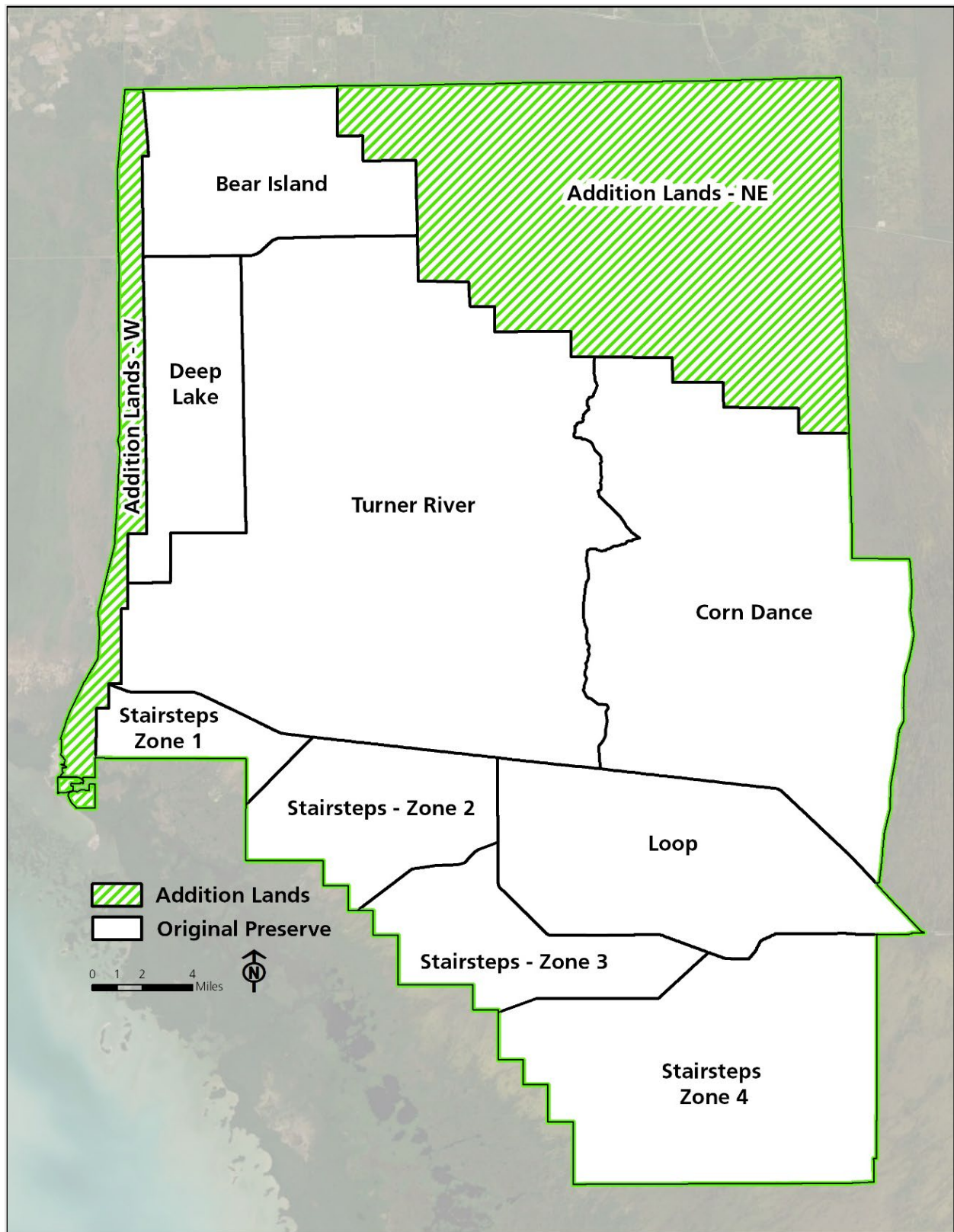


FIGURE 1-2. MANAGEMENT UNITS WITHIN THE PRESERVE

1.2 PURPOSE AND SIGNIFICANCE OF THE PRESERVE

Big Cypress National 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.

A park unit's purpose statement lays the foundation for understanding what is most important about the unit. The purpose statement for the preserve was drafted through a careful analysis of its enabling legislation and the legislative history that influenced that legislation's development. According to the statement, the purpose of Big Cypress National 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 NPS 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 system of primary ORV trails, secondary ORV trails, and airboat trails, 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 2000 Recreational 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 ORV trails within the Bear Island Unit of the preserve. In that same year, several nongovernmental organizations and individuals brought suit challenging that 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 NPS 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 NPS 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 NPS 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 ORV trails, thereby eliminating dispersed use in these areas. The NPS 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 2000 Recreational ORV Management Plan. See *Center for Biological Diversity v. Jewell*, No. 2:13-cv-00364-SPC-DNF (M.D. Fla. 2013). When the NPS 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, in particular, the definitions of "secondary trail" and "destination." Likewise, the Bear Island and secondary trails litigation has created a need for the NPS to determine which of the preserve's closed trails should be reopened. This Final Plan/FEIS 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 Final Plan/FEIS 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 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 NPS 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, the NPS decided in 2014 to prepare a wilderness eligibility assessment for the original preserve. This assessment was completed in 2015.

(Note: a separate wilderness eligibility assessment and follow-up wilderness study had been completed for the Addition in 2010 as part of developing the Addition GMP. The 2010 Addition Wilderness Study proposed that approximately 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 NPS 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 and Western Addition, if any, should be proposed for wilderness designation. The NPS does not have the authority to designate wilderness. Only Congress has the authority to do so. Through the study, the NPS evaluates lands that have previously been found eligible for wilderness to decide which lands the NPS director may consider for a formal proposal in the future. The findings and conclusions of the wilderness study would inform the director’s future action, which is a separate and distinct step in the wilderness review and designation process. As part of the more formal and in-depth wilderness study process, the NPS revised and refined the 2015 wilderness eligibility assessment to create an updated assessment (see appendix E). Using this updated assessment, the NPS then reviewed all eligible lands in the original preserve and Western Addition to develop alternatives for proposed wilderness. Differing alternatives were developed based on management considerations and the results of the previously completed wilderness study of the Addition.

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. This Final Plan/FEIS formally amends the 2000 Recreational ORV Management Plan and the 2010 Addition GMP by defining the terms “primary ORV trail,” “secondary ORV trail,” “airboat 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. Lastly, the Final Plan/FEIS includes a wilderness study to determine which parts of the original preserve and Western Addition, if any, should be proposed for wilderness designation.

Included in this document is a final environmental impact statement that analyzes impacts on the human environment from a set of three project alternatives, which are described in chapter 2. This Final Plan/FEIS 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 Final Plan/FEIS 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 (specifically, primary ORV trail, secondary ORV trail, airboat trail, backcountry destination) within the 2000 Recreational ORV Management Plan and the 2010 Addition GMP.
- Determine which parts of the original preserve and adjoining Western Addition are eligible for wilderness designation and which of those lands, if any, 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 Final Plan/FEIS:

- Evaluate the suitability of secondary ORV trails and nonmotorized trails in the original preserve.
- Evaluate the potential for additional primary ORV and airboat 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 ORV 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 in the original preserve and Western Addition 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, nonmotorized 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

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. The document also articulates the need to manage ORV use within the preserve. This Final Plan/FEIS updates portions of the general management plan, modifies guidance for visitor use, and changes management of ORV use within the original preserve.

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

ORV and airboat 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 2000 Recreational ORV Management Plan outlines the management of recreational ORV and airboat use in the original preserve. It requires that ORV and airboat 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 and airboats in the original preserve. Significantly, the 2000 Recreational ORV Management Plan required the elimination of dispersed ORV/airboat use in most units and placed an upper limit of 400 miles on the number of miles of primary ORV and airboat trails in the original preserve. The 2000 Recreational ORV Management 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/airboat use. The Final Plan/FEIS is rooted in part in the 2000 Recreational ORV Management 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.

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 lands. 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 Final Plan/FEIS expands on the goals for preserving natural and cultural resources as well as the management objectives used to achieve the goals identified in the Resource Management Plan.

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

The purpose of the Addition Final General Management Plan (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 2010a). 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 Final Plan/FEIS 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.

Hydrologic Restoration Management Plan / Environmental Assessment

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.

1.6 ISSUES TO BE ADDRESSED AND IMPACT TOPICS RETAINED FOR ANALYSIS

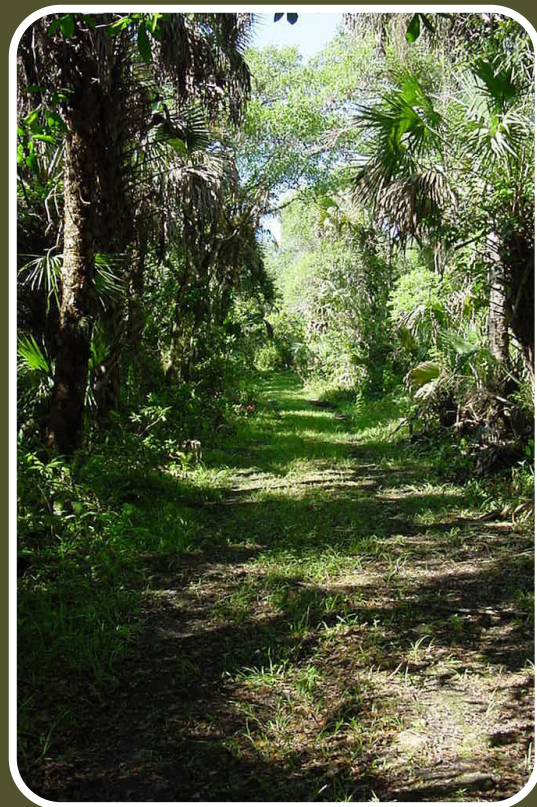
Implementation of this Final Plan/FEIS may result in several environmental issues. The impacts associated with these issues are analyzed in this document. NPS guidance states that analysis in an environmental impact statement should focus on significant issues (meaning pivotal issues, or issues of critical 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 a range of management alternatives consisting of a no-action alternative and three action alternatives. Alternative 3 is the proposed action, and alternative 4 is the NPS preferred alternative.

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 and airboats, the words “expansion” and “addition” do not refer to new trail or new trailhead construction. All ORV trails and airboat trails proposed in the action 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 ORV 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. Backcountry is the opposite of frontcountry, where 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 designated access points/trailheads. They provide recreational access into and within the preserve. These trails are the principal ORV routes in the preserve. 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. Secondary ORV trails branch off from primary trails and lead to one or more backcountry “destinations” (see definition below). 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 on 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.

Airboat trail. Airboat trails emanate from designated access points/trailheads and provide recreational access into and within those parts of the preserve that are flooded for all or most of the year. These trails are the principal access routes into Stairsteps Unit Zone 4. (One airboat trail is located in Stairsteps Unit Zone 3.) The NPS maintenance actions would generally be limited to the 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. Destinations are reached by secondary ORV trail. Each destination is small, averaging 10 × 20 feet (0.005 acre), and vegetation is trimmed as needed to facilitate camping or other recreational use. Site development is limited to a sign or stake identifying the location of the destination. Destinations do not require site stabilization or the installation of impervious surface.

2.2 HOW THE ALTERNATIVES WERE DEVELOPED

Under the provisions of NEPA, the NPS 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 the Supplemental Draft Plan/SDEIS, the NPS altered its methodology for including motorized trails and trail destinations in plan alternatives. In the first version of the draft plan, released for public comment in 2020 (Draft Plan/DEIS), the NPS developed a range of alternative layouts for motorized trails by conducting a suitable substrate analysis using remotely sensed vegetation data. 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 NPS 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 NPS 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 Draft Plan/DEIS 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 the Supplemental Draft Plan/SDEIS, the NPS used the latest remotely sensed vegetation data to categorize habitat types and identify the likely substrates underlying routes and destinations (see table 3-1). In addition, the NPS chose to supplement the remotely sensed data with a new, on-the-ground assessment of all primary ORV and secondary ORV trails included in the preferred alternative (alternative 5) of the Draft Plan/DEIS. 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 task vehicle and the true route established to an accuracy of +/- 16 feet using global positioning software (GPS). In assessing the sustainability of trails, preserve personnel and volunteers assessed the substrate suitability of the actual trail track rather than the general area through which the track passed. In so doing, they observed that in areas of deep soils, ORV trails typically hewed to areas where caprock was close to or on the soil surface. Trail segments that follow caprock are generally 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 had been surveyed, and the provisionally suitable trails identified, preserve staff used Google Earth and its historic photography feature to assess the amount of previous disturbance attributable to ORV use along each of the trails still under consideration. This step involved going back in time to examine 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 the Supplemental Draft Plan/SDEIS.

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, but a sign would close public access before the cluster boundary; access by the landowner will add only minor additional adverse effects on that red-cockaded woodpecker group. The other exception involves a trail that passes just outside a cluster but in discrete locations 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 on the cluster.
- **Impacts on 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 the Supplemental Draft Plan/SDEIS 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 cross 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 ORV trails and, if included for a primary ORV trail, are proposed for stabilization.

Confining the motorized trail system to mostly highly resilient and resilient substrates reduces motorized trail mileage by about 110 miles from what was proposed in the Draft Plan/DEIS from 2020 (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. Ultimately, the adaptive management provisions in the Draft Plan/DEIS would have prevented these trails from being reopened anyway because of unsuitable substrates (see

table 2-6).¹ In the Supplemental Draft Plan/SDEIS, the planning team took the approach of ground-truthing all ORV trails in advance to identify those that can be opened and sustained over the long term.

Public comments on the Supplemental Draft Plan/SDEIS generated the addition of approximately 3 miles of secondary ORV trails and four additional destinations. Consultation with the US Fish and Wildlife Service (USFWS) resulted in adjustments to three ORV trails and one airboat trail to protect listed species. These changes are reflected in this Final Plan/FEIS.

As noted above, this Final Plan/FEIS includes a no-action alternative and three action alternatives, specifically, alternatives 2, 3, and 4. Alternative 2, as described in the Supplemental Draft Plan/SDEIS, revises alternative 2 from the Draft Plan/DEIS 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 increases ORV trail mileage and the number of available destinations over what is proposed in alternative 2. Alternative 3 also revises alternative 3 from the Supplemental Draft Plan/SDEIS to incorporate the changes described above that were generated by public comments and USFWS consultation. The newly incorporated alternative 4 is identical to the trail system and destinations proposed in the revised alternative 3 minus a wilderness proposal.

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 revised alternative 3 and new alternative 4.

Two of the action alternatives also include a wilderness proposal as part of the wilderness study component of this Final Plan/FEIS. Alternative 2 identifies 190,528 acres in the original preserve and adjoining Western Addition to be proposed as wilderness, while alternative 3 identifies 147,910 acres in the original preserve and adjoining Western Addition to be proposed as wilderness. Alternative 4 would not propose any part of the original preserve or Western Addition for wilderness designation.

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 Final Plan/FEIS. 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 NPS Director's Order 12: *Conservation Planning, Environmental Impact Analysis, and Decision-Making* (NPS 2011a) criteria and rationale.

¹ 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.

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 least resilient to unsuitable and unsuitable substrates	Inability to meet project objectives or resolve need	As part of this planning process, all current, closed, and proposed primary ORV 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 ORV 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.
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.
Consider alternatives 3, 4, and 5 from the Draft Plan/DEIS	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.
Propose all eligible lands for wilderness designation	Conflict with policy (see NPS <i>Management Policies 2006</i> 6.3.3)	Many areas of eligible wilderness cannot be effectively managed as wilderness due to hydrologic disruption and infestations by invasive species, which will necessitate the long-term use of motorized equipment and mechanical transport to restore/maintain more natural conditions.

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/airboats would be required to abide by rules governing vehicle specifications and operation, designated trails, and permitting and licensing requirements.
- ORV and airboat users violating regulations would be subject to punishment, including fines and/or imprisonment.
- All backcountry overnight campers (including ORV and airboat users, hikers, campers, and boaters) would be required to obtain a backcountry camping permit for each trip, which is 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. Note that if a trail is closed for any reason, the preserve would not necessarily reopen a different trail of similar character to bring the system mileage back to levels described in this Final Plan/FEIS. Any different trail 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 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 ORV trail network in the Northeast and Western Additions are proposed in any of the alternatives.
- No changes to wilderness eligibility or proposals described in the Addition GMP (NPS 2010a) are proposed in any of the alternatives.
- Bicycles² and e-bikes would be allowed on primary ORV 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 All 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.

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 ORV 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 2.11. 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 ORV trails, with minimal environmental impacts as compared to ORVs. Mitigation measures are discussed in section 2.10; impacts on 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 Final General Management Plan/ 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 and airboat use would continue along existing primary ORV and airboat trails. No additional primary ORV trails, secondary ORV trails, or airboat trails would be reopened. (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 and airboat backcountry recreation access opportunities would continue. Participants in motorized and nonmotorized recreation would share the same trail network. Dispersed camping would continue to be permitted in most of the preserve, with backcountry camping permits required. Designated backcountry campgrounds would be limited to the two current backcountry campgrounds in the Bear Island Unit and two primitive group camping areas along the FNST. 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).

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.

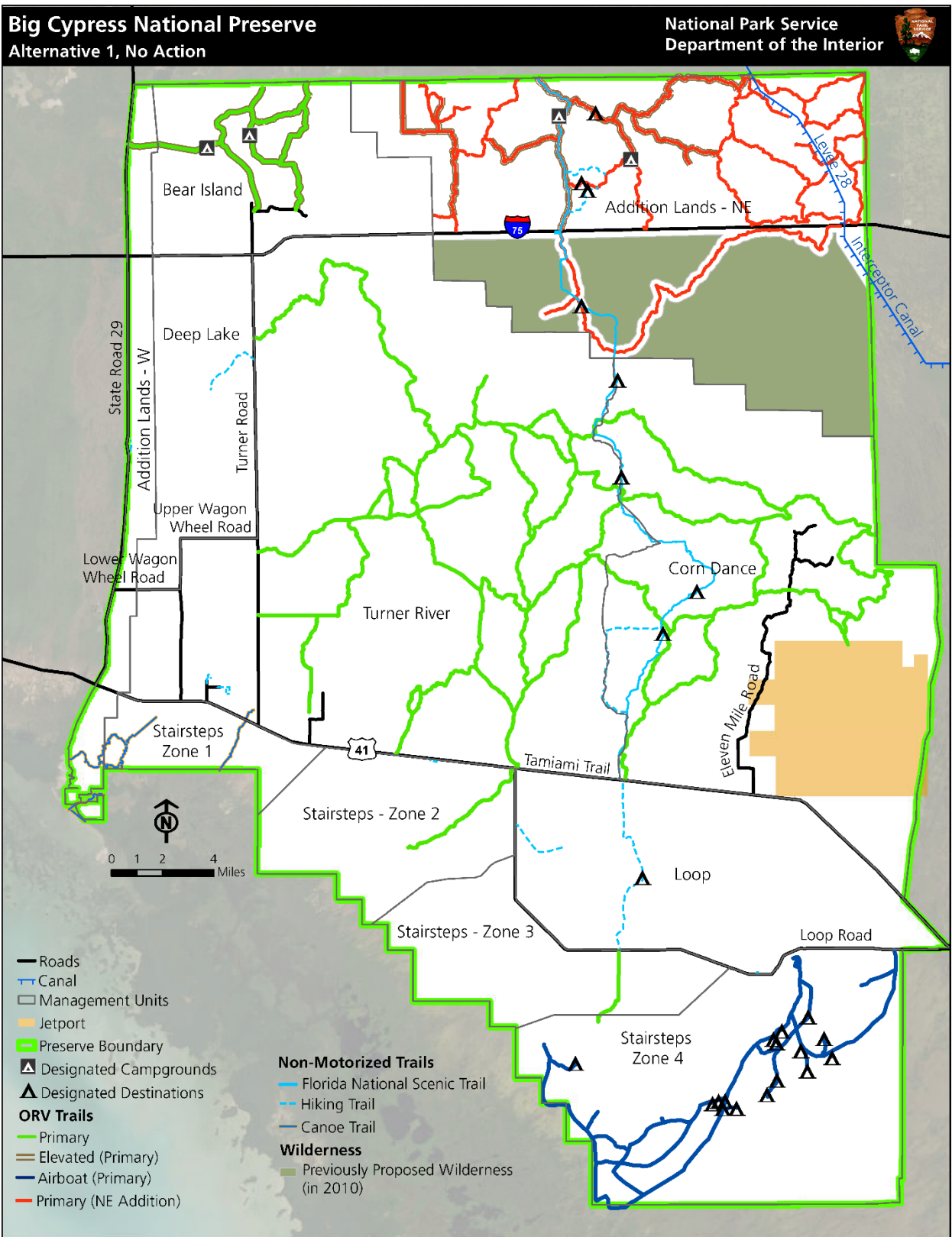


FIGURE 2-1. NO-ACTION ALTERNATIVE

2.4.1 ORV Trails

Of the 278 currently existing miles of primary ORV and airboat 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, 58 miles in Stairsteps Unit Zone 4, and 1 mile in the Western Addition (see 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 and airboat trail system (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 and table 4-1). 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). Under alternative 1, primary ORV 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 primary ORV 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 ¹	4
Western Addition	1	—	—	—
Addition subtotal	1	—	—	4
TOTAL	278	0	4	25

Note: Mileage in this table is rounded to the nearest whole mile.

¹ Proposed in the Addition GMP (NPS 2010a). 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/Airboat Permitting

The existing permitting system for ORVs and airboats would remain unchanged. Up to 2,000 permits per year would be available for ORV/airboat 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 and airboat 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 and airboat 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 tricolored bat, endangered Florida Panther, and endangered Florida bonneted bat. It also reduces disturbance to roosting birds, such as the endangered red-cockaded woodpecker. The closure reduces the possibility of illegal nighttime 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 NPS 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 original preserve or adjoining Western Addition would be proposed for wilderness designation by Congress under this alternative. However, as required by *NPS Management Policies 2006*, all lands in the original preserve and Western Addition that have been found eligible for designation would be managed as wilderness 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 system of primary ORV and airboat trails would be the same as that in the no-action alternative. A 15-mile designated secondary ORV trail system would be established, of which over 94% of trails would traverse highly resilient to resilient substrate types (table 3-1). 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).

Big Cypress National Preserve Alternative 2

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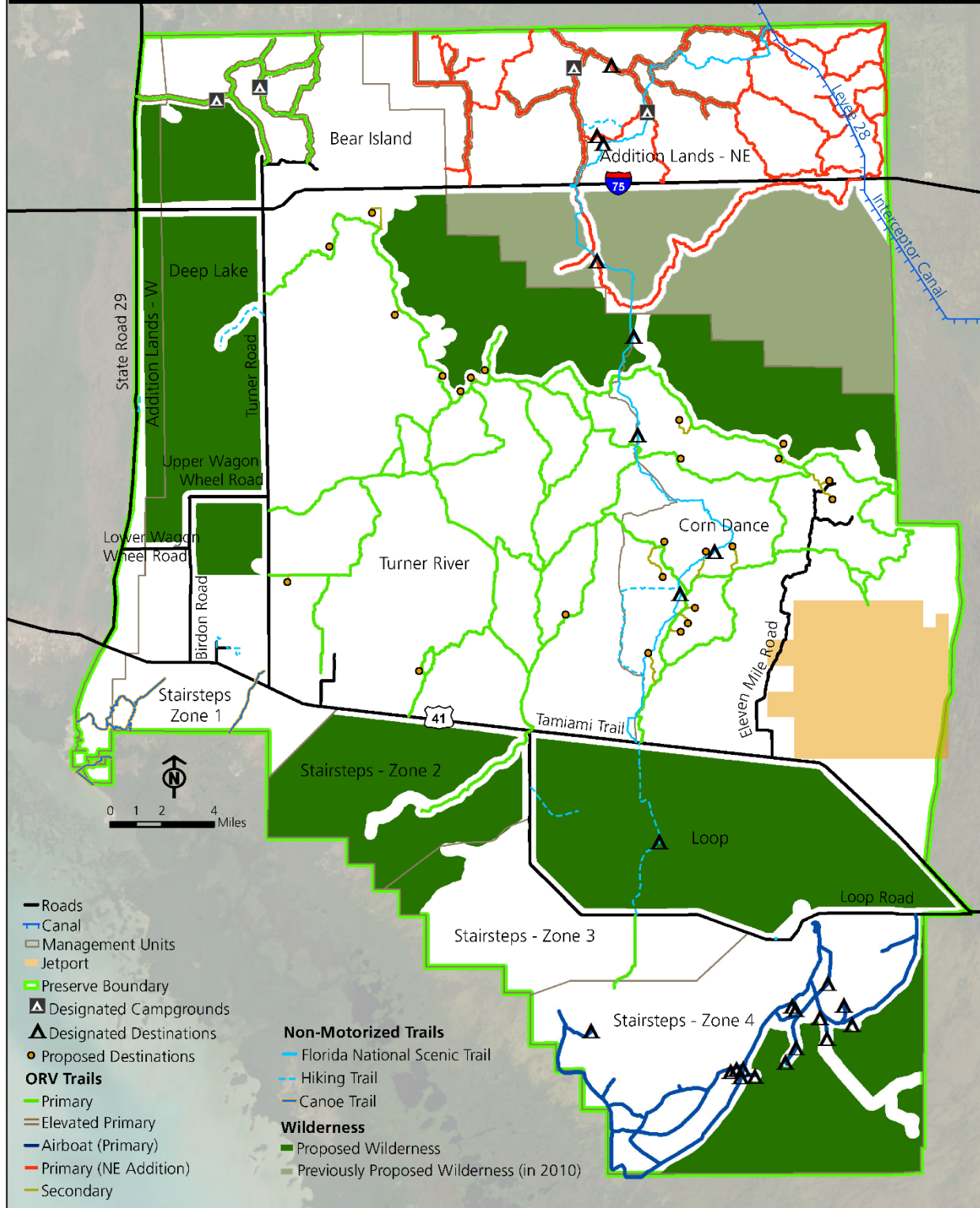


FIGURE 2-2. ALTERNATIVE 2

Table 2-3. Alternative 2 Summary

Unit	Primary ORV, Airboat 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
Turner River	124	4	—	—	—	10
Bear Island	21	—	2	—	—	—
Deep Lake	—	—	—	—	—	—
Loop	—	—	—	—	1	—
Corn Dance	65	11	—	—	4	14
Stairsteps Zone 1	—	—	—	—	—	—
Stairsteps Zone 2	6	—	—	—	—	—
Stairsteps Zone 3	3	—	—	—	—	—
Stairsteps Zone 4	58	—	—	—	15	—
Original preserve subtotal	277	14	2	—	20	24
Northeast Addition	—	—	2 ¹	—	4	—
Western Addition	1	—	—	—	—	—
Addition subtotal	1	—	—	0	4	—
TOTAL	278	15	4	0	24	24

Notes: Mileage in this table is rounded to the nearest whole mile.

¹Proposed in the Addition GMP (NPS 2010a). Not yet fully developed.

2.5.2 Nonmotorized Trails

Eight miles of the FNST would be realigned along 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 from 36 to 44. All other hiking/canoeing opportunities would be the same as in the no-action alternative; however, 3 miles of existing hiking trail was incorporated into the FNST resulting in 24 miles of other hiking trails 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 16 existing campsites in Stairsteps Unit Zone 4 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. (Note: Bear Island Campground is not considered a backcountry campground.)

2.5.5 ORV/Airboat Permitting

The existing permitting system for ORVs and airboats would remain unchanged. Up to 2,000 permits per year would be available for ORV/airboat 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 (former tram or agricultural roads) in the Bear Island Unit but would be prohibited on at-grade primary ORV trails and all secondary ORV trails. Street-legal vehicles would be subject to the same ORV permitting system described in section 2.5.5.

2.5.7 Closures and Adaptive Strategies

The current annual 60-day closure would remain in place. The preserve would remain closed to ORV and airboat 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) have been identified to be proposed under alternative 2. (See the discussion of the wilderness alternative development process in section 2.12.) As required by *NPS Management Policies 2006*, these lands would be managed as wilderness until such time as Congress makes a determination regarding wilderness at the preserve. The remaining lands that have been found eligible but not proposed for designation pursuant to the completion of a wilderness study would be managed to preserve their eligibility for designation, but activities proposed to occur on those lands would be exempt from the requirement to complete a minimum requirements analysis.

2.6 ALTERNATIVE 3 (PROPOSED ACTION)

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 ORV trails and create a new ORV/airboat 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 15 miles of reopened primary ORV trail and 39 miles of reopened airboat trail to the existing system, bringing the combined total mileage of primary ORV trail and airboat trail in the preserve to 331 miles. In addition, alternative 3 would designate a system of secondary ORV trails encompassing 53 total miles.

All reopened primary ORV trails and airboat trails would be established along preexisting routes. The approximately 39 miles of reopened airboat trail would be located in Stairsteps Unit Zones 3 and 4. Of the 15 miles of reopened primary ORV 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 331 miles of primary ORV and airboat trail in alternative 3 (including all 96 miles of airboat trail) would traverse highly resilient to resilient substrate types³ (see table 3-1 and table 4-1). Specifically, approximately 192 miles of primary ORV trail (81% of the 236 miles of primary ORV trail in this alternative) would traverse highly resilient to resilient substrate, with the remaining 44 miles traversing least resilient to unsuitable substrates. Of the 15 miles of reopened primary ORV trail, about 11 miles (73%) would be located in highly resilient to resilient substrate and about 4 miles in least resilient to unsuitable substrate, requiring stabilization. All primary ORV 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 primary ORV 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 53 miles in the secondary trail system, about 48 miles (91%) 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 ORV and airboat trail mileage is part of continued implementation of the 2000 Recreational ORV Management Plan, which calls for up to 400 combined miles of primary ORV and airboat trails. The additional 15 miles of primary ORV 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), and the Turner River Unit (1 mile). The additional 39 miles of airboat trail would be located in Stairsteps Unit Zones 3 and 4.

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.

³ 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.

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 NPS 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.

Big Cypress National Preserve Alternative 3

National Park Service
Department of the Interior

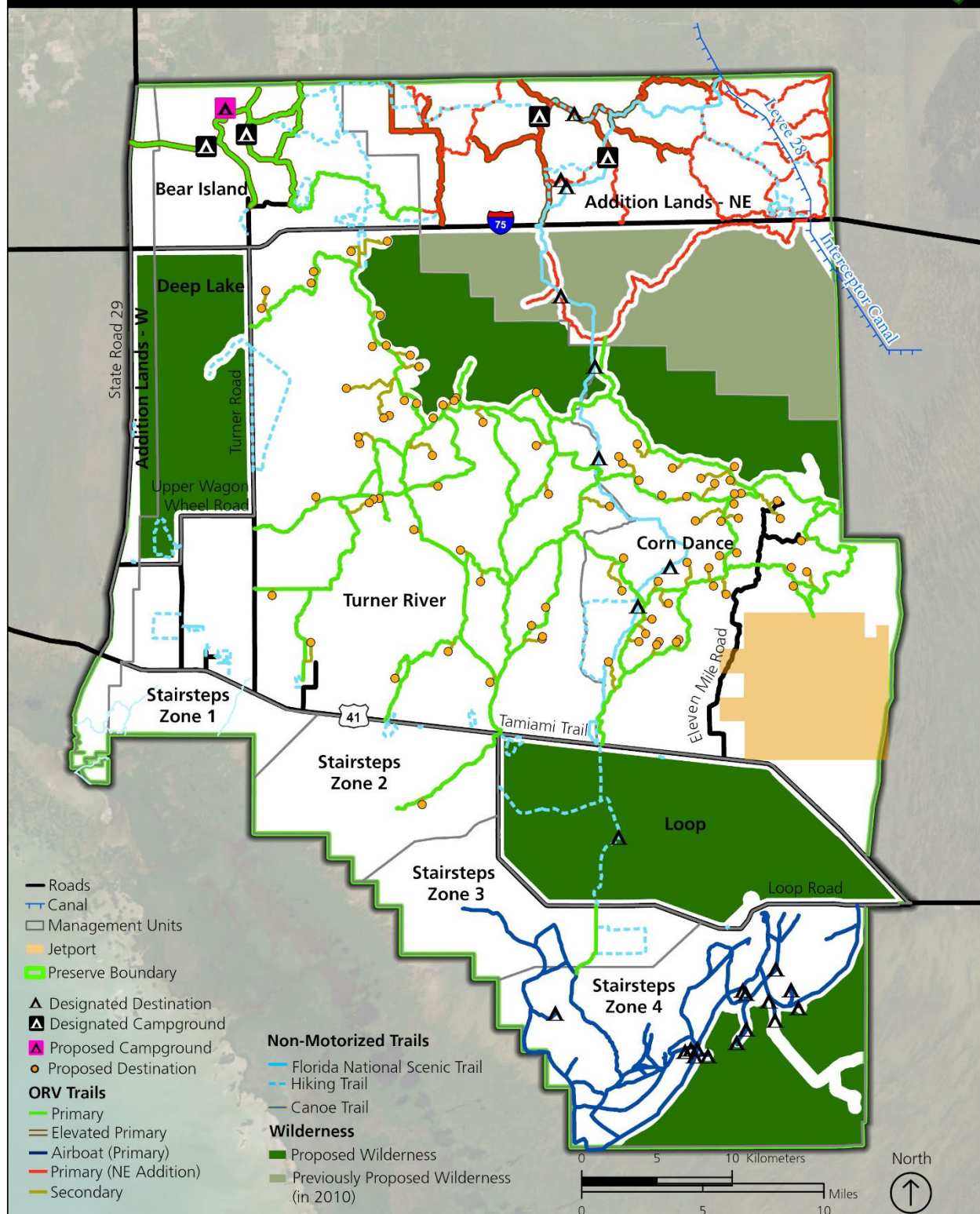


FIGURE 2-3. ALTERNATIVE 3

Table 2-4. Alternative 3 and Alternative 4 Summary

Unit	Primary ORV, Airboat Trail (miles)	Primary ORV, Airboat 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	28	—	—	—	45
Bear Island	21	10	—	2	1	—	—
Deep Lake	—	—	—	—	—	—	—
Loop	—	—	—	—	—	1	—
Corn Dance	65	4	25	—	—	4	41
Stairsteps Zone 1	—	—	—	—	—	—	—
Stairsteps Zone 2	6	—	0 ²	—	—	—	1
Stairsteps Zone 3	3	8	—	—	—	—	—
Stairsteps Zone 4	58	29	—	—	—	15	—
Original preserve subtotal	277	52	53	2	1	20	87
Northeast Addition	—	1	—	2 ¹	—	4	—
Western Addition	1	—	—	—	—	—	—
Addition subtotal	1	1	—	2 ¹	—	4	—
TOTAL	278	53	53	4	1	24	87

Notes: Mileage in this table is rounded to the nearest whole mile.

¹ Proposed in the Addition GMP (NPS 2010a). Not yet fully developed.

² Less than 0.5 miles.

2.6.2 Nonmotorized Trails

Alternative 3 would add 114 miles of hiking trail to the existing system, for a total of 141 miles, excluding the FNST. Like alternative 2, this alternative would reroute the FNST along previously used trail, increasing the total distance of the FNST from 36 to 44 miles. Total hiking trail mileage under alternative 3 is 185 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 87 new backcountry destinations would be available for 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 16 existing backcountry campsites in Stairsteps Unit Zone 4 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 along primary and secondary ORV trails as long as trails remain passable to other ORV users. ORVs parked along the designated trail must 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/Airboat Permitting

The ORV/airboat permitting system would be changed to allow issuance of a single ORV/airboat permit covering the entire preserve. ORV/airboat permits 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 could be issued to 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 fee, which would be applied toward management of the trail system. Issuance of ORV/airboat permits would be subject to a fee, which would be applied toward management of the trail system. All permittees would be required to obtain both an ORV/airboat 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 (former tram or agricultural roads) in the Bear Island Unit and Northeast Addition but would be prohibited on at-grade primary ORV trails and all secondary ORV trails. Street-legal vehicles would be subject to the same ORV permitting system described in section 2.6.5.

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 for trails, destinations, and other areas would increase access while still giving resources the opportunity to recover, as needed, from pressures related to ORV and airboat 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 2.9 and table 2-6. Removing the annual 60-day closure for ORVs and airboats is not expected to adversely affect resources because visits during the summer are typically low anyway because of summer heat and because vehicles would remain on designated trails. Moreover, Big Cypress National Preserve does not possess any data to support the supposition that the existing 60-day closure provides a material benefit to wildlife within the preserve. 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) have been identified to 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. These areas exhibit the highest degree of wilderness character, are the least impacted by modern human activity, and have been essentially managed as wilderness for decades. This alternative incorporates the largest polygons of eligible wilderness while excluding eligible areas that have a higher degree of need for active management over the foreseeable future. As required by NPS *Management Policies 2006*, these lands would be managed as wilderness until such time as Congress makes a determination regarding wilderness at the preserve. The remaining lands that have been found eligible but not proposed for designation pursuant to the completion of a wilderness study would be managed to preserve their eligibility for designation, but activities proposed to occur on those lands would be exempt from the requirement to complete a minimum requirements analysis. (See a discussion of the wilderness alternative development process in section 2.12.)

2.7 ALTERNATIVE 4 (PREFERRED ALTERNATIVE)

Alternative 4 is identical to alternative 3 minus the wilderness proposal. As with alternative 1 (section 2.4.8), 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 Western Addition that have been found eligible but not proposed for designation pursuant to the completion of a wilderness study would be managed to preserve their eligibility for designation, but activities proposed to occur on those lands would be exempt from the requirement to complete a minimum requirements analysis. All other elements of alternative 3 remain the same for alternative 4 (sections 2.6.1 through 2.6.7).

Big Cypress National Preserve
Alternative 4, NPS Preferred

National Park Service
Department of the Interior

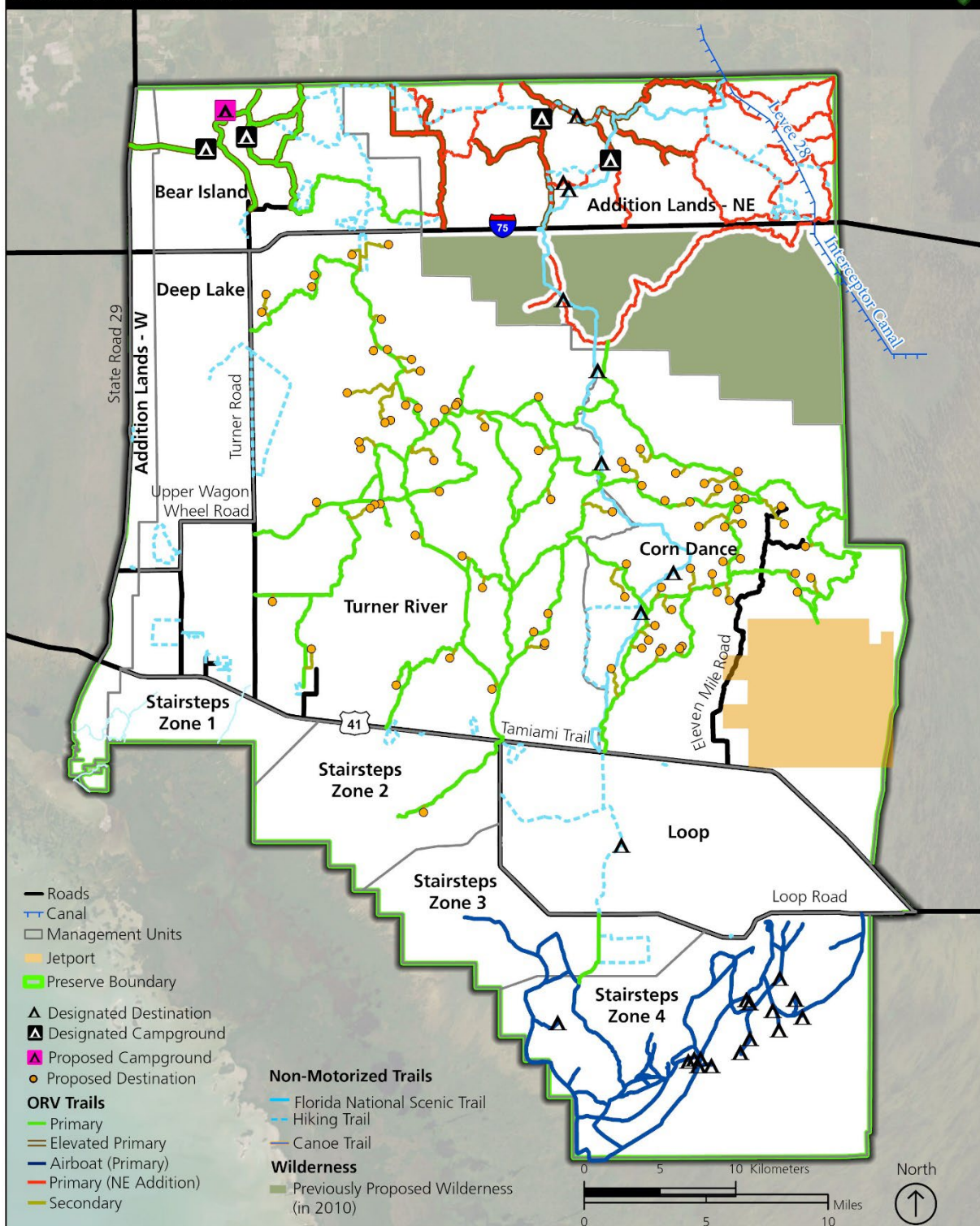


FIGURE 2-4. ALTERNATIVE 4

2.8 ACTIVITIES REQUIRED TO IMPLEMENT THE ACTION ALTERNATIVES

The implementation of actions common to all action alternatives described in section 2.3, as well as 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.

2.8.1 Reopening of Primary and Secondary ORV Trails, Airboat Trails, Nonmotorized Trails (including the FNST), and Destinations

Impacts on natural resources would be minimized by siting primary ORV trails, secondary ORV trails, and airboat trails on preexisting routes. These routes were closed under the 2000 Recreational ORV Management Plan and are proposed to be reopened under this Final Plan/FEIS. All ORV trails, airboat trails, and destinations in this Final Plan/FEIS would be sited on previously disturbed areas.

ORV trails and destinations would be reestablished by work crews using ORVs. Access would initially be from the existing primary ORV trail network. ORV trail work would commence where access to the proposed reopened trail diverges from the existing primary ORV 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 previously existing trail. 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*), the removal of trees that have a visible cavity would be avoided (see section 4.7.2 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. At destinations, NPS personnel and authorized volunteers would trim vegetation around likely tent pads, each pad estimated to be 10 feet by 20 feet (0.005 acre). No removal of trees >8-inch diameter at breast height (dbh), snags 15 feet or higher, or any trees >30 feet in height will occur. 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 ORV 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 on 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 2.10.7). 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.

Airboat trails would be reestablished from airboats, with workers using hand tools and motorized equipment such as chain saws, weed eaters, and pole saws. Vegetation would be trimmed from near the ground surface to avoid disrupting soils and root systems. Typically, vegetation in airboat trails would be trimmed within a 12-foot-wide corridor and high enough to allow for the passage of airboats. As with ORV trails, the degree of hazard removal or vegetation trimming necessary to reestablish a trail would vary on a case-by-case basis, where some trails could be reestablished with relatively little removal or trimming, and others would require extensive removal/trimming.

Many of the hiking trails in alternatives 3 and 4 would be new trails. Hiking trails would be reestablished by work crews working primarily on foot. For nonmotorized trails, vegetation would be trimmed within a 5–10-foot wide corridor using hand tools and motorized equipment, as necessary.

2.8.2 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.

2.8.3 Routine Maintenance and Adaptive Management

Trail conditions would be monitored as resources permit, 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. The stabilization of primary ORV trails 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 on 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 2.10.7).

2.8.4 Invasive Species Management

Adaptive management may require the use of herbicides to control infestations and the spread of nonnative vegetation. Actions would include the use of hand tools or mechanized equipment to remove the invasive vegetation and could include the use of herbicide to control a population and prevent the establishment and spread of invasive 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 (e.g., certified aquatic safe when working in wetlands). The long-term control and management of invasive nonnative plants is addressed by the *South Florida and Caribbean Parks Exotic Plant Management Plan* (NPS 2010b).

2.9 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.

2.10 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 Final Plan/FEIS. See also the avoidance and minimization measures for special status species set forth in section 4.7.2.

2.10.1 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 Final Plan/FEIS 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 on 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 2.7.1 and 2.7.3 and 2.9.7).

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.

2.10.2 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 2.10.4). To control potential impacts on vegetation from erosion, preserve staff would develop and distribute pamphlets to educate the public, post signs, implement erosion control measures, and install barriers.

2.10.3 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.

2.10.4 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 Executive Order 11990, "Protection of Wetlands"; the Clean Water Act; and NPS Director's Order 77-1: *Wetland Protection*. 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 on 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 ORV 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 2.9 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 ORV trails.

2.10.5 Special Status 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 (see section 2.8), would be timed to avoid sensitive periods, such as nesting or breeding seasons. This includes avoiding tree removal and limb trimming during tricolored bat pup season (May 1 to July 15) and minimizing trail maintenance activities to the greatest extent possible during tricolored bat breeding season (April 15 to August 15).

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.

Overhanging vegetation would be hand and mechanically trimmed along the trails and destinations, leaving potential suitable habitat for special status species untouched. While the removal of trees is not anticipated to be necessary to implement the trails and destinations, no trees having a visible cavity would be removed and no removal of trees > 8-inch diameter at dbh, snags 15 feet or higher, or any trees > 30 feet in height would occur. When feasible, tree trimming would be avoided on days when daytime ambient temperatures are below 40°Fahrenheit (F) to protect species.

Prior to opening any trails or destinations, qualified NPS staff will survey the area for federally listed plant species. If plants are observed, the trails/destinations would be sited to avoid the occurrence by at least 150 feet or would not be reopened. If any federally listed plant species are newly discovered after an area has been reopened, the trail would be closed. The NPS would maintain up to-date information on these species and coordinate with staff managing trail maintenance to avoid impacts on individual plants from trail maintenance activities.

In consultation with the USFWS and the FWC, 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.

Table 2-5a. Management Objectives and Desired Future Conditions: Native Plants and Animals/Ecological Integrity

Resource and Values	Management Objectives	Desired Future Conditions
Native vegetation communities and habitat	<ul style="list-style-type: none"> • Protect vegetation from disturbance outside of access points and designated trails. • Reduce the spread of invasive plants and animals. • Maintain a fire management regime that protects against undesirable wildfire. 	<ul style="list-style-type: none"> • Potential impacts on flora and fauna from backcountry use are minimized. • Campsites and trails are located in areas most resilient to potential adverse impacts. • Natural fire regimes are restored to ecosystems.
Protected species	<ul style="list-style-type: none"> • Protect and restore federal and state-listed species and their habitat. • Maintain the natural abundance and distribution of wildlife populations. • Minimize potential wildlife stressors resulting from backcountry use. 	<ul style="list-style-type: none"> • Trails avoid areas where their construction, maintenance, and use may have a detrimental effect on listed species or their habitat. • Detrimental effects on listed species and their habitat are avoided or minimized.
Soils	<ul style="list-style-type: none"> • Reduce impacts resulting from backcountry use that adversely affect natural elevation, composition, and integrity of soils. 	<ul style="list-style-type: none"> • Trails and backcountry destinations are designated in areas that offer the most suitable substrate or in areas of previous disturbance.
Air quality	<ul style="list-style-type: none"> • Maintain air quality in the preserve at a Class II level or better. 	<ul style="list-style-type: none"> • Air quality is not degraded by backcountry use.
Wilderness character	<ul style="list-style-type: none"> • Ensure the protection of wilderness character within lands eligible for wilderness designation. 	<ul style="list-style-type: none"> • 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. • 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. • To the extent practicable, components or processes of ecological systems inside lands eligible for wilderness designation are not influenced by human activities or action. • 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.

Table 2-5b. Management Objectives and Desired Future Conditions: Water Resources

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

Table 2-5c. Management Objectives and Desired Future Conditions: 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"> Protect all known and discovered cultural resources on, eligible for, or potentially eligible for listing on the National Register of Historic Places (NRHP). 	<ul style="list-style-type: none"> Known and discovered historic properties within the preserve are protected from adverse impacts from backcountry uses.

Table 2-5d. Management Objectives and Desired Future Conditions: Cultural Experiences

Resource and Values	Management Objectives	Desired Future Conditions
Ethnographic Resources	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Known and discovered Native American sacred sites are protected from impacts related to backcountry use.

Table 2-5e. Management Objectives and Desired Future Conditions: Visitor and Public Enjoyment

Resource and Values	Management Objectives	Desired Future Conditions
Trails	<ul style="list-style-type: none"> • Provide a range of resource-related recreational opportunities for visitors to explore the preserve. • Maintain the scenic quality of the preserve. • Manage adverse impacts of trails and their use on natural and cultural resources. • Provide for public safety and avoid or minimize safety hazards. • Maintain a fire management regime that allows for visitor access to backcountry. 	<ul style="list-style-type: none"> • The location of trails avoids or minimizes conflicts among backcountry users. • Trail use is managed at levels that avoid or minimize impacts on natural and cultural resources. • Trails provide visitor access to remote areas of the preserve, which allows visitors to experience unconfined nature. • Trails are located to avoid known cultural resources and minimize impacts on natural resources.
Camping	<ul style="list-style-type: none"> • Provide a range of backcountry camping opportunities and experiences. • Maintain the scenic quality of the preserve. • Avoid and minimize adverse impacts of camping on natural and cultural resources. • Provide for public safety and avoid or minimize safety hazards. 	<ul style="list-style-type: none"> • The location and design of campsites minimizes impacts on natural resources and avoids known cultural resources. • Campsite use is managed at levels that do not cause unacceptable impacts on natural resources and visitor experiences. • Location of campsites protects the scenic qualities of the preserve. • Conflicts between user groups are minimized.
Noise/Soundscapes	<ul style="list-style-type: none"> • Impacts on the natural soundscape in the backcountry are avoided or minimized. 	<ul style="list-style-type: none"> • Noise conflicts between user groups are minimized. • Preserve visitors are provided opportunities to experience natural quiet.
Aesthetic/Scenic Resources	<ul style="list-style-type: none"> • Impacts on the aesthetic / scenic quality of the preserve from the placement of trails and campsites are minimized. 	<ul style="list-style-type: none"> • Trails and campsites are designed to protect the natural aesthetic values and scenic resources of the preserve.
Hunting	<ul style="list-style-type: none"> • Provide access to a range of hunting opportunities and experiences. 	<ul style="list-style-type: none"> • Major game species in the preserve are maintained at a level consistent with natural ecological processes. • 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.

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"> • Off-trail use • Trail condition • Substrate suitability • Disturbance to adjacent habitats (vegetation and soils) • Intensity of visitor use 	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"> • Evaluation • Education • Enforcement • Clearer or additional trail markings • Temporary or permanent closure of trail (including not reopening a proposed trail due to excessive unsuitable substrates)¹ • Reduction of allowable visitor numbers for the trail and corresponding destinations (reservation system) • Adjustment in the type of vehicles allowed on trails or in the number of vehicles of a particular type allowed on trails
Trail braiding/widening/ rutting (resulting from nonmotorized use)	<ul style="list-style-type: none"> • Off-trail use • Trail condition • Substrate suitability • Disturbance to adjacent habitats (vegetation and soils) • Intensity of visitor use 	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"> • Evaluation • Education • Enforcement • Spot trail repairs/recontouring (via hand and mechanical tools if approved by regulatory agencies) • Minor rerouting of trail to more sustainable alignment. • Temporary or permanent closure of trail (including not reopening a proposed trail due to excessive unsuitable substrates)¹ • Clearer or additional trail markings • Reduction of allowable visitor numbers for the trail and corresponding destinations (reservation system)
Trail depth/rutting	<ul style="list-style-type: none"> • Off-trail use • Trail condition • Substrate suitability 	Ruts 12 inches deep observed on more than 20% of a secondary trail.	Trail depth, mainly ORV rutting, which can extend up to 2 feet in depth, can act as drainage ditches,	<ul style="list-style-type: none"> • Evaluation • Education • Enforcement

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"> Disturbance to adjacent habitats (vegetation and soils) Intensity of visitor use 	Ruts 6 inches deep observed on more than 20% of a nonmotorized trail.	channeling water and potentially altering natural water flow patterns (Leung and Marion 1996).	<ul style="list-style-type: none"> Spot trail repairs/recontouring (via hand and mechanical tools if approved by regulatory agencies) Minor rerouting of trail to more sustainable alignment Temporary or permanent closure of trail (including not reopening a proposed trail due to excessive unsuitable substrates)¹ Restrictions on vehicle clearance to limit depth of soil rutting and increase the ability of trails to sustain traffic Reduction of allowable visitor numbers for the trail and corresponding destinations (reservation system) Adjustment in the type of vehicles allowed on trails or in the number of vehicles of a particular type allowed on trails
Number of incidences of off-trail travel by motorized vehicles	<ul style="list-style-type: none"> Vegetation loss, degrading trail conditions, contact with sensitive resources, noncompliance with preserve rules and regulations 	Observed noncompliance.	The threshold is critical to preserve both natural and cultural resources.	<ul style="list-style-type: none"> Evaluation Education Enforcement Clearer or additional trail/destination markings Exclusion/closure of secondary trails, destinations, and/or area¹ Adjustment in the type of vehicles allowed on trails or in the number of vehicles of a particular type allowed on trails

Indicator	What does it indicate? What type of impact does the indicator measure?	Threshold	Justification for Threshold	Adaptive Management Actions
Natural resource impacts at destinations	<ul style="list-style-type: none"> Vegetation loss, habitat loss 	Failure to adhere to Leave No Trace principles at backcountry destinations.	This threshold would help measure impacts on natural resources resulting from visitor use.	<ul style="list-style-type: none"> Evaluation Education Reservation system for use of destination/area Exclusion/closure of secondary trails, destinations, and/or area¹ Restoration Adjustment in the type of vehicles allowed on trails or in the number of vehicles of a particular type allowed on trails
Impacts on wetlands	<ul style="list-style-type: none"> Loss or degradation of wetland function and values 	Visual observations or regulatory consultation.	Protection of wetland resources and compliance with laws and policies would be ensured.	<ul style="list-style-type: none"> Evaluation Education Exclusion/closure of secondary trails, destinations, and/or area (including not reopening a proposed trail, destination, or area)¹ Mitigation for fills/stabilization Restoration of affected area or of similar area by way of mitigation
Disturbance of special status species (2010 Addition GMP)	<ul style="list-style-type: none"> Avoidance of impacts on special status species from backcountry access and use 	Visual observations or regulatory consultation.	Potential impacts on protected species via human disturbance must be minimized.	<ul style="list-style-type: none"> Temporal or spatial exclusion/closure of secondary trails, destinations, and/or areas (including not reopening a proposed trail or destination)¹ Adjustment in the type of vehicles allowed on trails or in the number of vehicles of a particular type allowed on trails
Invasive plants (2000 Recreational ORV Management Plan)	<ul style="list-style-type: none"> Spread of invasive plants or identification of newly established growth along a trail; % of plant densities, presence of individual nonnative or invasive plants 	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	<ul style="list-style-type: none"> Education Restoration Area closure (including not reopening a proposed trail or destination)¹ Adjustment in the type of vehicles allowed on trails or in the number of vehicles of a particular type allowed on trails

Indicator	What does it indicate? What type of impact does the indicator measure?	Threshold	Justification for Threshold	Adaptive Management Actions
			balance and native species distribution.	
Documented visitor use related complaints or conflicts per area	<ul style="list-style-type: none"> Visitor conflict, competition, and/or crowding 	<p>Complaints could be written or verbal, or an observation of a conflict by a ranger.</p> <p>One substantive complaint would trigger evaluation of the conflict.</p>	Protection of visitor experiences would be ensured, and conflicts between user groups would be minimized.	<ul style="list-style-type: none"> Evaluation Education Enforcement Reservation system for selected trails and destinations Adjustment in the type of vehicles allowed on trails or in the number of vehicles of a particular type allowed on trails.
Number of substantive complaints relating to user conflicts between users on trails	<ul style="list-style-type: none"> Visitor conflict, competition, and/or crowding 	<p>Complaints could be written or verbal, or an observation of a conflict by a ranger.</p> <p>One substantive complaint would trigger evaluation of the conflict.</p>	Protection of visitor experiences would be ensured and minimize conflicts between user groups would be minimized.	<ul style="list-style-type: none"> Evaluation Education Enforcement Reservation system for selected trails and destinations Adjustment in the type of vehicles allowed on trails or in the number of vehicles of a particular type allowed on trails

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"> • Visual observation of disturbance (which includes digging, removal of resources, destruction, or social trails leading up to historic properties) • 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 • Discovery of previously undocumented cultural resources due to visitor activity in the backcountry, or a new trail formation 	<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"> • Evaluation • Education • Enforcement • Exclusion/closure of trail, destination, and/or area (including preemptive exclusion/closure)¹ • Adjustment in the type of vehicles allowed on trails or in the number of vehicles of a particular type allowed on trails

¹ If a trail is closed for any reason, the preserve would not necessarily open a different trail to bring the system mileage back to levels described in this Final Plan/FEIS. Any different trails would be evaluated on a case-by-case basis through separate compliance efforts.

2.10.6 Natural Soundscapes

Standard noise abatement measures would be followed during trail and destination improvements, reopening, and maintenance. The use of heavy equipment, including chainsaws, will cease 30 minutes prior to sunset. 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).

2.10.7 Cultural Resources

The NPS will make reasonable and good faith efforts to avoid and, when unavoidable, minimize any potential adverse effects on historic properties (as defined in 36 CFR 800.16) from any actions taken under the Final Plan/FEIS. All minimization measures will be consulted on with the consulting parties as identified in the Programmatic Agreement for the Final Plan/FEIS (see appendix G). If the NPS determines that actions taken under the Final Plan/FEIS may have an adverse effect on one or more historic properties, the NPS will follow the procedures outlined in 36 CFR 800.6 for the resolution of adverse effects, which includes consultation with the state historic preservation office (SHPO), Native American Tribes, and other consulting parties to develop a Historic Properties Treatment Plan that will detail the measures that the NPS will implement to mitigate adverse effects on historic properties. (Note that this Final Plan/FEIS is not intended to constitute joint NEPA and section 106 compliance; rather, preserve staff have prepared a cultural resources assessment and have consulted separately with the SHPO and Tribal representatives (see appendix G).

In addition to adhering to the legal and policy requirements for cultural resources protection and preservation, the NPS 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 Programmatic Agreement among the NPS, Advisory Council on Historic Preservation, and National Council of State Historic Preservation Officers (2008 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 cultural resource management 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 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 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.

2.11 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.

2.12 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.

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

- All NPS lands will be evaluated for their eligibility for inclusion in the national wilderness preservation system. (6.2.1).
- Lands will 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 will 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 will 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 will 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 will develop and maintain a wilderness management plan or equivalent planning document. (6.3.4.2).

As part of the present backcountry access planning effort, a wilderness study was conducted to identify which parts of the original preserve, if any, should be proposed for wilderness designation by Congress. The NPS does not have the authority to designate wilderness. Only Congress has the authority to do so.

Through the study, the NPS evaluates lands that have previously been found eligible for wilderness to decide which lands the NPS director may consider for a formal proposal in the future. The wilderness study serves as the basis for any wilderness recommendation that the president may then submit to Congress, should they 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 Final Plan/FEIS.

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 NPS. 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.

Wilderness at the preserve would be managed in such a way as not to infringe on the usual and customary use and occupancy of preserve lands by the Miccosukee Tribe of Indians of Florida and the Seminole Tribe of Florida. Section 5 of the preserve’s enabling legislation expressly provides that

Notwithstanding . . . any other provision of this Act, 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, including hunting, fishing, and trapping on a subsistence basis and traditional tribal ceremonials.

The NPS considers that Tribal members may use motor vehicles and other traditional forms of mechanical transport on preserve lands pursuant to the Tribes’ rights of usual and customary use and occupancy, as guaranteed by the statute.

NPS staff would work cooperatively with the State of Florida and the USFWS (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, law enforcement activities, and all aspects of the South Florida ecosystem restoration program, including but not limited to the Comprehensive Everglades Restoration Plan.

2.12.1 Wilderness Eligibility Assessment

In 2015, an interdisciplinary team comprising NPS staff from the preserve, the NPS Denver Service Center, the Southeast Regional Office, and agency partners evaluated the original preserve for wilderness eligibility. A memorandum to the NPS director was prepared 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 NPS 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* (2011b), a more detailed analysis and intensive review of the lands found eligible for wilderness designation was carried out by the NPS. This process took place during the Preferred Alternative Workshop held in June 2016. During the workshop, an 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 Student Conservation Association work crews during summer 2015
- Public feedback on the 2015 Wilderness Eligibility Assessment
- Input from 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 for designation as wilderness. In addition, some previously identified wilderness-eligible polygons decreased in size, because of more detailed analysis. However, the majority of polygons increased in size. Specifically, some trail corridors on maps and in geospatial files that were carved out of polygons in the 2015 Wilderness Eligibility Assessment were restored when further review showed either no obvious signs of a trail on the ground or that 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 NPS 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 because they have wilderness character and adjoin eligible lands 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 Final Plan/FEIS as appendix E.

2.12.2 Developing Wilderness Alternatives

After examining eligible wilderness areas in the preserve, the NPS considered different wilderness alternatives using a variety of considerations, including the following:

- elements of wilderness character (untrammeled, 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.

2.13 THE NATIONAL PARK SERVICE PREFERRED ALTERNATIVE

Alternative 4 is the preferred alternative of the NPS because it: (1) calls for increased visitor access for both motorized and nonmotorized uses, (2) achieves the best balance between increased public access and substrate sustainability, and (3) is responsive to the concerns expressed by the Seminole and Miccosukee Tribes during Tribal consultation. Both alternatives 3 and 4 would best meet the Final Plan/FEIS need and objectives by dispersing visitor use among an increased number of primary ORV, secondary ORV, and airboat trails and destinations, thereby enhancing safety, especially during hunting season, and increasing visitor use and enjoyment. Alternatives 3 and 4 would also meet the Final Plan/FEIS objective of establishing a primary ORV trail connection between the original preserve and the Addition.

Like alternative 3, alternative 4 would expand the preserve's trail systems, and the consequent visitor use, while avoiding impacts on 99.9% of the preserve. The trail system described in both alternatives is large enough to provide access to many of 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, the trail system concentrates use on resilient and highly resilient substrate types and minimizes impacts on least resilient to unsuitable substrates. The trail system would also provide more total area for dispersed camping, which would reduce the adverse impact intensity at destinations.

The distinction between alternative 3 and alternative 4 is that alternative 4 does not include a wilderness proposal. This distinction is responsive to concerns articulated by the Seminole and Miccosukee Tribes during Tribal consultation, in particular, their concerns that a wilderness proposal would risk the exclusion of Tribal members from accessing ceremonial grounds by motorized means. Alternative 4 is also responsive to concerns raised about having the flexibility to address resource management issues. Though no wilderness would be proposed under this alternative the wilderness study helped inform the NPS about where to place certain activities, such as ORV use, in a way that is sustainable over the long term without affecting the integrity of the most delicate and primitive areas of the preserve.

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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 by implementing 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 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 I: 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. 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 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 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.

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, hardwood 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 hardwood hammocks (Ewel 1990; Kushlan 1990).

Seven major vegetation communities can be found in the preserve: (1) cypress systems, (2) freshwater forested wetlands, (3) freshwater nonforested wetlands (including prairies and marshes), (4) shrublands, (5) pine flatwoods, (6) hardwood hammocks, 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

Vegetation Community	Typical Vegetation/Community Type	Percentage of Cover within the Preserve
Cypress ¹	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 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 ¹	Cypress, red bay, sabal palm, pond apple, laurel oak	1.44
Marine and estuarine vegetated wetlands ¹	Mangroves	1.41

Vegetation Community	Typical Vegetation/Community Type	Percentage of Cover within the Preserve
Disturbed	Brazilian pepper, melaleuca, Java plum, other nonnatives, spoil area, roadway	.66
Water	Water	.13
TOTAL	—	100

¹ These vegetation communities are described in more detail in section 3.3.

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 Final Plan/FEIS. The remainder of the preserve comprises a mosaic of habitats, including pine flatwoods, hardwood hammocks, and disturbed areas. See “Appendix I: Affected Environment Reference Map.”

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, the introduction of nonnative species, earth moving, drainage alteration, the alteration of the chemistry of water or soils, or facility construction. Community succession has been altered in disturbed areas. Soils in disturbed areas differ by location 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 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*) has been identified as an invasive species of concern; however, 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 I). The 1991 GMP/EIS includes a comprehensive description of the vegetation resources within the preserve (Welch et al. 1999). The trails and destinations proposed in this Final Plan/FEIS occur in or near the following wetland community types: cypress, freshwater forested wetlands, prairie, marsh, and mangrove. 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 in the preserve 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 in the preserve, making up 45% of the preserve's total area.

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. The depression, located 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 these areas have soils that are more marginal, have lower water levels, and are more frequently susceptible 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 and remove peat, while generally leaving 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 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 Nonforested Wetlands: Marsh

Since the preparation of the 1991 GMP, the classification of marshes in the preserve has been changed to be consistent with the vegetation classification accepted throughout south Florida. Under the new classification of Welch et al. (1999), marshes now include many of the areas previously identified as prairies (appendix I 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-leafed 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 and airboat 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 damages mangrove leaves and small branches. The alternatives presented in this environmental impact statement do not include ORV trails, airboat trails, or destinations that extend into the mangrove forest.

3.4 SPECIAL STATUS SPECIES

The term “special status species” refers to species listed under federal and state statutes, as well as 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 NPS strives to meet fully its obligations under the Organic Act of 1916 (54 USC 100101) and the Endangered Species Act to both proactively conserve federally listed species and prevent detrimental impacts on these species.

3.4.1 Animals

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:

- USFWS consultation areas:
 - 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
 - Tricolored bat (*Perimyotis subflavus*) – proposed 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
 - Florida sandhill crane (*Antigone canadensis pratensis*) – ST
 - White-crowned pigeon (*Patagioenas leucocephala*) – ST
 - Least tern (*Sternula antillarum*) – ST
 - Roseate spoonbill (*Platalea ajaja*) – ST

- USFWS critical habitat for the West Indian manatee (*Thichechus manatus*) – FT
- USFWS proposed critical habitat for Florida bonneted bat (*Eumops floridanus*) – FE
- 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 animal 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 FWC 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 Final Plan/FEIS are described in more detail below. The FWC 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, Everglades mink, Florida sandhill crane, white-crowned pigeon, least tern, or roseate spoonbill; 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 the following: 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 NPS 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 USFWS in 1967. 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 USFWS, 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 Highway 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 USFWS in 1967. Critical habitat was designated by the USFWS 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 Highway 29 and the Highway 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. A petition to the USFWS to revise the critical habitat for the manatee was issued in 2009, and the USFWS concurred that revision of the critical habitat was warranted. On April 5, 2017, the USFWS reclassified the West Indian manatee from endangered to threatened under the Endangered Species Act. However, the USFWS has not yet moved forward with redesignation of critical habitat areas.

3.4.4 Florida Bonneted Bat

The Florida bonneted bat (*Eumops floridanus*) is the largest species of bat in Florida; 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. 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 in developed areas. It roosts in cliff crevices, tree cavities, and buildings. It is present in rural areas, as well as residential and urban areas. This species was listed as endangered by the USFWS in 2013. On November 22, 2022, the USFWS proposed that roughly 70% of the preserve be designated critical habitat for this species (USFWS 2022c).

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 associated development and agriculture are major threats to this species. 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 six roost sites have been identified. General range information can be found at <https://ecos.fws.gov/ecp/species/8630>.

3.4.5 Tricolored Bat

The tricolored bat (*Perimyotis subflavus*) is one of the smallest bats native to North America. The species is distinguished from other bats by its unique tricolored fur, which is dark at the base, lighter in the middle and dark at the tip. Tricolored bats feed on small insects including caddisflies, moths, beetles, wasps, flying ants and flies. They emerge in early evening and forage at or above treetop level but may forage closer to the ground later in the evening. The species is known to forage most commonly over waterways and forest edges (*Federal Register* 2022a).

During the winter, the species hibernates in caves and mines, although in the southern United States, where caves are sparse, tricolored bats often hibernate in road-associated culverts, as well as sometimes in tree cavities and abandoned water wells. During non-hibernating seasons (spring, summer and fall), tricolored bats are found in forested habitats, where they roost among live and dead leaf clusters of live or recently dead deciduous hardwood trees. In the southern portion of its range, the species can also be found roosting in Spanish moss (*Tillandsia usneoides*). Additionally, during the summer, tricolored bats have been observed roosting among pine needles, eastern red cedar (*Juniperus virginiana*), within barns, and beneath porch roofs, bridges, and concrete bunkers. Females typically return to the same summer roosting locations year after year, form maternity colonies, and switch roost trees regularly, while males roost singly (*Federal Register* 2022a).

The fungal disease white-nose syndrome has led to 90 to 100% declines in tricolored bat winter colony abundance at sites impacted by the disease. Since white-nose syndrome was first observed in New York in 2006, it has spread rapidly across the majority of the tricolored bat range, causing potential extinction (*Federal Register* 2022a). The USFWS proposed to list the tricolored bat as endangered under the Endangered Species Act on September 14, 2022 (*Federal Register* 2022a). The species is present throughout the preserve.

3.4.6 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 USFWS 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.

3.4.7 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 USFWS 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 USFWS in 1977. No critical habitat is found within the preserve; however, the eastern boundary of the preserve directly abuts the western boundary of designated critical habitat. The preserve contains abundant suitable habitat and forage area within its vast prairies and marshes for this species.

3.4.8 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 USFWS 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.

3.4.9 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 USFWS 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. In this Final Plan/FEIS, trails and destinations were assessed for potential impacts on wood storks if they are proposed within 1,000 feet from active wood stork colonies.

3.4.10 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 USFWS 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.

3.4.11 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 USFWS. Critical habitat was designated by the USFWS 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.

3.4.12 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.

3.4.13 Red-Cockaded Woodpecker

The red-cockaded woodpecker (*Picoides borealis*) 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 USFWS 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 elliotii*) 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.

3.4.14 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 USFWS by a rule under authority of section 4(d) of the Endangered Species Act. Under rule 4(d), incidental take of this species resulting from long-term or permanent conversion, fragmentation, or damage of 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.

3.4.15 Special Status Wading Birds

Two 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. 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.

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 FWC 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).

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.

Plants

Special status plant species include those species that are listed under the federal Endangered Species Act of 1973, as amended (16 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, 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 (*Federal Register* 2017). 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 ¹ Federal	Designated Status ¹ State
Federally Listed Species			
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 bluethread	<i>Burmannia 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

Common Name	Scientific Name	Designated Status ¹ Federal	Designated Status ¹ State
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
Giantspiral 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: Pernas, pers. comm., 2016

¹ — = not listed; E = endangered; T = threatened; CE = commercially exploited

3.4.18 Everglades Bully

On October 6, 2017, the Everglades bully (*Sideroxylon reclinatum* ssp. *austrofloridense*) was listed by the USFWS under the Endangered Species Act as threatened. This species is also protected by the State of Florida. Critical habitat for the Everglades bully was proposed on October 14, 2022 (*Federal Register* 2017, 2022b).

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 USFWS identified several threats to the continued existence and risks to the species viability, including ORV use. The NPS would avoid potential impacts on this species by siting proposed trails and destinations at least 150 feet from any observance of this plant species. If unavoidable, the trail/destination would not be reopened. Additionally, if the presence of this species is discovered after an area has been reopened, the trail would be closed.

3.4.19 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 for the Florida prairie clover was proposed on October 14, 2022 (*Federal Register* 2017, 2022b).

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 and at 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 or airboat 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 USFWS 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 NPS would avoid potential impacts on this species by siting proposed trails and destinations at least 150 feet from any observance of this plant species. If unavoidable, the trail/destination would not be reopened. Additionally, if the presence of this species is discovered after an area has been reopened, the trail will be closed.

3.4.20 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 for the Florida pineland crabgrass was proposed on October 14, 2022 (*Federal Register* 2017, 2022b).

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). 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 ORV trail in Stairsteps Zone 3. It may also be located along the hiking trail east of Pace's Dike.

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). Florida pineland crabgrass has been found to be most abundant with grasses and sedges.

Similar to the other two species discussed above, the USFWS identified a number of threats to the continued existence and risks to the species viability, including ORV use. The NPS would avoid potential impacts on this species by siting proposed trails and destinations at least 150 feet from any observance of this plant species. If unavoidable, the trail/destination would not be reopened. Additionally, if the presence of this species is discovered after an area has been reopened, the trail will be closed.

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 the imprint of human activities are substantially unnoticeable. According to NPS Director's Order 41, 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 by refraining from the use of motorized equipment and mechanical transport. 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 in sections 1.3.2, 2.12, and 2.13). 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 Northeast Addition as wilderness (see section 1.3.2). By policy, the NPS 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 NPS 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 2010a). In the 1970s and 1980s, the primary visitors to the preserve were hunters, ORV users, and owners of improved properties (NPS 2010a). 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 2010a).

According to the Addition GMP, 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 22 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 and airboats are a practical way to access the preserve's interior, and thus, ORV and airboat use is a traditional, popular recreational activity. Several types of ORVs are used to access the backcountry, including street-legal four-wheel-drive vehicles (4x4s), lightweight all-terrain vehicles, utility task vehicles, and swamp buggies. Motorcycles and other two-wheeled, motorized vehicles are not permitted in the backcountry.

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

Obtaining an ORV/airboat 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/airboat operator course before an operator permit can be issued. Lastly, ORV/airboat operators must also purchase an annual ORV/airboat permit (currently \$100 annually) to be displayed on the inspected vehicle. The vehicle permit is required for recreational ORV/airboat 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 NPS maintains a record of applicant and ownership information for each permitted ORV/airboat. Vehicle operators are responsible for knowing NPS regulations that apply to ORV/airboat use in the preserve.

Within the original preserve, ORV/airboat permit numbers have generally declined over recent years, going from a high of 2,000 in 2010 to a low of 1,042 in 2018. (1,253 permits were issued in 2022, the latest year for which figures are available.) Fluctuations in the number of ORV permits issued each year results in part from 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 2010a).

Management of ORVs and airboats in the original preserve is guided by the 2000 Recreational ORV Management Plan (NPS 2000a). The management of ORVs in the Addition is guided by the Addition GMP. ORV use by the general public is currently prohibited in the Addition; however, under the Addition GMP, the NPS anticipates phasing such use in over time (NPS 2010a) and expects to designate up to 130 miles of primary ORV trails and issue 650 ORV permits in the Addition.

There is an extensive network of primary ORV and airboat trails in the original preserve (table 3-4). No secondary ORV trails are currently open. There are 15 ORV and airboat 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 and Airboat Trails
Bear Island Unit	21 (ORV)
Corn Dance Unit	65 (ORV)
Deep Lake Unit	—
Loop Unit	—
Stairsteps Zone 1	—
Stairsteps Zone 2	6 (ORV)
Stairsteps Zone 3	3 (ORV and airboat)
Stairsteps Zone 4	58 (ORV and airboat)
Turner River Unit	124 (ORV)
Western Addition	1 (ORV)
TOTAL	278 (ORV and airboat)

3.6.2 Camping

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 <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?¹	Electrical Hookups?	Restroom?	Fee (current, per night)
Bear Island (primitive)	40 Tent	Varies: campsites 1–12 are open year-round. Sites 13–40 are open August 15 – 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
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

¹ 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 currently 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.

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 undeveloped 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.

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 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 NPS permits hunting by the public in accordance with state laws and regulations. The NPS and the FWC have concurrent jurisdiction for enforcing game and fish laws in the preserve. Similarly, although the NPS has authority to manage wildlife in the preserve, the NPS cooperatively manages the Big Cypress Wildlife Management Area along with the FWC. The FWS 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 FWC consults with the NPS and

USFWS before issuing regulations that affect hunting within the preserve. Likewise, the NPS consults with the USFWS before establishing any temporary or permanent closures or public use limits.

Hunting regulations within the preserve are outlined in the FWC 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 FWC. 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 2021b). The FWC and the NPS 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 cross 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 2010a).

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 (nonmotorized) trails available for visitors in the preserve, most of which are south of US Highway 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 2010a). Waterways in the preserve 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, plus 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 FWC, which serves as the state boating law administrator, and the US Coast Guard. All vessels must comply with applicable federal and state laws (NPS 2010a). 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 visitor's 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 NPS 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 (54 USC 100101). Per *NPS Management Policies 2006* and NPS Director's Order 47, the NPS seeks to preserve natural soundscapes and restore degraded soundscapes whenever possible. The NPS 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 2010a). Sound levels are usually measured and expressed in decibels 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 2010a). Vehicle noise levels (for both on-road vehicles and ORVs/airboats) 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 Final Plan/FEIS 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 2010a). 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
Thunder	100–120
Gunfire	150–170

Sources: NPS 2013, 2011c

There are about 278 miles of motorized trails where ORV and airboat 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 on 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 on natural soundscapes. ORV/airboat users must procure permits for backcountry trips, and if the NPS temporarily closes certain areas of the preserve for safety or resource protection reasons, ORV/airboat users must not operate in closed areas (NPS 2000a). These policies ensure that ORV/airboat users can use the preserve while limiting impacts on the natural soundscape.

There are about 56 miles of airboat trail in Stairsteps Unit Zone 4 and 1 mile in Zone 3 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 on 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 20th 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 ceremonies."

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*. 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 Final Plan/FEIS 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 archeological investigation is conducted to identify potentially eligible cultural resources that could be affected by the destinations and trails. See appendix G.

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 NPS, 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.

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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 three 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, NPS 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 (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 on 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.

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 pre-disturbance 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 NPS 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 USFWS 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 on the species. Insignificant effects relate to the size of the impact and are not anticipated to 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 on occur.
- **May affect, likely to adversely affect:** The appropriate finding in a Biological Assessment (BA) (or conclusion during consultation) if an adverse effect on 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

This Final Plan/FEIS is not intended to constitute joint NEPA and section 106 compliance. Rather, preserve staff have prepared a cultural resources assessment and has consulted separately with SHPO and Tribal representatives. As part of the consultation process, the NPS has developed a Programmatic Agreement pursuant to 36 CFR 800.14(b)(3) to adopt a phased approach to compliance with section 106 of the National Historic Preservation Act (NHPA) (see appendix G). This Programmatic Agreement

would be administered as part of planning for and before any undertakings authorized under the Backcountry Access Plan EIS Record of Decision.

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

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 on 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 on 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. The summary 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 NPS 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* (CEQ 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 each of 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 and SFWMD contractors and NPS authorized agents became authorized to use primary ORV and passable secondary ORV trails for python management activities (administrative access).
- The ORV Management Plan for the preserve, completed in 2000, prescribes designated ORV and airboat trails, as well as established parking/staging areas for ORV/airboat users. The ORV Management Plan established maximum trail mileages within each management unit. To provide a broader range of backcountry access, this Final Plan/FEIS uses the framework provided in this document to propose additional mileage to the current network of primary ORV and airboat trails, establish the secondary trail network, and 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 from the plan such as fire management and nonnative species controls are discussed in this Final Plan/FEIS.
- 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 2010a). 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 Final Plan/FEIS.
- 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 will occur as funding becomes available. Trailhead and turn lane construction would involve filling of wetlands and onsite mitigation by wetland restoration.
- In 2006, the NPS 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 confirm the impacts of ORV and airboat 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 and airboat 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 (Yamatagi 1994). ORVs and airboats 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 NPS 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 NPS. 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 and airboat 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 and airboat 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 and airboat use and backcountry camping would be the main actions causing impacts on soils. Many preserve users access backcountry areas by ORV and airboat, 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 the implementation of adaptive management actions (table 2-6) and natural ecological processes (such as wind and rain). Impacts on 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 time frames that ORV impacts could recover under the same conditions.

Across all 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 ¹ Alt. 1	Highly Resilient to Resilient ¹ Alt. 2	Highly Resilient to Resilient ¹ Alt. 3 & 4	Least Resilient to Unsuitable ¹ Alt. 1	Least Resilient to Unsuitable ¹ Alt. 2	Least Resilient to Unsuitable ¹ Alt. 3 & 4
Primary ORV trails (miles)	181 ¹	181 ¹	192	40 ¹	40 ¹	44
Airboat trails	57 ¹	57 ¹	95	0 ¹	0 ¹	0 ⁵
Secondary ORV trails (miles)	0 ³	14	48	0 ³	1	5
Nonmotorized trails (miles)	54 ¹	58 ²	130 ²	10 ¹	11 ²	55 ²
Number of existing backcountry destinations	22	21	22	3 ⁴	3 ⁴	3 ⁴
Number of proposed backcountry destinations	0	23	81	0	1 ⁴	6 ⁴

Notes: Mileage within this table is 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.

¹ Includes existing trails. There are no proposed trails under this alternative.

² Includes both existing and proposed trails.

³ There are currently no designated secondary ORV trails.

⁴ 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.

⁵ Less than 0.5 miles.

The majority of trails and all destinations are located in highly resilient to resilient substrates, thereby minimizing impacts on 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. Alternatives 3 and 4 have 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 ORV, secondary ORV, and airboat trails to establish the percentage of cover within the preserve, as summarized in table 4-2. Overall, the amount of primary, secondary, and airboat trails traversing least resilient to unsuitable substrates increases somewhat between the no-action alternative and alternatives 3 and 4 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 ¹ Alt. 1	Highly Resilient to Resilient Alt. 2	Highly Resilient to Resilient Alt. 3 & 4	Least Resilient to Unsuitable ¹ Alt. 1	Least Resilient to Unsuitable ¹ Alt. 2 1	Least Resilient to Unsuitable ¹ Alt. 3 & 4
Primary ORV and airboat 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	0.01	N/A	.0002	.001

4.4.2 Impacts of Alternative 1

Direct and Indirect Impacts. The system of primary ORV and airboat trails, comprising 278 miles of existing trails, would remain unchanged and no secondary ORV trails would be opened. The existing primary ORV and airboat trails generally traverse highly resilient soil substrates. Less than 5% of the existing primary ORV trails would need periodic stabilization (on an as-needed basis) using lime rock and geotextiles. Primary ORV and airboat trail mileage that occurs in least resilient to unsuitable soils (44 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 pre-disturbance 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 (ORV and airboat) 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 ORV trail and airboat 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 Zone 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 on 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 ORV trails have already been substantially disturbed by trail stabilization and ORV use, and any impacts on 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 0.06% 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 system of primary ORV and airboat trails 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 system of primary ORV and airboat trails (over 85%) traverses resilient to 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 0.75 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 0.001% of the topsoil in the preserve. Visitor use of nonmotorized 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 on a smaller, more resilient total area.

Because there would be 15 miles of reopened secondary trails in this alternative, impacts on 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 to reopen any airboat trails, so impacts on 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 2006*, 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 and airboat trails, would only affect about 0.06% of the preserve. In all, adverse impacts would occur along primary ORV, secondary ORV, and airboat 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 on soils.

4.4.4 Impacts of Alternative 3 (Proposed Action) and Alternative 4 (Preferred Alternative)

Direct and indirect impacts. The discussion of impacts associated with alternatives 3 and 4 have been combined, as most of the elements of the alternatives are the same, with the exception being the presence/absence of a wilderness proposal. The impact of this distinction is discussed at the end of this section.

The system of primary ORV and airboat trails would be expanded by 53 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 3 miles in least resilient to unsuitable substrate.

The reopened secondary trail system would be 53 miles longer than under the no-action alternative; about 48 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 on 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 2.7 linear miles or 5% of the proposed 53 secondary trail miles.

The types of adverse impacts on soils required to reopen and maintain 106 miles of additional primary ORV, secondary ORV, and airboat trails are the same as those discussed in alternative 2. Overall, these impacts would affect about 5.8 linear miles: 5 linear miles in highly resilient to resilient substrates, and .80 linear mile in least resilient to unsuitable substrates.

The impacts associated with the 8-mile realignment of the FNST are the same as discussed under alternative 2 and would affect 0.08 linear mile of realigned trail. 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 additional 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).

Alternatives 3 and 4 incorporates 87 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 on 0.435 acre (0.005 acre/site × 87 sites). Effects from both existing and proposed destinations combined (107 total sites) would be about 0.54 acres of the original preserve.

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 reopening of an additional 14 miles of primary ORV trail, 39 miles of airboat trail, and 53 miles of secondary trail could result in additional impacts on soils from bicycle and airboat use. Impacts from bicycle and e-bike use on ORV trails 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 ORV trails, which are already disturbed. Impacts on 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 on 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.

Wilderness impacts of alternatives 3 and 4. 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 on soils would be beneficial, but less than under alternative 2. This additional protection provided by a wilderness proposal would be excluded from alternative 4; therefore, authorizing mechanized and motorized use in these areas would be seemingly easier compared to alternatives 2 and 3, leaving soils open to threat from such use.

Conclusion. The reopening of an additional 14 miles of primary ORV trail, 39 miles of airboat trail, and 53 miles of secondary ORV trail—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 and airboat trails, would affect an area totaling 22 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 0.08% of the preserve would be affected). Use of 24 existing and 87

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 on soils. Designating 147,910 acres of the original preserve and adjoining Western Addition as wilderness under alternative 3 would preserve soil conditions in those areas as well as the natural ecological functions required to maintain soil productivity. Alternative 4 would not include the added long-term protections provided by a wilderness proposal, but these areas would continue to be managed to preserve their wilderness eligibility.

4.4.5 Cumulative Impacts

Implementation of the ORV Management Plan (NPS 2000a) has minimized impacts on soils throughout the preserve. Impacts, such as rutting, channeling, and soil displacement, were substantially reduced with the implementation of the primary ORV and airboat trail network and the elimination of dispersed ORV and airboat 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 fairly 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 on 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 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 ORV and airboat trail network for vehicular 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 use of ORVs and airboats. When looked at collectively, these management actions have contained adverse vehicular impacts on 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 Final Plan/FEIS, 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 alternatives 3 and 4 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 ORV and secondary ORV trails traversing least resilient to unsuitable substrates stays roughly constant across the four alternatives and

constitutes less than 0.1% of the preserve. These adverse impacts would be partially offset by the beneficial impacts of designating 25% (alternative 3) to 32% (alternative 2) of the original preserve and Western Addition 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 and sloughs, freshwater forested wetlands, shrublands, 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; the current section focuses on impacts on wetlands vegetation and hydrology. Impacts on upland vegetation and habitat are discussed in section 4.6. Impacts on wetland dependent special status species are discussed in section 4.7.

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 NPS would obtain the requisite permits before construction.

Spot stabilization on primary ORV 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 reopened sections of primary ORV trail in alternatives 3 and 4 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, and shrublands) 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 strand 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 near strands would be to cross through the strand, rather than travel 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 tire lanes. Hyssop (*Bacopa* sp.) and bladderwort (*Utricularia* sp.) were common in 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.

Vehicular use has been shown to alter marsh plant composition and structure. Duever et al. (1981, 1986a, and 1986b) described effects of ORV and airboat 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 vehicular 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 vehicular 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 NPS 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 on 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 ¹ Alt. 1	Herbaceous Wetlands ¹ Alt. 2	Herbaceous Wetlands ¹ Alt. 3 & 4	Forested Wetlands Alt. 1	Forested Wetlands Alt. 2	Forested Wetlands Alt. 3 & 4
Primary ORV trails (miles)	20	20	21	87	87	93
Airboat trails (miles)	43	43	59	14	14	32
Secondary ORV trails (miles)	0	0 ²	2	0	3	16
Nonmotorized trails (miles)	4	5	34	33	36	83
Existing backcountry destinations	5	5	5	6	6	6
Proposed backcountry destinations	0	0	2 ¹	0	4	12

Notes: "Herbaceous wetlands" includes prairies and marshes. "Forested wetlands" includes cypress systems, freshwater forested wetlands, and shrublands. Mileage within this table is 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.

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

² Less than 0.5 miles.

Overall, table 4-3 shows the increases in trail mileage and number of destinations in herbaceous and forested wetlands between alternative 1 and alternatives 3 and 4, based on GIS data. For both alternative 2 and alternatives 3 and 4, the mileage of primary ORV trails is greater in forested wetlands than in herbaceous wetlands. The opposite is true for airboat trails: for both alternative 2 and alternatives 3 and 4, the mileage of airboat trails is greater in herbaceous wetlands than in forested wetlands. In alternative 2, there would be 0.09 mile of reopened secondary trail in herbaceous wetlands and 3 miles of reopened secondary trail in forested wetlands. In alternatives 3 and 4, there would be 2 miles of reopened secondary trail in herbaceous wetlands and 16 miles of reopened secondary trail in forested wetlands. Alternatives 3 and 4 would have about 34 miles of nonmotorized trail miles in herbaceous wetlands and 83 miles in forested wetlands.

To provide spatial perspective, ORV and airboat trail acreage was calculated using trail length and an average 12-foot width (for primary ORV trails, secondary ORV trails, and airboat trails). This average, as expanded to 20 feet to account for areas of rutting and braiding (see the alternatives section below), was used to establish the acreage of wetlands in the original preserve covered by trails. (The primary, secondary, and airboat trails that would be reopened by this Final Plan/FEIS 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 Alt. 1	Herbaceous Wetlands Alt. 2	Herbaceous Wetlands Alt. 3 & 4	Forested Wetlands Alt. 1	Forested Wetlands Alt. 2	Forested Wetlands Alt. 3 & 4
Primary ORV trails (acres)	30	30	31	127	126	135
Airboat trails	62	62	86	19	20	48
Secondary ORV trails (acres)	0	0 ¹	3	0	5	47

Notes: "Herbaceous wetlands" includes prairies and marshes. "Forested wetlands" includes cypress systems, freshwater forested wetlands, and shrublands. Acreage within this table is rounded to the nearest whole acre and describe trails only.

¹ Less than 0.5 acres.

Table 4-4 shows that the acreage of herbaceous wetlands affected by primary ORV and airboat trails increases between alternatives 1 and 3. However, the largest acreage affected (117 acres) is only about 0.09% of herbaceous wetlands in the preserve. The acreage of herbaceous wetlands affected by secondary trails likewise increases between alternative 1 and alternative 3 and 4, but at a smaller scale. In alternative 2, secondary trails would affect only 0.13 acre of herbaceous wetlands, while in alternatives 3 and 4, secondary trails would affect only 3 acres of herbaceous wetlands. The largest acreage affected by secondary trails (3 acres) is only .002% of herbaceous wetlands in the 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, 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 on 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 on 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 on wetlands are expected to be small. Any impacts on 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. Regular airboat use on trails can adversely affect wetland vegetation over the long term 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. However, airboat use would have little impact on wetland substrates so long as use took place at water depths authorized in the Superintendent's Compendium. Off-trail use of airboats is not a major problem, but any such use would contribute additional, temporary, adverse impacts.

4.5.2 Impacts of Alternative 1

Direct and indirect impacts. The existing system of primary ORV and airboat trails, which comprises 278 miles, would remain unchanged under alternative 1; no secondary ORV trails would be opened. The existing system of primary ORV and airboat trails traverses mostly highly resilient to resilient substrates, 101 miles of which support forested wetland communities that are not as vulnerable to impacts by ORV and airboat use as herbaceous wetland communities. The general use of designated primary ORV 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). 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 63 miles of the existing network of primary ORV and airboat trails that would continue to traverse marsh and prairie wetlands, the wetland communities most susceptible to adverse impacts by ORV use. Along the primary ORV 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. Where the primary ORV trails traverse herbaceous wetland communities, 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 11 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 Unit Zone 4 (airboat users in Zone 4 would be required to use designated campsites). Camping would continue to result in adverse impacts on 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 11 designated backcountry campsites in wetlands, the combined adverse impacts on wetlands would affect about 0.06 acre.

Cypress Strands and Domes, Sloughs, Freshwater Forested Wetlands, and Shrublands — Under alternative 1, approximately 87 miles of primary ORV trails and 14 miles of airboat trails traverse forested wetlands. Forested wetlands comprise cypress strands and domes, sloughs, freshwater forested wetlands, and shrublands and contain the greatest mileage of primary ORV trails both through them and around their margins. Adverse impacts from ORV, airboat, and other 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 ORV and airboat trail corridors would experience these harmful impacts, totaling 5 miles or roughly 12 acres. Total acres of forested wetlands affected by ORV and airboat trails would be about 146 acres. Existing nonmotorized trails would affect an additional 20 acres of forested wetlands.

Six 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 0.03 acres 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 network of primary ORV trails traverses approximately 20 miles of prairies and/or marshes. Airboat trails cover an additional 43 miles. 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 primary ORV and airboat 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 primary ORV and airboat trails would be about 92 acres. Existing nonmotorized trails would affect an additional 4 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 reducing 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, airboat trails, nonmotorized trails, and campsites would continue to disturb wetlands. Visitor use, particularly ORV and airboat 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 97 acres, or 0.06%, of the herbaceous wetlands in the preserve. Adverse impacts on forested wetlands would be greater, consisting primarily of vegetation trampling and reduction in vegetation diversity, and would affect 186 acres, or about 0.04%, 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 0.06 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 system of primary ORV and airboat trails would be the same as under the no-action alternative, with the same impacts.

Alternative 2 would include 3 miles of proposed secondary ORV trails in forested wetlands and 0.09 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 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 secondary 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, or 0.15 mile.

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 4 in forested wetlands. Camping and recreational activities at these and the 11 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 0.08 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 Forested Wetlands, and Shrublands — Under alternative 2, approximately 87 miles of primary ORV trails, 14 miles of airboat trails, 3 miles of secondary trails, and 36 miles of nonmotorized trails (including about half of the 8-mile 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 and airboat 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 ORV and airboat trails in forested wetlands, amounting to 5 linear miles or 13 acres. Total acres of forested wetlands affected by ORV and airboat trails would be about 151 acres. Nonmotorized trails would affect an additional 19 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 NPS would be able to effectively monitor for adverse effects and take corrective actions.

Prairies and Marshes — Adverse impacts associated with primary ORV and airboat trails in herbaceous wetlands would be the same as alternative 1 and would total 92 acres. Only 0.09 mile of secondary ORV trail proposed under alternative 2 would traverse herbaceous wetlands, affecting 0.13 acre. Total acres of herbaceous wetlands affected by ORV and airboat trails would be about 98.13 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 alternatives 3 and 4. Visitor use, and ORV and airboat 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 on herbaceous wetlands associated with airboat trails and primary and secondary ORV trails would total approximately 98.13 acres, or 0.07% of the herbaceous wetlands within the preserve. Adverse impacts on forested wetlands would be of greater magnitude and would occur within 151 acres,

or 0.03% 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 pre-disturbance 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 15 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 0.08 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) and Alternative 4 (Preferred Alternative)

Direct and indirect impacts. The discussion of impacts associated with alternatives 3 and 4 have been combined, as most of the elements of the alternatives are the same, with the exception being the presence/absence of a wilderness proposal. The impact of this distinction is discussed at the end of this section.

In herbaceous wetlands, alternatives 3 and 4 would expand the mileage of primary ORV trail by 1 mile and the mileage of airboat trail by 16 miles, as compared to the no-action alternative. In forested wetlands, these alternatives would expand the mileage of primary ORV trail by 6 miles and the mileage of airboat trail by 18 miles. In addition, two miles of secondary ORV trail would be reopened in herbaceous wetlands and 16 miles in forested wetlands, as compared to the no-action alternative. 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 15 total additional miles of primary ORV trail in these alternatives 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 NPS 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, alternatives 3 and 4 includes 29 additional miles of nonmotorized trails in herbaceous wetlands and 47 additional miles in forested wetlands, with a total of 76 miles of nonmotorized trails in wetlands. Anticipated impacts due to opening, maintenance, and visitor use of nonmotorized trails are as described under alternative 2. Alternatives 3 and 4 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 0.76 linear miles or 0.92 acre.

Under alternatives 3 and 4, there would be zero proposed backcountry destinations in herbaceous wetlands and 12 backcountry destinations in forested wetlands. The types and duration of adverse

impacts resulting from camping and recreational activities at these sites and the existing 11 destinations in wetlands 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 0.12 acre, a slightly larger area than alternative 2.

Alternatives 3 and 4 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.

Wilderness impacts of alternatives 3 and 4. Under alternative 3, 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 alternative 2, there would be fewer beneficial impacts associated with wilderness than in alternative 2.

This benefit would be even more pronounced for alternative 4, as the additional protection provided by a wilderness proposal would be excluded; therefore, authorizing mechanized and motorized use in these areas would be seemingly easier compared to alternatives 2 and 3, leaving wetlands open to threat from such use.

Cypress Strands and Domes, Sloughs, Freshwater Forested Wetlands, and Shrublands — Under alternatives 3 and 4, approximately 93 miles of primary ORV trail, 16 miles of secondary ORV trail, and 32 miles of airboat trail would traverse forested wetlands. Compared to alternative 1, this represents an increase of 6 miles (primary ORV trail), 16 miles (secondary ORV trail), and 18 miles (airboat trail).

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 ORV and airboat trails in forested wetlands, amounting to about 7 linear miles or about 17 acres. Total acres of forested wetlands affected by ORV and airboat trails would be about 213 acres.

Nonmotorized trails (e.g., the FNST) proposed under alternatives 3 and 4 would cross 83 miles of forested wetlands, which is 50 miles more than under alternative 1. The impacts associated with nonmotorized trails would be the same as under alternative 2, but on a larger scale, affecting about 101 acres of forested wetlands.

Twelve new backcountry destinations would be located in forested wetlands. Visitor use at these and the six existing destinations in forested wetlands would result in adverse impacts, primarily vegetation trampling and loss. The impacts would affect a relatively small area, totaling 0.09 acre. If unacceptable conditions, or indicators as identified in table 2-6, are detected, the NPS 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 pre-disturbance conditions under natural ecological processes.

Prairies and Marshes — Under alternatives 3 and 4, primary ORV trails would traverse 21 miles of herbaceous wetlands, secondary ORV trails would cross 2 miles of herbaceous wetlands, and airboat trails would cross 59 miles of herbaceous wetlands. Compared to alternative 1, this represents an increase of 1 mile (primary ORV trails), 2 miles (secondary ORV trails), and 16 miles (airboat 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 ORV and airboat trails in herbaceous wetlands, amounting to about 8 linear

miles or about 19 acres. Total acres of herbaceous wetlands affected by ORV and airboat trails would be about 120 acres.

Nonmotorized trails (e.g., the FNST) proposed under alternatives 3 and 4 would cross 34 miles of herbaceous wetlands, which is 30 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 41 acres of herbaceous wetlands.

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

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 (0.07%) 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 ORV trails, secondary ORV trails, airboat trails, and nonmotorized trails in these alternatives would cause adverse impacts on approximately 161 acres, or 0.11% of the herbaceous wetlands, and 306 acres, or 0.07%, of forested wetlands within the preserve.

Dispersed camping would likely reduce the intensity of impacts at individual sites but would also reduce the NPS'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 on wetlands. Alternative 4 would not include the added long-term protections provided by a wilderness proposal.

4.5.5 Cumulative Impacts

Implementation of the plans identified in section 4.3 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, many 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, 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 the impacts of dispersed ORV use.

Implementation of future oil and gas plans of operation could have adverse impacts on wetland composition and function. Use of off-road equipment and the construction of roads and pads would result in temporary adverse impacts such as alteration of wetland soils, hydrology, and vegetation. One such plan was the fairly 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 on 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 Final Plan/FEIS, 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 alternatives 3 and 4 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 on 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. Among the action alternatives, the extent of adverse impacts would be smallest with alternative 2 and largest with alternatives 3 and 4. 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 native, nonnative, and invasive vegetation communities and habitat for species in the preserve that have the potential to be impacted by this Final Plan/FEIS. Impacts related to wetland communities are discussed in section 4.5 and impacts on special status species are discussed in section 4.7.

4.6.1 Basis of Analysis

To reduce redundancy, this section is organized to discuss impacts on 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, the native vegetation section for each alternative focuses on pine flatwoods and hammocks.

Overall mileage of primary ORV trails in pine flatwoods (approximately one-third of the total existing primary ORV trail mileage throughout the preserve) increases by approximately 6 miles, and the mileage of secondary ORV trails in pine flatwoods increases by approximately 34 miles, from alternative 1 to alternatives 3 and 4. Mileage of nonmotorized trails in pine flatwoods increases by 23 miles between the no-action alternative and alternatives 3 and 4.

Overall mileage of primary ORV trails in hammocks (approximately 5% of the total existing primary ORV trail mileage throughout the preserve) increases by 1 mile, and the mileage of secondary ORV trails by 1 mile, from alternative 1 to alternatives 3 and 4. The current primary ORV trail system contains 14 miles of trails in hammocks, which increases to 15 miles from alternative 1 to alternatives 3 and 4. The miles of nonmotorized trails in hammocks increases from 4 to 17 between alternative 1 and alternative 3 and 4. 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 ¹ Alt. 1	Pinelands Alt. 2	Pinelands Alt. 3 & 4	Hammocks ¹ Alt. 1	Hammocks Alt. 2	Hammocks Alt. 3 & 4
Primary ORV trails (miles)	99 ¹	99 ¹	104	14 ¹	14 ¹	15
Secondary ORV trails (miles)	0 ²	11	34	0 ²	0 ⁵	1
Nonmotorized trails (miles)	20 ¹	22 ³	43 ³	4 ¹	5 ³	17 ³
Number of existing backcountry destinations	6	6	6	8	7	8
Number of proposed backcountry destinations	0	20	71	0	0	1 ⁴

Notes: Mileage within this table is 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.

¹ Includes existing trails. There are no proposed trails under this alternative.

² There are currently no designated secondary ORV trails.

³ Includes both existing and proposed trails.

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

⁵ Less than 0.5 miles.

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 on vegetation would consist of crushing plants and removing vegetation for trail maintenance. Crushing impacts would result from thin bicycle tires that

concentrate weight. Any impacts on vegetation from bicycles and e-bikes would be insignificant compared to the impacts from regular ORV activity along the same trails.

Throughout the alternatives, all new destinations would be located in pineland habitat, as compared to other habitat types. The FWC and the NPS 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 on 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 NPS would avoid or minimize distribution of nonnative plants are described in chapter 2.

4.6.2 Impacts of Alternative 1

Native vegetation. Under the no-action alternative, ORV use would continue along 99 miles of primary ORV trails in pine flatwoods and 14 miles of primary ORV 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 on 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 ORV 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, 22 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, 5 miles 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 0.1 acre for 20 new destinations, all in pine flatwoods. The combined impacts on 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 ORV 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 0.1 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) and Alternative 4 (Preferred Alternative)

Native vegetation. The discussion of impacts associated with alternatives 3 and 4 have been combined, as most of the elements of the alternatives are the same, with the exception being the presence/absence of a wilderness proposal. The impact of this distinction is discussed at the end of this section.

Under alternatives 3 and 4, there would be 104 miles of primary ORV trail, 34 miles of secondary trail, and 43 miles of nonmotorized trails in pine flatwoods. This represents an increase of 6, 23, and 21 miles, respectively, relative to alternative 2. There would also be 71 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 on 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 53 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 0.39 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 alternatives 3 and 4, primary ORV trail mileage in hammocks would total 15 miles (an increase of 1 mile from alternative 2, where primary ORV trail mileage in hammocks totaled 14 miles). Secondary trail mileage in hammocks would total 1 mile (an increase of 0.62 miles relative to alternative 2). There are no proposed hammock destinations in alternatives 3 and 4. 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.

Alternatives 3 and 4 calls for a total of 85 existing and proposed destinations in pine flatwoods and hardwood hammocks, as compared to 33 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 0.43 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.

Wilderness impacts of alternatives 3 and 4. Alternative 3 proposes to designate less acreage as wilderness than alternative 2. The alternative 3 wilderness proposal would result in beneficial impacts on 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.

The additional protection provided by a wilderness proposal would be excluded from alternative 4. While all eligible lands (appendix E) would continue to be managed to preserve their eligibility for designation, they would not be subject to a minimum requirements analysis for administration of the area. Therefore, authorizing mechanized and motorized use in these areas would be seemingly easier compared to alternatives 2 and 3, leaving vegetation open to threat from such use.

Nonnative and invasive species. In alternatives 3 and 4, 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, due to the greater number of primary ORV, secondary ORV, and nonmotorized trails in alternatives 3 and 4, as well as 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 or 4, 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 85 existing and proposed backcountry destinations may cause denuded or trampled pineland and hammock vegetation, resulting in a total disturbance to 0.43 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 alternatives 3 and 4, 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 these alternatives.

In alternative 3, beneficial impacts from potential wilderness designation would be less than in alternative 2, amounting to 25% of the original preserve and Western Addition compared to 32%. This benefit would be more pronounced in alternative 4, which would not include the added long-term protections provided by a wilderness proposal.

4.6.5 Cumulative Impacts

Implementation of the ORV Management Plan (NPS 2000a) established a system of primary ORV and airboat trails, together with parking/staging areas for ORV and airboat 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 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 fairly recent Burnett Oil Seismic Monitoring Environmental Assessment (NPS 2016a). Within this planning effort, there were 46 required measures identified to mitigate and prevent impacts on 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 Final Plan/FEIS, 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 alternatives 3 and 4 would result in a larger overall footprint of impacts due to the increase in primary and secondary ORV trail mileage and the larger number of nonmotorized trails.

When the likely effects of implementing the alternatives in this Final Plan/FEIS 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 alternatives 3 and 4. 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 a variety of animal species and three federally listed plant species.

4.7.1 Special Status Species – Plants

Three federally listed plant species are known to occur in the preserve and include Everglades bully (*Sideroxylon reclinatum* ssp. *austrofloridense*), Florida prairie clover (*Dalea carthagenensis* var. *floridana*), and Florida pineland crabgrass (*Digitaria pauciflora*). Impacts on these species are expected to be the same under all alternatives.

There is currently only one known population of Florida prairie clover in the preserve, located immediately adjacent to the existing primary ORV trail leading north from Oasis, a trail that is present in all three plan alternatives. Everglades bully and Florida pineland crabgrass are known to occur near

several of the proposed reopened airboat trails. Prior to opening any trails or destinations, qualified NPS staff will survey the area for listed plants. If plants are observed, the trails/destinations will be sited to avoid the occurrence by at least 150 feet or will not be reopened. If any federally listed plant species are newly discovered after an area has been reopened, the trail will be closed. The NPS will maintain up-to-date information on these species and coordinate with staff managing trail maintenance to avoid impacts on individual plants from trail maintenance activities.

Impacts on suitable habitat could occur during the reopening of trails/destinations and ongoing operation. Suitable habitat for these plant species could also be temporarily disturbed by people and vehicles that leave designated trails. It is difficult to quantify the potential impact on suitable habitat; however, any such impacts are expected to be limited to the immediate area of trails and destinations. Because heavily impacted areas will be closed or rehabilitated, this impact is considered temporary.

Based on the implementation of avoidance measures and targeted trail closures, the NPS has determined that the proposed action “may affect, is not likely to adversely affect” the Everglades bully, Florida prairie clover, and Florida pineland crabgrass.

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 all habitat for any special status species.

Summary of consultation history. 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 on these four species, in addition to the Everglade snail kite, West Indian manatee, and wood stork, were also analyzed by the USFWS during the consultation initiated in connection with the 2000 Recreational ORV Management Plan (NPS 2000a). Effects on 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 USFWS for the Addition GMP the USFWS issued a biological opinion that concluded that the Florida panther is the only species that may be adversely affected.

On July 8, 2000, the USFWS 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, 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 USFWS 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 2010a) 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, 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 FWC 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 USFWS 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 revised trail system set forth in alternatives 3 and 4 has substantially reduced impacts on special status species and their habitats, as discussed later in this section.

In April of 2022, USFWS staff recommended the preparation of a Biological Assessment to address the potential effects on listed. The NPS submitted a BA to the USFWS on August 21, 2023, with a request for concurrence, followed by a virtual meeting on October 11, 2023. The USFWS provided a request for additional information on November 3, 2023, followed by a virtual meeting on December 4, 2023. The BA was subsequently revised to include the requested information and provide clarification, as necessary. The NPS and USFWS held another virtual meeting on February 21, 2024, to discuss additional conservation measures, including shortening some trails to avoid impacts on Florida bonneted bat. The agreed-upon measures were incorporated into all applicable alternatives, as well as the BA which was submitted to the USFWS for review and comment on February 26, 2024. The USFWS responded on July 31, 2024, and concurred with the conclusions of the BA. The BA and USFWS concurrence is provided in appendix H.

The FWC has suggested strategies for the reduction of potential impacts on 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 FWC suggested that the NPS 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 Final Plan/FEIS 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 (see section 2.8), would be timed to avoid sensitive periods, such as nesting or breeding seasons. Tree trimming would be avoided on days when daytime ambient temperatures are below 40°F. No removal of trees >8-inch dbh, snags 15 feet or higher, or any trees >30 feet in height would occur. 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 — No removal of trees having a visible cavity would occur in order 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.

Noise abatement — Standard noise abatement measures would be followed during trail and destination improvements, reopening, and maintenance. Use of heavy equipment, including chainsaws, would cease 30 minutes prior to sunset.

Nighttime 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 tricolored bat, 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 nighttime 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 on some listed species habitat from recreational activity.

Preserve-wide speed limits — These speed limits reduce the chances of impacts on 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 FWC 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 Final Plan/FEIS. Therefore, the NPS 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 Final Plan/FEIS, the NPS has made an Endangered Species Act determination of *may affect, not likely to adversely affect* for the Everglades snail kite, 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 FWC before implementation of any of the alternatives.

Tricolored bat — Impacts on the tricolored bat are expected to be the same under all alternatives. Tricolored bats are active year-round in the preserve and use a wide variety of habitats to roost and forage. Lack of roosting, commuting, and foraging habitat is not a limiting factor for tricolored bats in Big Cypress National Preserve. Tricolored bats typically emerge early in the evening and forage at treetop level or above. Though ORVs and people would be present during this time, tricolored bats are not likely to be exposed/disturbed to activities occurring on ground level because they forage/commute at higher distances. In the later hours, when tricolored bats forage closer to the ground, the ORV trail system would be closed (10:00 p.m.–5:00 a.m.). Vegetation clearing would mostly include herbaceous vegetation and

small woody trees and shrubs. This habitat is not typically considered suitable roosting habitat for the tricolored bat because they prefer roost trees that are ≥ 4 -inch dbh. However, the NPS cannot rule out the possibility that some potential roost trees will be disturbed during the reopening and ongoing operations phases. During vegetation removal activities, individual bats are expected to flee a disturbed tree (during most times of the year) and move to adjacent suitable habitat. However, tricolored bats are less likely to flee during the pup season. To protect female tricolored bats and non-volant pups, preserve staff would avoid tree removal and limb trimming during the tricolored bat pup season (May 1–July 15). Further, the NPS would minimize trail maintenance activities to the greatest extent possible during the tricolored bat breeding season (April 15–August 15).

Federal action agencies are only required to “confer” with the USFWS if an agency action is likely to result in “jeopardy” of proposed species. Due to minimal impacts on suitable foraging and roosting habitat and the incorporation of avoidance and minimization measures, the NPS has determined that the proposed action is “not likely to jeopardize” the tricolored bat. In addition, because analysis is believed to be consistent with the forthcoming USFWS range-wide guidance for the tricolored bat, the NPS has also determined that the proposed action “may affect, is not likely to adversely affect” this species.

Impacts on species subject to detailed evaluation. Five 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, Florida bonneted bat and Eastern black rail. Potential impacts on 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, 3, and 4), 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 on 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 Final Plan/FEIS.

The analysis of the impact that motorized and nonmotorized trails would have on the Florida panther, Eastern indigo snake, Florida bonneted bat, 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 the Florida bonneted bat and Eastern black rail was inferred from the preserve vegetation map prepared by NPS South Florida/Caribbean Monitoring network. The Florida bonneted bat has been known to forage in tropical hardwood, pineland, and mangrove habitats and prefers roosting in live or dead trees and tree snags, especially longleaf pine, slash pine, bald cypress, and royal palm. For the Eastern black rail, 16 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 and airboat trail corridors 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 (i.e., Florida panther, red-cockaded woodpecker, Eastern indigo snake, Florida bonneted bat, and Eastern black rail) 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 ORV, secondary ORV, and airboat trails. Extended camping and dispersed camping (in alternatives 1, 3, and 4) 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, 3, and 4), 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 on habitat suitable for the Florida panther, red-cockaded woodpecker, Eastern indigo snake, Florida bonneted bat, 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 alternatives 3 and 4.

Table 4-7 provides the percentage of cover of motorized and nonmotorized trails within suitable habitat for the Florida panther, Eastern indigo snake, Florida bonneted bat, 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 on Habitat Used by Special Status Species

Trail/Destinations	Florida Panther ¹ Alt. 1	Florida Panther ¹ Alt. 2	Florida Panther ¹ Alt. 3 & 4	Red Cockaded Woodpecker ² Alt. 1	Red Cockaded Woodpecker ² Alt. 2	Red Cockaded Woodpecker ² Alt. 3 & 4	Eastern Indigo Snake ¹ Alt. 1	Eastern Indigo Snake ¹ Alt. 2	Eastern Indigo Snake ¹ Alt. 3 & 4	Florida Bonneted Bat ¹ Alt. 1	Florida Bonneted Bat ¹ Alt. 2	Florida Bonneted Bat ¹ Alt. 3 & 4	Eastern Black Rail ¹ Alt. 1	Eastern Black Rail ¹ Alt. 2	Eastern Black Rail ¹ Alt. 3 & 4
Motorized trails (acres)	398	420	553	3	3	5	144	160	204	319	340	460	69	70	95
Nonmotorized trails (acres)	77	83	224	0 ³	0 ³	0 ³	24	27	52	73	79	211	4	5	40
Destinations (acres)	0.15	0.26	0.59	0	0	0	0.04	0.14	0.4	0.07	0.19	0.51	0.02	0.02	0.03
TOTAL	475	503	778	3	3	5	168	187	256	392	419	672	73	75	135

Notes: Acreage for trails and total within this table is rounded to the nearest whole acre. Acreage for destinations is rounded to a hundredth of an acre due to its small contribution to the total.

¹ The acreage of trails and destinations within suitable habitat for the species.

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

³ Less than 0.5 acres.

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

Type of Trail	Florida Panther Alt. 1	Florida Panther Alt. 2	Florida Panther Alt. 3 & 4	Red Cockaded Woodpecker ¹ Alt. 1	Red Cockaded Woodpecker ¹ Alt. 2	Red Cockaded Woodpecker ¹ Alt. 3 & 4	Eastern Indigo Snake Alt. 1	Eastern Indigo Snake Alt. 2	Eastern Indigo Snake Alt. 3 & 4	Florida Bonneted Bat Alt. 1	Florida Bonneted Bat Alt. 2	Florida Bonneted Bat Alt. 3 & 4	Eastern Black Rail Alt. 1	Eastern Black Rail Alt. 2	Eastern Black Rail Alt. 3 & 4
Motorized trails	0.06	0.06	0.08	0.2	0.2	0.4	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
TOTAL ²	0.07	0.07	0.11	0.22	0.22	0.42	0.18	0.2	0.29	0.07	0.07	0.12	0.06	0.06	0.11

Notes: The amount of suitable habitat disturbed divided by the total amount of suitable habitat available for the species in the preserve.

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

² The percentage of suitable habitat disturbed for each alternative which includes trail types and destinations.

Impacts of Alternative 1

Direct and indirect impacts. Under the no-action alternative, impacts on special status species, including Florida panthers, red-cockaded woodpeckers, Eastern indigo snakes, Florida bonneted bat, 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 475 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 on 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 2.62 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 168 acres or 0.18% of the habitat suitable for this species in the preserve.

The preserve is in one of four focal areas for the Florida bonneted bat in south Florida. There are six known roost sites in the preserve, all of which are located more than 1,000 feet from existing ORV trails. Furthermore, 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 on foraging individuals, their habitat, or their insect prey would be anticipated under the no-action alternative. Motorized and nonmotorized trails, including the FNST, and disturbances in destinations under the no-action alternative would continue to occur in 392 acres or 0.07% 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 73 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, the most recent period for which figures are available), 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, Florida bonneted bat, 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 four special status species in question 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 visitor(s) have 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 and airboat use patterns would result in small adverse impacts on special status species. Under the no-action alternative, ORV/airboat use, visitor use of nonmotorized 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, Florida bonneted bat, 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 less than 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, 0.22% 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, 0.07% of the suitable habitat for the Florida bonneted bat 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 NPS 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, Florida bonneted bat, and Eastern black rail.

Impacts of Alternative 2

Direct and indirect impacts. Under alternative 2, the types and duration of adverse impacts on 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 alternatives 3 and 4.

The opening and use of motorized and nonmotorized trails (e.g., realignment of the FNST) and use of destinations under alternative 2 would affect 503 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 NPS 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. (The number of permits issued by the preserve increased in 2019, 2020 and 2021 but then decreased again in 2022.) However, the increased recreational opportunities afforded by this alternative could possibly result in increased ORV use on primary and secondary ORV trails. If so, impacts on 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 2.76 acres of red-cockaded woodpecker habitat in the preserve, which is less than 0.15 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 on 187 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.

Alternative 2 would have a small increase to the impacted acreage of suitable habitat for the Florida bonneted bat, resulting in an adverse effect on 419 acres, which represents 0.07% of the total amount of suitable habitat in the preserve for this species. This percentage is essentially the same as for the no-action alternative. Reopened ORV trails would be sited to avoid known roost sites by establishing a 1,000-foot buffer. Adverse effects would be limited given that no cavity trees would be removed or trimmed as part of trail opening or maintenance. Furthermore, there would be no removal of trees >8-inch dbh, snags 15 feet or higher, or any trees >30 feet in height.

The alternative 2 effects on the Eastern black rail are like those under the no-action alternative, resulting in adverse effects on 75 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, Florida bonneted bat, 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 a visitor or group of visitors passes through the area. In addition, Florida panthers, red-cockaded woodpeckers, Florida bonneted bat, 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 alternatives.

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), Florida bonneted bat (disturbance to 0.07% 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, Florida bonneted bat, 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, the mitigation measures addressed in section 2.10.5, and the 200-foot red-cockaded woodpecker protection buffers, the NPS 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, Florida bonneted bat, and Eastern black rail.

Impacts of Alternative 3 (Proposed Action) and Alternative 4 (Preferred Alternative)

Direct and indirect impacts. The discussion of impacts associated with alternatives 3 and 4 have been combined, as most of the elements of the alternatives are the same, with the exception being the presence/absence of a wilderness proposal. The impact of this distinction is discussed at the end of this section.

Under alternatives 3 and 4, 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 alternatives 3 and 4 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 alternatives 3 and 4, the reopening and use of motorized and nonmotorized trails (including realignment of the FNST and addition of more hiking trails), together with the use of existing and proposed destinations, would affect 778 total acres of Florida panther habitat. 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 NPS 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. (The number of permits issued by the preserve increased in 2019, 2020, and 2021 but decreased again in 2022.) However, the substantially increased recreational opportunities afforded by these alternatives as compared to alternative 2 could possibly result in increased motorized use on primary ORV, secondary ORV, and airboat trails. Still, even if the increased number of trails and destinations under these alternatives were to result in an increased number of ORV/airboat 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).

Alternatives 3 and 4 would adversely affect 5.23 acres of red-cockaded woodpecker habitat in the preserve; nearly double other alternatives but still representing less than 0.5% of suitable habitat. Indirect impacts would be somewhat greater under these alternatives than alternative 2 because these alternatives allow dispersed camping. However, adverse effects 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 alternatives 3 and 4 would affect 256 acres, a larger area than alternative 2 (187 acres). The expanded trail footprint represents 0.29% 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.

Alternatives 3 and 4 would adversely affect 672 acres of suitable habitat for the Florida bonneted bat, a 280-acre increase from the no-action alternative. However, this would only represent 0.12% of total suitable habitat in the preserve for this species. Like alternative 2, reopened ORV trails would be sited to avoid known roost sites by establishing a 1,000 foot buffer. Adverse effects would be limited given that no cavity trees would be removed or trimmed as part of trail opening or maintenance. Furthermore, there would be no removal of trees >8-inch diameter at dbh, snags 15 feet or higher, or any trees >30 feet in height.

In alternatives 3 and 4, there would be an increase in the impacted acreage of habitat suitable for the Eastern black rail, resulting in adverse effect on 135 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, Florida bonneted bat, 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 these alternatives would result in increased impacts on 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 or airboats is expected to be low and would be limited to short term disturbance of individuals.

The dispersed camping allowed in these alternatives 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.

Wilderness impacts of alternatives 3 and 4. 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 of 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.

The benefits provided by a wilderness proposal would be excluded from alternative 4; therefore, authorizing mechanized and motorized use in these areas would be seemingly easier compared to alternatives 2 and 3, leaving special status species open to disturbance from such use.

Conclusion. Under alternatives 3 and 4, 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, alternatives 3 and 4 would increase the amount of suitable habitat disturbed to 778 total acres for the Florida panther (up from 503 acres in alternative 2). The total amount of suitable habitat disturbed for the Eastern indigo snake would be 256 acres (up from 187 acres in alternative 2). The total amount of suitable habitat disturbed for the red-cockaded woodpecker would be 5.23 acres (up from 2.76 acres in alternative 2). The total amount of suitable habitat disturbed for the Florida bonneted bat would be 672 acres (up from 419 acres in alternative 2). The total amount of suitable habitat disturbed for the Eastern black rail would be 135 acres (up from 75 acres in alternative 2). For all five 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 these alternatives.

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. Alternative 4 would not include the added long-term protections provided by a wilderness proposal.

Based on the above factors, the closures and adaptive measures addressed in section 2.6.7, the mitigation measures addressed in this section and section 2.10.5, and the 200-foot red-cockaded woodpecker protection buffers, the NPS 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, Florida bonneted bat, and Eastern black rail.

Cumulative Impacts

The preserve's GMP (NPS 1991), ORV Management Plan (NPS 2000a), and Addition GMP collectively addressed the management of ORV and airboat travel in the preserve. Before the ORV Management Plan, dispersed ORV/airboat 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 and airboat use to designated primary ORV and airboat trails. The Addition GMP provided this same framework for primary ORV trails in the Addition. The implementation of these plans to control ORV and airboat 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 conducted fairly recently 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, 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 Final Plan/FEIS, 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 alternatives 3 and 4 would result in a larger overall footprint of impacts due to increases in miles of primary and secondary ORV trail, airboat trail, 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 habitat suitable for the Florida panther), whereas alternatives 3 and 4 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, 0.12% of suitable habitat for the Florida bonneted bat, 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 on 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 until Congress has acted on a wilderness recommendation from the president (NPS 2011b).

Total eligible wilderness in the preserve as a whole is approximately 322,807 acres, or about 44% of the entire preserve. Of this total, the NPS has previously proposed that Congress designate approximately 47,182 acres of the Addition as wilderness (NPS 2010a). (This acreage lies south of I-75 in the Northeast Addition.) Furthermore, varying amounts of eligible wilderness in the original preserve and Western Addition are proposed for designation in two action alternatives of this Final Plan/FEIS.

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 wilderness and eligible wilderness that is not proposed for designation in this Final Plan/FEIS. 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 alternatives that include a wilderness proposal (alternatives 2 and 3), this impact assessment assumes that lands eligible or proposed for wilderness designation could ultimately be designated as such by Congress. For alternatives without a wilderness proposal (alternatives 1 and 4), this assessment assumes continuation of the current management direction—that is, preserve staff would continue to manage eligible areas to preserve their existing wilderness character until Congress decides whether or not to designate these areas as wilderness.

Identifying impacts on wilderness character entails analyzing the effects of the alternatives on each of the five constituent “qualities” of wilderness character. These qualities are (1) the untrammelled 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 provided 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, preserve staff would continue to manage the preserve’s natural resources from an ecosystem perspective (e.g., nonnative/invasive species management and fire management). 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 on 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 additional lands would be proposed for designation as wilderness. However, all areas in the original preserve and Addition that have been identified as eligible for wilderness designation would be managed as wilderness. See section 6.3.1 of *NPS Management Policies 2006*. Likewise, the part of the Addition previously proposed for wilderness designation would continue to be managed as wilderness.

Untrammeled — Under the no-action alternative, there would be few impacts on the untrammeled quality of wilderness character apart from those described below in section 4.8.6. 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 on the natural quality of wilderness character would be limited. Continued backcountry use could result in some limited impacts on 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 on 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, barring exception, 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 on the undeveloped quality of wilderness character are minimized. Impacts on 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 on 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, serve 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. 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 on 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 on 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 on 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 on 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, the lands proposed for wilderness designation would be managed as wilderness consistent with NPS *Management Policies 2006*. Lands found eligible for designation but not proposed for wilderness designation (11% of the original preserve and Western Addition) would be managed to preserve their wilderness character and eligibility until such time as Congress makes a determination regarding wilderness at the preserve. However, activities proposed to occur on lands not proposed for designation would be exempt from the requirement to complete a minimum requirements analysis.

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 on soils, vegetation, and water flow and 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 on the natural quality, mostly in the form of disturbance to soil and vegetation along hiking trails and introduction of nonnative invasive plants. Overall, however, 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 on 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 the authorized removal of nonnative vegetation). However, given the scale of eligible and proposed wilderness in this alternative, authorized actions related to backcountry access would have minimal adverse impacts on the undeveloped quality. However, there may be greater impacts on the undeveloped quality of wilderness character in the 11% of eligible lands not proposed for designation under this alternative due to future administrative actions (such as use of motorized equipment, airboats, and installations) in these areas since they would be exempt from the requirement to complete a minimum requirements analysis to evaluate and identify alternatives that best protect this quality and wilderness character as a whole. However, the effect of these uses should be temporary and/or removable to preserve the wilderness eligibility of these areas.

Opportunity for solitude or primitive and unconfined recreation — No additional primary ORV or airboat 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 on 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 on wilderness character from the elements of alternative 2 would be quite limited and would come primarily in the form of impacts on 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 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 small impacts on 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)

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). The lands proposed for wilderness designation would be managed as wilderness consistent with NPS *Management Policies 2006*. Lands found eligible for designation but not proposed for wilderness designation (18% of the original preserve and Western Addition) would be managed to preserve their wilderness character and eligibility until such time as Congress makes a determination regarding wilderness at the preserve. However, activities proposed to occur on lands not proposed for designation would be exempt from the requirement to complete a minimum requirements analysis.

Untrammeled — The impacts on this quality would be the same as under alternative 2.

Natural — The impacts on this quality would be similar to those under alternative 2 but with 25% of the original preserve identified as proposed wilderness. Some additional minor impacts on 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 on this quality would be essentially the same as under alternative 2. However, there may be greater impacts on the undeveloped quality of wilderness character in the additional 6% (18% total) of eligible lands not proposed for designation under this alternative for the same reasons described in alternative 2.

Opportunity for solitude or primitive and unconfined recreation — The impacts on 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 on this quality than under alternative 2 due to more miles of primary ORV trail, secondary ORV trail, and airboat trail outside of wilderness (386 miles in alternative 3 as opposed to 293 miles in alternative 2). In contrast, nearly 20 miles of nonmotorized trails would occur in what is proposed wilderness under this alternative. Overall impacts on 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 on 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 on wilderness character would be quite limited under alternative 3 and would come primarily in the form of impacts on 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 ORV trails, secondary ORV trails, and airboat trails and the greater number of backcountry destinations. Overall impacts on 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 Impacts of Alternative 4 (Preferred Alternative)

Direct and indirect impacts. Under this alternative, the direct impacts on wilderness character would be essentially the same as those described under alternative 3, as there would be no difference in trail mileage or description. However, no land eligible for wilderness designation would be proposed in the original preserve or Western Addition. By policy, these lands would continue to be managed to preserve their eligibility for designation, but any future actions proposed to occur on these lands would be exempt from applying the concept of “minimum requirement.” This would mean that there may be some additional impacts on wilderness character from potential future actions. However, adverse impacts should be temporary and/or removable since the long-term preservation of wilderness eligibility would continue to be protected by NPS policy. Future actions on wilderness-eligible lands would still be subject to the National Environmental Policy Act. In these circumstances, wilderness character would be included as an impact topic to preserve the resources and values for which lands were found eligible. The part of the Northeast Addition previously proposed for wilderness designation would continue to be managed as wilderness.

Untrammeled — The direct impacts on this quality would be the same as under alternative 2 because nothing in the alternative itself is intended to control or manipulate components or processes of ecological systems within wilderness-eligible areas.

Natural — The impacts on this quality would be essentially the same as under alternative 3 but without the potential long-term benefits provided by a wilderness proposal and subsequent designation. Alternative 4 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 direct impacts on this quality would be essentially same as under alternative 3. No uses prohibited by the Wilderness Act are contemplated for administrative use in eligible or proposed wilderness as a direct result of this alternative. However, there may be greater impacts on the undeveloped quality of wilderness character in the 25% of the preserve that would be proposed for wilderness designation under alternative 3 but not proposed in alternative 4 as a result of future administrative actions in wilderness-eligible areas since they would be exempt from the requirement to complete a minimum requirements analysis to evaluate and identify alternatives that best protect this quality and wilderness character as a whole. Compared to alternative 3, this will likely result in a greater use of motorized equipment (e.g., chainsaws, Weed eaters), motor vehicles, airboats, and installations (e.g., research, monitoring) in that 25% of the preserve not proposed for wilderness designation that directly impact this quality. However, the effect of these uses should be temporary and/or removable to preserve the wilderness eligibility of these areas.

Opportunity for solitude or primitive and unconfined recreation — The direct impacts on this quality would be essentially the same as under alternative 3. However, this alternative would not receive the potential long-term benefits that a wilderness proposal and subsequent designation would provide to offset potential impacts on wilderness character. The likely greater use of motorized equipment, as described in the undeveloped quality, have the potential to increase impacts on the sights and sounds experienced by visitors within the 25% of the preserve that would be proposed for wilderness designation under alternative 3 but not proposed in alternative 4. Furthermore, actions to establish and/or maintain the 20 miles of nonmotorized trails through the 25% of the preserve that would have been proposed as wilderness under alternative 3 would also be exempt from the requirement to complete a minimum requirements analysis. This would also apply to any future development along these trails, including the replacement and/or installation of trail signs, that have the potential to affect the wilderness setting and, therefore, impact this quality. Per *NPS Management Policies 2006*, only those signs necessary for visitor

safety or to protect wilderness resources, such as those identifying routes and distances, will be permitted. Where signs are used, they should be compatible with their surroundings and the minimum size possible.

Conclusion. As under all other alternatives, direct adverse impacts on wilderness character would be quite limited under alternative 4 and would come primarily in the form of impacts on 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 essentially the same as under alternative 3. Overall, direct impacts on wilderness character would still be small but would not benefit from the potential long-term protection a proposal and subsequent wilderness designation would provide. Compared to alternative 3, future management actions will likely have greater impacts on the undeveloped and solitude qualities of wilderness character within the 25% of the preserve that would be proposed for wilderness designation under alternative 3 since proposed actions in those areas would not be subject to a minimum requirements analysis, which will likely result in a greater usage of motorized equipment and other uses general prohibited by the Wilderness Act. However, by policy, these lands would continue to be managed to preserve their eligibility for designation, and actions under this alternative would not diminish the wilderness eligibility of these areas.

4.8.6 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 Final Plan/FEIS were identified in section 4.3. Cumulative impacts on wilderness character would be similar under all 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 Final Plan/FEIS, the NPS would continue to engage in some trammeling actions in wilderness preserve-wide. That is, the NPS 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 NPS 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. Such actions that may affect proposed wilderness (alternatives 2 and 3) would continue to be administered under the 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. Actions affecting eligible lands that are not proposed for designation would not be subject to a minimum requirements analysis but would be managed to preserve their wilderness character and eligibility for designation.

Implementation of the 2000 Recreational ORV Management Plan (NPS 2000a) has minimized the effects of ORVs and airboats on wilderness character in the original preserve by eliminating recreational dispersed use of motorized vehicles across the wetland landscape. ORVs and airboats 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 Final Plan/FEIS would contribute only a small increment to cumulative adverse impacts on 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 proposals to designate 25% (alternative 3) to 32% (alternative 2) of the original preserve and Western Addition as wilderness. If Congress ultimately designated these lands as wilderness, they would be subject to the maximum amount of resource protection available under federal law. This offset of adverse impacts would not be realized under alternative 4 due to the absence of a wilderness proposal.

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 on each of these activity categories are discussed under each alternative.

“Motorized use” refers to (1) ORV travel, including street-legal 4x4, all-terrain vehicle, utility task vehicle, and swamp buggy and (2) 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 2,853 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 most recent year for which figures are available. 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 Final Plan/FEIS; 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 network of primary ORV and airboat trails 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 network of primary ORV trails. ORV users would not have opportunities for more solitude and privacy on secondary ORV 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 airboat trails in Stairsteps Unit Zones 3 and 4.

ORV/airboat permit sales in the preserve have been in decline over recent years, from a high of 2,000 permits sold in 2010 to 1,253 in 2022, a 37% decrease overall over 12 years. (The smallest number of permits sold (1,042) was in 2018.) From 2018 to 2022 (the most recent years for which data are available), the average number of ORV/airboats permits sold annually was 1,217. 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. 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, the most recent year for which figures are available. 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 on 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 on 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, recreational access for all users would continue as it currently exists; 1,217 ORV/airboat users (2018–2022 average) would have access to a system of primary ORV and airboat trails, but not secondary ORV trails. Restricting motorized use to primary ORV and airboat 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 ORV 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 network of primary ORV and airboat trails 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 1,217 ORV/airboat 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 1,217 ORV/airboat users.

Nonmotorized use. Under alternative 2, the FNST would be realigned along a preexisting route to minimize overlap with motorized trails. The realigned FNST would increase from 36 to 44 miles long. The realignment 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 bicycle and e-bike use of the reopened secondary ORV trails is expected to be minimal because of the difficulty of the terrain underlying secondary trails.

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 1,217 ORV/airboat 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 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) and Alternative 4 (Preferred Alternative)

The discussion of impacts associated with alternatives 3 and 4 have been combined, as most of the elements of the alternatives are the same, with the exception being the presence/absence of a wilderness proposal. The impact of this distinction is discussed at the end of this section.

Motorized use. Alternatives 3 and 4 would offer an additional 15 miles of designated primary ORV trails and 39 additional miles of airboat trails as compared to existing conditions (a 19% increase from alternatives 1 and 2). It would also offer 54 miles of secondary ORV trails, almost 3.5 times as many miles of secondary ORV 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 1,217 ORV/airboat 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 these alternatives, the annual 60-day closure to ORV/airboat use would be removed. Instead, targeted closures would be implemented when warranted by conditions. Visitors would be able to use ORVs and airboats 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 alternatives 3 and 4, 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, alternatives 3 and 4 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 additional 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 alternatives 3 and 4, an additional 87 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, these alternatives provide 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 alternatives 3 and 4, 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.

Wilderness impacts of alternatives 3 and 4. 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.

Under alternative 4, no wilderness would be proposed. However, all eligible lands (appendix E) would continue to be managed to preserve their wilderness eligibility. This should result in similar benefits for visitors as described under alternative 2, but the long-term quality of wilderness experiences in these areas would not be protected to its fullest extent.

Conclusion. The reopening of 15 additional miles of primary ORV trail, 39 miles of airboat trail, and 54 miles of secondary trail would improve the experience of 1,217 ORV/airboat 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 alternatives 3 and 4 would be a beneficial impact on nonmotorized users compared to current conditions.

Alternative 3 would provide opportunities for a wilderness experience in over 25% of the original preserve and Western Addition. Alternative 4 would not include the added long-term protections provided by a wilderness proposal.

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 and airboat users, who were once allowed to travel off-trail in the preserve. Today, there are more restrictions on ORV and airboat users than there were 30 years ago, and their choices in routes and access are more limited.

When the likely effects of implementing the three 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, 3, and 4 would be greatest for ORV and airboat users, who would have a more robust system of primary ORV, secondary ORV, and airboat trails than what currently exists (alternative 2 represents the smallest expansion of the system, while alternatives 3 and 4 represents the largest expansion of the system). Access and experiences for nonmotorized users would be most improved under alternatives 3 and 4, 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 alternatives 3 and 4, which allows dispersed camping and expands the number of destinations to 87.

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 (alternatives 3 and 4), 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 2010a).

To ensure that ORV impacts on existing ambient noise levels are kept to a minimum, the NPS 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), ORVs (e.g., swamp buggies, all-terrain vehicles, street-legal 4x4s, 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 the source ORV. Therefore, a 1,600-foot buffer was applied to the various alternatives to quantify the acreage of natural soundscapes potentially affected by ORV use (table 4-9).

Table 4-9. Acreage of Natural Soundscape Impacted within 1,600 Feet of the ORV Trail Network

Trail System	Alt. 1	Alt. 2	Alt. 3 & 4
Acreage of natural soundscape impacted by primary ORV and secondary ORV trails ¹	77,518	86,645	111,335

¹ Calculations in the columns are additive. Overlapping buffers around primary and secondary ORV 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 miles) 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 Airboat Trail Network

Trail System	Alt. 1	Alt. 2	Alt. 3 & 4
Mileage of airboat trails	57	57	96
Total acreage ¹	82,775	82,775	110,096

Notes: Mileage in this table is rounded to the nearest whole mile.

¹ Calculations in the columns are additive. Overlapping buffers around primary and secondary ORV 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 presented in table 4-11. The table shows that effects on the natural soundscape generally increase from alternative 1 to alternatives 3 and 4, which corresponds with increased miles of primary and secondary ORV trails and increased miles of airboat trails. Overall, alternatives 2 (23%) and alternatives 3 and 4 (30%) would affect the greatest amount of the preserve's natural soundscape.

Table 4-11. Percentage of Natural Soundscape Affected in the Preserve

Trail System	Alt. 1	Alt. 2	Alt. 3 & 4
Percentage of primary and secondary ORV trails	11%	12%	15%
Airboat trails	11%	11%	15%
Total natural soundscapes impacted ¹	22%	23%	30%
Increase relative to alternative 1 ²	—	1%	8%

Notes: Percentages in the table are rounded to the nearest whole percent.

¹ 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.

² Calculated by subtracting the amount under the no-action alternative (alternative 1) from the amounts for alternative 2 and alternatives 3 and 4, respectively.

Noise would occur because of ORV use on the proposed system of primary ORV, secondary ORV, and airboat trails. 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 1,253 ORV permits issued in 2022, 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 1,253 permitted ORV users would be present on any given day, they would, at most, affect the natural soundscape of 30% of the preserve under alternatives 3 and 4. 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, such noise is largely contained within designated areas of the preserve (an ORV trail, an airboat trail, or a road), is short in duration (less than three minutes required for a terrestrial vehicle to pass through the area) and is 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 & 4
Total length of nonmotorized trails (miles) (affected and not affected)	63	68	185
Nonmotorized trail affected (miles)	22	25	81

Natural Soundscapes Affected	Alt. 1	Alt. 2	Alt. 3 & 4
Percentage of nonmotorized trails affected	35%	37%	44%
Percentage increase relative to alternative 1 ¹	—	2%	9%

Notes: Mileage in this table is rounded to the nearest whole mile; percentage is rounded to the nearest whole percent.

¹ 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.

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 and airboat 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 on 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 and airboat trails 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 on 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 on 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 on 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) and Alternative 4 (Preferred Alternative)

Direct and indirect impacts. The discussion of impacts associated with alternatives 3 and 4 have been combined, as most of the elements of the alternatives are the same, with the exception being the presence/absence of a wilderness proposal. The impact of this distinction is discussed at the end of this section.

Under alternatives 3 and 4, 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 alternatives 3 and 4, the proposed 15 miles of additional primary ORV trails, 39 miles of additional airboat trails, and 54 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 nonmotorized 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. Similar benefits would accrue from the requirement that airboat users in Zone 4 of the Stairsteps Unit camp at designated campsites only. Two existing backcountry campgrounds and three proposed backcountry campgrounds would provide users with opportunities to enjoy natural soundscapes in a primitive soundscape. In addition, 87 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 on 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 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).

Wilderness impacts of alternatives 3 and 4. 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. The additional protection provided by a wilderness proposal would be excluded from alternative 4; therefore, authorizing mechanized and motorized use in these areas would be seemingly easier compared to alternatives 2 and 3, leaving natural soundscapes open to threat from such use.

Conclusion. Under alternatives 3 and 4, 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 15 miles of primary ORV trails, 39 miles of airboat trails, and 54 miles of secondary ORV 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 and group size limits would help minimize impacts on the natural soundscape, the same as alternative 2. Under alternative 3, proposed wilderness would prevent most motorized 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. Alternative 4 would not include the added long-term benefit to natural soundscapes that a wilderness proposal would provide.

4.10.5 Cumulative Impacts

The ORV Management Plan (NPS 2000a) addressed the management of ORV and airboat travel in the preserve. Currently, ORV and airboat use is contained in the primary ORV and airboat 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 network of primary ORV and airboat 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 2010 Addition GMP may result in trail construction at additional sites in the future. This trail construction would negatively impact the natural soundscape of the preserve but would be temporary and intermittent in nature. Similarly, the python management activities associated with the FWC may result in the use of excavators, mowers, and other related equipment needed to complete trail work. This trail work would negatively impact the natural soundscape of the preserve but would be temporary and intermittent in nature. The overall effect of these two projects would be minor impacts on 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 alternatives 3 and 4 would result in an increment of 8% due to increases in ORV and airboat trail mileage. Alternatives 2, 3, and 4 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 on 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 and airboat 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 on cultural resources that are expected to last in perpetuity.

Given that most cultural resources are nonrenewable, impacts on cultural resources would persist. Only natural elements of cultural landscapes, such as vegetation, are renewable. These elements would be expected to recover to pre-disturbance conditions naturally due to south Florida's year-round growing season.

In all action alternatives, the opening and maintenance of additional primary ORV trails, secondary ORV trails, airboat trails, and destinations would involve minimal ground disturbance. Apart from the proposed reopened primary ORV 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. (Some new construction for hiking trails would occur in alternatives 3 and 4.) 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 ORV 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 on 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 2.10.7 and appendix G.

4.11.2 Impacts of Alternative 1

Direct and indirect impacts. Under the no-action alternative, ORV and airboat use along primary ORV and airboat trails would continue to provide users access to 0.06% of the preserve’s backcountry. Although under the 2000 Recreational ORV Management Plan the goal was to entirely avoid cultural resources there are several locations where current primary ORV 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. 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 on 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 decreases the probability of adverse impacts on 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 NPS 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 on 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 on 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 NHPA will be completed for the undertaking.” Therefore, the NPS has developed a Programmatic Agreement pursuant to 36 CFR 800.14(b)(3) to adopt an alternative, phased approach to compliance with section 106 of the NHPA (see appendix G). 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) and Alternative 4 (Preferred Alternative)

Direct and indirect impacts. The discussion of impacts associated with alternatives 3 and 4 have been combined, as most of the elements of the alternatives are the same, with the exception being the presence/absence of a wilderness proposal. The impact of this distinction is discussed at the end of this section.

The types of adverse impacts on cultural resources would be similar under these alternatives to those described in the no-action alternative; however, there would be a substantial increase in the number of primary ORV, secondary ORV, and airboat 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.

Alternatives 3 and 4 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, these alternatives would also close one of the existing backcountry campsites in the Stairsteps Unit to protect resources.

In these alternatives, 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.

Wilderness impacts of alternatives 3 and 4. Under alternative 3, 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.

The additional protection provided by a wilderness proposal would be excluded from alternative 4; therefore, authorizing mechanized and motorized use in these areas would be seemingly easier compared to alternatives 2 and 3, leaving cultural resources open to unanticipated damage from such use.

Conclusion. Under alternatives 3 and 4, the potential for direct adverse impacts on cultural resources would be substantially higher than in 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 added for backcountry camping, and these destinations would be sited to avoid adverse impacts on cultural resources, thus decreasing the risk of adverse impacts on 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 NPS 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 NHPA will be completed for the undertaking.” Therefore, the NPS has developed a Programmatic Agreement pursuant to 36 CFR 800.14(b)(3) to adopt an alternative, phased approach to compliance with section 106 of the NHPA (see appendix G). 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. The Burnett Oil Company seismic survey (NPS 2016a) has been completed; associated mitigation and environmental restoration activities will continue 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 on cultural resources. Actions that could have a cumulative effect in conjunction with measures that would be implemented in this Final Plan/FEIS were identified in section 4.3.

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 and airboat use in the preserve, directing vehicular 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 and airboat use in the designated trail network of the preserve has resulted in beneficial impacts on 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 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 on 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. The latter acreage is located immediately north of the Mullet Slough lands proposed for wilderness designation in alternatives 2 and 3.

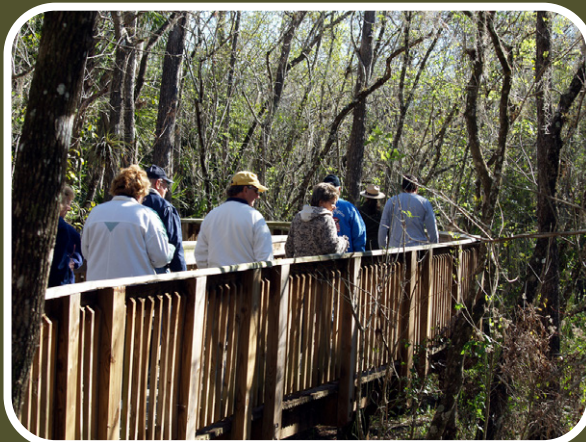
When the likely effects of implementing the alternatives are added to the effects of other past, present, and reasonably foreseeable actions, there would be an incremental adverse cumulative impact on cultural resources in the preserve. Alternative 1 has some potential for adverse impacts due to dispersed camping throughout the preserve. Alternative 2 would eliminate dispersed camping, allowing camping only in destinations; hence, this alternative minimizes the potential for adverse impacts. Alternatives 3 and 4 has higher chances of causing adverse impacts because of the expansion of the motorized and nonmotorized trail systems, identification of additional destinations, 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.

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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 NPS 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 Draft Plan/DEIS and Supplemental Draft Plan/SDEIS. 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. NPS Director’s Order 12 requires the NPS to make “diligent” efforts to involve, analyze, and consider the interested and affected public in the NEPA process (2011a). 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 NPS 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 NPS 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 the NPS PEPC website, 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 NPS 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 the NPS PEPC website.

The NPS 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 NPS 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 NPS 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 USFWS, 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 NHPA.
- The USFWS 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 NPS 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 NPS 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 NPS held a Preferred Alternative Workshop at the preserve headquarters at 33100 Tamami Trail East, Ochopee, Florida 34141. The purpose of the workshop was twofold: (1) to develop a recommendation for a preferred alternative for the backcountry access plan, and (2) 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, the NPS Denver Service Center, the Southeast Regional Office, and preserve partners. In addition to the evaluation of wilderness proposals and proposed 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/DEIS for Public Review and Comment

The NPS released the Draft Plan/DEIS 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. Note that the version of the Draft Plan/DEIS released in 2020 did not include a wilderness study component. Finalization and public release of the wilderness study was postponed pending the completion of a then-ongoing review of NPS management policies governing wilderness management.

Public comment generally favored substantial revision of the Draft Plan/DEIS. Many commenters asserted that the Draft Plan/DEIS needed to be revised to include a wilderness study. Many others suggested that the backcountry trail system in the NPS's preferred alternative be substantially revised. Given this response by the public, the NPS decided to prepare a Supplemental Draft Plan/SDEIS to address these issues.

5.2.5 Release of Supplemental Draft Plan/SDEIS for Public Review and Comment

The NPS released the Supplemental Draft Plan/SDEIS for public review on August 12, 2023. The public comment period extended from August 12, 2023, to September 26, 2023. Public meetings were held online on August 29, 30, and 31, 2023. The preferred alternative in the Supplemental Draft Plan/SDEIS included a wilderness study that proposed varying amounts of wilderness by alternative. The proposed trail system in the new preferred alternative represented a substantial refinement of the initial interdisciplinary team recommendation based on public comment on the Draft Plan/DEIS and follow-up fieldwork and deliberation by NPS staff. Comparably fewer substantive comments were received during the comment period in response to the Supplemental Draft Plan/SDEIS. However, in the time since its release, the preserve has received numerous correspondence and comments, including from Tribes, state agencies, local governments, and congressional delegates, in strong opposition to any wilderness proposal. These were largely received outside of the public comment period. The NPS's responses to these comments and to relevant comments on the Draft Plan/DEIS are contained in appendix J.

5.2.6 Consultation and Compliance

As part of the development of the Final Plan/FEIS, the NPS has consulted with our Tribal and agency partners including USFWS, 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 entailed the development of a separate BA, based on feedback from USFWS, to address the potential effects on listed species from the proposed action. Consultation on the BA was finalized on July 31, 2024, and is in appendix H. Consultation and compliance with the NHPA has resulted in the development of a Programmatic Agreement regarding the implementation of the Backcountry Access Plan. The Programmatic Agreement was finalized on January 30, 2024, and is included in appendix G.

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Appendixes



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APPENDIX A: ABBREVIATIONS

CAA	Clean Air Act
CWA	Clean Water Act
CFR	Code of Federal Regulations
FE	Federally Endangered
FNST	Florida National Scenic Trail
FR	<i>Federal Register</i>
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 website
PL	Public Law
SFWMD	South Florida Water Management District
SHPO	State Historic Preservation Office
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 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 Final Plan/FEIS would have varying impacts on soils. Therefore, this Final Plan/FEIS 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 Final Plan/FEIS 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*; Executive Order 11990; Director's Order 77-1; and the Clean Water Act (1972). Specifically, Director's

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 Final Plan/FEIS, the wetland statement of findings will be prepared and released for public comment when the NPS has completed the detailed design of the trail system and has specific trail-siting locations to propose. Therefore, this Final Plan/FEIS 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 NPS 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* also provides specific guidance for management of threatened or endangered plants and animals. These policies dictate that the NPS 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. Eleven of these 31 species (including one proposed) 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 USFWS. 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 Final Plan/FEIS.

Wilderness Character

Wilderness in national park system units is governed by the Wilderness Act and *NPS Management Policies 2006*. NPS management policies 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 2011b).

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 Final Plan/FEIS.

Visitor Use and Experience

NPS *Management Policies 2006* addresses “enjoyment of park resources and values by the people of the United States” as “part of the fundamental purpose of all parks.” The NPS 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 Final Plan/FEIS.

Natural Soundscapes

In accordance with NPS *Management Policies 2006* and NPS Director’s Order 47, 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 NPS 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 Final Plan/FEIS 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 on the natural soundscape within the preserve and is central to the Final Plan/FEIS. Therefore, this impact topic is analyzed in detail in the Final Plan/FEIS.

Ethnographic and Archeological Resources

As defined by the NPS *Management Policies 2006*, 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 US Department of the Interior is also legally obligated to ensure that Native American resources and lands are properly managed, protected, and conserved. The US 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 on ethnographic and archeological resources. The potential effects on the ethnographic and archeological resources require consultation under section 106 of the NHPA of 1966, as amended. Therefore, this impact topic is analyzed in detail in the Final Plan/FEIS.

DISMISSED TOPICS

Air Quality

The legal authority for federal programs regarding air pollution control is based on the 1990 Clean Air Act 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 Final Plan/FEIS.

Floodplains

The preserve's floodplains are protected under the NPS Organic Act (54 USC 100101); *NPS Management Policies 2006*; Executive Order 11988, "Floodplain Management"; and NPS 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 NPS would continue to protect and conserve the preserve's floodplains as required under the Organic Act, *NPS Management Policies 2006*, Executive Order 11988, and NPS Director's Order 77-2. Therefore, this impact topic is not analyzed in detail as a separate topic in this Final Plan/FEIS.

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 on 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 ORV trail network and proposed secondary ORV trail network expansion.

For the alternatives considered in this Final Plan/FEIS, each proposed trail (including ORV trails, airboat 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 Final Plan/FEIS; 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 on 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 on 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 Final Plan/FEIS.

Other Wildlife

In addition to special status species (discussed above), other wildlife live in the preserve. However, the 11 federally listed/proposed 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 Final Plan/FEIS.

Night Sky/Lightscares

Lighting is not a direct component of any of the proposed alternatives, and no measurable impacts on 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 Final Plan/FEIS.

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 Final Plan/FEIS.

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 Final Plan/FEIS, no person would be excluded from or discriminated against in the proposed alternatives considered in this Final Plan/FEIS. Additionally, minority or low-income populations would be treated the same way as other groups under the alternatives considered in this Final Plan/FEIS 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 Final Plan/FEIS.

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 Final Plan/FEIS.

Greenhouse Gas Emissions

Under the proposed alternatives discussed in this Final Plan/FEIS, 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 are 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 Final Plan/FEIS.

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 Final Plan/FEIS.

APPENDIX C: COMPARISON OF ALTERNATIVES

Component	Alternative 1 (no action)	Alternative 2	Alternative 3 (NPS proposed action)	Alternative 4 (NPS preferred alternative)
Concept	<p>This alternative represents the continuation of current management practices related to backcountry access within the preserve. No secondary ORV trails or new primary ORV or airboat trails would be opened.</p> <p>No wilderness would be proposed for designation.</p>	<p>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.</p> <p>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).</p>	<p>Alternative 3 would increase ORV access while balancing impacts on 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.</p> <p>Approximately 147, 910 acres would be proposed for wilderness designation in the original preserve and Western Addition.</p>	<p>Alternative 4 would be identical to alternative 3 minus a wilderness proposal.</p> <p>No wilderness would be proposed for designation.</p>
Primary ORV Trails	The system of primary ORV and airboat trails, 278 miles, would remain unchanged.	The system of primary ORV and airboat trails, 278 miles, would remain unchanged.	The system of primary ORV and airboat trails would expand from 278 miles to 331 miles.	Primary ORV trails would be the same as described in alternative 3.
Secondary ORV Trails	No secondary ORV trails would be reopened.	Fifteen miles of secondary ORV trails would be reopened in mostly highly resilient and resilient substrate types.	Fifty-three miles of secondary ORV trails would be reopened in mostly highly resilient and resilient substrate types.	Secondary ORV trails would be the same as described in alternative 3.
Hiking and Canoe Trails	<p>There would be no change to the existing system of 63 total miles of hiking trails and 15 miles of canoe trails.</p> <p>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.</p>	<p>The FNST would be realigned along 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.</p> <p>All other hiking and canoeing opportunities would be the same as in the no-action alternative.</p>	<p>The FNST would be rerouted as described in alternative 2, resulting in a new route 44 miles long.</p> <p>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.</p>	Hiking and canoe trails would be the same as described in alternative 3.

Component	Alternative 1 (no action)	Alternative 2	Alternative 3 (NPS proposed action)	Alternative 4 (NPS preferred alternative)
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 would continue to require a free permit.	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 reservations would be required and limitations on group size would be established.	Camping opportunities would be provided at 87 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 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 would be the same as described in alternative 3.
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.	Camping reservations would be as described in alternative 3.
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	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,	Stay limits would be the same as those described in alternative 2.	Stay limits would be the same as those described in alternative 2.

Component	Alternative 1 (no action)	Alternative 2	Alternative 3 (NPS proposed action)	Alternative 4 (NPS preferred alternative)
	Superintendent's Compendium.	and no more than 120 days in a calendar year.		
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.	The annual 60-day closure would be removed as described in alternative 3.
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.	No wilderness would be proposed for designation. Eligible areas would be managed to preserve their eligibility but, by policy, would not be subject to minimum requirement analyses.

APPENDIX D: VISITOR CAPACITY DETERMINATION

OVERVIEW

This appendix provides information about the visitor capacity determination. Capacities for ORVs have been identified as part of the preserve's 2000 Recreational ORV Management Plan and 2010 Addition GMP. This Final Plan/FEIS does not change those determinations (2,000 annual permits in the original preserve and 650 annual permits in the Addition lands). This Final Plan/FEIS 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 (IVUMC 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 and airboat 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 and airboat 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 on 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 and airboat 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 NPS 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 1,217 ORV permits were issued in between 2018 and 2022 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 increased somewhat between 2019 and 2021 before declining again in 2022. When the average group size in the preserve (2.5 people) is taken into consideration, this represents approximately 3,043 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 on 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 backcountry users for every 1 mile of nonmotorized trail). 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 Final Plan/FEIS seek to protect and help assess impacts on 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 NPS 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 221 miles of primary ORV trail and 57 miles of airboat trail in the preserve (278 miles total). The 2000 Recreational ORV Management Plan set a combined cap of 400 miles of primary ORV and airboat trails. One alternative in this Final Plan/FEIS proposes an increase in both ORV and airboat trail miles. However, additional trail mileage for primary ORV trails, secondary ORV trails, and airboat 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 network of primary ORV, secondary ORV, and airboat trails, 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 ORV, secondary ORV, and airboat 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 on 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 system of primary ORV and airboat trails 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 430 nonmotorized users a day in the original preserve and Addition.

Alternative 3 (NPS Proposed Action) and Alternative 4 (NPS Preferred Alternative)

Alternatives 3 and 4 would expand the current mileage of primary ORV trails by 15 miles and airboat trails by 39 miles, for a total of approximately 332 miles. In addition, under alternatives 3 and 4, 54 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 nonmotorized 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 alternatives 3 and 4 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 (IVUMC)

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 NPS began a wilderness study of the original preserve and certain adjacent areas in July 2015. See *Federal Register* 80: 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 *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 NPS 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 ORV trails, recently closed secondary ORV trails, and trails recommended by the Off-Road Vehicle Advisory Committee. For the purposes of this eligibility assessment, it was assumed that evidence of ORV use is substantially noticeable on recently closed secondary trails and ORV 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 ORV trails in the preserve's motorized 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 practicably 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 trammied 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 untrammied 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 ORV trails in the preserve's motorized 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 practicably 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 ORV 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 untrammelled 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 ORV trails in the preserve's motorized 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 untrammelled 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 untrammelled 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

Table E-1 lists the reference areas and the corresponding acreages for the eligible wilderness depicted in the two reference maps.

Table E-1. Wilderness Assessment Areas and Associated Acreages

Assessment Area	Acres
Stairsteps Unit – Zone 1 ¹	9,518
Stairsteps Unit – Zone 2 ¹	25,912
Stairsteps Unit – Zone 3 ¹	15,967
Stairsteps Unit – Zone 4 ¹	26,809

Assessment Area	Acres
Loop Unit	50,707
Corn Dance Unit ²	18,468
Turner River Unit ²	65,901
Deep Lake	25,735
Bear Island Unit	8,061
Western Addition	10,684
TOTAL	257,762

Notes:

¹ This area is adjacent to a large contiguous block of wilderness in Everglades National Park.

² 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

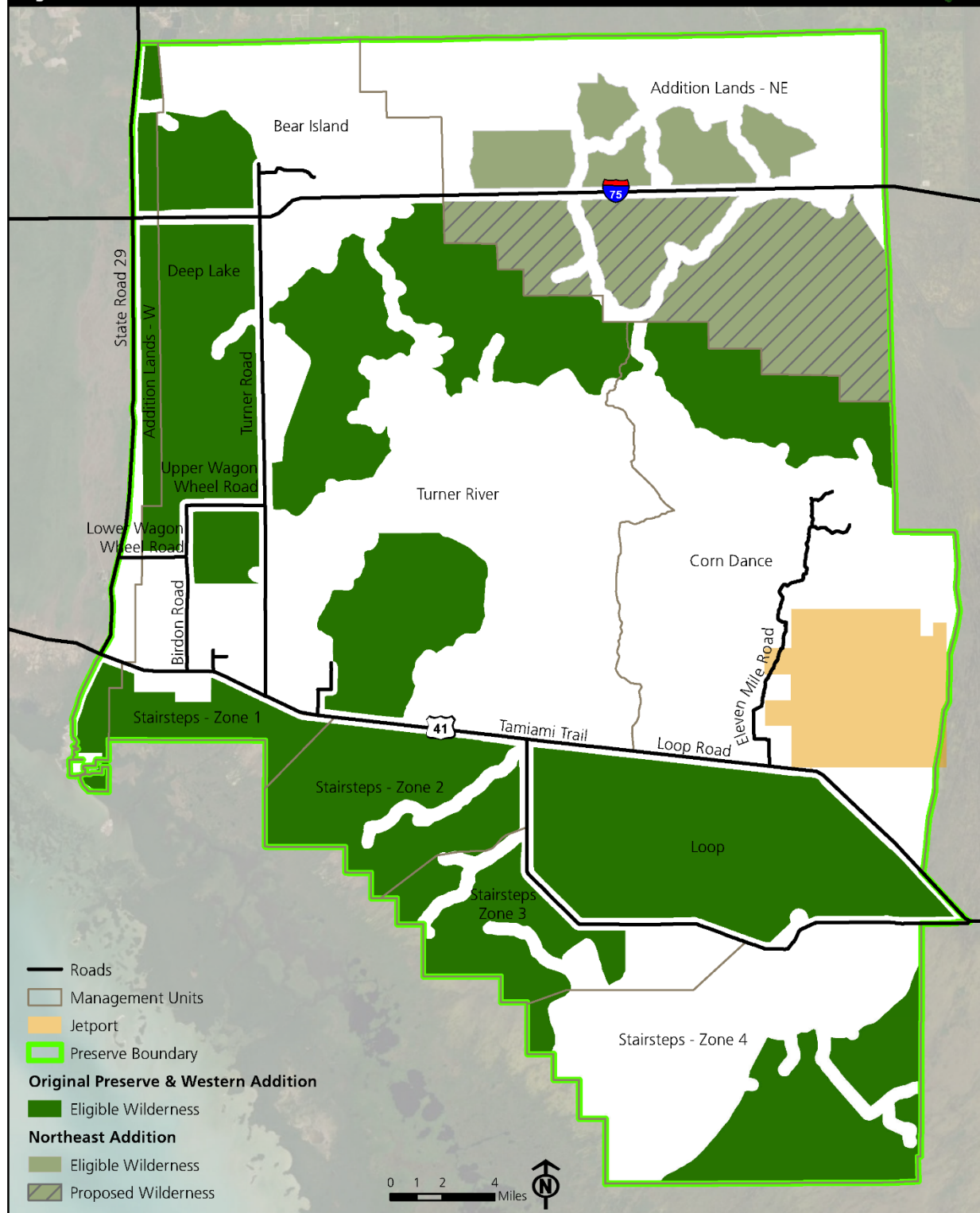


FIGURE E-1. WILDERNESS ELIGIBILITY MAP

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 *Final Backcountry Access Plan / Wilderness Study / Environmental Impact Statement* (Backcountry Access Plan) (2024). Similarly, nonmotorized trails have been established pursuant to the *Final General Management Plan* for the original preserve (1991) and the 2024 Backcountry Access Plan.

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 motorized trails (primary ORV, secondary ORV, and airboat) 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

Table F-1. 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"> • Evaluation • Education • Enforcement (fines/cost recovery) • Clearer marking of additional trail/destination markings • Temporary or permanent closure of trail • Reduction in allowable visitor numbers for the trail and corresponding destinations (reservation system) • Closure of trail
ORV trail depth/rutting	Ruts >12 inches on more than 20% of primary/secondary ORV trail	<ul style="list-style-type: none"> • Evaluation • Education • Enforcement (fines/cost recovery) • Spot trail repairs/recontouring (via hand and mechanical tools if approved by regulatory agencies) • Minor rerouting of trail to more sustainable alignment • Clearer or additional trail/destination markings • Temporary or permanent closure of trail • Restrictions on vehicle clearance to limit depth of soil rutting and increase ability of trails to sustain traffic • Reduction in allowable visitor numbers for the trail and corresponding destinations (reservation system)
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"> • Evaluation • Education • Enforcement • Spot trail repairs/recontouring (via hand and mechanical tools if approved by regulatory agencies) • Minor rerouting of trail to more sustainable alignment. • Closure of trail (including not reopening a proposed trail due to excessive unsuitable substrates) • Clearer or additional trail markings • Reduction of allowable visitor numbers for the trail and corresponding destinations (reservation system)
Hiking trail depth/rutting	Ruts 6 inches deep observed on more than 20% of a nonmotorized trail.	<ul style="list-style-type: none"> • Evaluation • Education • Enforcement • Spot trail repairs/recontouring (via hand and mechanical tools if approved by regulatory agencies) • Minor rerouting of trail to more sustainable alignment • Clearer or additional trail/destination markings • Temporary or permanent closure of trail • Reduction in allowable visitor numbers for the trail and corresponding destinations (reservation system)
Number of instances of off-trail travel by ORVs	Observed noncompliance	<ul style="list-style-type: none"> • Evaluation • Education • Enforcement (fines/cost recovery) • Clearer or additional trail/destination markings • Exclusion/closure of secondary trails, destinations.

Indicator	Threshold	Adaptive Management Action
Natural resource impacts at destinations	Failure to adhere to Leave No Trace principles at backcountry destinations.	<ul style="list-style-type: none"> • Evaluation • Education • Reservation system for use of destinations • Exclusion/closure of secondary trails, destinations • Restoration
Disturbance of special status species (2010 Addition GMP)	Visual observance or regulatory consultation	<ul style="list-style-type: none"> • Temporal or spatial closure, exclusion of trails and/or destinations
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"> • Education • Restoration • Area closure

**APPENDIX G: PROGRAMMATIC AGREEMENT REGARDING
IMPLEMENTATION OF BIG CYPRESS NATIONAL PRESERVE
BACKCOUNTRY ACCESS PLAN**

PROGRAMMATIC AGREEMENT AMONG
THE NATIONAL PARK SERVICE BIG CYPRESS NATIONAL PRESERVE,
THE FLORIDA STATE HISTORIC PRESERVATION OFFICER,
AND THE SEMINOLE TRIBE OF FLORIDA
REGARDING

THE IMPLEMENTATION OF THE *BIG CYPRESS NATIONAL PRESERVE FINAL BACKCOUNTRY ACCESS PLAN/WILDERNESS STUDY/ENVIRONMENTAL IMPACT STATEMENT*, AND THE *BIG CYPRESS NATIONAL PRESERVE – ADDITION FINAL GENERAL MANAGEMENT PLAN/WILDERNESS STUDY/OFF-ROAD VEHICLE MANAGEMENT PLAN/ENVIRONMENTAL IMPACT STATEMENT*,
COLLIER, MIAMI-DADE, AND MONROE COUNTIES, FLORIDA

WHEREAS, Big Cypress National Preserve (BICY) has developed a “Backcountry Access Plan/Wilderness Study/Environmental Impact Statement” (the BAP) with objectives to reopen select primary and secondary Off-Road Vehicle (ORV) trails in the original Preserve, including airboat trails; expand the hiking trail system; reopen and designate destinations; designate a backcountry campground on a former oil well-pad in the Bear Island Unit of the original Preserve; repair, replace, and install trail markers and trail signs; formally establish the ORV connecting route between Bear Island Grade (in the original preserve) and Bundschu Grade (in the Northeast Addition) to a preexisting trail near the southern end of Bundschu Grade; and reopen an ORV connecting route between the original Preserve and the BICY Addition through Mullet Slough (see Appendix B Maps); and

WHEREAS, BICY has developed the “Big Cypress National Preserve – Addition Final General Management Plan/Wilderness Study/Off-Road Vehicle Management Plan/Environmental Impact Statement” (the Addlands GMP) with objectives to reopen primary ORV trails in the Northeast Addition of BICY (see Appendix B Maps); and

WHEREAS, the NPS shall undertake a federal rulemaking process for the combined implementation of the BAP and the Addlands GMP, followed by the establishment of the resulting parkwide trail system and reopening of trails (the Undertaking); and

WHEREAS, the NPS, of which Big Cypress National Preserve is a part, has determined the Undertaking is subject to review under Section 106 of the National Historic Preservation Act (NHPA), Title 54 USC § 306108, and its implementing regulations, 36 Code of Federal Regulations (CFR) Part 800 (referred collectively to as “Section 106”); and

WHEREAS, the NPS, of which Big Cypress National Preserve is a part, has determined this is an Undertaking as defined under 36 CFR 800.16(y) and is a collection of individual undertakings that have the potential to affect historic properties; and

WHEREAS, the NPS, in consultation with the Florida State Historic Preservation Office (SHPO), has identified the Area of Potential Effect (APE) for the Undertaking, which includes the entire Big Cypress National Preserve; and

WHEREAS, the NPS has prepared Environmental Impact Statements (EIS) to analyze the potential environmental impacts of the Undertaking in accordance with the National Environmental Policy Act (NEPA); and

WHEREAS, NPS-administered public lands in the BICY contain numerous historic properties, and these properties are archeological, historical, of traditional and/or cultural importance to Native American Tribes in the region and by their very nature, are non-renewable resources and of great worth to the American public; and

WHEREAS, the NPS plans for, operates, manages, and administers the National Park System (the System) and is responsible for identifying, preserving, maintaining, and interpreting the historic properties of the System unimpaired for the enjoyment of future generations in accordance with the 1916 National Park Service Organic Act, the NPS Management Policies (2006), and applicable NPS Directors Orders; and

WHEREAS, the NPS has determined that effects cannot be fully determined prior to the approval of the EIS according to 36 CFR 800 Subpart C 800.14(b)(1)(ii) and has developed this Programmatic Agreement (Agreement) pursuant to 36 CFR 800.14(b)(3); and

WHEREAS, the NPS will take a phased approach to determining the effects on historic properties of undertakings proposed as a part of the Backcountry Access Plan; and

WHEREAS, in accordance with 36 CFR 800.6(a)(1), the NPS has notified the Advisory Council on Historic Preservation (ACHP) of the determination that effects on historic properties cannot be fully determined prior to approval of the Undertaking with specified documentation, and on February 11th, 2021, the ACHP agreed to participate as a Consulting Party to this agreement; and

WHEREAS, pursuant to 36 CFR 800.2(c)(1), the Florida State Historic Preservation Officer (SHPO) has responsibilities under the NHPA to advise and assist the NPS in complying with its Section 106 responsibilities for proposed Undertaking and is a Signatory to this Agreement; and

WHEREAS, the NPS acknowledges the special expertise of Tribal nations and the value of Indigenous Knowledge (IK) in identifying and evaluating cultural resources and properties of significance.

WHEREAS, pursuant to the special relationship between the federal government and Native American Tribes, and Section 101(d)(6)(B) of the NHPA (54 USC 302706(b)), 36 CFR 800.2(c)(2)(ii), the NPS is responsible for government-to-government consultation with federally recognized Native American Tribes; and

WHEREAS, the NPS has invited the Seminole Tribe of Florida, the Miccosukee Tribe of Indians of Florida, and the Seminole Nation of Oklahoma to participate as Consulting Parties. The Seminole Tribe of Florida has agreed to participate as a Signatory to this

agreement. The Miccosukee Tribe of Indians of Florida, and the Seminole Nation of Oklahoma has agreed to participate as Consulting Parties; and

WHEREAS, the NPS commits to afford Tribal Officials the appropriate respect and dignity as leaders of sovereign nations and will make every effort to understand and consider Tribal interests in these lands. The NPS has committed to carrying out its responsibilities to consult and coordinate with Native American Tribes with the further understanding that, notwithstanding any decision by these Native American Tribes to decline concurrence with this Agreement, the NPS shall continue to consult and coordinate with these Native American Tribes throughout the implementation of this Agreement; and

WHEREAS, unless otherwise indicated, the terms used in this Agreement are defined in Appendix A – Acronyms, Abbreviations, and Definitions and are consistent with the definitions found in 36 CFR 800.16; and

WHEREAS, for the purposes of this Agreement, “Consulting Parties” collectively refers to the Signatories, and Concurring Parties regardless of their decision to sign this Agreement; and

WHEREAS, the NPS is the federal agency responsible for ensuring that all stipulations of this Agreement are carried out

NOW, THEREFORE, the NPS, SHPO and ACHP agree that the Undertaking shall be implemented in accordance with the following stipulations in order to consider the effects of the Undertaking on historic properties.

STIPULATIONS

The NPS will ensure that the following measures are carried out.

I. AREA OF POTENTIAL EFFECT

For the purposes of this Agreement, the NPS, in consultation with the Consulting Parties, has defined the Undertaking to encompass the entire Big Cypress Preserve. As defined at 36 CFR 800.16(d), “The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.”

The individual actions completed under this Agreement for this Undertaking will have specific Areas of Potential Effects due to the nature of their action. These actions include the following: reopen select primary and secondary ORV trails in the original Preserve, including airboat trails; reopen primary trails in the Northeast Addition of the Preserve; reopen and designate destinations for backcountry camping; expand the hiking trail system; create a new backcountry campground on disturbed lands in the Bear Island Unit of the original Preserve; repair, replace, and install trail markers and trail signs; formally establish the ORV connecting route between Bear Island Grade and Bundschu Grade to a preexisting trail near the southern end of Bundschu Grade; and reopen an ORV connecting route between the original Preserve and the BICY Addition through Mullet Slough (see Appendix B: Maps).

NPS, in consultation with the Consulting Parties, will define and document the Area of Potential Effects (APE) (36 CFR 800.16(d)) for the individual actions identified above, based

on their potential to alter directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register of Historic Places (NRHP) in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling or association.

The individual actions done under this Agreement will require refined individual APE's as they are developed.

- A. The following shall be used as guidance when defining the APE for actions under this Agreement:
 - 1. Direct Effects: As per the ACHP's memo "Recent court decision regarding the meaning of "direct" in Sections 106 and 110(f) of the National Historic Preservation Act", the meaning of the term "directly" in Section 110(f) refers to the causality, and not the physicality, of the effect. This means that if the effect comes from the undertaking at the same time and place with no intervening cause, it is considered "direct" regardless of its specific type (e.g., whether it is visual, physical, auditory, etc.). A "direct effect" is an effect that will have a direct impact on any of the aspects of integrity that may a property eligible for the National Register of Historic Places.
 - 2. Indirect Effects: As per the ACHP's memo "Recent court decision regarding the meaning of "direct" in Sections 106 and 110(f) of the National Historic Preservation Act", "indirect" effects are those caused by the undertaking that are later in time or farther removed in distance but are still reasonably foreseeable.
 - 3. Cumulative Effects: Cumulative effects are the impact on the historic properties that result from the total impact of the Undertaking. For the purposes of this Agreement, the APE for cumulative effects will be the Preserve.
- B. If the APE includes or is located immediately adjacent to Traditional Cultural Places (TCP) or properties of religious or cultural significance; or other classes of historic properties for which setting, feeling and/or association contribute to eligibility, additional analysis of the APE shall be required. This analysis should be conducted on a case-by-case basis in consultation with the Consulting Parties in accordance with the provisions and timelines of Stipulation IX and X.
- C. Modifying the APE. The APE shall be modified when additional research, cultural surveys, consultation with the Consulting Parties, or changes to the scope of the Undertaking indicate that historic properties located outside the boundaries of a previously defined APE may be affected directly, indirectly, or cumulatively by the Undertaking. Modifications to the APE shall be allowed only when there is sufficient evidence that the APE is larger than the APE described above; decreases to the APE are not permitted. The APE shall be modified through the following steps:
 - 1. A proposal for modification of the APE shall be made by the BICY Superintendent or a Consulting Party with written justification for, and a graphic illustration of, the proposed APE modification(s).

2. The BICY Superintendent shall communicate the modification proposal(s) to all Consulting Parties in accordance with the provisions and timelines of Stipulations X.
3. Following consultation, the BICY Superintendent shall decide on the proposed modification(s) and notify the Consulting Parties within seven (7) calendar days. The BICY Superintendent shall proceed with identification and evaluation of historic properties, assessment of effect, and resolution of adverse effects for the modified APE in accordance with the processes outlined in Stipulations II through VII.

II. IDENTIFICATION OF HISTORIC PROPERTIES

Inventory is meant to ensure that the nature and distribution of historic properties in areas affected by the NPS undertaking are identified by professional cultural resource staff that meet or exceed the Secretary of Interior Standards as defined by 36 CFR 800.2(a)(1)

The NPS shall make a reasonable and good faith effort to identify historic properties (including those of cultural and religious significance) located within the APE for the Undertaking.

- A. In accordance with Executive Orders 13007, 11593, and 13175 and as a part of preliminary planning and identification efforts, the NPS will consult with the Seminole Tribe of Florida, the Miccosukee Tribe of Indians of Florida, and the Seminole Nation of Oklahoma to identify culturally sensitive areas to be avoided by trails.
- B. Phased Investigations: The NPS will conduct investigations for identification of historic properties in a phased approach. Consistent with the phased process for Section 106 compliance under this Programmatic Agreement (PA), the NPS shall submit separate Section 106 consultation letters for each Phase. Each Phase will consist of a grouping of individual actions that have been proposed as a part of the Undertaking. Each Phase or piece thereof will be completed as Preserve conditions and resources permit.
 1. Phase 1 – The NPS will evaluate Primary ORV trails that are airboat only, Primary ORV trails that are situated on former tram roads and former roads that have been elevated above the natural surface using fill, hiking trails, and the proposed Backcountry campground on a former well-pad in the Bear Island Unit of the Original Preserve.
 2. Phase 2 – The NPS will evaluate the ORV connecting route between Bear Island Grade and Bundschu Grade and the ORV connecting route between original Preserve and BICY addition through Mullet Slough.
 3. Phase 3 – The NPS will evaluate the remaining Primary ORV trails, Secondary Trails, and Destinations as Preserve conditions and resources permit.
- C. Existing Information Inventory: At the beginning of the planning process for each Phase the NPS will conduct a records search and archival/literature review of the

APE, including a 1-mile buffer for information pertaining to the presence of previously recorded sites and the history of conditions within the APEs of the Phase. The NPS will also solicit and take into account information provided by the Consulting Parties.

The NPS will utilize the results of the completed records search and information provided by the Consulting Parties when determining the level of inventory necessary for the Phase.

1. If the NPS cultural resources specialist determines that previous ground disturbance has modified the surface so that the probability of finding intact Historic Properties within the boundaries of the proposed ground disturbance for a Project is negligible, it may be exempt from a full Cultural Resources Assessment Survey (CRAS).
 - a. When such a determination is made, the NPS will consult with the Consulting Parties in accordance with Stipulations X and XI of this Agreement.

D. Cultural Resources Assessment Survey: When the results of the completed records search and information provided by the Consulting Parties indicate a CRAS is needed for the Phase, the NPS will adhere to the following guidelines.

1. The NPS will complete the CRAS using a combination of the probability model previously developed by SEAC (Ehrenhard 1980; Schwadron 2002) and the CRAS standards set forth in the Florida Division of Historical Resources Module 3: Guidelines for Use by Historic Preservation Professionals.
 - a. The model will not be used to predict historic period sites. The placement of historic sites on the landscape likely corresponds to different variables than those of prehistoric sites, and almost certainly varies between historic site types (e.g., agriculture, ranching, and logging). In addition, archeologists often find historical sites using other archival information, such as General Land Office (GLO) records and land patents.
 - b. The completed CRAS will be submitted to the consulting parties for their review and comment consistent with Stipulations X, XI and XII.
2. Culturally sensitive areas
 - a. The NPS will identify these areas in consultation with Native American Tribes, applicable local communities, and other Consulting Parties.
 - b. The NPS will avoid excavating or shovel testing any areas that are identified by the Native American Tribes as culturally sensitive, including, but not limited to: burial resources, traditional cultural places (TCPs), traditional cultural landscapes, important or religious or sacred sites.
 - c. The probability model will not be used to predict culturally sensitive areas; consultation with the Native American Tribes is required to identify these.

- E. Fieldwork: Prior to the beginning of fieldwork for a CRAS, the NPS will submit a Research Design for review by the Consulting Parties. The Research Design will become an Appendix to this Agreement.
 - 1. The Consulting Parties will have 30 calendar days from receipt of the Research Design to forward comments to the NPS. The NPS will revise the Research Design, as necessary, to address these comments. If a Consulting Party fails to submit written comments within 30 calendar days of receipt of the Research Design and does not request a review extension either verbally or in writing within this period, the NPS may assume that Consulting Party has no comments on the Research Design or objections to its adequacy.
- F. Timeframe for Completing Identification Efforts: The timeframe will be dependent on resources available to the NPS (e.g., budget and staffing levels) and the fieldwork phases. The NPS will seek additional funding opportunities and partnerships to complete fieldwork, where appropriate, with the goal to complete the investigation of Phases 1 and 2 within 6 months to 1 year and the project in total within 1 to 3 years from the implementation of this Agreement.

III. EVALUATION OF HISTORIC PROPERTIES

- A. National Register Eligibility: In consultation with the SHPO and any Native American Tribe that attaches religious and cultural significance to any prehistoric or historic district, site, building, structure, or object, except those defined in Stipulation II.A.3 and guided by the Secretary's Standards and Guidelines for Evaluation, the NPS shall apply the National Register criteria (36 CFR 63) to cultural resources identified within the APE.
- B. The NPS shall ensure that archeological, ethnographic, historic, or other supporting information provided by its Consulting Parties or other knowledgeable sources will be appropriately used to support determinations of eligibility. All previously recorded eligible sites or sites that need additional data to determine NRHP eligibility within the APE must be revisited. Sites that need additional data will be treated as eligible properties for the purposes of inventory and preservation until and/or if determined otherwise. Sites determined not eligible do not require revisits during inventory and evaluation; however, the NPS archeologist may request that ineligible sites be revisited on a case-by-case basis. If the NPS determines that any of the National Register criteria for evaluation (36 CFR 60.4) are met, the resource retains integrity and the SHPO concurs, the cultural resource shall be considered eligible for the National Register (36 CFR 800.4(c)(1) and (2)). All documentation for new and existing sites will be documented on Florida Master Site File forms and adhere to the Florida Division of Historical Resources recording standards.

IV. AVOIDANCE OF EFFECTS

The following provisions shall be applied to avoid effects to Historic Properties. This Agreement allows for determinations of effect to be made after avoidance through standard

treatment measures and/or best management practices have been integrated into the Undertaking's design.

A. Avoidance of Effects

1. The NPS shall make a reasonable and good faith effort to avoid any potential adverse effects to Historic Properties within the Undertaking's APE, including properties of traditional religious and cultural importance to the Native American Tribes consistent with Executive Order 13007 (Indian Sacred Sites). Avoidance shall be sought through Undertaking design, redesign, relocation of proposed trails, destinations, and campgrounds, or by other means in a manner consistent with this Agreement. Any avoidance measures will be incorporated into the decision or authorization for each undertaking and consulted on with the Consulting Parties consistent with Stipulations X, XI and XII.

V. MINIMIZATION OF EFFECTS

The following provisions shall be applied to minimize effects to Historic Properties. This Agreement allows for determinations of effect to be made after minimization measures through standard treatment measures and/or best management practices have been integrated into the Undertaking's design.

A. Minimization of Effects

1. In the event avoidance of a Historic Property is not possible, the NPS shall make a reasonable and good faith effort to minimize any potential adverse effects to Historic Properties within the Undertaking's APE. Minimization shall be achieved through Undertaking design, redesign, relocation of proposed trails, destinations, and campgrounds, or by other means in a manner consistent with this Agreement. All minimization measures will be consulted on with the Consulting Parties in accordance with Stipulations X, XI and XII and all consultation will be documented in an Appendix (Appendix D) to this PA that tracks minimization measures.

VI. ASSESSMENT OF EFFECTS

Following the application of avoidance and minimization measures as described in Stipulations IV and V above, the NPS will recommend a finding of effect for all historic properties identified within the APE as defined in 36 CFR 800.

- A. Input from Consulting Parties:** After each Cultural Resources Assessment Survey (CRAS) is complete, the NPS will provide the Consulting Parties the opportunity to review and comment on the NPS's findings and preliminary eligibility recommendations found in the CRAS report.
1. In accordance with 36 CFR Section 800.4(c)(1), the NPS acknowledges that Native American Tribes possess special expertise in assessing the eligibility of historic properties that may possess religious and cultural significance to them.

- B. SHPO Consultation: After consulting with Native American Tribes the NPS will submit the CRAS report to the SHPO, along with determinations of eligibility, findings of effect, and any comments received from Native American Tribes.

VII. RESOLUTION OF ADVERSE EFFECTS

In the event avoidance or minimization of adverse effects to a Historic Property is not possible, the NPS shall make a reasonable and good faith effort to mitigate any potential adverse effects to Historic Properties within the Undertaking's APE. All mitigation measures will be consulted on with the Consulting Parties in accordance with Stipulations X, XI and XII, and all consultation will be documented in an Appendix to this PA that tracks mitigation measures.

- A. Historic Properties Treatment Plans: If the NPS determines that the Undertaking may have an adverse effect on a historic property or multiple historic properties, the NPS shall consult with the SHPO, Native American Tribes, and other Consulting Parties to develop a Historic Properties Treatment Plan (HPTP) that will detail the measures that the NPS will implement to mitigate adverse effects on historic properties in accordance with 36 CFR 800.6. The HPTP will identify the effects of the undertaking on each historic property and identify the most appropriate treatment strategy(ies).
 - 1. Potential mitigation measures: Potential mitigation measures to resolve adverse effects from the Undertaking may include, but are not limited to: those that are designed to prevent trail use such as installing closure signs, changing the trail or destination location, installing physical barriers, and conducting site stabilization efforts. Additional measures could include historical research, interpretation, photo documentation, intensive recording, periodic monitoring, and archeological excavation. Trail and destination designation decisions will also be revisited as necessary.
 - 2. Public education: The NPS will continue to dedicate available staff, funding, and other resources to proactively promote and enforce responsible trail uses and ethics. Such efforts will include continuing to support campaigns to reduce vandalism and unauthorized collection of archeological resources.
- B. Input from Native American Tribes and Other Consulting Parties: After the Native American Tribes and other Consulting Parties are provided the HPTP or a summary of treatment recommendations, the NPS will coordinate with the Native American Tribes and other Consulting Parties to discuss the treatment recommendations. The NPS will revise the HPTP, as necessary, to address comments from this consultation process.
- C. SHPO Consultation: After consulting with Native American Tribes and seeking input from the other Consulting Parties, the NPS will submit the HPTP to the SHPO along with any comments received. The SHPO will have 30 working days from receipt of the report to forward comments to the NPS. The NPS will revise the HPTP, as necessary, to address these comments. If SHPO fails to submit written comments within 30 calendar days of receipt of the report and does not request a review extension either verbally or in writing within this period, the NPS may assume the SHPO has no

comments on the measures identified in the HPTP or objections to the adequacy of the plan.

VIII. MONITORING AND REPORTING

The NPS will submit copies of its survey reports for each Phase to the Consulting Parties and a final report that details all work completed pursuant to the terms of the Agreement. The sharing of all draft survey reports and final reports shall be consistent with Stipulations IX, X, and XI.

- A. The NPS shall provide to the Consulting Parties a draft survey report in electronic or print format as requested describing the findings of the work for a 30-day review and comment period starting upon receipt. Information will be shared with the Consulting Parties, as appropriate and in conformance with ARPA and NHPA Section 304.
- B. The draft survey report shall include, as appropriate, recommendations on NRHP eligibility or potential eligibility of all identified archeological sites (and if applicable any newly identified historic properties), recommendations for further archeological investigations, the potential effects of the undertaking on historic properties, and suggested measures to resolve adverse effects through avoidance, minimization, or mitigation. The Consulting Parties shall provide their comments to the NPS within thirty (30) days from the date of receipt of the draft survey report. If no comments are received within the 30-day period, the NPS shall assume that the non-responding party has no comments. If the Consulting Parties concur with the recommendations for that phase, the NPS may proceed with the next phase. If the Consulting Parties do not concur with the NPS' recommendations for that phase, the parties shall consult further to resolve the issues following the provisions for dispute resolution in Stipulation IX of this document.
- C. The NPS shall ensure that the draft survey reports for all phases of the Project are incorporated into one final report. The Consulting Parties shall provide their comments on the draft final report to the NPS within thirty (30) calendar days from date of receipt of the draft final report. If the NPS does not receive comments within the thirty (30) day comment period, the NPS shall assume that the non-responding party has no comments. The NPS shall ensure that all comments on the draft final report received during the 30-day period are considered in preparation of the final report. The NPS shall submit two (2) archivally bound hardcopies and one electronic copy in Adobe® Portable Document Format (.pdf) of its approved final report to the Consulting Parties, in an agreed upon format.
- D. All cultural resource work performed under the terms of this Agreement shall be carried out by or under the direct supervision of a professional who meets the Secretary of the Interior's Professional Qualifications Standards (48 FR 44739) in the appropriate discipline.
- E. All archeological studies conducted pursuant to this Agreement shall be consistent with the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (48 FR 44716-44742, September 1983), the ACHP's Section 106

Archeology Guidance (June 2007) and the SHPO's Guidelines (Module 3: Guidelines for Use by Historic Preservation Professionals; and Archeological Reports Standards and Guidelines, Chapter 1A-46, Florida Administrative Code).

IX. PROFESSIONAL QUALIFICATIONS AND STANDARDS

The NPS shall ensure that all work undertaken to satisfy the terms of this Agreement shall conform to the Secretary of Interior's Professional Qualifications and Standards for Archeology and Historic Preservation [48 Fed. Reg. 44716, September 29, 1983], the [ACHP guidance on archeology](#), and the appropriate SHPO standards and requirements.

- A. Professional Qualifications: The NPS shall ensure that all activities relating to identification, evaluation and resolution of adverse effect undertaken as a part of this Agreement are carried out by or under the direct supervision of a person or persons meeting, at a minimum, the applicable professional qualification standards set forth in the Secretary's Standards [48 Fed. Reg. 44716, September 29, 1983 and 36 CFR 61], the Office of Personnel Management NPS professional qualifications for archeological and historic preservation and any written professional or permitting requirements of the SHPO.
 - 1. The NPS shall ensure that activities relating to the identification and evaluation of faunal remains when there is doubt as to their origins will be carried out by or under the direct supervision of an expert in bioarcheology, osteology, or zooarchaeology as needed. An expert means a person who possesses a postgraduate degree in the area of expertise needed and who has a minimum of 1 year of laboratory experience in skeletal analysis and reconstruction.
- B. Archeological Resource Protection Act (ARPA) Permits: Identification and evaluation activities conducted under this Agreement by non-NPS staff shall be conducted only after qualified cultural resource professionals have obtained ARPA Permits for field work.

X. CONSULTATION

Throughout the duration of this Agreement, the NPS shall seek consensus with the Consulting Parties through the exchange of information, open discussion, and joint deliberations, and by incorporating Indigenous Knowledge (IK).

- A. The NPS shall submit documentation relating to the Undertaking under this Agreement to the ACHP, if required, and to the Consulting Parties following the provisions of this Agreement. Unless otherwise agreed, or specified within a Stipulation to this Agreement, those parties shall have thirty (30) calendar days from receipt of the request to review the submitted documentation and provide response, comment, or request additional time (the NPS will ensure all due dates for input are included on any correspondence).
 - 1. If a Consulting Party has not responded to the submitted documentation within thirty (30) calendar days of receipt, the NPS shall make at least one attempt to follow-up with them, via electronic mail and telephone, to verify that the

Consulting Party does not have any input about the issue under consideration. If, after this effort to reach an unresponsive Consulting Party, there has still been no response, the NPS shall proceed to the next step in the relevant process under this Agreement.

2. If a Consulting Party requires additional time for consultation, they may request an extension in writing. The NPS shall attempt to accommodate such requests if they do not negatively affect other scheduled planning efforts.
 3. If comments received from a Consulting Party require only minor editorial corrections, such as spelling, grammatical, formatting and punctuation errors, the NPS shall execute the changes and shall consider the consultation completed.
 4. If substantive changes, meaning changes other than spelling, typographical and grammatical corrections are required, the NPS shall execute and provide draft copies of the revised documents to the Consulting Parties with a request for second review and comment. The Consulting Parties shall have 30 calendar days to provide comments on the revised draft. The NPS may, in consultation with the Consulting Parties and the SHPO, modify the duration of further review periods depending on the nature and complexity of the documentation in question.
 5. The NPS shall consider all comments submitted during the review period and shall consult with the Consulting Parties to resolve differences or disagreements. If differences or disagreements cannot be resolved, the NPS shall elevate the matter to the ACHP in accordance with 36 CFR 800.5(c)(3)(i) and (ii).
- B. Communications among Consulting Parties: Official correspondence from the BICY Superintendent to Consulting Parties regarding the Agreement and the undertakings covered by this Agreement will be conducted primarily through electronic mail. If a Consulting Party desires hard copy communication for all or portions of the correspondence and documentation regarding the Agreement and the undertakings covered in this Agreement, they must submit notification of their desires to the BICY Superintendent. The BICY Superintendent shall then identify alternative arrangements with the Consulting Party, which will allow the Consulting Party the opportunity to consult by other than electronic means within the timeframes specified in this Agreement. Consulting Parties may, at any time, notify the BICY Superintendent of their desires to change the format that consultation is conducted in. The BICY Superintendent is required to identify alternative arrangements within thirty (30) calendar days of receipt of notification by a Consulting Party (the NPS will ensure all due dates for input are included on any correspondence).
- C. Final Agreement: The final Agreement, any amendments to the Agreement, any agreements that flow from the Stipulations of this Agreement and all reports associated with this Agreement shall be posted on the NPS webpage and/or made otherwise accessible to the public, subject to the confidentiality considerations defined in Stipulation XI.

XI. TRIBAL CONSULTATION

The NPS is the federal agency responsible for notification, coordination, and consultation with the federally recognized Native American Tribes under this Agreement. The NPS shall coordinate and consult on a government-to-government basis with the Native American Tribes in the identification, evaluation, and treatment of resources to which the Native American Tribes may attach religious and cultural significance and in the determination of whether they are historic properties. Government-to-government consultation with Native American Tribes shall continue through the life of this Agreement.

- A. The NPS shall seek Tribal participation in association with Section 106 identification, evaluation and treatment efforts associated with individual undertakings throughout the life of this Agreement. When identifying Consulting Parties, the BICY Superintendent shall review and familiarize themselves with previous consultations to identify Tribal Consulting Parties. Government-to-government consultation and coordination shall be consistent with NPS standards and guidelines.
- B. Throughout the life of this Agreement, Native American Tribes may identify specific resources that: (1) meet the definitions of historic properties [36 CFR 800.16(l) and 36 CFR 60.3], defined as districts, sites, buildings, structures and objects and properties of traditional religious and cultural importance [36 CFR 800.16 (I)(l)] or (2) meet the definitions of TCPs or Native American sacred sites (see National Register Bulletin 38 and Executive Order 13007).
- C. Communication between the NPS and the Native American Tribes shall follow the standards and timelines identified in Stipulation IX (the NPS will ensure all due dates for input are included on any correspondence).
- D. Points of Contact.
 - 1. The BICY Superintendent, or their designee, shall be the NPS point of contact for government-to-government communication correspondence relating to this Agreement.
 - 2. The elected Tribal official of federally recognized Native American Tribes shall be the official point of contact for government-to-government communication. A representative(s), in addition to the elected Tribal official, may be designated by the Tribal Government to represent the Tribe for purposes of coordination. Representatives appointed by Native American Tribes could include but are not limited to; Cultural Preservation Departments, Cultural Representatives, and/or Tribal Historic Preservation Officers (THPOs).

XII. CONFIDENTIALITY AND SENSITIVE INFORMATION

Information concerning the nature and location of all historic properties, archeological resources (historic or prehistoric) or other confidential cultural resources shall be considered sensitive and protected from release under the provisions of the Freedom of Information Act (5 USC § 552, as amended by Public Law No. 104-231, 110 Stat. 3048), Section 9 of the Archeological Resources Protection Act (ARPA), as amended (16 USC § 470hh), Section 304 of the NHPA (54 USC § 307103), and Executive Order 13007.

Consideration may result in the sharing of summary reports that do not contain sensitive location information. Other than the FL SHPO, the Tribal Consulting Parties, and ACHP, the NPS will only consider the release of complete reports or other information concerning the nature and location of all historic properties, archeological resource, or other confidential cultural resource to a Consulting Party with a demonstrated interest in the information requested. All Consulting Parties will ensure that all sensitive information, as defined in Section 9 of ARPA, as amended (16 USC § 470hh) and Section 304 of the NHPA (54 USC § 307103) and excluded under the Freedom of Information Act (5 USC § 552, as amended by Public Law No. 104-231, 110 Stat. 3048) is protected from release.

XIII. CURATION

- A. The NPS will have a limited collection policy for all cultural resources investigations associated with these undertakings.
 - 1. Only diagnostic materials not associated with Native American Graves Protection and Repatriation Act (NAGPRA) materials will be collected.
 - 2. The Native American Tribes will be consulted prior to any collection of materials from the field.
- B. The NPS shall curate any archeological materials and records which result from activities undertaken as part of this Agreement or the associated Undertaking(s) in accordance with federal laws and regulations, including 36 CFR 79. These materials and records shall be curated in repositories that meet these federal standards and do not violate federal laws or regulations. Big Cypress National Preserve archeological materials and records are curated at two NPS facilities in Florida: The Southeast Archeological Center in Tallahassee and the South Florida Collections Management Center in Everglades National Park. Both facilities follow the NPS Museum Handbook, NPS Director's Orders, and Department of the Interior regulations applicable to archeological materials and records.

XIV. UNANTICIPATED DISCOVERIES

There is the potential for encountering previously unrecorded cultural resources or for affecting such resources in an unanticipated manner during the course of these undertakings. According to the 2008 National Park Service Programmatic Agreement Section VI, if previously unidentified cultural resources are discovered during the implementation of the undertakings, all work in that area will stop, and the Superintendent, the Preserve Archeologist, the South Florida Chief of Cultural Resources, and the Consulting Parties will be notified immediately.

XV. NATIVE AMERICAN GRAVES PROTECTION AND REPATRIATION ACT

There is the potential for encountering previously unrecorded burials and associated items or for affecting them in an unanticipated manner during the course of the undertakings. If burials and associated items protected by the NAGPRA are discovered during the implementation of the undertakings or cultural resources investigations, all activity will cease in the area of discovery, and immediate notice will be made to the Superintendent, the

Preserve Archeologist, the South Florida Chief of Cultural Resources, and the appropriate federally recognized Native American Tribes.

- A. Prior to the start of cultural resources investigations and implementation of the undertakings, Big Cypress National Preserve will develop a NAGPRA Plan of Action in consultation with the appropriate federally recognized Native American Tribes. The Plan will be attached to this agreement as an Appendix.

XVI. RECOGNIZING OTHER FEDERAL LAW REQUIREMENTS

Anti-Deficiency Act: The NPS's obligations under this Agreement are subject to the availability of appropriated funds, and the stipulations of this Agreement are subject to the provisions of the Anti-Deficiency Act. The NPS shall make reasonable and good faith efforts to secure the necessary funds to implement this Agreement in its entirety. If compliance with the Anti-Deficiency Act alters or impairs the NPS's ability to implement the stipulations of this Agreement, the NPS shall consult in accordance with the amendment and termination procedures found at Stipulation XIV (C) and (E) of this Agreement.

XVII. ANNUAL REPORT

- A. On or before January 31 of each year, the NPS shall prepare and provide to all Consulting Parties of this Agreement an annual report addressing, at a minimum, the following topics:
 - 1. a general summary of how this Agreement has been implemented during the preceding year;
 - 2. a listing of Phases completed in accordance with Stipulations II and III, including a listing of all historic properties affected by the Undertaking's actions;
 - 3. NPS' assessment of the effectiveness of this Agreement; and
 - 4. any recommendations NPS may have for improving the Agreement.
- B. The Consulting Parties shall have the opportunity to review the annual report and within thirty (30) days of its receipt and to provide comments to the NPS. Any objections to the handling of specific undertakings or way the Agreement is implemented may be assessed using the process outlined in Stipulation IX. The NPS shall make the annual report available to the public on its Planning, Environment and Public Comment website.

XVIII. ADMINISTRATIVE PROVISIONS

- A. **Dispute Resolution Procedures:** Should any Signatory (sole authority to execute, amend or terminate the Agreement), Invited Signatory (authority to amend and terminate the Agreement), or Concurring Party object to implementation of this Agreement, they shall provide written notice to the NPS of their objection with supporting justification. The NPS will consult with the objecting party(ies) to resolve the objection. If the NPS Superintendent determines that the objection cannot be resolved within 30-calendar days, the Superintendent shall forward all documentation relevant to the dispute to the other Signatories and Invited Signatories in this

Agreement. If the dispute cannot be resolved between the NPS and the other Signatories and Invited Signatories, the NPS shall forward all documentation relevant to the dispute to the ACHP. Within 30 days after receipt of all pertinent documentation, the ACHP shall either provide the NPS with recommendations, which the NPS shall take into account in reaching a final decision regarding the dispute, or notify the NPS that it will comment within an additional 30 days. The NPS will take into account any ACHP comment provided in response to such a request in accordance with 36 CFR 800.7(c)(4) with reference to the subject of the dispute.

- B. Amendments to the Agreement: Any Signatory or Invited Signatory may request that the Agreement (including appendices) be amended by informing the Superintendent in writing of the reason for the request and the proposed amendment language. The NPS may also request an amendment to the Agreement. The Superintendent shall notify all Signatories and Invited Signatories and interested Native American Tribes and Concurring Parties of the proposed amendment. The Signatories and Invited Signatories will consult to reach agreement in 30 days, unless the Signatories and Invited Signatories agree to a longer period of consultation, or the party of the proposed amendment retracts its proposal. During this time, the Superintendent will determine if a meeting with the Signatories and Invited Signatories, and potentially interested Native American Tribes and Concurring Parties is needed. The amendment will be effective on the signature date of the last Signatory to sign the amended Agreement. The Superintendent will notify all interested Native American Tribes and Concurring Parties of the amendment and provide them and opportunity to sign the amended Agreement. Amendments to the appendices attached to this Agreement may be made without the formal amendment process outlined above.
- C. Termination of the Agreement: Any Signatory or Invited Signatory may terminate this Agreement by providing a concurrent 90-calendar day notice to the other Signatories and Invited Signatories, provided that during this period the Signatories and Invited Signatories attempt in good faith to find a collaborative resolution that would avoid terminating this Agreement. The Superintendent will determine if a meeting with Signatories, Invited Signatories, interested Native American Tribes and other Concurring Parties is needed to discuss potential termination of this Agreement. If the Agreement is terminated, the NPS will comply with Section 106 of the NHPA by following the implementing regulations at 36 CFR 800. The NPS will notify all interested Native American Tribes and other Concurring Parties that this Agreement has been terminated.
- D. Agreement Duration: This Agreement shall be in place until the implementation of the Back Country Access Plan (BAP) and the Addlands GMP are complete, or for a period of 5 years, whichever comes first.

EXECUTION of this Agreement by the NPS, Florida SHPO, and the ACHP and subsequent implementation of its terms shall evidence that the NPS has taken into account the effects of each Undertaking on historic properties and that the NPS has afforded the ACHP an opportunity to comment.

PROGRAMMATIC AGREEMENT AMONG
THE NATIONAL PARK SERVICE BIG CYPRESS NATIONAL PRESERVE,
THE FLORIDA STATE HISTORIC PRESERVATION OFFICE,
AND THE SEMINOLE TRIBE OF FLORIDA
REGARDING
THE IMPLEMENTATION OF THE BACKCOUNTRY ACCESS PLAN AND ADDLANDS GMP
COLLIER, MIAMI-DADE, AND MONROE COUNTIES, FLORIDA

Signatories:

National Park Service, Big Cypress National Preserve

**THOMAS
FORSYTH**

Digitally signed by THOMAS
FORSYTH
Date: 2024.01.03 13:10:09 -05'00'

Thomas Forsyth, Superintendent, Big Cypress National Preserve

PROGRAMMATIC AGREEMENT AMONG
THE NATIONAL PARK SERVICE BIG CYPRESS NATIONAL PRESERVE,
THE FLORIDA STATE HISTORIC PRESERVATION OFFICE,
AND THE SEMINOLE TRIBE OF FLORIDA
REGARDING
THE IMPLEMENTATION OF THE BACKCOUNTRY ACCESS PLAN AND ADDLANDS GMP
COLLIER, MIAMI-DADE, AND MONROE COUNTIES, FLORIDA

Signatories:

Florida State Historic Preservation Office

A handwritten signature in blue ink that reads "Alissa Slade Lotane" followed by the date "1/30/24". The signature is written in a cursive style.

Alissa Slade Lotane, Florida State Historic Preservation Officer

PROGRAMMATIC AGREEMENT AMONG
THE NATIONAL PARK SERVICE BIG CYPRESS NATIONAL PRESERVE,
THE FLORIDA STATE HISTORIC PRESERVATION OFFICE,
AND THE SEMINOLE TRIBE OF FLORIDA
REGARDING
THE IMPLEMENTATION OF THE BACKCOUNTRY ACCESS PLAN AND ADDLANDS GMP
COLLIER, MIAMI-DADE, AND MONROE COUNTIES, FLORIDA

Signatories:

Seminole Tribe of Florida

Tina M. Osceola

Tina M. Osceola, Tribal Historic Preservation Officer

PROGRAMMATIC AGREEMENT AMONG
THE NATIONAL PARK SERVICE BIG CYPRESS NATIONAL PRESERVE,
THE FLORIDA STATE HISTORIC PRESERVATION OFFICE,
AND THE SEMINOLE TRIBE OF FLORIDA
REGARDING
THE IMPLEMENTATION OF THE BACKCOUNTRY ACCESS PLAN AND ADDLANDS GMP
COLLIER, MIAMI-DADE, AND MONROE COUNTIES, FLORIDA

Concurring Party:

Miccosukee Tribe of Indians of Florida

Talbert Cypress, Chairman

PROGRAMMATIC AGREEMENT AMONG
THE NATIONAL PARK SERVICE BIG CYPRESS NATIONAL PRESERVE,
THE FLORIDA STATE HISTORIC PRESERVATION OFFICE,
AND THE SEMINOLE TRIBE OF FLORIDA
REGARDING
THE IMPLEMENTATION OF THE BACKCOUNTRY ACCESS PLAN AND ADDLANDS GMP
COLLIER, MIAMI-DADE, AND MONROE COUNTIES, FLORIDA

Concurring Party:

Seminole Nation of Oklahoma

Lewis Johnson, Principal Chief

PROGRAMMATIC AGREEMENT AMONG
THE NATIONAL PARK SERVICE BIG CYPRESS NATIONAL PRESERVE,
THE FLORIDA STATE HISTORIC PRESERVATION OFFICE,
AND THE SEMINOLE TRIBE OF FLORIDA
REGARDING
THE IMPLEMENTATION OF THE BACKCOUNTRY ACCESS PLAN AND ADDLANDS GMP
COLLIER, MIAMI-DADE, AND MONROE COUNTIES, FLORIDA

Concurring Party:

The Advisory Council on Historic Preservation

APPENDIX A: ACRONYMS, ABBREVIATIONS, AND DEFINITIONS

Acronyms

ACHP – Advisory Council on Historic Preservation

Addlands GMP – Big Cypress National Preserve – Addition Final General Management Plan/Wilderness Study/Off-Road Vehicle Management Plan/Environmental Impact Statement

Agreement – Programmatic Agreement, with reference to this Programmatic Agreement

APE – Area of Potential Effects

ARPA – Archeological Resources Protection Act

BAP – Big Cypress National Preserve Final Backcountry Access Plan/Wilderness Study/Environmental Impact Statement

BICY – Big Cypress National Preserve

CRAS – Cultural Resources Assessment Survey

Fed Reg – Federal Register

GLO – General Land Office

GMP – General Management Plan

HPTP – Historic Properties Treatment Plan

IO – Isolated Occurrence(s)

NAGPRA – Native American Graves Protection and Repatriation Act National Environmental Policy Act

NHPA – National Historic Preservation Act

NPS – National Park Service

NRHP – National Register of Historic Places

ORV – Off-Road Vehicle

SHPO – State Historic Preservation Office(r)

TCP – Traditional Cultural Place

THPO – Tribal Historic Preservation Officer

Definitions

Adverse effect – When an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register of Historic Places [NRHP] in a manner that would diminish the integrity of the property’s location, design, setting, materials, workmanship, feeling, or association [36 CFR 800.5(a)(1)] [State Protocol, Attachment A].

Agreement – Refers to this Programmatic Agreement, which has been developed to consider adverse effects to historic properties and phased identification and evaluation efforts for the Backcountry Access Plan in the Big Cypress National Preserve.

Annual report – A summary, in writing, submitted on an annual basis to the Signatories and Consulting Parties to this Agreement for review and comment. The report summarizes the activities of the Agreement per fiscal year and provides documentation required under the Agreement.

Archeological site – The material remains of past human life or activities in history or prehistory, which are of archeological interest including, but not be limited to pottery, basketry, bottles, weapons, projectiles, tools, structures or portion of structures, pit houses, pueblos, room blocks, roads, trails, rock paintings, rock carvings, intaglios, graves, human skeletal materials, or any portion or piece of any of the forgoing items that are of human design, manufacture, possession or use.

Area of Potential Effects (APE) – The APE is defined as the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties per 36 CFR 800.16(d) if such properties exist. The APE is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking [36 CFR 800.16(d)].

Building – The NRHP defined a building, such as a house, barn, church, hotel, or similar construction, is created principally to shelter any form of human activity. “Building” may also be used to refer to a historically and functionally related unit, such as a courthouse and jail or a house and barn.

Cultural Resources Assessment Survey – An intensive survey focusing on both archeological sites and historic resources, and associated features. The goal of such surveys is to locate, identify and evaluate cultural resources present within the “area of potential effect” or APE. Site evaluations are in terms of their eligibility for listing in the NRHP (FDHR Module 3).

Closed – A route designation meaning use is prohibited in the area.

Concurring Party – A Concurring Party is a Consulting Party invited to concur in the agreement document but who does not have the authority to amend or terminate the agreement. Like an Invited Signatory’s signature, a Concurring Party signature is not required to execute the agreement; a concurring signature is essentially an endorsement of the agreement. Thus, the refusal to sign by any party asked to concur in the agreement does not prevent the agreement from being executed. Whether any or all other Consulting Parties

are invited to concur in an agreement is at the federal agency's sole discretion [<https://www.achp.gov/initiatives/guidance-agreement-documents>].

Consultation – The conduct of mutual, open, and direct two-way communication in good faith to secure meaningful and timely participation in the decision-making process, as allowed by law. See government-to-government consultation for the specific form of Tribal consultation.

Consulting Parties – Any party, identified by the BICY Superintendent during the initiation of each individual Undertaking covered by this Agreement (Stipulation IX), who has a consultative role in the Section 106 process for that Undertaking. These include the Florida State Historic Preservation Office, Native American Tribes, federal, state, and local land management and governmental agencies and any party with a demonstrated legal or economic relationship or concern regarding the Undertaking.

Coordination – Communication and dialogue between the NPS and Native American Tribes involving leadership or staff to increase cooperation between the two parties and the effectiveness of their relationship.

Cultural landscape – A cultural landscape is a geographic area (including both cultural and natural resources and the wildlife or domestic animals therein), associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values. There are at least four general types of cultural landscapes, not mutually exclusive: historic sites, historic designed landscapes, historic vernacular landscapes, and ethnographic landscapes. Cultural landscapes may be evaluated as historic properties and be eligible for the National Register of Historic Places (NPS Preservation Brief 36)."

Cultural resource – A definite location of human activity, occupation, or use, identifiable through field inventory, historic documentation, or oral evidence. The term includes archeological, historic, or architectural sites, structures, or places with important public and scientific uses, and may include definite locations (sites or places) of traditional cultural or religious importance to specified social and/or cultural groups. Cultural resources are concrete, material places and things that are located, classified, ranked, and managed through the system of identifying, protecting, and utilizing for public benefit. They may be, but are not necessarily, eligible for listing in the National Register.

Designation – The route designation is one of several decisions required to use of a trail or camping areas/campsites. The NPS designates trails and camping areas/campsites as open or closed.

Determination of eligibility – A determination of eligibility is a decision by the Department of the Interior that a district, site, building, structure, or object meets the National Register criteria for evaluation although the property is not formally listed in the National Register. A determination of eligibility does not make the property eligible for such benefits as grants, loans, or tax incentives that have listing on the National Register as a prerequisite [36 CFR 60.3(c)].

District – The NRHP defines an historic district is a geographically definable area, urban or rural, possessing a significant concentration, linkage, or continuity of sites, buildings,

structures, or objects united by past events or aesthetically by plan or physical development. In addition, historic districts consist of contributing and non-contributing properties. Historic districts possess a concentration, linkage, or continuity of the other four types of properties. Objects, structures, buildings, and sites within a historic district are usually thematically linked by architectural style or designer, date of development, distinctive urban plan, and/or historic associations [36 CFR 60.3].

Effect – An effect means an alteration to the characteristics of a historic property qualifying it for inclusion in or eligible for the National Register [36 CFR 800.16(i)].

Farm – A grouping of historical features (including buildings and structures) found to be associated through archival research and field verification.

Footprint of disturbance – The limits of all ground disturbance associated with an undertaking.

Government-to-government consultation – The consultation between NPS officials with decision-making authority and elected Tribal officials or those Tribal representatives specifically delegated by elected Tribal officials to engage in such consultation and decision making. It is built upon the government-to-government exchange of information and aims to create effective collaboration and informed decision-making. Consultation is an accountable process that ensures meaningful and timely input by Tribal officials into the development of regulatory policies and agency decisions that have Tribal implications.

Historic property – Historic property means any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to a Native American Tribe or Native Hawaiian organization and that meet the National Register criteria [36 CFR 800.16(l)(1)].

Historic Properties Treatment Plan (HPTP) – A document which details the procedures, methodologies, and techniques for resolving adverse effects to historic properties within the APE through avoidance, minimization, and mitigation.

Human remains – The physical remains of a human body.

Identification – The general term for the component of a cultural resource management program that includes locating, recording, and determining the legal, scientific, public, and conservation values of cultural resources, i.e., giving cultural resources a management identity.

Indian Tribe (Native American Tribe) or Tribe – As defined in Section 301 of the National Historic Preservation Act, "an Indian Tribe, band, nation, or other organized group or community, including a Native village, Regional Corporation or Village Corporation, as those terms are defined in section 3 of the Alaska Native Claims Settlement Act [43 USC 1602], which is recognized as eligible for the special programs and services provided by the United States to Native Americans because of their status as Indians."

Indirect effect – Alteration to the characteristics of a historic property, which are caused by the undertaking, may be visual, atmospheric, or audible, and could diminish the integrity of the properties for which setting, feeling, and/or association are qualifying characteristic of NRHP eligibility. For example, additional roads and visitors could increase opportunities for effects from unauthorized excavation and collecting, vandalism of historic properties, and disruption of religious and cultural values.

Inventory – A term used to refer to both a record of cultural resources known to occur within a defined geographic area and the methods used in developing the record. Depending on intended applications for the data, inventories may be based on (a) compilation and synthesis of previously recorded cultural resource data from archival, library, and other indirect sources; (b) systematic examinations (survey) of the ground surface and natural exposures of subsurface deposits for indications of past human activity as represented by artificial modifications of the land and/or the presence of artifacts; and (c) the use of interviews and related means of locating and describing previously unrecorded or incompletely documented cultural resources, including those that may not be identifiable through physical examination.

Invited Signatory – An Invited Signatory, upon signing, has the authority to amend and terminate the agreement. The BICY Superintendent may invite additional parties to sign the agreement, such as an Indian Tribe who attaches religious and cultural significance to historic properties affected by the undertaking (off Tribal lands), or any party that assumes a responsibility under the agreement. The refusal of an Invited Signatory to sign the agreement does not prevent the agreement from being executed; however, an agreement cannot impose a duty or responsibility on a party that has not signed [<https://www.achp.gov/initiatives/guidance-agreement-documents>].

Isolated Find – An isolate refers to one or more culturally modified objects not found in the context of a site as defined below. Note that this definition makes no reference to an absolute quantitative standard for the site/isolate distinction.

Mitigation – A means to remedy or offset an adverse effect or a change in a historic property's qualifying characteristics that diminishes its integrity (<http://www.achp.gov/archguide>).

Mitigation measures – Measures intended to lessen the severity of a potential adverse effect by application of appropriate protection measures, such as the recovery of archeological data from sites, or other means.

National Programmatic Agreement – Agreement among the NPS, ACHP, and National Conference of State Historic Preservation Officers which defines how the NPS plans for and manages cultural resources under its jurisdiction in accordance with the spirit and intent of Section 106 of the NHPA, consistent with 36 CFR 800, and consistent with its other responsibilities for land-use planning and resource management under FLPMA, NEPA, other statutory authorities, and executive orders and policies.

National Register of Historic Places (NRHP) – The National of Historic Places, expanded and maintained by the Secretary of the Interior, as authorized under Section 2(b) of the

Historic Sites Act and Section 101(a)(1)(A) of the National Historic Preservation Act. The NRHP lists cultural properties found to qualify for inclusion because of their local, state, or national significance. Eligibility criteria and nomination procedures are found in 36 CFR Part 60. The Secretary's administrative responsibility for the National Register is delegated to the National Park Service.

Native American sacred sites – Specific, discrete, narrowly delineated locations on federal land that are identified by a Native American Tribe, or . . . authoritative representative of a Native American religion, as sacred by virtue of their established religious significance to, or ceremonial use by, a Native American religion (EO 13007).

Object – A material thing of functional, aesthetic, cultural, historical, or scientific value that may be, by nature or design, movable yet related to a specific setting or environment [36 CFR 60.3(j)].

Off Road Vehicle (ORV) – Any motorized vehicle capable of, or designed for, travel on or immediately over land, water, or other natural terrain.

Predictive model – Predictive modeling is an application of basic sampling techniques that projects or extrapolates the number, classes, distribution, and frequencies of cultural resources. Predictive models can be used in land-use planning, during the early stages of planning for an undertaking, for targeting field survey, or other management purpose.

Signatory – A Signatory has the sole authority to execute, amend, or terminate the agreement. The federal agency and the SHPO/THPO are signatories; the ACHP is a signatory as well when it has participated in consultation for the agreement and in all program PAs [<https://www.achp.gov/initiatives/guidance-agreement-documents>].

Site – A site is defined as a locus of previous (50-year age minimum) human activity at which the preponderance of evidence suggests either one-time diagnostically interpretable use or repeated use over time, or multiple classes or activates. A site is the location of activities or events, often used loosely to mean the same as cultural resources. In archeological jargon, the basic meaning of site is a place where archeological evidence occurs, with precise meanings varying considerably from region to region and among recording institutions within regions. Section 4(c) of the Archeological Resources Protection Act (see Appendix 8) uses “site” in the term “religious or cultural site” in its common dictionary sense, i.e., as a location, not as a synonym for “archeological resource.” If the Congress had meant “archeological resource” in Section 4(c), the drafters either would have used that defined term or would have defined “site” to mean the same as “archeological resource.” According to the Glossary of National Register Terms in National Register Bulletin No. 16A, site means “location of a significant event, a prehistoric or historic occupation or activity, or a building or structure, whether standing, ruined, or vanished, where the location itself possesses historic, cultural, or archeological value regardless of any existing structure” [36 CFR 60.3].

Structure – The term “structure” is used to distinguish from buildings (see definition above) those functional constructions made usually for purposes other than creating human shelter. A work made up of interdependent and interrelated parts in a definite pattern of

organization. Constructed by man, it is often an engineering project large in scale [36 CFR 60.3(p)].

Survey – The application of professional methods and techniques for field inventory, used to locate and identify cultural properties.

Traditional Cultural Place (TCP) – A place that derives significance from traditional values associated with it by a social and/or cultural group such as an Indian Tribe (Native American Tribe) or local community. A TCP may qualify for the National Register if it meets the criteria and criteria exceptions at 36 CFR 60.4 (see National Register Bulletin 38).

Undertaking – Undertaking means a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency; those carried out with Federal financial assistance; and those requiring a Federal permit, license, or approval [36 CFR 800.16(y)].

APPENDIX B: MAPS

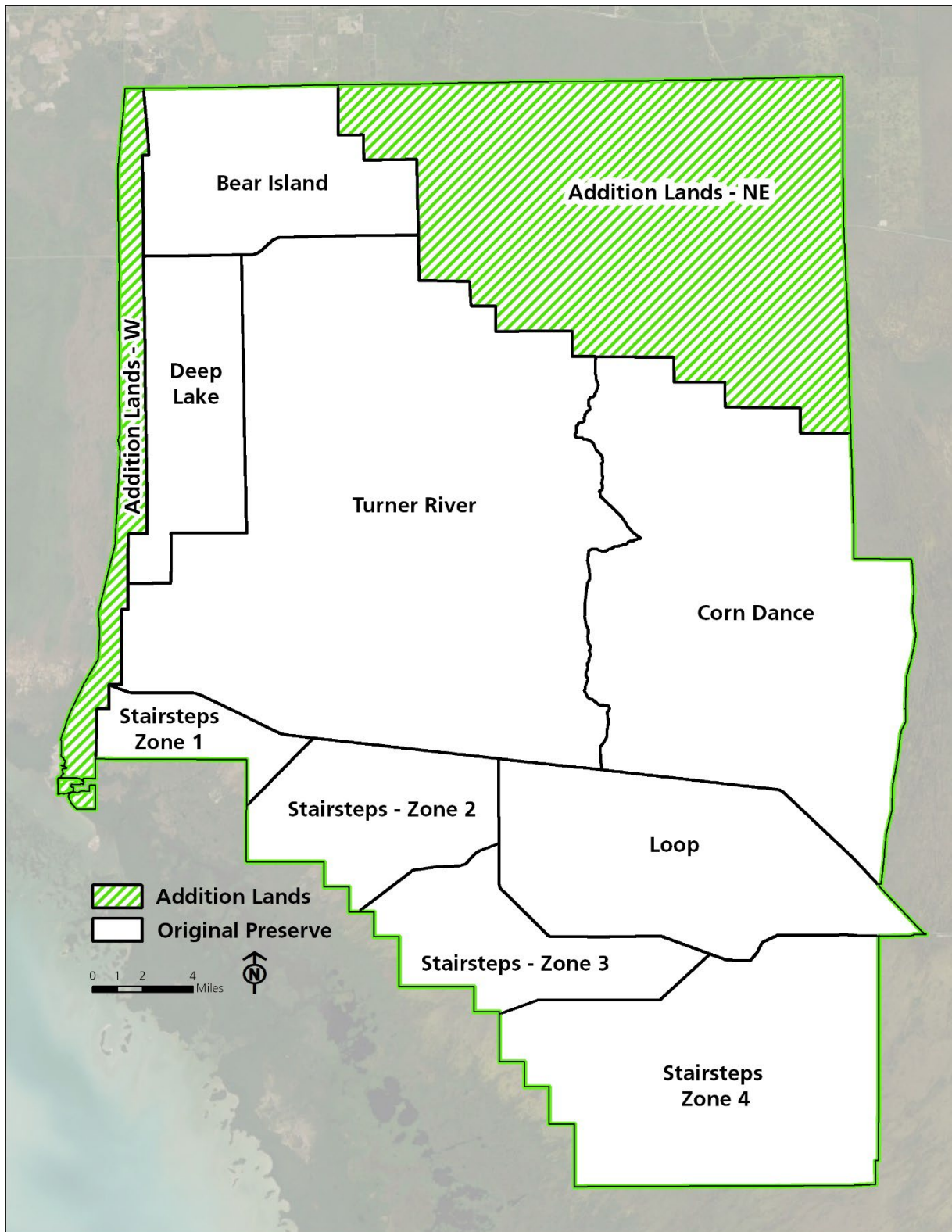


Figure 1. BICY Management Units

Big Cypress National Preserve
Alternative 3, NPS Preferred

National Park Service
Department of the Interior

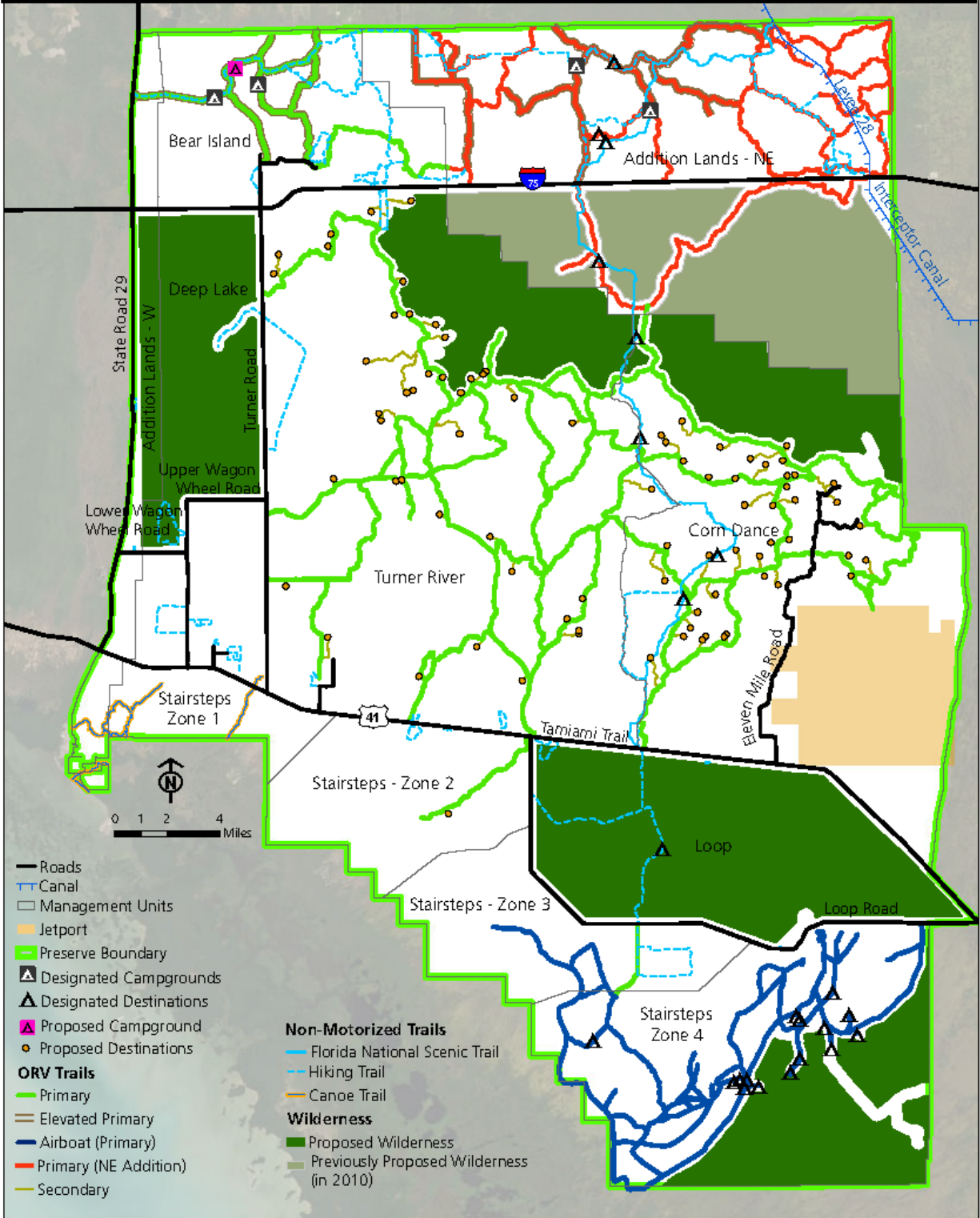


Figure 2. NPS Preferred Alternative 3 of the BAP (as identified in the Supplemental Draft EIS), displaying the full resulting ORV and hiking trail system in BICY, including ORV access adopted in the Addlands GMP

APPENDIX C: RESEARCH DESIGN

Preliminary Research Design for the Archeological Survey of Off-Road Vehicle Access, Hiking Trails, and Destinations proposed under the *Big Cypress National Preserve Final Backcountry Access Plan/Wilderness Study/Environmental Impact Statement* and the *Big Cypress National Preserve – Addition Final General Management Plan/Wilderness Study/Off-Road Vehicle Management Plan/Environmental Impact Statement* – Big Cypress National Preserve, Collier, Miami-Dade, and Monroe Counties, Florida

Prepared by Victoria Menchaca – NPS BICY Archeologist
December 2021

Introduction

Big Cypress National Preserve (BICY), a unit of the National Park Service (NPS), has developed the “Big Cypress National Preserve Final Backcountry Access Plan/Wilderness Study/Environmental Impact Statement” (the BAP) with objectives to reopen select primary and secondary Off-Road Vehicle (ORV) trails in the original Preserve; expand the hiking trail system; reopen and designate backcountry destinations; designate a backcountry campground on a former oil well-pad in the Bear Island Unit of the original Preserve; repair, replace, and install trail markers and trail signs; formally establish the ORV connecting route between Bear Island Grade (in the original preserve) and Bundschu Grade (in the Northeast Addition) to a preexisting trail near the southern end of Bundschu Grade; and reopen an ORV connecting route between the original Preserve and the BICY Addition through Mullet Slough. In 2010, the NPS finalized the “Big Cypress National Preserve – Addition Final General Management Plan/Wilderness Study/Off-Road Vehicle Management Plan/Environmental Impact Statement” (the Addlands GMP) with objectives to reopen Primary ORV trails in the Northeast Addition of the Preserve. The NPS will be undertaking federal rulemaking for the combined implementation of the BAP and the Addlands GMP followed by the establishment of the resulting parkwide trail system and reopening of trails.

Currently, there are 278 miles of primary ORV trails, 63 miles of hiking trails, two backcountry campgrounds, and 25 backcountry campsites/destinations in the preserve. The NPS-selected alternative in the BAP would open, on preexisting routes, 54 miles of primary ORV trails (including 39 miles of airboat trails) and 54 miles of secondary ORV trails. It would also add 122 miles of hiking trails and 83 backcountry destinations. Dispersed camping, which is currently allowed in the preserve, would be allowed to continue under the selected alternative. Furthermore, implementation of the Addlands GMP would reopen approximately 130 miles of primary ORV trails in the Northeast Addition of the Preserve.

Due to the large size and weight of ORVs, severe damage from erosion and rutting could occur to any cultural resources that intersect the proposed trails. Additionally, trail braiding resulting from poor trail conditions has the potential to expand such damage beyond the designated trail corridor to resources that are adjacent to the trail. Erosion and rutting from the ORVs could cause sensitive artifacts to be exposed and damaged, and, potentially, major loss of integrity and destabilization of cultural resources. The exposure of any intact cultural deposits could also lead to looting. Furthermore, camping activities that occur either at the

designated destinations or because of dispersed camping near to the trail corridors could result in damage to cultural resources (if they are present) such as looting, erosion from trampling, and the inadvertent destruction of artifacts on the surface.

Thus, in accordance with the Programmatic Agreement (PA) among the National Park Service Big Cypress National Preserve, the Florida State Historic Preservation Officer, and the Advisory Council on Historic Preservation regarding the Implementation of the Backcountry Access Plan Collier, Miami-Dade, and Monroe Counties, Florida, this preliminary research design will serve as a template for the Research Designs of any Cultural Resources Assessment Surveys of the ORV trails and destinations covered in Phases 2 and 3 of the NPS's planned phased archeological investigations (see PA Section II).

As mandated by Section 106 of the National Historic Preservation Act (NHPA), federal agencies shall manage historic properties on federal lands avoiding neglect and deterioration of historic and archeological sites. In compliance with the Archeological Resources Protection Act (ARPA) and the Native American Graves Protection and Repatriation Act (NAGPRA), the work proposed in this preliminary research design will support federal mandates, including section 110 of the NHPA, and National Park Service (NPS) policy for management of cultural resources. The project will prioritize completing baseline documentation assessments, collect information on new sites and provide the park with management recommendations.

Products and results derived from this project include digital site maps, fieldwork consisting of pedestrian survey, subsurface testing, possible limited collection of artifacts, a final report, updates to the Cultural Resources Inventory System (CRIS), updated Florida State site forms for the Florida Master Site File, associated lab and curation work, and testing of the predictive model for BICY developed by SEAC. The undertaking will directly support the NPS mission by understanding how the Backcountry Access Plan will affect cultural resources to better protect and interpret them for the public.

Project Location

The undertaking encompasses the Big Cypress National Preserve located in southern Florida, roughly centered between the cities of Miami and Naples, and bordering Everglades National Park (EVER) on its southern boundary. The preserve extends from the northern boundary of EVER to 11 kilometers (km) north of I-75 (Alligator Alley). US Highway 41 (Tamiami Trail) crosses through the southern half of the preserve. The preserve is mostly located within Collier and Monroe counties, as well as in a small area of western Dade County.

Legal location for the undertaking:

T 49S, R 30-34E
T 50S, R 30-33E
T 51S, R 30-34E
T 52S, R 30-35E
T 53S, R 29-33E

Area of Potential Effect (APE):

The area of potential effects (APE) for this project will comprise 184 miles of primary ORV trails (includes Addition Lands trails), 54 miles of secondary ORV trails, 122 miles of hiking trails, and 83 backcountry destinations with a 50-meter (approximately 164-feet) buffer on each side of linear features and surrounding the destination locations. ORV trails are 12 feet wide; hiking trails are 4 feet wide; and the destination locations comprise an area of 200 square feet. The total acreage of the APE is estimated to be approximately 14,133 acres.

Environmental Setting

This environmental settings overview was adapted from Schwadron's (2009) Archeological Overview and Assessment of Big Cypress National Preserve FL Volume I.

Big Cypress National Preserve contains 729,000 acres, with an impressive expanse of wet prairies, cypress swamps, marshes, forested swamps, pinelands, tree islands, and mangrove forests containing an abundance of wildlife. It is situated at the convergence of both temperate and tropical climate zones and characterized by hot, humid summers and mild, dry winters (Duever et al. 1986:6). The western portion of south Florida is a tropical savanna climate, with a short, wet season followed by drought conditions for the remaining part of the year.

Precipitation is the major source of water for most of Florida's wetlands (Larson 1995), with rainfall in BICY occurring mostly during the wet season in the form of brief but intense summer thunderstorms. The wet season in BICY begins sometime between early May and early July and continues through mid-September or early October. During the wet season, there is a 50 percent chance of rain every day. The amount of annual and seasonal rainfall in BICY is highly variable (Duever et al. 1986:8), with a mean monthly rainfall low of 1.5 millimeters (mm) (.06 in) in April during the dry season to a wet season high of 287 mm (11.3 in) in September. The mean annual rainfall amount for the region is 1,360 mm (53.54 in), approximately two-thirds of which falls within the summer months, with a possibility of a third to a half of the year's rainfall to occur within a one-month period (Duever et al. 1986:8).

Most of the preserve is located within the Big Cypress Swamp physiographic zone which consists of lower relief that becomes seasonally flooded, with many small depressions or solution holes that have little or no surface drainage, supporting mostly hydric vegetation. A small portion of the southern extent of the preserve is in the Mangrove and Coastal Glades physiographic zone. This area consists of reticulated coastal swamps characterized by tidal channels, small open bays, mud flats, mangroves, salt marshes, and marsh grasses. The northern portion of this coastal zone is dotted with numerous small mangrove islands and is known as the Ten Thousand Islands National Wildlife Refuge. Modest upland drainage flows through many small rivers and streams that feed through the mangroves and marshes (Schwadron 2005).

Topographically, the maximum elevation within the preserve grades from 7 meters (m) in the northern preserve to 0.3 m some 64 km south at the southern edge of the Preserve (Duever et al. 1986). While the landscape of BICY is relatively flat, the underlying bedrock surface is uneven, and very subtle variations occur within the bedrock producing numerous limestone

outcrops, and small, circular, and elongated depressions or solution holes. The subtle variations in the geologic substrate result in different landforms, hydrological patterns, soils, and plant communities. The soil in the preserve can be generally characterized as a thin (less than 0.6 m) layer of marl, sand, or a mixture of the two, or is absent where limestone outcrops at the surface. On hardwood hammocks, organic soils are often present, and muck and peat accumulate to depths of 1 m or more within depressions in the bedrock.

The preserve encompasses one of the least developed and most important subtropical watersheds in south Florida (Ripple 1996), aptly named the Big Cypress Watershed. The Big Cypress Watershed, together with the better-known Everglades Watershed, connect extensive freshwater wetlands with coastal bays and estuaries, providing a vital flow of fresh water throughout the ecosystem. Throughout the wet season, water flows southwesterly through the preserve, and approximately 90 percent of the preserve remains flooded during the wet season. Because of the high annual rainfall and the flat limestone topography, the preserve can remain inundated for months after the rainy season (Duever et al. 1986).

Subtle differences in elevation and the limestone topography affect water levels and hydroperiod, and thus, vegetative communities within the preserve, thereby creating an impressive mosaic of vegetation communities. The major vegetation communities in Big Cypress are divided into six associations: Cypress Forests, Mixed Hardwood Swamp, Hardwood Hammocks, Pinelands, Marshes/Prairies, and Mangroves. This patchwork of vegetation communities interleaved throughout Big Cypress provides diverse habitats for many species of animals, such as freshwater aquatic animals, wading birds, deer, river otters, raccoons, alligators, turtles, snakes, frogs, lizards, snails, bobcats, black bears, and Florida panthers (Schwadron 2005).

Background Research

Records checks were made with the Florida Master Site File and the Big Cypress National Preserve historical site and survey files, and a search for previously recorded sites and inventories within the APE was completed for the comprehensive literature review. For the preferred alternative, no previously recorded cultural resources were found to be within project APE.

Previous Research

Below is a summary of the previous archeological research that covers the APE of the Plan/EIS.

- From 1977 to 1981, under the direction of John E. Ehrenhard, SEAC conducted five seasons of field survey in the original boundary of Big Cypress National Preserve (Ehrenhard et al. 1978, 1979; Ehrenhard and Taylor 1980; Taylor and Komara 1983). During the first season, a predictive model was developed for the project by using visual interpretations of false-color infrared aerial photographs (from the Mark Hurd 1973 series, at a 1:80,000 scale). Potential archeological site locations were identified by color values used to infer vegetation type and proximity to water. The predictive model was based on the contention that the majority of the prehistoric middens and campsites would be situated on higher, dry hammock islands and would tend to occur

on the portion of the hammock island opposite the deepest slough or marsh adjacent to the island (Ehrenhard et al. 1978). Other methods used to identify targets for the survey included informants, random field testing, and consultation of public maps. However, the selection of targets based on the infrared aerial photographs was the most successful method and was used in all the following seasons. During the five seasons, a total of 395 archeological sites were identified, and testing of the model confirmed that 80-90 percent of the hammock island targets selected via the model contained sites (Ehrenhard et al. 1978:14; Ehrenhard 1980:110; Schwadron 2005).

- In 1987 and 1988, an archeological survey along five seismic testing lines for Shell Oil was conducted by the Archaeological and Historical Conservancy (AHC) (Allerton and Carr 1988). The survey consisted of surface inspection of the seismic lines with limited subsurface testing. As a result of these investigations, 18 black earth middens were recorded. Based on their testing, their predictive model indicated that sites were located on upland areas adjacent to or within a constant drainage flow and were within or immediately adjacent to areas that maintain an adequate water level during cycles of low water (Allerton and Carr 1988:43).
- In 1996, archaeological investigations for the restroom facilities along the north side of I-75 (Alligator Alley) were conducted by Archaeological Consultants, Inc. (ACI). The area was tested at 50 and 100 m (183, 164 ft) intervals, with negative results. The project area consisted of cypress swamp with about half of it being inundated. The south side rest area and associated BICY access areas were tested in 2011, also by ACI. Testing was conducted at 20 m (66 ft) intervals with negative results (ACI 2011).
- In 1999, AHC conducted archeological monitoring for the Raccoon Point 3D-Seismic Survey for Calumet Florida, Inc. (Carr et al. 1999). A total of 113 potential archeological site locations were identified within the 12-square-mile project area, of which 15 were confirmed as archeological sites; eight had been previously recorded and seven were newly recorded based on topography and artifact occurrence. These target areas were identified as tropical hammocks and other types of upland features. Potential site areas were marked for avoidance. No subsurface testing was conducted.
- In 2000, a multiyear survey and evaluation of archeological site locations in the BICY new addition lands (146,000 acres) was initiated by SEAC. This investigation used the predictive model developed previously for BICY by Ehrenhard, but instead of aerial photos, SEAC utilized vegetation maps developed by UGA's Center for Remote Sensing and Mapping Science (Madden et al. 1999; Welch and Madden 1999; Welch et al. 1999, 1995). Thirty (30) hammocks covering an estimated 446 acres were surveyed. Forty (40) new archeological sites, consisting of 38 black earth middens, one sand mound, and a Seminole period camp, were discovered (Schwadron 2002). Based on the results of the survey, Schwadron concluded that Ehrenhard's model (Ehrenhard et al. 1978) was highly accurate. Additionally, based on the GIS data, there are over 950 hammocks in the new addition area, and Schwadron estimated that 80-90 percent of the hammocks could contain an archeological site. She also estimated that another 700-800 archeological sites are contained within the new addition lands, and some of the larger hammocks could have more than one site. However, no systematic testing

within other environmental settings such as pinelands, shrub lands, and bayhead-willow tree islands was conducted. According to Schwadron, without systematic testing to verify the occurrence of sites in those and other areas, a complete picture of human use and occupation of the Big Cypress is still missing (Schwadron 2005:216).

- In 2005, SEAC surveyed two existing ORV trails (the Oasis Trail and the Monument Trail; 18 miles total), located the Corn Dance Management Unit and the Turner River Management Unit (Lawson 2005). The field methodology employed during the survey of the two trails was one of surface reconnaissance; no subsurface testing was employed. The trails were traversed via a swamp buggy (Monument Trail) or six-wheeled Polaris all-terrain vehicle (ATV) (Oasis Trail). All portions of the trails that passed through pine islands, hammocks, or other areas not inundated for most of the year were walked over. While walking the trails, additional investigation was carried out in any areas where breaks in the vegetation could allow a visitor to drive or walk off the path. No obvious archeological features were noted on the surface near either of the two trails. SEAC recommended that an archeological survey take place that includes shovel testing in areas where the trails cross pine islands, hardwood hammocks, or other locations that remain dry throughout the year.
- In 2007, SEAC conducted an archeological reconnaissance survey of three primary and associated secondary trails (22.3 miles in total) in the Bear Island Management Unit (Hellman 2007). These trails were previously closed and were being proposed for reopening to fulfill the requirements of the park's Recreational Off-Road Vehicle Management Plan (2000). The trails were inspected via a swamp buggy to identify potential site locations. Previous surveys of the park (Ehrenhard et al. 1978, 1979, Ehrenhard and Taylor 1980, Schwadron 2005:197) concluded that archeological sites most likely occur on hardwood hammocks adjacent to deep sloughs or wet marshes. Inspection of the proposed trails, however, revealed that in most instances, the trails are located within areas of open prairie, marsh, and pine and palmetto thickets where sites do not generally exist. The only hardwood hammocks (and potential site areas) located along these trail routes were previously surveyed by SEAC crews in the late 1970s and early 1980s (Ehrenhard et al. 1978, 1979; Ehrenhard and Taylor 1980). Those sites recorded by Ehrenhard et al. were relocated to conduct site condition assessments, although most of the previously recorded sites are several hundred meters away from the proposed trails. Therefore, only seven previously recorded sites were visited during the trail survey. In addition to these sites, the only other cultural resource or feature, identified along the proposed trails was a piece of logging equipment located adjacent to the trail. The equipment, which was not associated with any nearby sites, is a remnant of the logging industry not previously recorded. No archeological sites were identified that would be adversely impacted by the reuse of the trails by recreational ORV users. All known sites are located at least 100 meters from the trail and are not threatened by use of the ORV trails, provided ORV users remain on the designated trails. It was recommended that the future trails chosen for rehabilitation, or in this case, reopening, be subject to more intensive archeological survey and that shovel testing be employed for those areas where trails cross pine islands, hardwood hammocks, or other locations that remain dry throughout the year.

- In 2008, as a part of the Comprehensive Everglades Restoration Plan (CERP), New South Associates developed a survey strategy for 13 counties in South Florida, including Collier (Smith 2008). They noted that sites are common in slightly elevated areas within a wet environment. They (sites) occur near isolated wetlands marked by predominant species within them or adjacent (bay heads, willow and willow heads, cypress and cypress heads, elevated cabbage palm clusters, and areas near pond apple/custard apple), as well as in tropical hardwood hammocks and upland areas adjacent to pinelands. According to New South, pond margins, tree islands, hammocks, ridges, sinkholes, and slough margins should be considered to have medium-to-high site potential until investigated thoroughly (Smith 2008:35). In the low probability areas, the key to finding sites is in the identification of areas of environmental contrast (high/low or wet/dry), similar to those marked by the vegetation pattern changes indicated by tree islands (Smith 2008:47; ACI 2014).
- In 2011, SEAC conducted archeological investigations for ORV trail heads and turn lanes at BICY (Siebert 2012a). As part of this project, ORV trail heads were developed to include ORV and passenger vehicle parking, picnic and seating areas, interpretive signs, restroom facilities, and storm-water retention areas. Eight trail access points and five turn lanes were planned. Of the proposed construction areas, only Turner River North Trailhead, Windmill Tram Trailhead, Monroe Station ORV Trailhead and turn lane, Skillet South ORV Trailhead and turn lane, and Pace's Dike ORV Trailhead had suitable conditions for shovel testing. All others (Sig Walker ORV Trailhead, Skillet North ORV Trailhead, Tuner River Road turn lane, Oasis turn lane, and Burns Road turn lane) underwent a systematic pedestrian survey except for Boundary Line ORV Trailhead. Boundary Line is underwater year-round, making it impractical to properly test. Shovel tests were dug at 20 m intervals, with transects spaced 20 m apart. A total of 221 shovel tests were dug (Turner River North n=48; Windmill Tram n=21; Monroe Station n= 32; Pace's Dike n=80; Skillet South n=40;). All shovel tests were negative for cultural materials. At Turner River North, what appears to be either an old logging or hunting camp possibly dating to the late 1960s was encountered. The dating was based on maker's marks of bottles located within the area. The area includes a borrow pit, a trailer frame, several concrete piers, chain link fencing, glass bottles, a water management lock, and a drainage ditch running from the lock. At Windmill Tram, similar debris, as well as a spring, were noted. None of these materials were culturally significant.
- In 2012, SEAC conducted an archeological reconnaissance survey of all primary and secondary trails in the Turner River Management Unit (Siebert 2012b). The survey consisted of limited shovel testing and pedestrian survey. Using ATVs, the archeologists operated in two teams consisting of two crew members. Driving along the trail, each team placed limited judgmental shovel tests, and pedestrian surveys were carried out around each shovel testing area. Judgmental testing was based on the use of the probability model developed by SEAC Archeologist John Ehrenhard during his 1977-81 survey of BICY. The teams also visited known sites within close proximity to the trail in order to assess their condition and the effects the trail had on them. In total, approximately 202 km (126 miles) of primary trail and 125 km (78 miles) of

secondary trail were surveyed during the project, and 20 shovel tests were excavated. Shovel tests were in hardwood hammocks, near historic features, and areas judged by the archeologists as likely candidates for human occupation/usage. All shovel tests were negative for cultural materials, and no materials were collected during the pedestrian surveys. One local resource, a Historic Borrow Pit, was identified and added to the ASMIS database. Twenty-one (21) previously recorded sites were visited during the survey and found to be in good shape with no evidence of recent disturbance or destruction.

- In 2014, a Cultural Resource Avoidance Model for the Nobles Grade 3D (NG3-D) Seismic Survey Area was prepared by Archaeological Consultants, Inc. (ACI 2014). The NG3-D Survey Area encompassed 110± square miles (70,541 acres). The Model was developed utilizing archeological literature; previously conducted cultural resource survey reports (mentioned above); predictive models for Collier County (ACI 1992; Dickel 1999; Smith 2008), the Big Cypress National Preserve (Cockrell and Morrell 2006a, 2006b), and the Everglades (Schwadron 2009, 2006b; Prentice and Halchin 2014); soil data supplied by Passarella and Associates, Inc.; United States Geological Survey (USGS) quadrangle maps; 19th-century federal surveyor's field notes and plats; and 19th-/20th-century maps. The Model concluded that the primary predictors of sites are the hardwood hammocks, bayheads, and willows. In identifying probability zones, the areas with the highest archeological potential were assigned to Subtropical Hardwood Forest, Oak Sabal Forest, Bayheads, Mixed Hardwood Swamp Forests, or Cypress Mixed Hardwood Forest. Areas of moderate archeological potential were Hardwood Scrub and Slash Pine with Hardwoods. Cypress strands and domes, savannahs, prairies, and marshes were areas of low archeological probability. It was also concluded that the same areas that would have been attractive to pre-colonial people would also be attractive to early settlers for historic habitation, hunting, and agriculture.
- In 2017, the Nobles Grade 3-D Seismic Survey was carried out in Big Cypress National Preserve. Based on the Cultural Resources Avoidance Model, previously developed by ACI, all areas of high and moderate archeological probability were avoided. No subsurface testing was conducted. However, archeologists accompanied the seismic field crews on their survey to monitor their work and ensure avoidance those areas. No material culture was found.

Archaeological Probability

Based on the background research detailed previously, areas within low flatwoods, cypress domes and strands, marshes, and prairies that under natural conditions are covered with water for most of the year have a low probability of archeological resources being present. Areas that are slightly higher in elevation, such as pinelands with an environment of Hardwood Scrub and Slash Pine with Hardwoods, are considered to have a moderate archeological probability, and areas of the highest elevation within hardwood hammocks near to deep water have a high archeological probability.

Field Methods

The archeological field survey will include surface and subsurface inspection. Surface inspection will consist of a visual inspection of exposed ground to look for evidence of archeological sites and features. Subsurface testing will employ conventional shovel testing throughout the investigation. Shovel tests will be circular and roughly 50 centimeters (20 inches) in diameter. All excavated soil will be dry screened through 0.25-inch hardware cloth suspended from portable wooden frames.

High probability zones will be tested at 20-m intervals. Moderate probability zones will be tested at 50-m intervals. At least 10 percent of the low probability archeological APE will be tested in keeping with Florida Division of Historical Resources (DHR) requirements, ground conditions permitting. Shovel tests in low probability areas will be placed both judgmentally and systematically. The minimum number of shovel tests will be calculated based on the area of the site or the length and width of the trail.

Standard archeological methods for recording field data will be followed throughout the project. The shovel test identification number, GPS location, stratigraphic profile, and soil descriptions will be recorded for every shovel test excavated. Field notes will also include artifact counts, provenience information, and descriptions of any cultural feature encountered during testing. Material will only be collected if it is found to be unique and/or diagnostic. All collected material will be placed in sealable plastic bags marked with appropriate provenience information. All artifact bags will be assigned Field Specimen (FS) numbers in the field.

If human remains are encountered, all work within a 100-m radius will stop at that location and the BICY Archeologist, SOFL Chief of Cultural Resources, BICY Superintendent, BICY Chief of Resources Management, Tribes, and SHPO will be notified in accordance with Section II.C.2b of the PA, and the area will then be avoided.

Laboratory Methods

Processing and preliminary analysis of any collected materials will take place concurrently with the field work. Detailed analysis will be conducted once the field work is completed. Artifacts/cultural material will be processed within 12 months, with up to a 12-month extension allowed. The laboratory processing will consist of the cleaning, stabilization (if needed), inventorying, packaging, and temporary storage of the artifacts recovered. Artifacts will be processed, bagged, and cataloged as required by the curation facility. Proper and detailed documentation of artifact provenience, number, type, and description will be maintained. Any artifacts collected during the project will be returned to and processed at the laboratory facilities.

All field specimens collected during this phase of the project will be carefully washed clean of sand and dirt and allowed to air-dry. All materials will be processed by their provenience. Lab procedures and analyses necessary in meeting project objectives will be employed, and they will be conducted and completed in an efficient and cost-effective manner. Initial sorting will be done during the re-bagging of materials after they had been allowed to dry.

Artifact analysis will provide standard type/frequency counts. Artifact analysis will be designed to provide information pertaining to site type and chronology. All materials will be analyzed.

Artifacts will be bagged in archival 4-millimeter-thick re-closable bags and lots will be assigned to artifact type.

Curation

All GIS shapefiles, GPS data, field and lab forms, notes, photographs, and maps, will be stored with Big Cypress National Preserve or the South Florida Collections Management Center. GPS position data will be provided in WGS 84 (Lat/Long) coordinates. Raw spatial data acquired in the field will be provided in original formats as well as any post-processed formats and data. All GIS and GPS data will be accompanied by metadata, including equipment, datum, and coordinate systems used. All metadata will be consistent with and meet the most recent NPS and SEAC standards.

Artifacts will be packaged and catalogued in accordance with SEAC requirements using the Interior Collections Management System (ICMS) software. If the total collection is less than 1 cubic foot in volume, SEAC will catalog the collection and prepare it for storage. All project materials will be delivered to the NPS at no cost to the government at the conclusion of the project.

Documentation

FMSF forms will be completed for every cultural resource identified during the survey and the NPS Cultural Resource Inventory System (CRIS, formerly known as ASMIS) will be updated with all site and survey data resulting from this investigation.

A draft report presenting the methods, findings, evaluations, and recommendations will be prepared and submitted for review and comment to the Consulting Parties. This report will conform to the standards set forth in the FDHR Cultural Resource Management Standards and Operational Manual and the NPS. Once any necessary changes are made, two bound hard copies of the final report and one unbound will be provided to the Consulting Parties, and SEAC. A final copy of the report will be produced and submitted to the Consulting Parties, and SEAC.

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APPENDIX D: RECORD OF MINIMIZATION AND MITIGATION MEASURES CONSULTATION

Pending future consultation

APPENDIX E: NAGPRA PLAN OF ACTION

NAGPRA PLAN OF ACTION FOR INADVERTENT DISCOVERIES

Pursuant to 43 CFR 10.5(e)

For inadvertent discoveries related to the Final Back Country Access Plan/Wilderness Study/Environmental Impact Statement, Big Cypress National Preserve

I. Project Description and Background

Purpose: This Written Plan of Action (POA) aims to outline procedures and provisions for inadvertent discovery of human remains, funerary objects, sacred objects, or objects of cultural patrimony determined to be, or have the potential to be, Native American. The NPS will make every reasonable effort to avoid known burial sites through background research, which may include Indigenous Knowledge (IK), the Florida Master Site File (FLMSF), NPS GIS databases, NPS NAGPRA databases, or other reporting.

Project: Implementation of the Big Cypress National Preserve Final Back County Access Plan/Wilderness Study/Environmental Impact Statement in Big Cypress National Preserve (BICY), and the Big Cypress National Preserve- additional final general management plan/wilderness study/off-road vehicle management plan/environmental impact statement.

Lead Agency: Big Cypress National Preserve (BICY)

II. Management Plan:

1. Definition of Cultural Items

- a. Human remains, associated funerary objects, sacred objects, and objects of cultural patrimony are defined as set forth in NAGPRA, Sec. 2(3) and 43 CFR 10.2(d). Any artifacts found with human remains will be treated as though they are funerary objects. They will not be separated from the human remains during site monitoring, repatriation, and/or reburial.

2. Information used to Determine Custody in accordance with 25 USC 3002 (a), "Priority of Ownership," and 43 CFR 10.6 "Priority of Custody."

- a. The Seminole Tribe of Florida, the Miccosukee Tribe of Indians of Florida, and Seminole Nation of Oklahoma are the Tribes on whose ancestral lands the human remains, funerary objects, sacred objects, or objects of cultural patrimony may be discovered inadvertently;
- b. Due to archeological information, geographic location of the project area, historical, linguistic, and oral tradition; any ancestral remains, funerary objects, or objects of cultural patrimony are culturally affiliated with the Seminole Tribe of Florida, the Miccosukee Tribe of Indians of Florida, and Seminole Nation of Oklahoma.

- 3. Planned treatment, care, and handling of Native American human remains and associated funerary objects**
 - a. All human remains will be treated with dignity, care, and respect. Information about the location of human remains will always remain confidential. Media and unauthorized personnel will not be allowed access to the location of the remains. No photographs will be taken of the remains. Burials will not be discussed before the public or the press. Burial discussions by project personnel will be conducted only within a professional setting.
 - b. Human remains and associated artifacts will be left in place and not disturbed.
 - c. If additional human remains or associated artifacts are discovered during monitoring, that information will be documented, GIS information will be taken and updated, and provided to the Tribes. No human remains will be disturbed or removed from where they are found.
- 4. Recording**
 - a. Burial resources will be minimally recorded, and include a general description of the discovery. No photographs, drawings, or other digital recording will be completed without permission from the Tribes.
 - b. Ancestral remains will never be displayed to the public or media.
 - c. Burials will never be discussed with the public or the press. Burial discussions by project personnel will only be conducted by park personnel with the Tribes and only within a confidential and respectful setting.
- 5. Planned Analysis**
 - a. There will be no additional analysis performed on ancestral remains, funerary objects, sacred objects, or objects of cultural patrimony beyond what is required to notify the Tribes of an inadvertent discovery, and to document the discovery.
- 6. Notification Procedures**
 - a. Signatory Tribes will be notified of an inadvertent discovery, or potential inadvertent discovery within 24 hours of the initial discovery, preferably within the same day.
 - b. The NPS will provide Tribes with the following information as quickly as possible after the initial notification:
 - Locational data, including GPS coordinates and a map marking the location of discovery will be provided. Please include all planned and excavated shovel tests (if applicable), and their relation to the inadvertent discovery;
 - Site name and number, if applicable;

- A description of the discovery context, including depth, shovel test, unit number and other relevant features;
- Description of items discovered;
- Description of site protection methods

7. Traditional Treatment

- a. If a location of discovery must be covered, only natural materials such as sterile soil or unbleached muslin cloth will be used;
- b. If Tribal members or THPO staff request a site visit, the NPS will accommodate that request to the best of their ability.
- c. Site protection measures may include stabilization, monitoring, remote monitoring, allowing the site to return to natural conditions without intervention, or other actions determined to be appropriate during consultation.

8. Reporting

The NPS will complete a discovery report within thirty (30) days of the inadvertent discovery. The report will include the context surrounding the discovery, the actions completed to resolve the discovery, and how the location of discovery will be protected in perpetuity, which will be discussed in consultation with the signatory Tribes.

III. Consultation

The following Tribal Governments were notified and consulted with on this POA in accordance with 43 CFR 10.3(c):

APPENDIX H: BIOLOGICAL ASSESSMENT AND USFWS CONCURRENCE

At the time the section 7(a)(2) consultation was initiated, alternative 3 (proposed action) was the preferred alternative and included a wilderness proposal. The preferred alternative has since been changed to alternative 4. The only difference between alternative 3 and alternative 4 is that there is no wilderness proposed in alternative 4.

The proposed action in the Biological Assessment (BA) includes a wilderness proposal; however, the NPS does not anticipate implementing this component of the proposed action. In section 2.1.6 (page 12) of the BA, the NPS determined that a wilderness designation was considered an administrative action that would have no effect on federally listed species. Excluding the wilderness proposal from the proposed action does not result in any changes to the federally listed species determinations included in the BA. The NPS has determined that this exclusion does not require reinitiation of consultation because it does not subsequently modify the proposed action in such a way that it causes an effect on federally listed species that was not previously considered.

BIG CYPRESS NATIONAL PRESERVE

BIOLOGICAL ASSESSMENT

for the

Backcountry Access Plan/ Wilderness Study

August 2023

Revised January 2024

Revised February 2024

TABLE OF CONTENTS

1.0 INTRODUCTION	4
Consultation History	4
2.0 PROPOSED ACTION	6
2.1 Description of the Proposed Action Area.....	6
2.1.1 ORV Trails.....	8
2.1.2 Hiking Trails and FNST.....	9
2.1.3 Destinations.....	9
2.1.4 Backcountry Campground.....	10
2.1.5 Closures.....	12
2.1.6 Wilderness Proposal.....	12
2.2 Reopening/Maintenance Methods	12
2.2.1 ORV Trails.....	12
2.2.2 Hiking Trails and FNST.....	14
2.2.3 Destinations.....	14
2.2.4 Backcountry Campground.....	14
2.2.5 Summary	14
2.3 Potential Impacts.....	15
2.4 Action Area	15
2.5 Description of the Proposed Action Area.....	17
2.6 Conservation Measures.....	20
3.0 FEDERALLY LISTED SPECIES.....	21
3.1 Federally Listed Species Within the Action Area	25
3.1.1 Mammal Species.....	27
3.1.2 Bird Species.....	29
3.1.3 Reptile Species.....	33
3.1.4 Plant Species	33
4.0 EFFECTS OF PROPOSED ACTION	35
4.1 Potential Stressors	36
4.1.1 Plant Stressors.....	36
4.1.2 Animal Stressors.....	36
4.2 The Existing Trail Network.....	39
4.3 Effects to Mammal Species	39
4.3.1 Florida Bonneted Bat	40
4.3.2 Florida Bonneted Bat Proposed Designated Critical Habitat.....	43
4.3.3 Tricolored Bat	43
4.3.4 Florida Panther.....	46
4.4 Effects to Bird Species	49
4.4.1 Audubon's Crested Caracara.....	49
4.4.2 Eastern Black Rail.....	52

4.4.3 Everglade Snail Kite.....	54
4.4.4 Red-Cockaded Woodpecker	56
4.4.5 Wood Stork	58
4.5 Effects to Reptile Species	61
4.5.1 American Alligator and American Crocodile.....	61
4.5.2 Eastern Indigo Snake	63
4.6 Effects to Plant Species.....	65
4.6.1 Everglades Bully, Florida Prairie Clover, and Florida Pineland Crabgrass	65
4.6.1 Proposed Designated Critical Habitat.....	67
4.7 Cumulative Effects	68
5.0 ADDITIONAL SPECIES OF CONCERN	68
6.0 CONCLUSION	69
APPENDICES.....	74
Appendix A: Acronyms	75
Appendix B: USFWS Official Species List and IPAC Report	76
Appendix C: List of Preparers and Consultants.....	77
Appendix D: Literature Citations	78

FIGURES

Figure 1. Proposed Action/Action Area (including short-term indirect impacts).	7
Figure 2. Proposed Backcountry Campground.....	11
Figure 3. Vegetative Communities	19
Figure 4. Wood Stork Rookeries (and core foraging habitat).....	32
Figure 5. Ongoing operational soundscape impacts.	38

TABLES

Table 1. Summary of Reopened/Open ORV and Airboat Trails, Proposed/Open Hiking Trails, Reopened/Opened Destinations, and Existing/Proposed Campgrounds.	16
Table 2. Action Area.....	17
Table 3. Vegetation Communities	18
Table 4. Federally Listed Species: No Effect	22
Table 5. Federally Listed/Proposed Species within the Action Area	26
Table 6. ORV/Airboat Noise Buffers	39
Table 7. Summary of Species Determinations.....	70

1.0 INTRODUCTION

Big Cypress National Preserve (BICY) 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. This area is typically referred to as the original preserve. 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 a total of 727,235 acres.

The National Park Service (NPS) has prepared this Biological Assessment (BA) to assess the potential effects of implementing a proposed Backcountry Access Plan on BICY's federally listed and/or proposed species and designated critical habitats. This BA was prepared in accordance with legal requirements set forth under Section 7 of the Endangered Species Act of 1973 (ESA), as amended (16 United States Code [USC] 1536, et seq.), the US Fish & Wildlife Service (USFWS) Guidance for Preparing a BA, and the NPS BA Guidebook (2018). Review of existing literature/field studies and information provided by field and agency experts (i.e., planners, resource specialists, and biologists) was completed to assess potential effects to federally listed plant and animal species within the Action Area.

CONSULTATION HISTORY

Before preparing this BA, the NPS obtained a list of federally listed threatened, endangered, candidate, and proposed species potentially occurring in the action area from the USFWS using the Information, Planning, and Conservation System website (Appendix B).

Park staff informally discussed this project with USFWS staff between late 2020 into early 2023. During those discussions USFWS provided comments on the Draft Environmental Impact Statement / Backcountry Access Plan (2020) and the Supplemental Draft Environmental Impact Statement / Backcountry Access Plan (2022).

In April of 2022 USFWS staff recommended the preparation of a BA to address the potential effects to listed species from the proposed action in the Supplemental Draft Environmental Impact Statement / Backcountry Access Plan (2022). The NPS submitted a BA to USFWS on August 21, 2023 with a request for concurrence.

The NPS and USFWS held a virtual meeting to discuss the BA and request for concurrence on October 11, 2023.

The USFWS provided a Request for Additional Information (RAI) on November 3, 2023. A virtual meeting to discuss the contents of the RAI was held on December 4, 2023. Based on the content of the RAI and the results of the December 4, 2023, virtual meeting, the BA has been revised to include the requested information and provide clarification, as necessary.

The NPS and USFWS held a virtual meeting on February 21, 2024, to discuss additional conservation measures. The agreed upon measures are incorporated into the February 2024 version (this version) of the BA. It was submitted to the USFWS for review and comment on February 26, 2024.

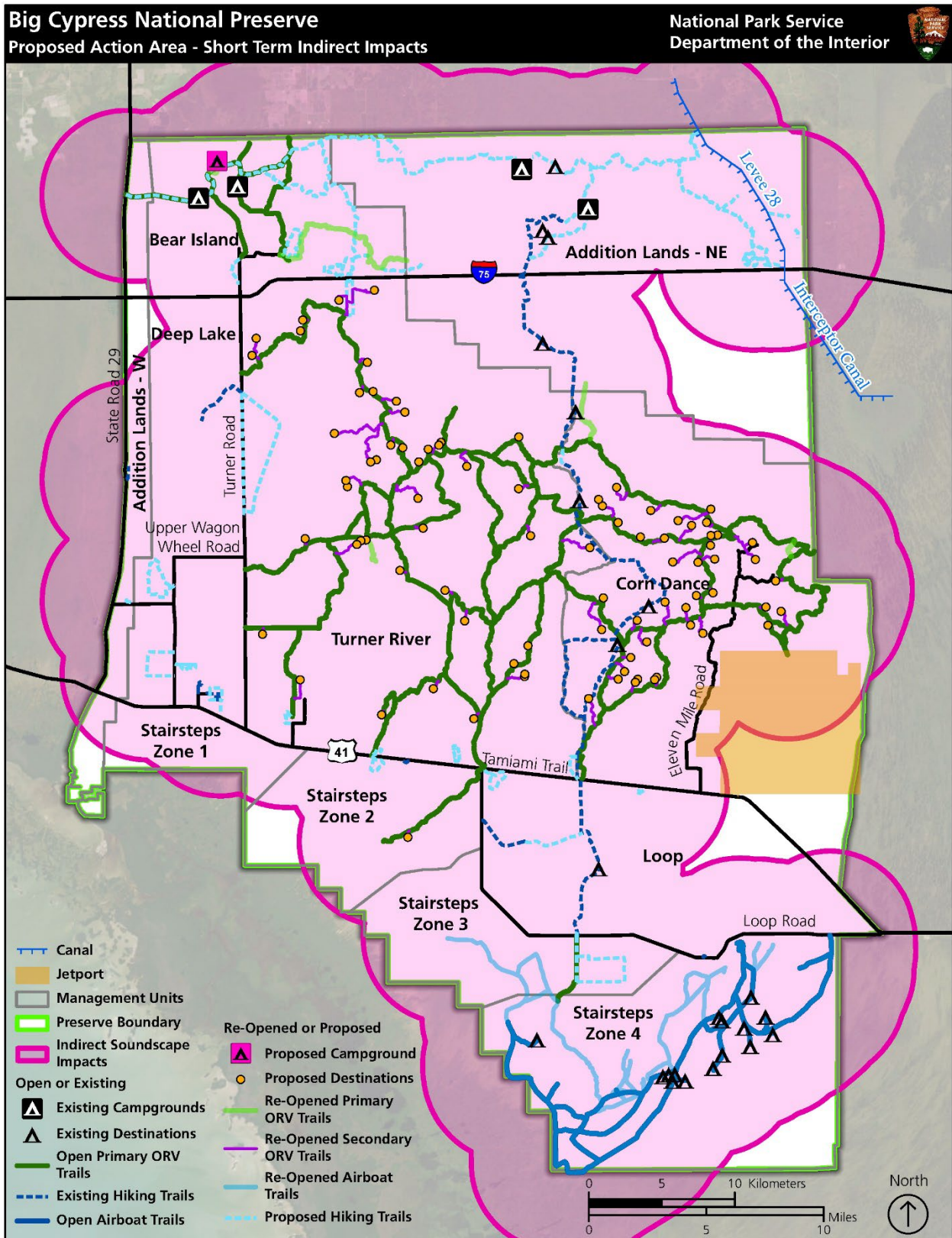
2.0 PROPOSED ACTION

The Proposed Action (Figure 1) provides management guidelines for backcountry access, use, and enjoyment by the public while protecting the preserve's natural and cultural resources within the Action Area. It is also intended to determine which areas within the original preserve (as established in 1974), if any, should be proposed for wilderness designation by Congress. The Proposed Action satisfies the need to: protect the preserve's resources (e.g., habitat, plants, wildlife, protected species, and cultural resources) while providing for sustainable recreational backcountry use of the preserve in accordance with its enabling legislation; 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; and proposes designation of parts of the original preserve as wilderness. More detailed information, including the need for action and how the Proposed Action was selected to satisfy the need, can be found in the [Supplemental Draft Plan/EIS](#).

2.1 DESCRIPTION OF THE PROPOSED ACTION AREA

The Proposed Action provides increased public access to the preserve by reopening specified primary ORV land trails, secondary ORV land trails, and ORV airboat trails along previously disturbed routes. Many of the routes to be reopened have been closed to public use since 2013, but are still in use by NPS staff and private landowners within the preserve. The Proposed Action would also open hiking trails on pre-existing and new routes, reopen multiple backcountry "destinations" (small sites suitable for camping or nature and wildlife viewing), and establish one new backcountry campground (a 2-acre area suitable for group camping but without any amenities or infrastructure) on a previously disturbed, elevated, and denuded former petroleum production site. The Proposed Action also provides management approaches for backcountry recreation and offers protection to the most ecologically intact parts of the original preserve by proposing that Congress designate them as wilderness. In total, the Proposed Action consists of reopening 14.6 miles of primary ORV trails, 52.9 miles of secondary OVR trails, 38 miles of airboat trails, and 122 miles of hiking trails (30 of which would follow previously disturbed routes), 87 proposed destinations, and one proposed backcountry campground (Figure 1). Approximately 147,910 acres in the original preserve and adjoining western Addition are proposed for designation as wilderness. Permits for the operation of ORVs and airboats would continue to be capped at 2,000 per year. The Proposed Action does not include any actions on the currently opened trail system (motorized and nonmotorized). Figure 1 below portrays the Proposed Action visually, and the associated Action Area, including both long-term actions and anticipated short-term indirect soundscape impacts.

Figure 1. Proposed Action/Action Area (including short-term indirect impacts).



2.1.1 ORV Trails

ORV use includes both terrestrial vehicles (e.g., swamp buggies) and airboats. For the purposes of this BA, ORV trails that occur on land are referred to as “ORV land trails” and ORV water route trails are referred to as “airboat trails.” At present, BICY has 221 miles of ORV land trails and 57 miles of airboat trails, for a total of 278 miles of motorized trails.

Under the Proposed Action, BICY would reopen an additional 14.6 miles of “primary” ORV land trails, 52.9 miles of “secondary” ORV land trails, and 38 miles of airboat trails, bringing the total mileage of ORV trails in the preserve to 383 miles. Primary ORV land trails are trails that emanate from designated access points and provide recreational access within BICY. Primary ORV land trails are the principal motorized routes in the terrestrial portion of the preserve. Primary ORV land 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. Open ORV primary trails throughout the preserve are predominately in good condition and require little to no regular maintenance. Typically, 3 percent of the system, approximately 6 to 7.5 miles, receives maintenance in any given year, most frequently at initial access points near public roads.

Secondary ORV land trails branch off primary ORV land trails and lead to one or more backcountry destinations. Secondary trails are terrestrial 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 ORV land trails would be monitored as resources allow and use levels would be managed to avoid impacts to resources. NPS maintenance actions on reopened secondary land trails 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. No use of heavy equipment or stabilization measures would be employed on secondary ORV land trails. No secondary ORV land trails are currently open for public use, however, many of them are utilized by landowners to access private inholdings within the park. Park staff and permitted management operations (i.e. python hunting, scientific research and inventory work, invasive plant management, fire and law enforcement operations, etc.) also utilize secondary trails. Current conditions on secondary trails vary – approximately one third of them are clear and will require little to no action to open for public use, another third of the system will require minor trimming, others have experienced approximately 10 years of growth and will now require more extensive trimming to allow for public use. All the proposed secondary ORV trails to be reopened display some level of previous use.

All proposed reopened ORV land trails would follow previously used trails on previously disturbed ground. About 73% of the proposed reopened primary ORV land trails and over 90% of the proposed reopened secondary ORV land trails would traverse highly resilient to resilient substrate types, meaning that the trail could sustain prolonged recreational use without serious rutting or braiding. Re-opening and maintaining ORV land 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 as necessary, (4) trimming vegetation, and (5) monitoring and treating invasive plant species¹. See discussion of “Construction Methods” later in this section for additional detail.

Airboat trails are similar in function to primary ORV land trails, but cover water routes. Airboat trails emanate from designated access points/trailheads and provide recreational access into and within those parts of the preserve that are flooded for all or most of the year. These proposed reopened trails include the principal access routes into Stairsteps Unit Zone 4, and one airboat trail in Stairsteps Unit Zone 3. All reopened airboat trails would follow previously used airboat trails on previously disturbed ground. Virtually 100% of reopened airboat trails would traverse highly resilient to resilient substrate types, meaning that trail braiding would be minimal. Airboat trails would be maintained by crews trimming lateral, overhead, and in-trail vegetation with hand tools and motorized equipment such as chain saws. The reopening and maintenance of airboat trails entails less land disturbance than ORV land trails, as maintenance typically involves trimming vegetation from airboats (without disturbance to the root zone) to keep trails passable. Like the secondary ORV trails, all reopened airboat trails are currently closed to public use, but some are utilized by private landowners and for administrative use. Other reopened airboat trails have seen little use in nearly 20 years and will require more extensive trimming of herbaceous vegetation and small, woody trees/shrubs.

2.1.2 Hiking Trails and FNST

The Proposed Action would open 114 miles of hiking trails that include a reroute of about 8 miles of the FNST. The realignment of 8 miles of the FNST is being proposed to improve the backcountry experience of hikers by separating ORV and non-ORV users. After realignment, the FNST would total 44 miles. Approximately 30 miles of hiking trails are proposed along previously disturbed routes, following former ORV routes and elevated tram roads. Approximately 84 miles of proposed hiking trail will be opened in undisturbed or previously restored areas. All hiking trail construction would be limited to trimming of vegetation to clear an 8-foot-wide footpath. Of the 84 miles of trail in undisturbed or previously restored areas, 26 miles pass through prairie. In prairie areas, vegetation trimming is unnecessary. Combined, hiking trails in the BICY (including existing, currently open trails, the FNST, and re-opened and new trails) would total 185 miles.

2.1.3 Destinations

The Proposed Action would open 87 new backcountry destinations in the original preserve and close one existing site in the Stairsteps Unit to protect resources. The 87 new sites would be in addition to 24 existing backcountry destinations across the preserve. A *backcountry destination* is a specific campsite or geographic point of interest in the backcountry of the preserve. A

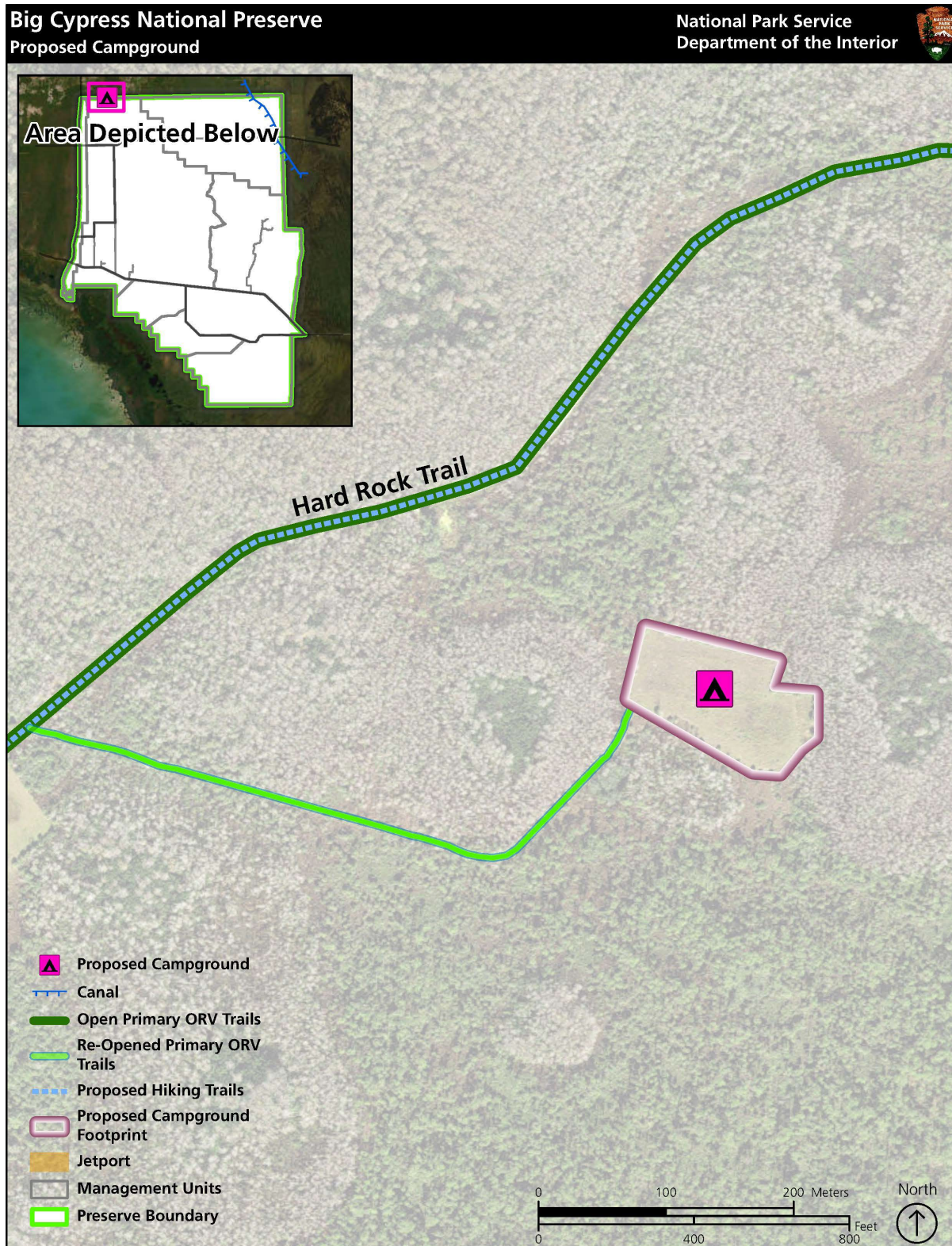
¹ Invasive plant treatment will follow the previously approved South Florida and Caribbean Parks Exotic Plant Management Plan (2010).

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. The Proposed Action does not dictate the visitor activity at a destination, so for the purposes of the BA, impacts would be presumed to be associated with the most intensive use of camping. The camping stay at a single destination would be limited to 14 consecutive days. Destinations are reached by secondary ORV land trail. Each destination is small, averaging 10×20 feet, and vegetation is trimmed as needed to facilitate camping or other recreational use. Site development is limited to a sign or stake identifying the location of the destination. Destinations do not require site stabilization or installation of impervious surface.

2.1.4 Backcountry Campground

Both dispersed and designated camping currently occurs within BICY. The Proposed Action will add one new backcountry campground in the Bear Island Unit (Figure 2). The campground would be located on a heavily impacted elevated pad once used for petroleum production. The pad is currently clear of woody vegetation, vehicles can drive onto it, and it is approximately two acres in size. The reopened primary ORV trail that would be used to access the campground is also elevated due to former use by the petroleum extraction operation. The site is located near other existing group campgrounds in the Bear Island management unit that are currently open. The campground would support a handful of tents at any given time, given that access to the area is by ORV permit only and current levels of backcountry camping in Bear Island are relatively low. A total of 12 “tent pads” would be established to support tent camping. Each “tent pad” includes a sign marking the parking and camping area, a picnic table, and a fire ring. No other infrastructure is provided. All waste is pack in/pack out. The camping stay at the campground would be limited to 14 consecutive days. Opening and maintaining this new backcountry is not an activity expected to involve significant ground disturbance due to its condition of being previously disturbed (elevated), but generally would entail (1) clearing the route to the site of hazards such as fallen trees, (2) clearly marking the campground, and (3) installation of amenities associated with tent pads (picnic table, fire ring, and signage).

Figure 2. Proposed Backcountry Campground



2.1.5 Closures

The Proposed Action would lift the annual 60-day ORV closure throughout the preserve in favor of targeted closures of specific problem areas identified by staff. These targeted trail and destination closures is expected to be more beneficial to special status species (Florida panther, Florida bonneted bat, etc.) than the 60-day seasonal closure, as targeted closures would be informed by NPS staff with specific knowledge of sensitive areas and species. The ORV trail system would continue to be closed every night between the hours of 10:00 p.m. and 5:00 a.m. in accordance with the 2000 Recreational ORV Management Plan. This nightly closure is intended to ensure resource protection, visitor safety, and visitor comfort.

2.1.6 Wilderness Proposal

The Proposed Action also proposes that Congress designate approximately 147,910 acres of land as wilderness. The proposal generally covers the areas known as Mullet Slough, Deep Lake, the Loop Unit and a portion of Stairsteps Zone 4. Areas designated as wilderness are managed to be free of roads, installations, motorized tools, and mechanized transport. The wilderness proposal is aimed at further protecting species and their habitat from human disturbance. The wilderness designation is considered an administrative action that will have no effect on federally listed species and is therefore not addressed further in this BA.

2.2 REOPENING/MAINTENANCE METHODS

The Proposed Action includes two main components that will be carried out by NPS. The first component involves reopening ORV land and airboat trails and opening the hiking trails, destinations, and a backcountry campground. The second component involves periodic maintenance of these areas after they are reopened/opened, as needed to protect visitor safety and resources.

2.2.1 ORV Trails

All ORV trails in the Proposed Action would be sited on previously disturbed areas. ORV trails would be reestablished by work crews using ORVs. Access would initially be from the existing primary ORV land 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.

Hazard removal and vegetation trimming would occur within the footprint of the reopened trail. 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, others would require more removal/trimming, but removal of large trees is not anticipated. 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 chainsaws, 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 land trails, vegetation would be trimmed within a 12-foot-wide corridor.

In total, primary ORV land trails would require no more than 21.24 acres of vegetation removal and secondary ORV land trails would require no more than 76.95 acres; however, the NPS anticipates that this amount is likely a significant over-estimation given that all ORV trails are previously disturbed, and many will require little to no vegetation clearing.

Secondary ORV land trails would require minimal disturbance to reopen and maintain. No heavy equipment would be used, and no stabilization would take place.

On primary ORV land 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 (such as braiding during use). 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. 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.

Trail conditions would be monitored, and maintenance activities would be routinely conducted on all trails, including repair and replacement of trail markers. Some areas may require annual or semiannual maintenance, while other areas may not require maintenance for many years. Routine maintenance would largely consist of the same activities required to reopen the trail. In addition to the activities described for reopening trails and for installing trail markers and signs, adaptive management actions would be employed to protect resources. 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 a primary ORV trail during maintenance 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.

Airboat trails would be reestablished from airboats, with workers using hand tools and motorized equipment such as chain saws, weed eaters, and pole saws. Vegetation would be trimmed from near the ground surface to avoid disruption of soils and root systems. Typically, vegetation in airboat trails would be trimmed within a 12-foot-wide corridor and 10-feet above the waterline,

or high enough to allow for the passage of airboats. As with ORV land trails, the degree of hazard removal or vegetation trimming necessary to reestablish a trail would vary on a case-by-case basis, where some trails could be reestablished with relatively little removal or trimming. In total, no more than 55.27 acres of vegetation removal is anticipated to reopen the ORV airboat trails.

2.2.2 Hiking Trails and FNST

The proposed action would develop or open 114 miles of hiking trail. Approximately 30 miles of the proposed hiking trails occur on previously disturbed ground. The remaining 84 miles of hiking trail would traverse undisturbed or previously restored areas. Hiking trails would be reestablished or opened by crews working on foot. Vegetation would be trimmed within an eight-foot-wide corridor using hand tools and motorized equipment such as chain saws, weed eaters, and pole saws. NPS estimates that no more than 110.55 acres of vegetation will be impacted to establish the hiking trails and reroute the FNST. Though 110.55 acres of vegetation may be *disturbed* by this activity, 26 miles, or 25.2 acres, of hiking trail pass through prairie. In prairie areas vegetation trimming is unnecessary.

2.2.3 Destinations

All proposed destinations would be sited in previously disturbed areas. Destinations would be reestablished by work crews using ORVs and on foot. Most destinations are naturally clear of vegetation and situated on high ground, and many would require little to no clearing to re-open. At some destinations, NPS personnel and authorized volunteers would trim vegetation around an area of 10 feet by 20 feet (to allow users a clear site to camp). No amenities of any kind would be installed at destinations, only a sign or marker to indicate to users they had reached the site. In total, the 87 destinations would impact up to 0.399 acres of vegetation. Conditions would be monitored as resources allow, and maintenance activities would be conducted on destinations as needed, including repair and replacement of site markers. Routine maintenance would largely consist of the same activities required to establish the destination. Adaptive management actions would be employed to protect resources.

2.2.4 Backcountry Campground

Little construction activity would be needed to establish the proposed two-acre backcountry campground. The site of the two-acre campground (an elevated former petroleum pad) is already cleared. All that would need to be done would be to establish twelve tent pads on the existing fill (each with signs, a picnic table, and a fire ring). All waste would be pack in/pack out and no other infrastructure would be installed.

2.2.5 Summary

In total, the Proposed Action is expected to directly impact approximately 266.4 acres of ground/vegetation, most of which is previously disturbed. This represents approximately 0.037% of BICY. All maintenance activities would occur within the existing footprint of the trails,

destinations, and the backcountry campground and will only require a minimal amount of vegetation removal when needed to address safety concerns.

2.3 POTENTIAL IMPACTS

The Proposed Action can be separated into two potential impact phases: (1) the reopening of the proposed terrestrial and airboat ORV trails and opening hiking trails, destinations, and the backcountry campground (herein referred to as the “reopening phase”) and (2) ongoing operations after the initial reopening is complete. These impacts have the potential to result in changes to air, land, and/or water and were therefore used to determine the extent of the Action Area.

The reopening phase has the potential to result in the following:

- Vegetation removal to re-open ORV trails and open hiking trails, and destinations (no vegetation removal is anticipated for the proposed backcountry campground). Potential habitat removal is expected to be permanent.
- Noise/vibration from equipment/human presence during reopening activities. Noise from equipment and human presence is expected to be short-term and only last for the duration of the reopening.

Once the reopening phase is complete, ongoing operations are expected to result in the following:

- Vegetation removal to maintain the safety of ORV trails, hiking trails, destinations, and the backcountry campground.
- Noise/vibration associated with maintenance activities.
- Noise/vibration associated with terrestrial ORV and airboat operation.
- Human presence on trails and at destinations and the backcountry campground (noise, lighting, etc.).
- Traffic on ORV and hiking trails that could result in degraded trail conditions such, rutting, and/or the spread of invasive species.

2.4 ACTION AREA

The Action Area is defined by regulation as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR §402.02). The action area occurs entirely within the boundaries of BICY. The focus of the Proposed Action is to reopen ORV land and airboat trails and open hiking trails, destinations, and the backcountry campground; therefore, impacts are expected to primarily occur within the footprint of these areas. However, the proposed activities are also expected to result in indirect impacts resulting from noise, human presence, ORV operation, etc. Of the indirect impacts, we have determined that the effects from noise are likely to occur the greatest distance from the project footprint.

Of all equipment (including ORVs) that will be used during reopening and continued operations, chainsaws emit the loudest noise (110 dBA). Because chainsaws could be used on any ORV trail, hiking trail, destination, or the backcountry campground, a 18,930-foot buffer was applied around these features to determine the Action Area. This buffer is based on the sound pressure attenuation rate of 6 dBA for every doubling of the distance. The median natural sound level in the park is as high as 40 dBA in certain areas of the park (NPS 2012a). The daytime sound level in the park ranges from 37 to 70 dBA in the summer, and from 34 to 35 dBA in the winter (NPS 2012b). For the purposes of conducting a conservative analysis, the average parkwide ambient sound level of 34 dBA was used for this analysis. To reach the ambient sound level of 34 dBA, a chainsaw measuring 110 dBA at 3 feet (CDC 2017) attenuates to 34 dBA at 18,930 feet. The Proposed Action is not expected to result in changes to the ambient noise level beyond 18,930 feet².

In addition, while there are no actions proposed to the currently opened trail system, these trails are considered interrelated and interdependent to the Proposed Action and are therefore included as part of the Action Area. In total, the Action Area includes 235.1 miles of primary ORV land trails, 52.9 miles of secondary ORV land trails, 95 miles of ORV airboat trails, 185 miles of hiking trails (including the FNST), 111 destination sites, and 5 backcountry campgrounds (Table 1).

Table 1. Summary of Reopened/Open ORV and Airboat Trails, Proposed/Open Hiking Trails, Reopened/Opened Destinations, and Existing/Proposed Campgrounds.

Trail/Destination Type		Open / Existing	Reopened / Proposed	Total	Unit
Primary ORV	Airboat	57	38	95	Miles
	ORV	220.5	14.6	235.1	Miles
Secondary ORV	ORV	0	52.9	52.9	Miles
Hiking Trails	General	27	114	141	Miles
	FNST	36	8	44	Miles
Destinations		24	87	111	Number
Backcountry Campground		4	1	5	Number

Based on the inclusion of the currently opened trail system, proposed reopened ORV land and airboat trails, hiking trails, destinations, proposed backcountry campground, and incorporation of the 18,930-foot chainsaw noise buffer, the Action Area encompasses 846,242 acres (see Figure 1), some of which occurs outside of the BICY boundary. This calculation was based on the following: 12-foot width for all ORV trails; 8-foot width for hiking trails; 10 x 20-foot area per destination; and 2 acres per backcountry campground to approximate the project footprint of 746.99 acres (Table 2). The appropriate chainsaw noise buffer was then applied to the project

² Chainsaws are only expected to be used periodically, for short durations during reopening and subsequent maintenance of trails, and only in isolated work areas during any one period. Consequently, most sound-related impacts will occur at a much smaller scale and are described in greater detail in the Effects of the Action section.

footprint (using GIS software) to obtain the total acreage of the Action Area in GIS of 846,242 acres.

Table 2. Action Area

Type	Distance (miles)	Footprint Area	Footprint (acres)
Primary ORV Land Trail	235.1	1,241,328 feet x 12 ft = 14,895,936 square feet	341.96
Secondary ORV Land Trail	52.9	279,312 feet x 12 ft = 335,1744 square feet	76.95
Airboat Trail	95	501,600 feet x 12 ft = 6,019,200 square feet	138.18
Hiking Trails/FNST	185	976,800 x 8 feet = 7,814,400 square feet	179.39
Destinations	111 (each)	10 ft x 20 feet = 200 square feet x 111 = 22,200 square feet	0.510
Backcountry Campground	5 (each)	5 X 2 acres = 10 acres	10.00
TOTALS			746.99

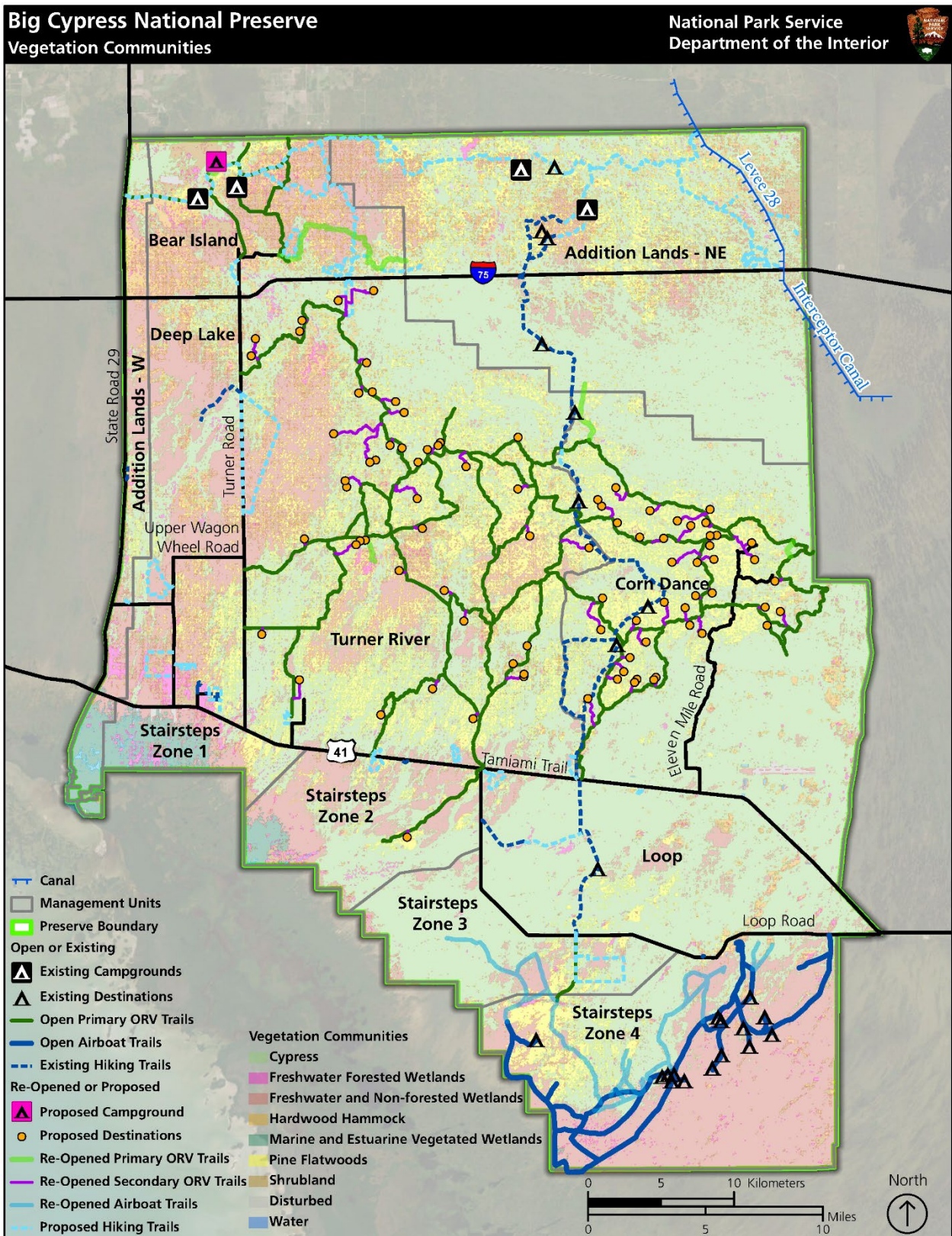
2.5 DESCRIPTION OF THE PROPOSED ACTION AREA

The Action Area traverses a wide variety of habitat types: pine flatwoods, hardwood hammocks, shrubland, disturbed lands, freshwater and non-forested wetlands (including prairies and marshes), marine and estuarine vegetated wetlands (including mangroves), and freshwater forested wetlands (including cypress systems), and open water. Vegetative cover types that occur in the Action Area, are summarized in Table 3. A comprehensive view of the vegetative cover within BICY are provided in Figure 3. Community types are described in detail in Section 3.2 of the SDEIS.

Table 3. Vegetation Communities

Vegetation Community	Typical Vegetation/Community Type
Cypress	Cypress forest (strands, domes, mixed cypress) and cypress scrub
Pine flatwoods	Slash pine forests and pine rocklands
Shrubland	Cabbage palm, saw palmetto, willow, wax myrtle
Hardwood hammocks	Hardwoods (gumbo limbo, mastic, live oak, and laurel oak) mixed with sabal palms, shrubs and saw palmetto, ferns, and epiphytes
Freshwater and non-forested wetlands	Prairie: cordgrass, graminoid prairie, sawgrass, muhly grass, broom, and white- top sedge Marsh: broadleaf emergent marsh, sawgrass, cattail marsh
Freshwater forested wetlands	Cypress, red bay, sabal palm, pond apple, laurel oak
Marine and estuarine vegetated wetlands	Mangroves
Disturbed	Brazilian pepper, melaleuca, Java plum, other nonnatives, spoil area, roadway
Water	Water

Figure 3. Vegetative Communities



2.6 CONSERVATION MEASURES

Conservation measures are actions proposed by the NPS to avoid and/or minimize potential effect to federally listed species and are included as an integral portion of the Proposed Action. Implementation of conservation measures will follow an adaptive management approach to ensure that resources are protected to the greatest extent possible. Adaptive management practices are referenced in Section 2.8 of the SDEIS. Species-specific measures are further included in the “Effects of Proposed Action” section:

1. Signs or other means would be used to protect sensitive resources on or adjacent to trails and destinations. Visitors would be informed of the importance of protecting the preserve’s natural resources and leaving these undisturbed for the enjoyment of future generations.
2. The trail alignments shown in Figure 1 are based on a geographic information system analysis and extensive field observations. Final alignments are subject to additional ground truthing. Trails and destinations would be established in previously disturbed areas to the maximum extent possible. 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 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 would be surveyed in more detail so that impacts can be avoided and/or an alternate route can be established. If the resource impact could not be practically avoided, the trail would remain closed/not reopened.
3. 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 would be timed to avoid sensitive periods, such as nesting or breeding seasons.
4. Overhanging vegetation would be hand-trimmed along the trails and destinations. No removal of trees > 8-inch diameter at breast height (dbh), snags 15 feet or higher, or any trees > 30 feet in height will occur. When feasible, tree trimming would be avoided on days when daytime ambient temperatures are below 40 degrees Fahrenheit to protect species.
5. 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.
6. Standard noise abatement measures would be followed during trail and destination improvements, reopening, and maintenance. Use of heavy equipment, including chainsaws, will cease 30 minutes prior to sunset. Standard noise abatement measures could include a schedule that reduces impacts on adjacent noise-sensitive resources.

These measures would also include the use of electric power tools, and the use of the best available noise control techniques (wherever feasible).

7. If trail braiding, rutting, or widening is observed additional trail markings will be added to discourage off-trail use, the trail may be temporarily or permanently closed. In addition, BICY may also implement spot repairs and/or recontouring. If BICY determines that the trail should be re-routed and federally listed species/critical habitat could be affected in a manner or to an extent not previously considered, additional consultation with USFWS will occur.
8. If invasive plant species are observed, standard measures would 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. Invasive plant treatment will follow the previously approved South Florida and Caribbean Parks Exotic Plant Management Plan (2010) and is not addressed further in this BA.
9. The NPS will implement targeted trail/destination closures to avoid potential impacts to special status species. Targeted closures will be adaptive and based on site-specific information and recommendations from NPS natural resource staff. Targeted closures may occur during species-specific sensitive timeframes and/or to avoid impacts to known/potential habitat.

3.0 FEDERALLY LISTED SPECIES

An official species list was obtained from the USFWS Information for Planning and Consultation (IPaC) database (Project Code 2023-0019448) and is provided in Appendix B. The NPS then reviewed existing literature and remotely sensed geographic information system (GIS) data, as well as field studies conducted by experts (e.g., planners, resource specialists, and biologists) to determine the species that are reasonably certain to occur in the Action Area.

Based on a review of the best available data, the NPS has determined that the Proposed Action will have no effect on the species listed in Table 4. A “no effect” determination was made when 1) no suitable habitat occurs within the Action Area, 2) the Action Area is outside the known distributional range of the species (or species-specific data suggests the species would not be present in the Action Area), and/or 3) the species and its habitat will not be exposed to the potential stressors associated with the proposed action. Suitable habitat and range information is determined based on USFWS Environmental Conservation Online System (ECOS) and the Florida Natural Areas Inventory (database of current information on Florida’s rarest species). While there is no obligation to consult on “no effect” determinations, the NPS is including these determinations for your reference. These species are not addressed further in the BA.

Table 4. Federally Listed Species: No Effect

Common Name	Scientific Name	Status	Habitat	No Effect Rationale
Mammals				
West Indian manatee	<i>Trichechus manatus</i>	T, MMPA, DCH	Marine, brackish and freshwater systems in coastal and riverine. Prefer areas near the shore featuring underwater vegetation like seagrass and eelgrass	No suitable habitat will be impacted by the proposed action. Aquatic impacts are limited to the airboat trails, and impacts do not occur in areas that contain seagrass or eelgrass.
Birds				
Bachman's warbler (=wood)	<i>Vermivora bachmanii</i>	E	Bottomland forests and swamps	Species is presumed extinct because it has not been seen in the US since 1962.
Cape Sable seaside sparrow	<i>Ammodramus maritimus mirabilis</i>	E, DCH	short-hydroperiod, freshwater, marl prairies in the south Florida Everglades	Subpopulation A occurs on the far SE corner of BICY, outside of the Action Area and is unlikely to disperse into the AA in the future. No DCH occurs on BICY.
Piping plover	<i>Charadrius melodus</i>	T, DCH	Coastal habitats (sand spits, small islands, tidal flats, shoals and sandbars with inlets)	No suitable habitat or DCH occurs in the Action Area.
Red knot	<i>Calidris canutus rufa</i>	T, DCH	Muddy or sandy coastal areas (bays, estuaries, tidal flats, unimproved tidal inlets)	No suitable habitat or DCH occurs in the Action Area.
Reptiles				
Green sea turtle	<i>Chelonia mydas</i>	T, DCH	Shallow waters inside reefs, bays, and inlets. Open beaches with a sloping platform and minimal disturbance for nesting.	No suitable habitat or DCH occurs in the Action Area.
Hawksbill sea turtle	<i>Eretmochelys imbricata</i>	E, DCH	Coral reefs, rocky areas, lagoons; shallow coastal areas; mangrove-fringed bays and estuaries.	No suitable habitat or DCH occurs in the Action Area.
Leatherback sea turtle	<i>Dermochelys coriacea</i>	E, DCH	All oceans except the Arctic and Antarctic Oceans, tropical beaches for nesting	No suitable habitat or DCH occurs in the Action Area.
Loggerhead sea turtle	<i>Caretta</i>	T, DCH	Oceans, estuaries, along continental shelves and in pelagic habitats, subtropical beaches for nesting	No suitable habitat or DCH occurs in the Action Area.
Fish				
Gulf sturgeon	<i>Acipenser oxyrinchus desotoi</i>	T, DCH	Marine waters, freshwater rivers for spawning	No suitable habitat or DCH occurs in the Action Area.
Smalltooth sawfish	<i>Pristis pectinata</i>	E, DCH	Juveniles - coastal areas such as estuaries, river mouths, and bays year-round Adults - open water habitats and coral reefs	No suitable habitat or DCH occurs in the Action Area.

Table 4. Federally Listed Species: No Effect

Common Name	Scientific Name	Status	Habitat	No Effect Rationale
Insects				
Bartram's hairstreak butterfly	<i>Strymon acis bartrami</i>	E, DCH	Pine rockland habitat with its only known hostplant, pineland croton	Action Area is outside the known distributional range of the species and no suitable habitat occurs in BICY or the Action Area.
Florida leafwing butterfly	<i>Anaea troglodyta oridalis</i>	E, DCH	Pine rockland habitat with its only known hostplant, pineland croton	Action Area is outside the known distributional range of the species and no suitable habitat occurs in BICY or the Action Area.
Miami blue butterfly	<i>Cyclargus thomasi bethunebakeri</i>	E	Tropical hardwood hammocks, tropical pine rocklands, and beachside scrub	Action Area is outside the known distributional range of the species. Species has not been observed within BICY or the Action Area.
Plants				
Beach jacquemontia	<i>Jacquemontia reclinata</i>	E	Disturbed or sunny areas in tropical maritime hammocks or the coastal strand vegetation	Action Area is outside the known distributional range of the species. Species has not been observed within BICY or the Action Area.
Big Pine partridge pea	<i>Chamaecrista lineata keyensis</i>	E	Pine rocklands	Action Area is outside the known distributional range of the species. Species has not been observed within BICY or the Action Area.
Blodgett's silverbush	<i>Argythamnia blodgettii</i>	T	Pine rocklands, edges or gaps in rockland hammocks, and coastal berms	Action Area is outside the known distributional range of the species. Species has not been observed within BICY or the Action Area.
Cape Sable thoroughwort	<i>Chromolaena frustrata</i>	E, DCH	Buttonwood hammocks and coastal hardwood hammocks	Action Area is outside the known distributional range of the species. Species has not been observed within BICY or the Action Area. No DCH occurs within the Action Area.
Carter's mustard	<i>Warea carteri</i>	E	Sandhill, scrubby flatwoods, inland and coastal scrub	Action Area is outside the known distributional range of the species. Species has not been observed within BICY or the Action Area.

Table 4. Federally Listed Species: No Effect

Common Name	Scientific Name	Status	Habitat	No Effect Rationale
Carter's small-flowered flax	<i>Linum carteri</i> var. <i>carteri</i>	E, DCH	Pine rockland	Action Area is outside the known distributional range of the species. Species has not been observed within BICY or the Action Area. No DCH occurs within the Action Area.
Crenulate lead-plant	<i>Amorpha crenulata</i>	E	Pine rockland	Action Area is outside the known distributional range of the species. Species has not been observed within BICY or the Action Area.
Deltoid spurge	<i>Chamaesyce deltoidea</i> ssp.	E	Pine rocklands with scattered shrubs and exposed limestone	Action Area is outside the known distributional range of the species. Species has not been observed within BICY or the Action Area.
Florida brickell-bush	<i>Brickellia mosieri</i>	E, DCH	Low-nutrient sand	Action Area is outside the known distributional range of the species. Species has not been observed within BICY or the Action Area. No DCH occurs within the Action Area.
Florida bristle fern	<i>Trichomanes punctatum</i> ssp. <i>Floridanum</i>	E, DCH	Rockland hammocks	Action Area is outside the known distributional range of the species. Species has not been observed within BICY or the Action Area. No DCH occurs within the Action Area.
Florida semaphore cactus	<i>Consolea corallicola</i>	E, DCH	Transitional zone between mangrove and hardwood hammock habitats	No suitable habitat or DCH occurs in the Action Area.
Garber's spurge	<i>Chamaesyce garberi</i>	T	Sandy soils over limestone in pine rocklands, hammock edges, coastal rock barrens, grass prairies, salt flats, beach ridges, and swales	Action Area is outside the known distributional range of the species. Species has not been observed within BICY or the Action Area.
Key tree cactus	<i>Pilosocereus robinii</i>	E	Upland tropical hardwood hammocks on limestone or coral substrates	Action Area is outside the known distributional range of the species. Species has not been observed within BICY or the Action Area.
Pineland sandmat	<i>Chamaesyce deltoidea pinetorum</i>	T	Pine rockland	Action Area is outside the known distributional range of the species. Species has not been observed within BICY or the Action Area.

Table 4. Federally Listed Species: No Effect

Common Name	Scientific Name	Status	Habitat	No Effect Rationale
Sand flax	<i>Linum arenicola</i>	E	Pine rockland	Action Area is outside the known distributional range of the species. Species has not been observed within BICY or the Action Area.
Small's milkpea	<i>Galactia smallii</i>	E	Pine rockland	Action Area is outside the known distributional range of the species. Species has not been observed within BICY or the Action Area.
Tiny polygala	<i>Polygala smallii</i>	E	Sandhill Pine rockland, scrub, sandhill, and open coastal spoil piles, scrub, scrubby flatwoods, and their transition zones	Action Area is outside the known distributional range of the species. Species has not been observed within BICY or the Action Area.
Wedge spurge	<i>Chamaesyce deltoidea serpyllum</i>	E	Pine rockland	Action Area is outside the known distributional range of the species. Species has not been observed within BICY or the Action Area.

Notes: E = Endangered; T = Threatened; MMPA = Marine Mammal Protection Act; DCH = Designated Critical Habitat (Proposed or Final)

3.1 FEDERALLY LISTED SPECIES WITHIN THE ACTION AREA

The NPS has determined that the Action Area likely supports 14 federally listed/proposed species. Four of these species also have associated designated/proposed critical habitat that occurs in the Action Area. Information related to these species and their habitats is summarized in Table 5 and described in detail below.

Table 5. Federally Listed/Proposed Species within the Action Area

Common Name	Scientific Name	Status	Habitat
Mammals			
Florida bonneted bat	<i>Eumops floridanus</i>	E, PCH	Tree cavities of large trees/snags and will often use buildings.
Tricolored bat	<i>Perimyotis subflavus</i>	PE	Active year-round in Florida; typically roosts in culverts, trees, leaf clusters, and Spanish moss.
Florida panther	<i>Puma concolor coryi</i>	E	Native upland forests and communities with a dense saw palmetto understory for denning/resting.
Birds			
Audubon's crested caracara	<i>Polyborus plancus audubonii</i>	T	Prairie and rangeland areas with cabbage palms for nesting.
Eastern black rail	<i>Laterallus jamaicensis</i> ssp. <i>jamaicensi</i>	T	Salt, brackish, and freshwater marsh habitats.
Everglade snail kite	<i>Rostrhamus sociabilis plumbeus</i>	E DCH*	Lowland freshwater marshes. *DCH does not occur in BICY
Red-cockaded woodpecker	<i>Picoides borealis</i>	E	Slash pine ecosystems.
Wood stork	<i>Mycteria americana</i>	T	Wetlands (cypress domes or swamps, mangrove islands, willow thickets/islands in broad marshes)
Reptiles			
American alligator	<i>Alligator mississippiensis</i>	T(S/A)	Freshwater swamps and marshes, rivers, lakes, and small bodies of water.
American crocodile	<i>Crocodylus acutus</i>	T	Brackish, freshwater, and saltwater aquatic habitats, and adjacent upland shorelines, primarily in coastal areas.
Eastern indigo snake	<i>Drymarchon corais couperi</i>	T	Pine and scrubby flatwoods, high pine, dry prairie, tropical hardwood hammocks, edges of freshwater marshes, agricultural fields, coastal dunes, and human- altered habitats
Plants			
Everglades bully	<i>Sideroxylon reclinatum</i> subsp. <i>austrofloridense</i>	T, PCH	Ecotonal regions between pinelands and prairie.
Florida pineland crabgrass	<i>Digitaria pauciflora</i>	T, PCH	Prairie, Ecotonal regions between pinelands and prairie.
Florida prairie-clover	<i>Dalea carthagenensis</i> var. <i>floridana</i>	E, PCH	Pineland and disturbed edges.
Notes: E=Endangered, T=Threatened, T(S/A)=Threatened Similarity of Appearance, DCH=,Designated Critical Habitat, PCH = Proposed Critical Habitat			

3.1.1 Mammal Species

Three mammal species are known to occur in the Action Area: Florida bonneted bat (*Eumops floridanus*), tricolored bat (*Perimyotis subflavus*), and Florida panther (*Puma concolor coryi*).

Florida Bonneted Bat. The Florida bonneted bat was listed as endangered in 2013 (78 FR 61003). The Florida bonneted bat 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, and its fur ranges in color from dark gray to brownish gray (NPS 2021). The bat's 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. The species roosts in cliff crevices, tree cavities, and buildings and is present in rural, residential, and urban areas (NPS 2021). Because of its limited range and low numbers, the Florida bonneted bat is vulnerable to a wide array of natural and human-related threats, including habitat loss, modification, and degradation (NPS 2021b). This species is endemic to South Florida, active year-round, and is nonmigratory. According to the proposed designated critical habitat rule (78 FR 61003), the species prefers live or dead trees and tree snags, especially longleaf pine, slash pine, bald cypress, and royal palm, that are on average 57 feet in height and with an average 15-inch dbh that are emergent from the surrounding canopy and have sufficient unobstructed space, with cavities averaging 35 feet above the ground and roost trees averaging 14 feet from the nearest tree, to emerge from roost trees; this may include open or semi-open canopy and canopy gaps.

Based on data received from the Florida Fish and Wildlife Conservation Commission (FWC), as of 2022, six Florida bonneted bat roosts are documented in BICY. Four of these roosts are bald cypress, one roost is in a slash pine, and one roost is in a pond cypress. In addition to known roosts, acoustic data suggests that the species likely occurs in other areas of BICY, including the Action Area. No known FBB roosts occur within 1,000 feet of a proposed reopened ORV land or airboat trail or destination.

Florida Bonneted Bat Proposed Designated Critical Habitat. The USFWS proposed designated critical habitat for the Florida bonneted bat on November 20, 2022 (78 FR 61003). Approximately 530,790 acres of proposed Big Cypress Unit 6 occurs on BICY and encompasses a significant portion of the Action Area. The USFWS identified the following physical or biological features (PBFs) essential to the conservation of FBBs (1) Habitats that provide for roosting and rearing of offspring, (2) Habitats that provide adequate prey and space for foraging, (3) A dynamic disturbance regime that maintains and regenerates forested habitat (fire, hurricanes, forest management), (4) A sufficient quantity and diversity of habitats to enable the species to be resilient to short-term impacts associated with disturbance over time, (5) Habitats that provide structural connectivity where needed to allow for dispersal, gene flow, and natural and adaptive movements, including those that may be necessitated by climate change, and (6) A subtropical climate that provides tolerable conditions for the species such that normal behavior, successful reproduction, and rearing of offspring are possible.

Tricolored Bat. The tricolored bat was proposed as endangered on September 14, 2022 (87 FR 56381). The tricolored bat is one of the smallest bats native to North America. The species is distinguished from other bats by its unique tricolored fur, which is dark at the base, lighter in the middle and dark at the tip. Tricolored bats feed on small insects including caddisflies, moths, beetles, wasps, flying ants and flies. They emerge in early evening and forage at or above treetop level but may forage closer to the ground later in the evening. The species is known to forage most commonly over waterways and forest edges (USFWS 2022d).

Tricolored bats are found in forested habitats, where they roost among live and dead leaf clusters of live or recently dead deciduous hardwood trees. In the southern portion of its range the species is active year-round and can also be found roosting in Spanish moss (*Tillandsia usneoides*), and may also roost among pine needles, eastern red cedar (*Juniperus virginiana*), within barns, and beneath porch roofs, bridges, and concrete bunkers. Tricolored bats will roost in a variety of tree species, especially oaks (*Quercus* spp.), and often select roosts in tall, large diameter trees, but will roost in smaller diameter trees when potential roost substrate is present. The species typically prefers roost trees that are \geq 4-inch diameter at breast height (Leput 2004). The primary threat to the tricolored bat is White Nose Syndrome (USFWS 2022d). Though no roost trees have been identified, tricolored bats are commonly captured during mist-netting efforts and are regularly detected during acoustic survey efforts within the Action Area.

Florida Panther. The Florida panther was listed as endangered in 1967 (32 FR 4001). Florida panthers require large, contiguous areas of suitable habitat with sufficient 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 2021). Preferred vegetation communities include native upland forests and communities with a dense saw palmetto understory for denning and resting. GIS data indicate that Florida panther dens are scattered throughout BICY and the Action Area, but because dens are not re-used, many of these dens are considered unoccupied or abandoned. The size of the panther population in areas south of the Caloosahatchee River was reported by FWC to be 120 to 230 adults and subadults in 2015. No proposed trails or destinations are sited near known panther dens; however, there are likely active dens in the Action Area. The species is also expected to use the Action Area for hunting and traveling.

3.1.2 Bird Species

Five federally listed bird species are known to occur in the Action Area: Audubon's crested caracara (*Polyborus plancus audubonii*), Eastern black rail (*Laterallus jamaicensis jamaicensis*), Everglade snail kite (*Rostrhamus sociabilis plumbeus*), red-cockaded woodpecker (*Picoides borealis*), and wood stork (*Mycteria americana*).

Audubon's Crested Caracara. The Florida population of Audubon's crested caracara (ACC) was listed as threatened in 1987 (52 FR 25229). The ACC is a large, boldly patterned raptor, with a crest and unusually long legs. It is a resident, diurnal, and nonmigratory species. In Florida, habitat mainly consists of native dry or wet prairie areas containing scattered cabbage palms, their preferred nesting tree. The species also appears to exploit pastures, ditches, and impounded wetlands. Nesting occurs during the winter. Nesting on private lands appears to be preferred over public lands, likely a consequence of more rigorous management of privately owned grasslands (Morrison and Humphrey 2001; Morrison 2007). ACCs 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 park is unaware of any ACCs nesting in the Action Area; however, the species is known to occur in the Action Area, albeit rarely.

Eastern Black Rail. The eastern black rail was listed as threatened with a 4(d) rule in 2020 (85 FR 63764). Eastern black rails are small birds that are generally pale to blackish gray, with a small blackish bill and bright red eyes. These birds are found in a variety of salt, brackish, and freshwater marsh habitats that can be tidally or non-tidally 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. Eastern black rails require dense vegetative cover that allows movement underneath the canopy. Eastern black rails forage on a variety of small aquatic and terrestrial invertebrates and seeds by gleaning or pecking at individual items (Eddlemen et al. 1994). Eastern black rails have been documented in the Action Area, primarily in freshwater and non-forested wetland habitats.

Everglade Snail Kite. The Everglade snail kite was listed as endangered in 1967 (32 FR 4001). The Everglade snail kite is a wide-ranging raptor primarily found in tropical and subtropical America. The Everglade snail kite feeds almost exclusively on apple snails (*Pomacea*), which are captured at or near the water's surface. Snail kites hunt for snails by flying slowly or perching over sparsely vegetated lake shores or marshes. Everglade snail kites inhabit shallow freshwater marshes and shallow grassy shorelines of lakes and nest throughout the year, with a peak nesting season between the months of February and July (USFWS 1999). Critical habitat for the snail kite was designated by the USFWS in 1977, but does not occur in the action area or BICY. Everglade snail kite has been observed in the Action Area, most commonly south of Route 41, near several of the proposed reopened and currently opened ORV airboat trails.

Red-Cockaded Woodpecker. Red-cockaded woodpeckers (RCW) were listed as endangered in 1970 (35 FR 16047). The USFWS proposed to reclassify the species as a threatened species with a 4(d) rule in 2022 (85 FR 63474); however, the reclassification has not been finalized. The RCW's 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 RCW diet primarily consists of insects and other invertebrates found in or on pine trees. To protect cavity trees, the RCW Recovery Plan (2003) recommends a buffer zone of continuous forest, 200 feet wide, around the minimum convex polygon containing a group's active and inactive cavity trees.

RCW colonies utilize slash pine habitats within BICY. Based on data provided by FWC, as of 2023, there are 128 RCW tree clusters³ within BICY. All 128 clusters occur within the Action Area. Using the 200-foot buffer around each cluster, only two proposed reopened ORV secondary land trails occur within buffers (RCW Cluster 16 and RCW Cluster 26). A small portion of reopened secondary ORV land trail transects RCW Cluster 16. This cluster also overlaps with an existing primary ORV land trail that is open to the public. A portion of reopened secondary land ORV trail transects the RCW Cluster 26. This secondary trail is not currently open to the public but is regularly used by a private landowner and occasionally by NPS staff. This cluster also overlaps with a primary ORV land trail that is open to the public.

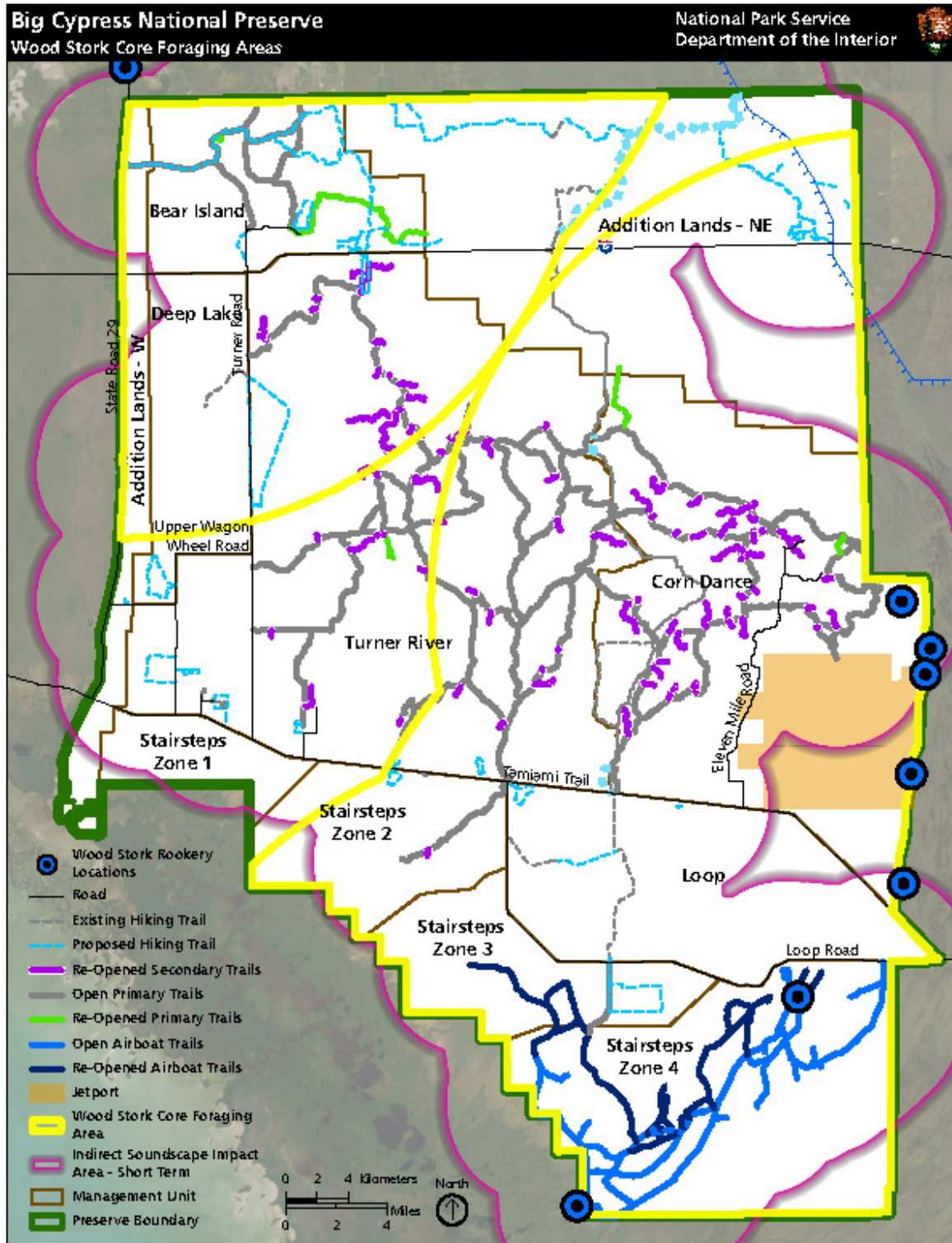
Wood Stork. The southeastern US population segment of the wood stork was listed as threatened 1984 (49 FR 7332). The species was proposed for delisting in February 2023 (88 FR 9830); however, the delisting is not yet final. Recent population estimates indicate the population has reached its highest level since it was listed as endangered in 1984. The wood stork is a large, long-legged wading bird that is highly social and nests in large rookeries. Wood storks feed in flocks, foraging in a wide variety of wetland types where fish are available, and the water is shallow and open (USFWS 2022c). Frequently used roosting locations include cypress domes or swamps, mangrove islands, expansive willow thickets or small isolated willow islands in broad marshes, and on the ground either on levees or in open marshes (Ogden 1990).

³ The term cluster is defined as the minimum convex polygon containing all of a group's cavity trees and the 200-foot buffer surrounding that polygon. The minimum cluster area size is 4.05 ha (10 ac), as some clusters may only contain one cavity tree.

Rookeries in BICY are only known to be used during periods of prolonged high water. There are seven rookeries that occur in the Action Area (Figure 4). One rookery (NW corner) is outside of BICY. Four rookeries within the Action Area on the far eastern boundary of BICY and are not close to any reopened ORV or proposed hiking trails/destinations. These rookeries are adjacent to the L-28 canal used by the South Florida Water Management District and the L-28 Tieback Road, and are near the Dade-Collier Training and Transition Airport. Two rookeries occur in Stairsteps Zone 4 of BICY. The Big Cypress Mitchell Landing rookery (just south of Loop Road) is near a reopened ORV airboat trail, but is also adjacent to the public airboat ramp and numerous intersecting ORV airboat trails that are currently open to the public. The USFWS last recorded the Big Cypress Mitchell Landing rookery as active in 2009. The status of the remaining rookery on the far southwest corner of BICY is unknown; however, this rookery is also located in an area with several open airboat trails.

The USFWS recognizes an 18.6-mile core foraging area around all known wood stork colonies in South Florida. Core wood stork foraging areas are also shown on Figure 4. There are approximately 90,588 acres of core foraging habitat within BICY. Core foraging areas that are outside of BICY, but within the Action Area, are not shown because no loss of foraging habitat is expected in these areas.

Figure 4. Wood Stork Rookeries (and core foraging habitat)⁴.



⁴ The Action Area on Figure 4 = the indirect soundscape impact boundary-short term (pink boundary).

3.1.3 Reptile Species

Three federally listed reptile species are known to occur, or have the potential to occur, in the Action Area: American alligator (*Alligator mississippiensis*), American crocodile (*Crocodylus acutus*), and eastern indigo snake (*Drymarchon corais couperi*).

American Alligator. The American alligator was listed endangered in 1967 (32 FR 4001). The USFWS considered this species recovered but is still listed under the ESA due to similarity of appearance to the American crocodile. The species predominantly inhabits freshwater swamps and marshes but can also be found in rivers, lakes, and smaller bodies of water. The species can occasionally be found in brackish water around mangrove swamps even though they lack the salt-secreting glands present in crocodiles. Alligators are found throughout the Action Area.

American Crocodile. The American crocodile was reclassified from endangered to threatened, March 20, 2007 (72 FR 13027). Florida crocodiles are distinguished from alligators by their slenderer build and different snout shape. The adult crocodile's diet includes fish, crabs, birds, turtles, snakes, and small mammals. The young feed chiefly on aquatic invertebrates and small fish. The species typically inhabits brackish or saltwater areas, and can be found in ponds, coves, and creeks in mangrove swamps. Based on occurrence data provided by USFWS (October 2023), no American crocodile occurrences are documented within BICY or the Action Area; however, the southern portion of Stairsteps Zone 4 occurs within the range of the species. Given the currently expanding range of the species, the NPS is reasonably certain the American crocodile is present in the Action Area.

Eastern Indigo Snake. The eastern indigo snake was listed as threatened in 1978 (43 FR 4026). The eastern indigo snake is a large, nonvenomous snake that has shiny, blue-black color. The diet consists mainly of other snakes, amphibians, small mammals, and occasionally birds. Over most of its range, the eastern indigo snake utilizes a variety of habitats including pine flatwoods, scrubby flatwoods, high pine, dry prairie, tropical hardwood hammocks, edges of freshwater marshes, agricultural fields, coastal dunes, and human- altered habitats. This species is often associated with the gopher tortoise (*Gopherus polyphemus*), regularly using gopher tortoise burrows for shelter (USFWS 2019).

The habitat mosaic in BICY supports an abundance of prey opportunities for the indigo snake. However, given their preference for upland habitats, the dynamic seasonal hydroperiods within BICY and the Action Area are not conducive to the species. The species has been observed in the northern area of BICY, albeit rarely. Given that there is suitable habitat within the Action Area and the species has been occasionally observed in BICY, the NPS is reasonably certain that the eastern indigo snake occurs in the Action Area.

3.1.4 Plant Species

Three federally listed plant species occur in BICY and the Action Area and include Everglades bully (*Sideroxylon reclinatum* ssp. *austrofloridense*), Florida prairie clover (*Dalea*

carthagenensis var. *floridana*), and Florida pineland crabgrass (*Digitaria pauciflora*). Proposed designated critical habitat for these species also occurs in the Action Area.

Everglades Bully. Everglades bully was listed as threatened in 2017 (82 FR 46691). Everglades bully is typically found in pine flatwoods, prairies, and in the ecotone between them. This species also grows on the sunny edges of hammock habitat (USFWS 2016). These plants can tolerate inundation of freshwater for a portion of the year, but do not tolerate saline water. The species is threatened by habitat loss and modification, lack of adequate fire management, non-native invasive plants, events such as hurricanes and wildfire, and sea level rise. Based on survey results from 2013, Everglades bully has a limited distribution within BICY, but does occur in the Action Area. The majority of Everglades bully occurrences in the Action Area are in Stairsteps Zones 3 and 4. This species occurs within close proximity to several of the proposed reopened airboat trails. Proximity will be verified prior to reopening to ensure that no occurrences are in proposed trails.

Florida Pineland Crabgrass. Florida pineland crabgrass was listed as a threatened species in 2017 (82 FR 14908). Florida pineland crabgrass most commonly occurs along the ecotone between pinelands 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 (USFWS 2016). Florida pineland crabgrass was first identified in BICY in 2002. Subsequent survey efforts have identified at least nine separate occurrences within BICY, with a total population estimated in 2007 of greater than 10,000 individuals (USFWS 2016). This species occurs within close proximity to several of the proposed reopened airboat trails. Proximity will be verified prior to reopening to ensure that no occurrences are in the proposed trails.

Florida Prairie-Clover. Florida prairie-clover was listed as endangered in 2017 (82 FR 46691). Florida prairie-clover is typically found in pine rocklands, edges of rockland hammocks, coastal uplands, prairie, and ecotones between these habitats as well as disturbed roadsides (Gann 2006; USFWS 2016). In BICY the species is only known to occur along the edge of pinelands and disturbed edges. Four populations of Florida prairie-clover were known to exist in the preserve at one time; however, the population north of the Oasis Visitor Center is the only known remaining population in BICY. This population consists of approximately 35 plants of various age groups and occurs within the Action Area, but does not occur in the footprint of any of the proposed trails or destinations.

Proposed Designated Critical Habitat. The USFWS proposed designated critical habitat for Everglades bully, Florida prairie clover, and Florida pineland crabgrass on October 14, 2022 (87 FR 62564). The USFWS identified the following PBFs essential to the conservation of Everglades bully and Florida pineland crabgrass in the proposed designated habitat rule: South

Florida pine rockland, marl prairie, and adjacent ecotonal areas: (1) Consisting of calcareous limestone substrate (often exposed with little soil development) that provides nutritional requirements and suitable growing conditions; (2) Characterized by an open to semi-open canopy and understory with a high proportion of native plant species to provide for sufficient sunlight to permit growth and flowering; (3) Subjected to a monthly mean temperature characteristic of the subtropical humid classification in Miami-Dade County or the tropical humid classification in Collier and Monroe Counties and short hydroperiods ranging up to 60 days each year; (4) Subjected to periodic natural (e.g., hurricanes, fire) or unnatural (e.g., prescribed fire) disturbance regimes to maintain open canopy conditions; and (5) Containing the presence of native pollinators for natural pollination and reproduction.

The proposed rule also identified the following PBFs essential to the conservation of Florida prairie-clover: South Florida pine rockland, marl prairie, rockland hammock, and coastal berm habitat and adjacent disturbed areas: (1) Consisting of limestone substrate that provides nutritional requirements and suitable growing conditions; (2) Characterized by an open canopy and understory with a high proportion of native plant species to provide for sufficient sunlight to permit growth and flowering; (3) Subjected to a monthly mean temperature characteristic of the subtropical humid classification in Miami-Dade County or the tropical humid classification in Collier and Monroe Counties and short hydroperiods ranging up to 60 days each year; (4) Subjected to periodic natural or unnatural disturbance regimes to maintain open canopy conditions; and (5) Containing the presence of native pollinators for natural pollination and reproduction.

Proposed critical habitats for the three plant species overlap the same area within the Action Area and encompass approximately 125,751 acres. The total proposed designated critical habitat unit includes 169,885 acres, 146,0146 of which is in BICY. This proposed critical habitat largely overlaps with the known location of these species and encompasses nearly all proposed reopened airboat trails and a portion of proposed hiking trails and destinations within the Action Area.

4.0 EFFECTS OF PROPOSED ACTION

This section analyzes the direct and indirect effects of the Proposed Action on the federally listed and proposed species. For the purposes of this analysis, direct effects are caused by the Proposed Action and occur at the same time and place. Indirect effects are caused by the Proposed Action, but are later in time and are reasonably certain to occur. Further, effects are considered “discountable” when they are extremely unlikely to occur and “insignificant” when they cannot be meaningfully measured/detected. As described in Section 2.3, the proposed action can be separated into two main components: (1) the reopening phase and (2) ongoing operations after the initial reopening is complete. The components of the Proposed Action and the associated impacts (Section 2.3) are expected to result in “stressors” to federally listed/proposed plant and animal species and designated/proposed critical habitats.

4.1 POTENTIAL STRESSORS

4.1.1 Plant Stressors

The NPS has determined that potential stressors for plants include crushing/trampling, habitat loss, and habitat degradation.

Crushing/Trampling. Crushing or trampling of plants could occur during the reopening and ongoing operation phases of the Proposed Action. Plants could be inadvertently crushed/trampled by people and ORVs resulting in damage or mortality of individual plants.

Habitat Loss. Habitat loss could occur when vegetation is removed during the reopening phase of the Proposed Action. This loss is expected to be permanent. No vegetation removal is needed to open the backcountry campground; therefore, no loss of plant habitat is expected in this area. During ongoing operations, vegetation removal would only occur within the proposed impact footprint, as necessary for safety and natural resource protection, and would not include any new loss of plant habitat.

Habitat Degradation. Habitat degradation could occur during the reopening and ongoing operation phases of the Proposed Action. Suitable plant habitat could be temporarily disturbed by people and vehicles that leave designated trails. Degradation could also occur if a trail becomes heavily impacted by users, resulting in rutting or braiding, which could lead to sedimentation and/or changes to hydrology that expand outside of the proposed impact footprint. Habitat degradation could also cause the spread of invasive plant species that could compete with federally listed plant species. Degraded habitats will be rehabilitated by the NPS; therefore, this stressor is considered temporary.

4.1.2 Animal Stressors

The NPS has determined that potential stressors for animals include collision/crushing, habitat loss, habitat degradation, and behavioral changes.

Collision/Crushing. Wildlife collisions/crushing with ORVs could occur during the reopening and ongoing operation phases of the Proposed Action. If a collision occurred, it could lead to injury or mortality. Crushing of wildlife could occur during habitat removal if wildlife species (such as bats) are in the vegetation at the time of removal. Inadvertent crushing could also lead to injury or mortality.

Habitat Loss. Habitat loss could occur when vegetation is removed during the reopening phase of the Proposed Action. This loss is expected to be permanent. No vegetation removal is needed to open the backcountry campground; therefore, no loss of animal habitat is expected in this area. During ongoing operations, vegetation removal would only occur within the proposed impact footprint, as necessary for safety and natural resource protection and would not include any new loss of animal habitat.

Habitat Degradation. Habitat degradation could occur during the reopening and ongoing operation phases of the Proposed Action. Suitable animal habitat could be temporarily disturbed by people and vehicles that leave designated trails. Degradation could also occur if a trail

becomes heavily impacted by users, resulting in rutting or braiding, which could lead to sedimentation and/or changes to hydrology that expand outside of the proposed impact footprint. Degraded habitats will be rehabilitated by the NPS; therefore, this stressor is considered temporary.

Behavioral Changes. Behavioral changes could occur during the reopening and ongoing operations phases of the Proposed Action. Behavioral changes are expected to occur if people and/or ORVs disturb wildlife. This disturbance could result from a variety of sources including noise, vibration, and lighting/campfires. Because noise has the potential to be the most significant contributor to this stressor, it is described in greater detail below:

The daytime sound level in the park ranges from 37 to 70 dBA in the summer, and from 34 to 35 dBA in the winter (NPS 2012b). For the purposes of conducting a conservative analysis, the NPS considers the average parkwide ambient sound level to be 34 dBA. The baseline sound level for ORV land vehicles (60 dBA) is derived from the Big Cypress ORV Management Plan (NPS 2000) and the baseline sound level for airboats (98 dBA) is derived from the Big Cypress Baseline Noise Assessment (NPS 2021). The average for gas chainsaw noise is 110 dBA at 3 feet (CDC 2017).

To reach the ambient sound level of 34 dBA, an ORV measuring 60 dBA at 50 feet attenuates to 34 dBA at 1,000 feet. Likewise, an airboat measuring 98 dBA at 6 feet attenuates to 34 dBA at 9,510 feet, and a chainsaw measuring 110 dBA at 3 feet attenuates to 34 dBA at 18,930 feet. Based on the sound pressure attenuation rate of 6 dBA for every doubling of the distance, the NPS expects noise associated with ORV land vehicles to occur approximately 1,000 feet from the ORV land trails, destinations, and backcountry campground footprints. The NPS also expects noise associated with airboats to occur approximately 9,500 feet from the ORV airboat trail footprint. Noise from campers at destinations, as well as hikers, is expected to be negligible when compared to the current ambient soundscape within the park that ranges from 34-70 dBA. (NPS 2021).

As previously discussed in Section 2.4, noise associated with chainsaw operations is expected to be the loudest noise associated with the proposed action. When chainsaws are being used, changes in noise are expected approximately 18,930 feet the area of use. However, this noise is expected to be periodic. Most of the time, wildlife will only be exposed to the noise from ORV land vehicles and airboats during ongoing operations across approximately 91,880 acres of the Action Area as shown in Figure 8 and summarized in Table 6.

Noise impacts are expected to be ongoing, but short-term in nature. In most cases, ORV noise, including airboats, would not last more than three minutes (the time a terrestrial vehicle is audible from a given point on the ground).

Figure 5. Ongoing operational soundscape impacts.

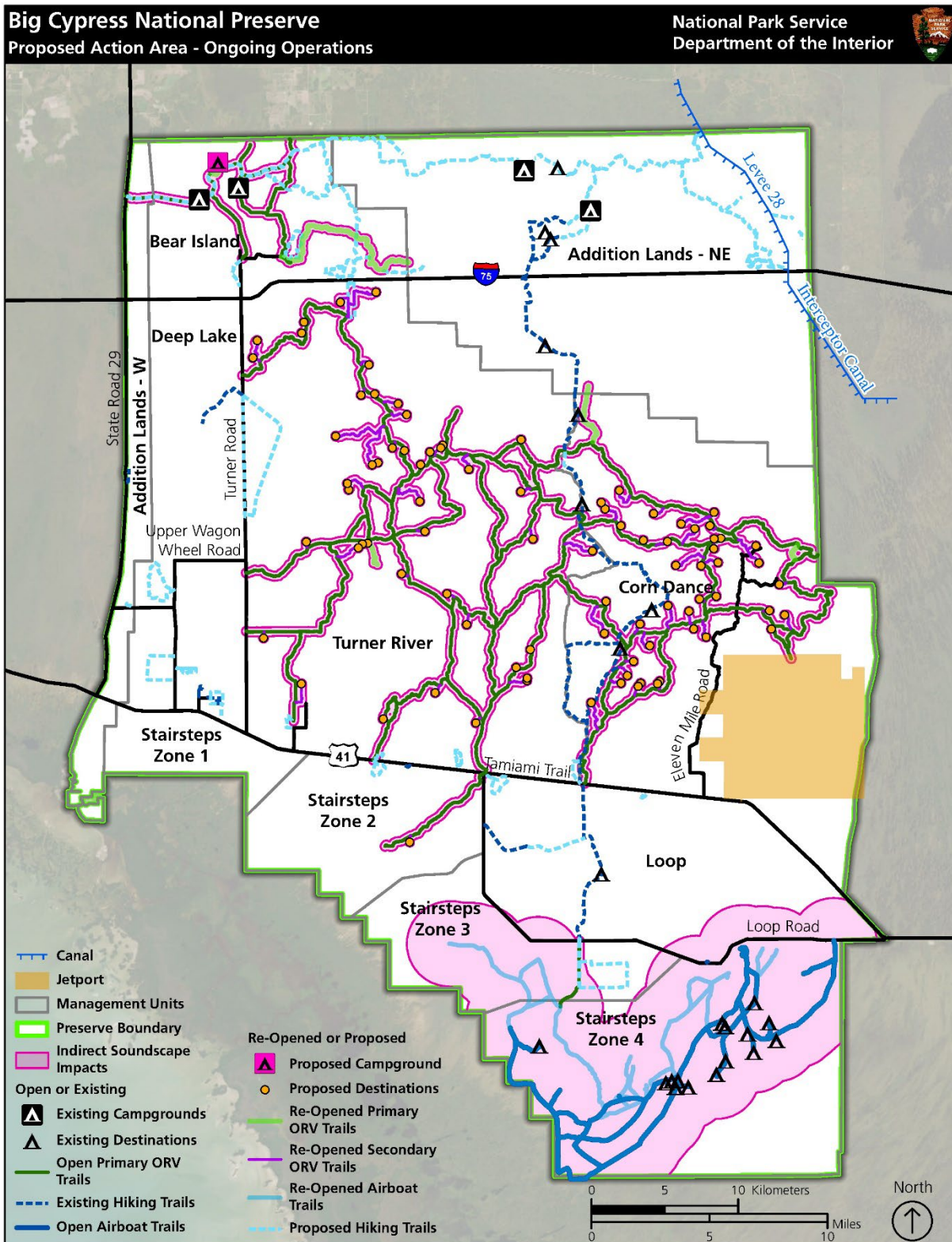


Table 6. ORV/Airboat Noise Buffers⁵

Type	Distance (miles)	Impact Acres	ORV/Airboat Noise Buffer (acres)
Primary ORV Land Trail	14.6	21.24	3,657.15
Secondary ORV Land Trail	52.9	76.95	16,788.27
Airboat Trail	38	55.27	65,153.81
Hiking Trails/FNST	114	110.55	N/A
Destinations	87 (each)	0.399	6,035.06
Backcountry Campground	1 (each)	2.00	72.12
TOTALS		266.40*	91,706.41**

* Total acres of direct impacts could vary slightly if trails are rerouted to protect resources during implementation

** This number is a slight overestimation due to soundscape area overlapping at trail intersections and destinations

4.2 THE EXISTING TRAIL NETWORK

The Proposed Action does not include any activities on existing ORV land trails, airboat trails, hiking trails, destinations, or backcountry campgrounds. As discussed in Section 2.4, these areas are only included as part of the Action Area because they are considered interrelated and interdependent. The existing ORV land and airboat trails, and hiking trail network is currently used by the public, NPS staff, researchers, hunters, private landowners, etc. The number of ORV permits issued per year will not change as result of the Proposed Action. Further, though there might be a slight increase in the number of non-ORV related users (hikers, e-bikes, overnight campers, etc.), the NPS expects this minor increase will have an insignificant effect on species that are known to occur, or have the potential to occur, within the existing trail network. Consequently, the NPS has determined that the Proposed Action “may affect, but is not likely to adversely affect” the species and critical habitats listed in Table 5. The existing trail network is not analyzed further in this BA.

4.3 EFFECTS TO MAMMAL SPECIES

Two federally listed mammal species and one proposed mammal species occur in the Action Area. They include the Florida bonneted bat, tricolored bat, and Florida panther.

⁵ Table 6 only shows calculations for noise buffers associated with proposed actions and does not include existing trails, destinations, or campgrounds. See Section 4.2.

4.3.1 Florida Bonneted Bat

Based on data received from the Florida Fish and Wildlife Conservation Commission, as of 2022, six Florida bonneted bat roosts (FBB) have been documented in BICY.

Collision/Crushing. Collision could occur during the reopening and ongoing operations phases of the Proposed Action. FBBs are typically most active in the early evening/at night when foraging occurs. All ORV users are required to have a permit, complete the on-line ORV operator course, and adhere to authorized speed limits (15 mph); therefore, collisions between FBBs and ORVs are unlikely to occur because bats can quickly fly from an area as a vehicle approaches and avoid collision. In addition, the ORV trail system would continue to be closed every night between the hours of 10:00 p.m. and 5:00 a.m. in accordance with the 2000 Recreational ORV Management Plan, further reducing the likelihood of collision. The Proposed Action does not propose any changes to ORV rules and regulations, or the number of permits issued each year; therefore, increased ORV encounters are unlikely. The Proposed Action will not remove any known or potentially suitable FBB roost trees (including hazard trees). In the unlikely event that a suitable roost tree becomes a hazard, the trail or destination will be closed, and the park will consult with the USFWS prior to taking any further action. Consequently, collision/crushing is considered discountable.

Habitat Loss. The Proposed Action does not propose the removal of any known or potential suitable FBB roost trees; therefore, no loss of roosting habitat is anticipated during the reopening phase. FBBs likely forage in a variety of habitats within the Action Area. The Proposed Action will impact no more than 266.4 acres of vegetation, most of which is previously disturbed. Though this impact will be permanent, it is only 0.04% of the total habitat in BICY and 0.03% of the Action Area. This small loss of foraging habitat will have a negligible effect on FBBs because a significant amount of available habitat will remain undisturbed in the Action Area and BICY. No vegetation removal is needed to open the backcountry campground; therefore, no loss of FBB habitat is expected in this area. During ongoing operations, vegetation removal would only occur within the proposed impact footprint⁶, as necessary for safety and natural resource protection and would not include any new loss of FBB habitat. Based on the above considerations, habitat loss is considered a permanent, but insignificant effect.

Habitat Degradation. Habitat degradation could occur during the reopening and ongoing operation components of the Proposed Action. Suitable foraging and roosting habitat for FBBs could be temporarily disturbed by people and vehicles that leave designated trails; however, all proposed trails, destinations, and the backcountry campground will be clearly marked; therefore, users are not expected to veer off-trail or travel outside of the established areas where FBB habitat could be impacted. Hiking is not an activity that is expected to significantly degrade habitat and the potential for ORVs to cause rutting and braiding within the trails is not expected to be a concern for FBB habitat. Even so, all proposed trails, destinations, and the backcountry campground will be monitored for user impacts. If an area appears to exhibit impacts such as

⁶ The proposed impact footprint is the area directly affected by the proposed reopened ORV trails, hiking trails, destinations, and campground (~266.4 acres).

excessive human disturbance (i.e., trash), rutting/braiding, sedimentation, or changes in hydrology that could lead to habitat degradation, the area will be closed and/or rehabilitated.

It is difficult to quantify the potential for habitat degradation; however, any such impacts are expected to be limited to the immediate area of the proposed impact footprint. Given that the proposed impact footprint is approximately 266.4 acres (most of which is previously disturbed), the potential for habitat degradation is also expected to be about this much potential disturbance. Because habitat degradation is most likely to occur in the immediate area of the proposed impact footprint, it is reasonable to assume that habitat degradation would only occur on approximately 0.03% of the Action Area and 0.04% of BICY. Because heavily impacted areas will be closed or rehabilitated, this impact is considered temporary. Further, the number of ORV permits issued per year will not change, and a significant increase in the number of non-ORV users is not anticipated. Based on the above considerations, habitat degradation is considered a temporary, insignificant effect.

Behavioral Changes. Behavioral changes could occur during the reopening and ongoing operations phases of the Proposed Action. Behavioral changes are expected if the presence of people and/or vehicles disturb FBBs. This disturbance is most likely to occur due to noise and vibration from ORV land vehicles and airboats. Noise/vibration could cause FBBs to flush roost trees and/or disrupt foraging behaviors. NPS expects noise associated with ORV land vehicles to occur approximately 1,000 feet from the ORV land trails, destinations, and backcountry campground footprints. The NPS also expects noise associated with airboats to occur approximately 9,500 feet from the ORV airboat trail footprint. ORV land vehicle and airboat operation is an ongoing activity within the Action Area. Though the miles of ORV land and airboat trails will increase, the number of ORV permits issued per year will remain the same; therefore, a significant increase in noise/vibration from ORVs when compared to current conditions within the Action Area is not expected. Exposure to noise is expected to be ongoing, but short-term. In most cases, ORV noise, including airboats, would not last more than three minutes (the time a terrestrial vehicle is audible from a given point on the ground).

FBB roosts are difficult to detect, but there are six known roosts with the Action Area. Trails have been sited to avoid the areas where these known roosts occur by establishing a 1,000-foot buffer around known roost trees. In addition, due to the high level of FBB acoustic activity around Annette's Pond, a 1,000-foot buffer will also be established around the pond. No reopened primary or secondary ORV land trails, reopened airboat trails, or destinations will occur within this buffer.

In addition to known roosts, acoustic data suggests that the species likely occurs in other areas of the Action Area. As previously discussed in Section 2.4, noise associated with chainsaw operations is expected to be the loudest noise associated with the Proposed Action. Chainsaw use is expected to be a rare occurrence, used only when necessary to clear vegetation during the reopening and ongoing operation components of the Proposed Action. The noise generated by a chainsaw (110 dBA) is comparable to the average thunderstorm (100-120 dBA) (NPS 2013). Therefore, the periodic noise/vibration from a chainsaw is not expected to cause a significant change in behavior because FBBs are likely accustomed to short-term exposure to this level of noise/vibration. Campers are required to leave their ORVs next to trails; therefore, noise from campers at destinations, as well as hikers, is expected to be negligible when compared to the current ambient soundscape within the park that ranges from 34-70 dBA (NPS 2021). Though noise/vibration is likely to be ongoing, exposure at any one location is expected to be periodic and temporary. Given that noise from ORVs and people is ongoing within the Action Area and because the most significant noise generated by the Proposed Action is comparable to that of a thunderstorm, noise/vibration generated by the Proposed Action is unlikely to cause FBBs to flush their roost trees. Further, if new roosts are discovered that could be negatively affected by activities associated with the proposed action, the trail/destination will be closed and no longer open to the public.

Noise/vibration and lights/campfires from people and ORVs could also disrupt FBB foraging and commuting behaviors. FBBs typically emerge from roosts and begin foraging 30 minutes before sunset. All trail maintenance involving heavy equipment, including chainsaws, will cease 30 minutes prior to sunset. As stated previously, ORV use and camping (including campfires) is an ongoing activity within the Action Area and this species is likely accustomed to the noise, vibration, and lighting associated with it. The ORV trail system would continue to be closed every night between the hours of 10:00 p.m. and 5:00 a.m. in accordance with the 2000 Recreational ORV Management Plan; therefore, the noise, vibration, and lights associated with ORVs should not be an issue during most of the time that FBBs are foraging/commuting. FBBs have been captured in urban/residential areas (Gore et al. 2015), suggesting that the species is tolerant of noise, vibration, and lighting while foraging and commuting. In addition, FBBs are typically considered high, fast flyers that may cover long distances nightly when foraging (Belwood 1992). Therefore, FBBs are unlikely to be affected by on-the-ground activities occurring on trails or at destinations while foraging or commuting at night. The backcountry campground may generate more noise, vibration, and lighting/campfires than camping at destinations, but the proposed campground will occur in an area that is already exposed to disturbances from existing trails and campgrounds. Therefore, if FBBs are foraging or commuting in this area, they are likely accustomed to camping-related disturbances and are not expected to significantly alter their foraging or commuting behaviors when the backcountry campground is opened.

Based on the above considerations and the NPS's commitment to close trails/destinations if newly identified roosts could be affected, noise, vibration, and lights/campfires resulting from the Proposed Action may result in minor, temporary alterations to FBB roosting and foraging behaviors, but these minor changes are considered insignificant.

Summary. The Proposed Action has the potential to affect FBBs. However, based on analysis of potential stressors and implementation of avoidance and minimization measures, effects from collision/crushing are considered discountable and effects from habitat loss, habitat degradation, and behavioral changes are considered insignificant. Consequently, the NPS has determined that the Proposed Action “may affect, but is not likely to adversely affect” the FBB.

4.3.2 Florida Bonneted Bat Proposed Designated Critical Habitat

Unit 6 (Big Cypress Unit) includes 728,544 acres of FBB proposed designated critical habitat. Approximately 530,790 acres of this occur in BICY and overlap the Action Area. The proposed action will impact no more than 266.4 acres of vegetation, the majority of which is previously disturbed. This disturbance is only 0.05% of the FBB proposed designated critical habitat in BICY. Further, the Proposed Action will not remove any known or potential FBB roost trees. This small amount of impact is not expected to diminish the PBFs identified in Section 3.1.1. No loss of roosting habitat will occur and habitat within the Action Area would still provide adequate prey and space for foraging.

Federal action agencies are only required to “confer” with the USFWS if an agency action is likely to result in “adverse modification” of proposed designated critical habitat. Given that impacts to proposed designated critical habitat will primarily occur in previously disturbed areas, will only impact 0.05% of the proposed designated critical habitat in BICY (as a worst-case scenario), and because no FBB roost trees will be removed within the Action Area, the NPS has determined that the Proposed Action is “not likely to adversely modify” proposed designated critical habitat for the FBB. In addition, for these same reasons, the NPS has also determined that the Proposed Action “may affect, but is not likely to adversely affect” proposed designated critical habitat for this species.

4.3.3 Tricolored Bat

Tricolored bats (TCBs) are commonly captured during mist-netting efforts and are regularly detected during acoustic survey efforts within the Action Area and likely use it for roosting, foraging, and commuting.

Collision/Crushing. Collision could occur during the reopening and ongoing operations phases of the Proposed Action. TCBs are typically most active in the early evening/at night when foraging occurs. All ORV users are required to have a permit, complete the on-line ORV operator course, and adhere to authorized speed limits (15 mph); therefore, collisions between TCBs and ORVs are unlikely to occur because bats can quickly fly from an area as a vehicle approaches and avoid collision. In addition, the ORV trail system would continue to be closed every night between the hours of 10:00 p.m. and 5:00 a.m. in accordance with the 2000 Recreational ORV Management Plan, further reducing the likelihood of collision. The Proposed Action does not propose any changes to ORV rules and regulations, or the number of permits issued each year; therefore, increased ORV encounters are unlikely. Vegetation clearing will mostly include herbaceous vegetation and small woody trees and shrubs. This habitat is not typically considered suitable roosting habitat for the TCB because they prefer roost trees that are

that are ≥ 4 -inch dbh (USFWS 2023). However, the NPS cannot rule out the possibility that some potential roost trees will be disturbed during the reopening and ongoing operations phases. Tricolored bats are active year-round in BICY and use a wide variety of trees for roosting; therefore, during vegetation removal activities, individual bats are expected to flee a disturbed tree (during most times of the year) and move to adjacent suitable habitat, thereby avoiding being crushed or injured. TCBs are less likely to flee during the pup season. To protect female TCBs and non-volant pups, the park will avoid tree removal and limb trimming during the TCB pup season (May 1 to July 15). Further, the NPS will minimize trail maintenance activities to the greatest extent possible during the TCB breeding season (April 15 to August 15) and, when feasible, tree trimming would be avoided on days when daytime ambient temperatures are below 40 degrees Fahrenheit. Based on the above considerations, collision/crushing is considered discountable.

Habitat Loss. TCBs roost and forage in a wide variety of habitats. Lack of roosting, commuting, and foraging habitat is not a limiting factor for TCBs in BICY. The Proposed Action will impact no more than 266.4 acres of vegetation, most of which is previously disturbed. Though this impact will be permanent, it is only 0.04% of the total habitat in BICY and 0.03% of the Action Area. This small loss of potential foraging, roosting, and commuting habitat will have a negligible effect on TCBs because a significant amount of available habitat will remain undisturbed in the Action Area and BICY. No vegetation removal is needed to open the backcountry campground; therefore, no loss of TCB habitat is expected in this area. During ongoing operations, vegetation removal would only occur within the proposed impact footprint, as necessary for safety and natural resource protection and would not include any new loss of TCB habitat. For these reasons, habitat loss is considered a permanent, but insignificant effect.

Habitat Degradation. Habitat degradation could occur during the reopening and ongoing operation phases of the Proposed Action. Suitable TCB foraging, roosting, and commuting habitat could be temporarily disturbed by people and vehicles that leave designated trails; however, all proposed trails, destinations, and the backcountry campground will be clearly marked; therefore, users are not expected to veer off-trail or travel outside of the established areas where TCB habitat could be impacted. Hiking is not an activity that is expected to significantly degrade habitat and the potential for ORVs to cause rutting and braiding within the trails is not expected to be a concern for TCB habitat. Even so, all proposed trails, destinations, and the backcountry campground will be monitored for user impacts. If an area appears to exhibit impacts such as excessive human disturbance (i.e., trash) rutting/braiding, sedimentation, or changes in hydrology that could lead to habitat degradation, the area will be closed and/or rehabilitated.

It is difficult to quantify the potential for habitat degradation; however, any such impacts are expected to be limited to the immediate area of the proposed impact footprint. Given that the proposed impact footprint is approximately 266.4 acres (most of which is previously disturbed), the potential for habitat degradation is also expected to be about this much potential disturbance. Because habitat degradation is most likely to occur in the immediate area of the proposed impact footprint, it is reasonable to assume that habitat degradation would only occur on approximately

0.03% of the Action Area and 0.04% of BICY. Because heavily impacted areas will be closed or rehabilitated, this impact is considered temporary. Further, the number of ORV permits issued per year will not change, and a significant increase in the number of non-ORV users is not anticipated. Based on the above considerations, habitat degradation is considered a temporary, insignificant effect.

Behavioral Changes. Behavioral changes could occur during the reopening and ongoing operations phases of the Proposed Action. Behavioral changes are expected if the presence of people and/or vehicles disturb TCBs. This disturbance is most likely to occur due to noise and vibration from ORV land vehicles and airboats. Noise/vibration could cause TCBs to flush roost trees and/or disrupt foraging behaviors. NPS expects noise associated with ORV land vehicles to occur approximately 1,000 feet from the ORV land trails, destinations, and backcountry campground footprints. The NPS also expects noise associated with airboats to occur approximately 9,500 feet from the ORV airboat trail footprint. ORV land vehicle and airboat operation is an ongoing activity within the Action Area. Though the miles of ORV land and airboat trails will increase, the number of ORV permits issued will remain the same; therefore, a significant increase in noise/vibration from ORVs is not expected. Exposure to noise is expected to be ongoing, but short-term. In most cases, ORV noise, including airboats, would not last more than three minutes (the time a terrestrial vehicle is audible from a given point on the ground).

As previously discussed in Section 2.4, noise associated with chainsaw operations is expected to be the loudest noise associated with the Proposed Action. Chainsaw use is expected to be a rare occurrence, used only when necessary to clear vegetation during the reopening and ongoing operation components of the Proposed Action. The noise generated by a chainsaw (110 dBA) is comparable to the average thunderstorm (100-120 dBA) (NPS 2013). Therefore, the periodic noise/vibration from a chainsaw is not expected to cause a significant change in behavior because TCBs are likely conditioned to short-term exposure to this level of noise/vibration. Campers are required to leave their ORVs next to trails; therefore, noise from campers at destinations, as well as hikers, is expected to be negligible when compared to the current ambient soundscape within the park that ranges from 34-70 dBA (NPS 2021). Though noise/vibration is likely to be ongoing, exposure at any one location is expected to be periodic and temporary. Given that noise from ORVs and people is ongoing within the Action Area and because the most significant noise generated by the Proposed Action is comparable to that of a thunderstorm, noise/vibration generated by the Proposed Action is unlikely to cause TCBs to flush their roost trees. Further, if new roosts are discovered that could be negatively affected by activities associated with the proposed action, the trail/destination will be closed.

Noise/vibration and lights/campfires from people and ORVs could also disrupt TCB foraging and commuting behaviors. As stated previously, ORV use and camping (including campfires) is an ongoing activity within the Action Area and this species is likely accustomed to the noise, vibration, and lighting/campfires associated with it. TCB emerge early in the evening and forage at treetop level or above (Davis and Mumford 1962; Barbour and Davis 1969). All use of heavy equipment, including chainsaws, will cease 30 minutes prior to sunset. Though ORVs and people will be present during the early evening, TCBs are not likely to be exposed/disturbed to activities

occurring on-ground level, because they will be foraging/commuting at higher distances during this time. In the later hours, when TCBs forage closer to the ground (Mumford and Whitaker 1982), the ORV trail system would be closed (10pm-5am). Further, TCBs are known to roost in human-made structures, such as bridges, culverts, barns, or the underside of open-sided shelters (e.g., porches, pavilions) (USFWS 2023) and likely forage/commute in these areas as well. This suggests that the species has some level of tolerance for foraging when lights and noise are present. Consequently, the noise and lights/campfires from campers at destinations is expected to have a minimal effect on TCB foraging and commuting behavior. The backcountry campground may generate more noise, vibration, and lighting/campfires than camping at destinations, but the proposed campground will occur in an area that is already exposed to disturbances from existing ORV trails and campgrounds. Therefore, if TCBs are foraging or commuting in this area, they are likely accustomed to camping-related disturbances and are not expected to significantly alter their foraging or commuting behaviors when the backcountry campground is opened.

Based on the above considerations and the NPS's commitment to close trails/destinations if newly identified roosts could be affected, noise, vibration, and lights resulting from the Proposed Action may result in minor, temporary alterations to TCB roosting, commuting, and foraging behaviors, but these minor changes are considered insignificant.

Summary. Federal action agencies are only required to “confer” with the USFWS if an agency action is likely to result in “jeopardy” of proposed species. Based on the current conditions within the Action Area and the analysis of potential stressors, effects from collision/crushing are considered discountable and effects from habitat loss, habitat degradation, and behavioral changes are considered insignificant. Consequently, the NPS has determined that the Proposed Action is “not likely to jeopardize” the TCB. In addition, because we believe our analysis will be consistent with the forthcoming USFWS range-wide guidance for the TCB, the NPS has also determined that the Proposed Action “may affect, but is not likely to adversely affect” this species.

4.3.4 Florida Panther

Florida panthers are known to use the Action Area for denning, hunting, and traveling.

Collision/Crushing. There have been no documented occurrences of ORV land vehicles or airboats colliding with Florida panthers in BICY. All ORV users are required to have a permit, complete the on-line ORV operator course, and adhere to authorized speed limits, thereby minimizing the potential for collision. The Proposed Action does not propose any changes to ORV rules and regulations, or the number of permits issued each year; therefore, increased encounters with ORVs are unlikely. If Florida panthers are present during reopening or ongoing operations, they are likely to flee from an area to avoid collision. Consequently, collision/crushing is unlikely to occur and is considered discountable.

Habitat Loss. The Proposed Action will impact no more than 266.4 acres of vegetation, most of which is previously disturbed. Though this impact will be permanent, it is only 0.04% of the total habitat in BICY and 0.03% of the Action Area. During reopening, vegetation removal will be

limited to small, woody trees/shrubs and herbaceous groundcover that have encroached into the proposed trails and destinations. Den sites are typically found in areas with dense ground-level vegetation that are nearly impenetrable (Maehr et al. 1989). All proposed reopened ORV land and airboat trails, destinations, and the backcountry campground occur on previously disturbed ground that would not be considered suitable for panther denning because of the open nature from past use. Additionally, 30 miles of the proposed hiking trails occur on previously disturbed ground that are also considered unsuitable denning habitat due to openness. Therefore, the loss of denning habitat would most likely result from opening the 84 miles of new hiking trail (though some of this habitat is prairie and is also likely unsuitable). The maximum amount of potential denning habitat loss to establish these 84 miles of hiking trails is 81.4 acres. This loss would be linear and a maximum of 8-feet wide, spread out across 84 miles of the BICY. Therefore, no large patches of denning habitat would be lost. Additionally, the loss of 266.4 acres of potential hunting and commuting habitat will have a negligible effect on panthers because a significant amount of available habitat will remain undisturbed in the Action Area and BIC

Y. No vegetation removal is needed to open the backcountry campground; therefore, no loss of panther habitat is expected in this area. During ongoing operations, vegetation removal would only occur within the proposed impact footprint, as necessary for safety and natural resource protection and would not include any new loss of panther habitat. Based on the above considerations, habitat loss is considered a permanent, but insignificant effect.

Habitat Degradation. Habitat degradation could occur during the reopening and ongoing operation phases of the Proposed Action. Suitable denning and hunting habitat for Florida panthers could be temporarily disturbed by people and vehicles that leave designated trails; however, all proposed trails, destinations, and the backcountry campground will be clearly marked; therefore, users are not expected to veer off-trail or travel outside of the established areas where habitat could be impacted.

Habitat degradation could occur if a trail becomes heavily impacted by users, resulting in rutting or braiding, which could lead to sedimentation and/or changes to hydrology that expand outside of the proposed impact footprint. However, about 73% of the proposed reopened primary ORV land trails and over 90% of the proposed reopened secondary ORV land trails would traverse highly resilient to resilient substrate types, meaning that the trail could sustain prolonged recreational use without serious rutting or braiding. Virtually 100% of reopened airboat trails would traverse highly resilient to resilient substrate types, meaning that trail braiding would be minimal. Therefore, habitat degradation associated with rutting and braiding should not be a significant concern on most of the trails. Hiking is not an activity that is expected to significantly degrade habitat. All proposed trails, destinations, and the backcountry campground will be monitored for user impacts. A permit is required by every hiker, biker, off-road vehicle, or watercraft entering the backcountry. This applies to both day use and overnight activities and allows the park to monitor visitor use. If an area appears to exhibit impacts such as excessive human disturbance (i.e., trash) rutting/braiding, sedimentation, or changes in hydrology that could lead to habitat degradation, the area will be closed and/or rehabilitated.

It is difficult to quantify the potential for habitat degradation; however, any such impacts are expected to be limited to the immediate area of the reopened ORV land and airboat trails and proposed hiking trails, destinations, and backcountry campground. Given that the Proposed Action will only impact 266.4 acres of habitat, most of which is previously disturbed, the potential for habitat degradation is also expected to be about this much potential disturbance. Because habitat degradation is most likely to occur in the immediate area of the proposed impact footprint, it is reasonable to assume that habitat degradation would only occur on approximately 0.03% of the Action Area and 0.04% of BICY. Because heavily impacted areas will be closed or rehabilitated, this impact is considered temporary. Additionally, the Proposed Action is not expected to result in any reduction of available prey for Florida panthers. About 90% of Florida panther diet is feral hog, white-tailed deer, raccoon, and armadillo (NPS 2022). The Proposed Action will result in no measurable reduction of these species. Based on the above considerations, habitat degradation is considered a temporary and insignificant effect.

Behavioral Changes. Behavioral changes could occur during the reopening and ongoing operations phases of the Proposed Action. Behavioral changes are expected if the presence of people and/or vehicles disturb normal Florida panthers such as denning, hunting, and traveling. This disturbance is most likely to occur due to noise and vibration from ORV land vehicles and airboats. ORV land vehicle and airboat operation is an ongoing activity within the Action Area. Though the miles of ORV land and airboat trails will increase, the number of ORV permits issued each year will remain the same; therefore, a significant increase in noise/vibration from ORVs is not expected. Exposure to noise is expected to be ongoing, but short-term. In most cases, ORV noise, including airboats, would not last more than three minutes (the time a terrestrial vehicle is audible from a given point on the ground). As previously discussed in Section 2.4, noise associated with chainsaw operations is expected to be the loudest noise associated with the Proposed Action. Chainsaw use is expected to be a rare occurrence, used only when necessary to clear vegetation during the reopening and ongoing operation phases of the Proposed Action. The noise generated by a chainsaw (110 dBA) is comparable to the average thunderstorm (100-120 dBA) (NPS 2013). Therefore, the periodic noise from a chainsaw is not expected to cause a significant change in behavior because Florida panthers are likely accustomed to short-term exposure to this level of noise. Campers are required to leave their ORVs next to trails; therefore, noise from campers at destinations, as well as hikers, is expected to be negligible when compared to the current ambient soundscape within the park that ranges from 34-70 dBA (NPS 2021). Resting in dens is mostly a daytime activity. Because Florida panthers are likely accustomed to noise, vibration, and people in the Action Area and because denning typically occurs in dense understory vegetation (unlikely to be close to a proposed trail), Florida panthers are not expected to alter their denning behavior because of the Proposed Action. However, if any active dens are observed near trails/destinations; the trail will be closed.

Panthers are most active at night when they are typically hunting and traveling. Hunting and traveling behaviors could be affected by noise, vibration, and lights/campfires associated with ORVs and campers. As stated previously, ORV use and camping (including campfires) is an ongoing activity within the Action Area and this species is likely accustomed to the noise, vibration, and lighting associated with it. The ORV trail system would continue to be closed

every night between the hours of 10:00 p.m. and 5:00 a.m.; therefore, the noise and lights associated with ORVs should not be an issue during this time. ORVs and people may be present during the early hours of the evening/morning. If Florida panthers are disturbed by their presence, they are likely to make minor adjustments to their hunting and traveling behaviors and temporarily avoid the area and move to adjacent suitable habitats.

Florida panthers are often observed at night near roads and highways, suggesting they have some tolerance for hunting and traveling in areas with noise, vibration, and lights (as does much of their prey). Consequently, the noise and lights from ORVs and lights/campfires from campers in the evening should not significantly alter hunting or traveling behaviors. Likewise, the noise from campers at destinations is expected to be negligible compared to other natural and ongoing sounds that occur within the Action Area. The backcountry campground may generate more noise, vibration, and lighting/campfires than camping at destinations, but the proposed campground will occur in an area that is already exposed to disturbances from existing ORV trails and campgrounds. Therefore, if Florida panthers are hunting or traveling in this area, they are likely accustomed to noise, vibration and lighting/campfires from ORVs and people and would not be expected to significantly alter hunting and traveling behaviors. Based on the above considerations, the Proposed Action may result in minor, temporary changes to Florida panther denning, hunting, and traveling behaviors, but these minor changes are considered insignificant.

Summary. The Proposed Action has the potential to affect Florida panthers. However, based on the current conditions within the Action Area, implementation of avoidance and minimization measures, and the analysis of potential stressors, effects from collision/crushing are considered discountable and effects from habitat loss, habitat degradation, and behavioral changes are considered insignificant. Consequently, the NPS has determined that the Proposed Action “may affect, but is not likely to adversely affect” the Florida panther.

4.4 EFFECTS TO BIRD SPECIES

Five federally listed bird species are known to occur in the Action Area. They include Audubon’s crested caracara (ACC), eastern black rail (EBR), Everglade snail kite, red-cockaded woodpecker (RCW), and wood stork.

4.4.1 Audubon’s Crested Caracara

The park is unaware of any ACCs nesting in the Action Area and the species is rarely observed. When the species is observed, it is primarily seen in prairie habitat.

Collision/Crushing. There have been no documented occurrences of ORV land vehicles or airboats colliding with ACCs in BICY. All ORV users are required to have a permit, complete the on-line ORV operator course, and adhere to authorized speed limits (15 mph); therefore, collisions between ACCs and ORVs are unlikely to occur because the species can quickly fly from an area as a vehicle approaches and avoid collision. The Proposed Action does not propose any changes to ORV rules and regulations, or the number of permits issued each year; therefore,

increased encounters with ORVs are unlikely. No cabbage palms (the preferred nesting habitat for this species) or large trees will be removed; therefore, crushing is unlikely. Based on the above considerations, collision/crushing is unlikely to occur and is considered discountable.

Habitat Loss. The Proposed Action will impact no more than 266.4 acres of vegetation, most of which is previously disturbed. Though this impact will be permanent, it is only 0.04% of the total habitat in BICY and 0.03% of the Action Area. During reopening, vegetation removal will be limited to small, woody trees/shrubs and herbaceous groundcover that have encroached into the proposed trails and destinations. No large trees, including cabbage palms, will be removed. Therefore, impacts to the preferred nesting habitat of this species are not anticipated. Though rare, when the species is observed in the Action Area, ACCs are most often seen utilizing prairie habitat. Approximately 26 miles of proposed hiking trail pass through prairie. In these areas, vegetation trimming is unnecessary, and no loss of foraging or nesting habitat is anticipated. No vegetation removal is needed to open the backcountry campground; therefore, no loss of ACC habitat is expected in this area. During ongoing operations, vegetation removal would only occur within the proposed impact footprint, as necessary for safety and natural resource protection and would not include any new loss of ACC habitat. Given that the Proposed Action will only impact a small percentage of the total habitat in BICY, ample nesting and foraging habitat for this species will remain available in BICY and the Action Area. Based on these considerations, habitat loss is considered a permanent, but insignificant effect.

Habitat Degradation. Habitat degradation could occur during the reopening and ongoing operation phases of the Proposed Action. Suitable foraging and nesting habitat for ACC could be temporarily disturbed by people and vehicles that leave designated trails. Within the Action Area, ACCs are most likely to use the prairie habitat. Impacts to prairie habitat are primarily associated with hiking trails. Hiking is not an activity that is expected to significantly degrade habitat. If ACCs are using other habitats within the Action Area, all proposed trails, destinations, and the backcountry campground will be clearly marked; therefore, users are not expected to veer off-trail or travel outside of the established areas where habitat could be impacted.

Habitat degradation could occur if a trail becomes heavily impacted by users, resulting in rutting or braiding, which could lead to sedimentation and/or changes to hydrology that expand outside of the proposed impact footprint. However, about 73% of the proposed reopened primary ORV land trails and over 90% of the proposed reopened secondary ORV land trails would traverse highly resilient to resilient substrate types, meaning that the trail could sustain prolonged recreational use without serious rutting or braiding. Virtually 100% of reopened airboat trails would traverse highly resilient to resilient substrate types, meaning that trail braiding would be minimal. Therefore, habitat degradation associated with rutting and braiding should not be a significant concern on most of the trails.

All proposed trails, destinations, and the backcountry campground will be monitored for user impacts. A permit is required by every hiker, biker, off-road vehicle, or watercraft entering the backcountry. This applies to both day use and overnight activities and allows the park to monitor visitor use. If an area appears to exhibit impacts such as excessive human disturbance (i.e., trash)

rutting/braiding, sedimentation, or changes in hydrology that could lead to habitat degradation, the area will be closed and/or rehabilitated.

It is difficult to quantify the potential for habitat degradation; however, any such impacts are expected to be limited to the immediate area of the proposed impact footprint. Given that the Proposed Action will only impact 266.4 acres of habitat, most of which is previously disturbed, the potential for habitat degradation is also expected to be about this much potential disturbance. Because habitat degradation is most likely to occur in the immediate area of the proposed impact footprint, it is reasonable to assume that habitat degradation would only occur on approximately 0.03% of the Action Area and 0.04% of BICY. Because heavily impacted areas will be closed or rehabilitated, this impact is considered temporary. Further, the number of ORV permits issued each year will not change, and a significant increase in the number of non-ORV users is not expected. Based on the above considerations, habitat degradation is considered a temporary and insignificant effect.

Behavioral Changes. Behavioral changes could occur during the reopening and ongoing operations phases of the Proposed Action. Behavioral changes are expected if the presence of people and/or vehicles disturb ACCs. This disturbance is most likely to occur due to noise and vibration from ORV land vehicles and airboats. ORV land vehicle and airboat operation is an ongoing activity within the Action Area. Though the miles of ORV land and airboat trails will increase, the number of ORV permits issued each year will remain the same; therefore, a significant increase in noise/vibration from ORVs is not expected. Exposure to noise is expected to be ongoing, but short-term. In most cases, ORV noise, including airboats, would not last more than three minutes (the time a terrestrial vehicle is audible from a given point on the ground). The species regularly forages alongside developed roads with regular high-speed traffic on highways 29 and 41, suggesting a high tolerance to high-speed vehicular noise and traffic. As previously discussed in Section 2.4, noise associated with chainsaw operations is expected to be the loudest noise associated with the Proposed Action. Chainsaw use is expected to be a rare occurrence, used only when necessary to clear vegetation during the reopening and ongoing operation components of the Proposed Action. The noise generated by a chainsaw (110 dBA) is comparable to the average thunderstorm (100-120 dBA) (NPS 2013). Therefore, the periodic noise from a chainsaw is not expected to cause a significant change in behavior because ACCs are likely conditioned to short-term exposure to this level of noise. Campers are required to leave their ORVs next to trails; therefore, noise from campers at destinations, as well as hikers, is expected to be negligible when compared to the current ambient soundscape within the park that ranges from 34-70 dBA (NPS 2021). If the species flushes from an area due to noise/vibration, this would likely be temporary and only have a minor effect on normal ACC behaviors, such as foraging. However, nesting ACCs typically flush from nests during incubation or early nesting stages when a disturbance source is located within 1,000 feet of a nest (Morrison 2001). While ACCs have not been observed nesting in the Action Area, if ACCs are observed nesting in the Action Area, the NPS would close trails and destinations that occur within 1,000 feet of the nesting site during incubation and early nesting. Based on the above considerations and avoidance and minimization measures, changes to behavior are considered an insignificant effect.

Summary. The Proposed Action has the potential to affect ACCs. However, based on the current conditions within the Action Area, the rarity of the species in the Action area, and the analysis of potential stressors, effects from collision/crushing are considered discountable and effects from habitat loss, habitat degradation, and behavioral changes are considered insignificant. Consequently, the NPS has determined that the Proposed Action “may affect, but is not likely to adversely affect” the ACC.

4.4.2 Eastern Black Rail

GIS data indicate a scattered presence of EBR habitat throughout BICY, largely overlapping with areas of freshwater and non-forested wetlands. The species is known to occur in the Action Area.

Collision/Crushing. There have been no documented occurrences of ORV land vehicles or airboats colliding with EBRs in BICY. All ORV users are required to have a permit, complete the on-line ORV operator course, and adhere to authorized speed limits (15 mph); therefore, collisions between EBRs and ORVs are unlikely to occur because the species can quickly fly from an area as a vehicle approaches and avoid collision. The Proposed Action does not propose any changes to ORV rules and regulations, or the number of permits issued each year; therefore, increased encounters with ORVs are unlikely. EBRs are likely to avoid areas during vegetation removal; therefore, crushing is unlikely. Based on the above considerations, collision/crushing is unlikely to occur and is considered discountable.

Habitat Loss. The Proposed Action will impact no more than 266.4 acres of vegetation, most of which is previously disturbed. Of the 266.4 acres, approximately 51.36 acres are wetland impacts. Though this impact will be permanent, it is less than 0.04% of the 135,300 acres of wetland that occur in BICY. Therefore, ample EBR nesting and foraging habitat will remain available in BICY and the Action Area. No vegetation removal is needed to open the backcountry campground; therefore, no loss of EBR habitat is expected in this area. During ongoing operations, vegetation removal would only occur within the proposed impact footprint, as necessary for safety and natural resource protection and would not include any new loss of EBR habitat. Based on the above considerations, habitat loss is considered a permanent, but insignificant effect.

Habitat Degradation. Habitat degradation could occur during the reopening and ongoing operation phases of the Proposed Action. Suitable habitat for EBR could be temporarily disturbed by people and vehicles that leave designated trails. Within the Action Area, EBRs are most likely to use wetland habitat. Habitat degradation could occur if a trail becomes heavily impacted by users, resulting in rutting or braiding, which could lead to sedimentation and/or changes to hydrology that expand outside of the proposed impact footprint. However, about 73% of the proposed reopened primary ORV land trails and over 90% of the proposed reopened secondary ORV land trails would traverse highly resilient to resilient substrate types, meaning that the trail could sustain prolonged recreational use without serious rutting or braiding. Virtually 100% of reopened airboat trails would traverse highly resilient to resilient substrate types, meaning that trail braiding would be minimal. Therefore, habitat degradation associated

with rutting and braiding should not be a significant concern on most of the trails. Further, all proposed trails, destinations, and the backcountry campground will be clearly marked; therefore, users are not expected to veer off-trail or travel outside of the established areas where habitat could be impacted.

All proposed trails, destinations, and the backcountry campground will be monitored for user impacts. A permit is required by every hiker, biker, off-road vehicle, or watercraft entering the backcountry. This applies to both day use and overnight activities and allows the park to monitor visitor use. If an area appears to exhibit impacts such as excessive human disturbance (i.e., trash) rutting/braiding, sedimentation, or changes in hydrology that could lead to habitat degradation, the area will be closed and/or rehabilitated.

It is difficult to quantify the potential for habitat degradation; however, any such impacts are expected to be limited to the immediate area of the proposed impact footprint. Given that the Proposed Action will only impact 51.36 acres of wetland habitat, potential EBR habitat degradation is also expected to be limited to about this much potential disturbance. Habitat degradation is expected to occur on less than 0.04% of wetlands in BICY. Because heavily impacted areas will be closed or rehabilitated, this impact is considered temporary. Further, the number of ORV permits issued each year will not change, and a significant increase in the number of non-ORV users is not expected. Based on the above considerations, habitat degradation is considered a temporary and insignificant effect.

Behavioral Changes. Behavioral changes could occur during the reopening and ongoing operations phases of the Proposed Action. Behavioral changes are expected if the presence of people and/or vehicles disturb EBRs. This disturbance is most likely to occur due to noise and vibration from ORV land vehicles and airboats. ORV land vehicle and airboat operation is an ongoing activity within the Action Area. Though the miles of ORV land and airboat trails will increase, the number of ORV permits issued each year will remain the same; therefore, a significant increase in noise/vibration from ORVs is not expected. Exposure to noise is expected to be ongoing, but short-term. In most cases, ORV noise, including airboats, would not last more than three minutes (the time a terrestrial vehicle is audible from a given point on the ground).

As previously discussed in Section 2.4, noise associated with chainsaw operations is expected to be the loudest noise associated with the Proposed Action. Chainsaw use is expected to be a rare occurrence, used only when necessary to clear vegetation during the reopening and ongoing operation components of the Proposed Action. The noise generated by a chainsaw (110 dBA) is comparable to the average thunderstorm (100-120 dBA) (NPS 2013). Therefore, the periodic noise from a chainsaw is not expected to cause a significant change in behavior because EBRs are likely conditioned to short-term exposure to this level of noise. Campers are required to leave their ORVs next to trails; therefore, noise from campers at destinations, as well as hikers, is expected to be negligible when compared to the current ambient soundscape within the park that ranges from 34-70 dBA (NPS 2021). If the species flushed from an area due to noise/vibration, this would likely be temporary and only have a minor effect on EBR behaviors, such as foraging and nesting. However, as an added precaution, if EBRs are observed nesting in an area that could

be impacted by the Proposed Action, the area will be closed during the nesting season. Based on the above considerations, EBR behavioral changes are considered insignificant.

Summary. The Proposed Action has the potential to affect EBRs. However, based on the current conditions within the Action Area, avoidance and minimization measures, and the analysis of potential stressors, effects from collision/crushing are considered discountable and effects from habitat loss, habitat degradation, and behavioral changes are considered insignificant. Consequently, the NPS has determined that the Proposed Action “may affect, but is not likely to adversely affect” the EBR.

4.4.3 Everglade Snail Kite

Everglade snail kite has been observed in the Action Area, most commonly south of Route 41, near several of the proposed reopened and opened ORV airboat trails.

Collision/Crushing. There have been no documented occurrences of ORV land vehicles or airboats colliding with snail kites in BICY. All ORV users are required to have a permit, complete the on-line ORV operator course, and adhere to authorized speed limits (15 mph); therefore, collisions between snail kites and ORVs are unlikely to occur because the species can quickly fly from an area as a vehicle approaches and avoid collision. The Proposed Action does not propose any changes to ORV rules and regulations, or the number of permits issued each year; therefore, increased encounters with ORVs are unlikely. Snail kites are likely to avoid areas during vegetation removal; therefore, crushing is unlikely. Based on the above considerations, collision/crushing is unlikely to occur and is considered discountable.

Habitat Loss. The Proposed Action will impact no more than 266.4 acres of vegetation, most of which is previously disturbed. Though this impact will be permanent, it is less than 0.04% of the total habitat that occurs in BICY and 0.03% of habitat in the Action Area. No vegetation removal is needed to open the backcountry campground; therefore, no loss of snail kite habitat is expected in this area. During ongoing operations, vegetation removal would only occur within the proposed impact footprint, as necessary for safety and natural resource protection and would not include any new loss of snail kite habitat. Further, because vegetation removal only includes vegetation that has encroached into the footprint of trails and destinations, no loss of nesting habitat is anticipated. Given that the Proposed Action will only impact a small percentage of the habitat in BICY, ample foraging and nesting habitat for this species will remain available in BICY and the Action Area. For these reasons, habitat loss is considered a permanent, but insignificant effect.

Habitat Degradation. Habitat degradation could occur during the reopening and ongoing operation phases of the Proposed Action. Suitable habitat for snail kites could be temporarily disturbed by people and vehicles that leave designated trails. Within the Action Area, snail kites are most likely to use open water/wetland habitat. Habitat degradation could occur if a trail becomes heavily impacted by users, resulting in rutting or braiding, which could lead to sedimentation and/or changes to hydrology that expand outside of the proposed impact footprint. However, about 73% of the proposed reopened primary ORV land trails and over 90% of the

proposed reopened secondary ORV land trails would traverse highly resilient to resilient substrate types, meaning that the trail could sustain prolonged recreational use without serious rutting or braiding. Virtually 100% of reopened airboat trails would traverse highly resilient to resilient substrate types, meaning that trail braiding would be minimal. Therefore, habitat degradation associated with rutting and braiding should not be a significant concern on most of the trails. Further, all proposed trails, destinations, and the backcountry campground will be clearly marked; therefore, users are not expected to veer off-trail or travel outside of the established areas where habitat could be impacted.

All proposed trails, destinations, and the backcountry campground will be monitored for user impacts. A permit is required by every hiker, biker, off-road vehicle, or watercraft entering the backcountry. This applies to both day use and overnight activities and allows the park to monitor visitor use. If an area appears to exhibit impacts such as excessive human disturbance (i.e., trash) rutting/braiding, sedimentation, or changes in hydrology that could lead to habitat degradation, the area will be closed and/or rehabilitated.

It is difficult to quantify the potential for habitat degradation; however, any such impacts are expected to be limited to the immediate area of the proposed impact footprint. Given that the Proposed Action will only impact 266.4 acres of vegetation, most of which is previously disturbed, the potential for habitat degradation is also expected to be about this much potential disturbance. Because habitat degradation is most likely to occur in the immediate area of the proposed impact footprint, it is reasonable to assume that habitat degradation would only occur on approximately 0.03% of the Action Area and 0.04% of BICY. Because heavily impacted areas will be closed or rehabilitated, this impact is considered temporary. Further, the number of ORV permits issued each year will not change, and a significant increase in the number of non-ORV users is not expected. Given the small amount of overall impact, the NPS does not expect a decrease in foraging habitat or available prey (apple snails) as a result of the Proposed Action. Based on the above considerations, habitat degradation is considered a temporary and insignificant effect.

Behavioral Changes. Behavioral changes could occur during the reopening and ongoing operations phases of the Proposed Action. Behavioral changes are expected if the presence of people and/or vehicles disturb snail kites. This disturbance is most likely to occur due to noise and vibration from ORV land vehicles and airboats. ORV land vehicle and airboat operation is an ongoing activity within the Action Area. Though the miles of ORV land and airboat trails will increase, the number of ORV permits issued each year will remain the same; therefore, a significant increase in noise/vibration from ORVs is not expected. Exposure to noise is expected to be ongoing, but short-term. In most cases, ORV noise, including airboats, would not last more than three minutes (the time a terrestrial vehicle is audible from a given point on the ground). The species is regularly observed foraging alongside Highways 41, suggesting tolerance to vehicular noise and traffic.

As previously discussed in Section 2.4, noise associated with chainsaw operations is expected to be the loudest noise associated with the Proposed Action. Chainsaw use is expected to be a rare occurrence, used only when necessary to clear vegetation during the reopening and ongoing

operation components of the Proposed Action. The noise generated by a chainsaw (110 dBA) is comparable to the average thunderstorm (100-120 dBA) (NPS 2013). Therefore, the periodic noise from a chainsaw is not expected to cause a significant change in behavior because snail kites are likely conditioned to short-term exposure to this level of noise. Campers are required to leave their ORVs next to trails; therefore, noise from campers at destinations, as well as hikers, is expected to be negligible when compared to the current ambient soundscape within the park that ranges from 34-70 dBA (NPS 2021). If the species flushes from an area due to noise disturbance, this would likely be temporary and only have a minor effect on normal snail kite behaviors. However, as an added precaution, if snail kites are observed nesting in an area that could be impacted by the Proposed Action, the area will be closed during the nesting season. Based on the above considerations, snail kite behavioral changes are considered insignificant.

Summary. The Proposed Action has the potential to affect Everglade snail kites. However, based on the current conditions within the Action Area, avoidance and minimization measures, and the analysis of potential stressors, effects from collision/crushing are considered discountable and effects from habitat loss, habitat degradation, and behavioral changes are considered insignificant. Consequently, the NPS has determined that the Proposed Action “may affect, but is not likely to adversely affect” the Everglade snail kite.

4.4.4 Red-Cockaded Woodpecker

Red-cockaded woodpeckers (RCW) utilize slash pine habitats within BICY. Based on data provided by Florida Fish and Wildlife Conservation Commission (FWC), as of 2023, there are 128 RCW tree clusters within BICY. All 128 tree clusters occur within the Action Area, but not all clusters are active.

Collision/Crushing. There have been no documented occurrences of ORV land vehicles or airboats colliding with RCWs in BICY. All ORV users are required to have a permit, complete the on-line ORV operator course, and adhere to authorized speed limits (15 mph); therefore, collisions between RCWs and ORVs are unlikely to occur because the species can quickly fly from an area as a vehicle approaches and avoid collision. The Proposed Action does not propose any changes to ORV rules and regulations, or the number of permits issued each year; therefore, increased encounters with ORVs are unlikely. No large trees that could be used as RCW cavity trees will be removed; therefore, crushing is not likely to occur. Based on the above considerations, collision/crushing is unlikely to occur and is considered discountable.

Habitat Loss. The Proposed Action will impact no more than 266.4 acres of vegetation, most of which is previously disturbed. Though this impact will be permanent, it is less than 0.04% of the total habitat that occurs in BICY and 0.03% of the Action Area. No known or potential RCW cavity trees will be removed. Two reopened secondary ORV trails occur within RCW cluster buffers, but these trails are heavily impacted by past and current use. Vegetation removal in these areas will be minimal and will not result in any loss of forested habitat. No vegetation removal is needed to open the backcountry campground; therefore, no loss of RCW habitat is expected in this area. During ongoing operations, vegetation removal would only occur within the proposed impact footprint, as necessary for safety and natural resource protection and would not include

any new loss of RCW habitat. Based on the above considerations, habitat loss is considered an insignificant effect.

Habitat Degradation. Habitat degradation could occur during the reopening and ongoing operation phases of the Proposed Action. Suitable RCW habitat could be temporarily disturbed by people and vehicles that leave designated trails. Habitat degradation could occur if a trail becomes heavily impacted by users, resulting in rutting or braiding, which could lead to sedimentation and/or changes to hydrology that expand outside of the proposed impact footprint. However, about 73% of the proposed reopened primary ORV land trails and over 90% of the proposed reopened secondary ORV land trails would traverse highly resilient to resilient substrate types, meaning that the trail could sustain prolonged recreational use without serious rutting or braiding. Therefore, habitat degradation associated with rutting and braiding should not be a significant concern on most of the trails. Further, all proposed trails, destinations, and the backcountry campground will be clearly marked; therefore, users are not expected to veer off-trail or travel outside of the established areas where habitat could be impacted.

All proposed trails, destinations, and the backcountry campground will be monitored for user impacts. A permit is required by every hiker, biker, off-road vehicle, or watercraft entering the backcountry. This applies to both day use and overnight activities and allows the park to monitor visitor use. Because two reopened secondary ORV trails are located within RCW tree cluster buffers, trail usage in these areas will be monitored by the park's natural resource staff. If an area appears to exhibit impacts such as excessive human disturbance (i.e., trash) rutting/braiding, sedimentation, or changes in hydrology that could lead to RCW habitat degradation, the area will be closed and/or rehabilitated.

It is difficult to quantify the potential for habitat degradation; however, any such impacts are expected to be limited to the immediate area of the proposed impact footprint. Given that the Proposed Action will only impact 266.4 acres of habitat, most of which is previously disturbed, the potential for habitat degradation is also expected to be about this much potential disturbance. Because habitat degradation is most likely to occur in the immediate area of the proposed impact footprint, it is reasonable to assume that habitat degradation would only occur on approximately 0.03% of the Action Area and 0.04% of BICY. Because heavily impacted areas will be closed or rehabilitated, this impact is considered temporary. Further, the number of ORV permits issued each year will not change, and a significant increase in the number of non-ORV users is not expected. Based on the above considerations, habitat degradation is considered a temporary and insignificant effect.

Behavioral Changes. Behavioral changes could occur during the reopening and ongoing operations phases of the Proposed Action. Behavioral changes are expected if the presence of people and/or vehicles disturb RCWs. This disturbance is most likely to occur due to noise and vibration from ORV land vehicles near RCW clusters 26 and 16. ORV land vehicle and airboat operation is an ongoing activity within the Action Area. Though the miles of ORV land and airboat trails will increase, the number of ORV permits issued each year will remain the same; therefore, a significant increase in noise/vibration from ORVs is not expected. Exposure to noise is expected to be ongoing, but short-term. In most cases, ORV noise, including airboats, would

not last more than three minutes (the time a terrestrial vehicle is audible from a given point on the ground). RCW clusters 26 and 16 occur in an area that is regularly exposed to ORV noise/vibration. The proposed reopened secondary trails are currently used by landowners and/or NPS staff and/or overlap with primary ORV land trails that are open to the public. Given that there is ongoing noise and vibration from ORV traffic in these two areas, these RCWs are likely conditioned to noise/vibration, and the Proposed Action is not expected to cause a significant change in behavior. However, as an added precaution, these two secondary trails will be closed to public access during the RCW nesting season.

As previously discussed in Section 2.4, noise associated with chainsaw operations is expected to be the loudest noise associated with the Proposed Action. Chainsaw use is expected to be a rare occurrence, used only when necessary to clear vegetation during the reopening and ongoing operation components of the Proposed Action. The noise generated by a chainsaw (110 dBA) is comparable to the average thunderstorm (100-120 dBA) (NPS 2013). Therefore, the periodic noise from a chainsaw is not expected to cause a significant change in RCW behavior because they are likely accustomed to short-term exposure of this noise level. However, during the nesting season, the park will avoid chainsaw use within the two RCW tree cluster buffers. Campers are required to leave their ORVs next to trails; therefore, noise from campers at destinations, as well as hikers, is expected to be negligible when compared to the current ambient soundscape within the park that ranges from 34-70 dBA (NPS 2021). Further, no proposed destinations or the backcountry campground occur in RCW buffers.

The park will continue to partner with FWC to locate RCW cavity trees. If new cavity trees are identified in an area that could be impacted by the Proposed Action in a manner not previously considered, the area will be closed. Based on the above considerations, RCW behavioral changes are considered insignificant.

Summary. The Proposed Action has the potential to affect RCWs. However, based on the current conditions within the Action Area, avoidance and minimization measures, and the analysis of potential stressors, effects from collision/crushing are considered discountable and effects from habitat loss, habitat degradation, and behavioral changes are considered insignificant. Consequently, the NPS has determined that the Proposed Action “may affect, but is not likely to adversely affect” the RCW.

4.4.5 Wood Stork

Wood stork rookeries in BICY are typically only used during periods of especially high water. There are seven rookeries that occur in the Action Area (see Figure 4) and there are approximately 90,588 acres of core foraging habitat within BICY. Several wood stork rookeries are within 0.47 mile of reopened trails; however, all are in close proximity to existing trails that are currently open to the public and used regularly.

Collision/Crushing. There have been no documented occurrences of ORV land vehicles or airboats colliding with wood storks in BICY. All ORV users are required to have a permit, complete the on-line ORV operator course, and adhere to authorized speed limits (15 mph);

therefore, collisions between wood storks and ORVs are unlikely to occur because the species can quickly fly from an area as a vehicle approaches and avoid collision. The Proposed Action does not propose any changes to ORV rules and regulations, or the number of permits issued each year; therefore, increased encounters with ORVs are unlikely. Wood storks are likely to avoid areas during vegetation removal; therefore, crushing is unlikely. Based on the above considerations, collision/crushing is unlikely to occur and is considered discountable.

Habitat Loss. The Proposed Action will impact no more than 266.4 acres of vegetation, most of which is previously disturbed. Of the 266.4 acres, approximately 51.36 acres are wetland impacts. Though this impact will be permanent, it is less than 0.04% of the 135,300 acres of wetland that occur in BICY. No vegetation will be removed from known rookeries. The USFWS recognizes an 18.6-mile core foraging area around all known wood stork colonies.

Approximately 90,588.4 acres of core foraging area occur within BICY. The Proposed Action will only impact approximately 39.81 acres, or less than 0.05% (0.044%), of this core foraging habitat. No vegetation removal is needed to open the backcountry campground; therefore, no loss of wood stork habitat is expected in this area. During ongoing operations, vegetation removal would only occur within the proposed impact footprint, as necessary for safety and natural resource protection and would not include any new loss of wood stork habitat. Given that the Proposed Action will only impact a small percentage of the wetland and core foraging habitat in BICY, ample foraging and nesting habitat for this species will remain available in BICY and the Action Area. Based on the above considerations, habitat loss is considered an insignificant effect.

Habitat Degradation. Habitat degradation could occur during the reopening and ongoing operation phases of the Proposed Action. Suitable wood stork habitat could be temporarily disturbed by people and vehicles that leave designated trails. Within the Action Area, wood storks are most likely to use wetland habitat. Habitat degradation could occur if a trail becomes heavily impacted by users, resulting in rutting or braiding, which could lead to sedimentation and/or changes to hydrology that expand outside of the proposed impact footprint. However, about 73% of the proposed reopened primary ORV land trails and over 90% of the proposed reopened secondary ORV land trails would traverse highly resilient to resilient substrate types, meaning that the trail could sustain prolonged recreational use without serious rutting or braiding. Virtually 100% of reopened airboat trails would traverse highly resilient to resilient substrate types, meaning that trail braiding would be minimal. Therefore, habitat degradation associated with rutting and braiding should not be a significant concern on most of the trails. Further, all proposed trails, destinations, and the backcountry campground will be clearly marked; therefore, users are not expected to veer off-trail or travel outside of the established areas where habitat could be impacted.

All proposed trails, destinations, and the backcountry campground will be monitored for user impacts. A permit is required by every hiker, biker, off-road vehicle, or watercraft entering the backcountry. This applies to both day use and overnight activities and allows the park to monitor visitor use. If an area appears to exhibit impacts such as excessive human disturbance (i.e., trash) rutting/braiding, sedimentation, or changes in hydrology that could lead to habitat degradation, the area will be closed and/or rehabilitated.

It is difficult to quantify the potential for habitat degradation; however, any such impacts are expected to be limited to the immediate area of the proposed impact footprint. Given that the Proposed Action will only impact 51.36 acres of wetland habitat, potential wood stork habitat degradation is also expected to be limited to about this much potential disturbance. Habitat degradation is expected to occur on less than 0.04% of wetlands in BICY. Because heavily impacted areas will be closed or rehabilitated, this impact is considered temporary. Further, the number of ORV permits issued each year will not change, and a significant increase in the number of non-ORV users is not expected. Based on the above considerations, habitat degradation is considered a temporary and insignificant effect.

Behavioral Changes. Behavioral changes could occur during the reopening and ongoing operations components of the Proposed Action. Behavioral changes are expected if the presence of people and/or vehicles disturb wood storks. This disturbance is most likely to occur due to noise and vibration from airboats, but could also occur due to ORV land vehicles. ORV land vehicle and airboat operation is an ongoing activity within the Action Area. Though the miles of ORV land and airboat trails will increase, the number of ORV permits issued each year will remain the same; therefore, a significant increase in noise/vibration from ORVs is not expected. Exposure to noise is expected to be ongoing, but short-term. In most cases, ORV noise, including airboats, would not last more than three minutes (the time a terrestrial vehicle is audible from a given point on the ground).

All known rookeries within the Action Area occur in areas with existing noise and vibration. Four rookeries within the Action Area on the far eastern boundary of BICY and are not close to any reopened ORV land or airboat trails or proposed hiking trails/destinations but could still be exposed to noise from the Proposed Action. However, these rookeries are adjacent to the L-28 canal used by the South Florida Water Management District and the L-28 Tieback Road, and are near the Dade-Collier Training and Transition Airport and, if used, are likely conditioned to noise and vibration. Two rookeries occur in Stairsteps Zone 4 of BICY. The Big Cypress Mitchell Landing rookery (just south of Loop Road) is near a reopened ORV airboat trail, but is also adjacent to numerous intersecting ORV airboat trails that are currently open. The USFWS last recorded the Big Cypress Mitchell Landing as active in 2009. The status of the remaining rookery on the far southwest corner of BICY is unknown; however, this rookery is also located in area with several open airboat trails. Given the current exposure to noise and vibration, when wood storks are using these rookeries, they would not be expected to significantly change nesting or foraging behaviors due to the Proposed Action. However, should one of these rookeries become active, as an added precaution, trails in the area will be closed while the rookery remains active.

As previously discussed in Section 2.4, noise associated with chainsaw operations is expected to be the loudest noise associated with the Proposed Action. Chainsaw use is expected to be a rare occurrence, used only when necessary to clear vegetation during the reopening and ongoing operation phases of the Proposed Action. The noise generated by a chainsaw (110 dBA) is comparable to the average thunderstorm (100-120 dBA) (NPS 2013). Therefore, the periodic noise from a chainsaw is not expected to cause a significant change in behavior because snail

kites are likely accustomed to short-term exposure to this level of noise. Campers are required to leave their ORVs next to trails; therefore, noise from campers at destinations, as well as hikers, is expected to be negligible when compared to the current ambient soundscape within the park that ranges from 34-70 dBA (NPS 2021). Based on the above considerations, wood stork behavioral changes are considered insignificant.

Summary. The Proposed Action has the potential to affect wood storks. However, based on the current conditions within the Action Area, avoidance and minimization measures, and the analysis of potential stressors, effects from collision/crushing are considered discountable and effects from habitat loss, habitat degradation, and behavioral changes are considered insignificant. Consequently, the NPS has determined that the Proposed Action “may affect, but is not likely to adversely affect” the wood stork.

4.5 EFFECTS TO REPTILE SPECIES

Three federally listed reptile species are known to occur, or have the potential to occur, within the Action Area: American alligator, American crocodile, and eastern indigo snake.

4.5.1 American Alligator and American Crocodile

American alligators are found throughout the Action Area and based on occurrence data provided by USFWS (October 2023), no American crocodile occurrences are documented within Action Area; however, the southern portion of Stairsteps Zone 4 occurs within the range of the species.

Collision/Crushing. There have been no documented occurrences of ORV land vehicles or airboats colliding with alligators or crocodiles in BICY. All ORV users are required to have a permit, complete the on-line ORV operator course, and adhere to authorized speed limits (15 mph); therefore, collisions between these species and ORVs are unlikely to occur because they will move from an area as a vehicle approaches and avoid collision. The Proposed Action does not propose any changes to ORV rules and regulations, or the number of permits issued each year; therefore, increased encounters with ORVs are unlikely. Both species are likely to avoid areas during vegetation removal; therefore, crushing is unlikely. Based on the above considerations, collision/crushing is unlikely to occur and is considered discountable.

Habitat Loss. The Proposed Action will impact approximately 266.4 acres of potential habitat that could be used by these species, although only a small portion of the southern portion of Stairsteps Zone 4 occurs within the range of the American crocodile. This is only 0.04% of the total habitat within BICY and 0.03% of habitat within the Action Area. Though these species are known to occur, or have the potential to occur, throughout the Action Area, they most likely occupy habitat that overlaps with reopened ORV airboat trails. Reopening the 38 miles of airboat trails will only require approximately 55.27 acres of vegetation removal. This is only 0.006% of habitat within the Action Area and 0.008% of habitat within BICY. No vegetation removal is needed to open the backcountry campground; therefore, no loss of habitat is expected in this area. During ongoing operations, vegetation removal would only occur within the proposed

impact footprint, as necessary for safety and natural resource protection, and would not include any new loss of habitat. Given that the Proposed Action will only impact a small percentage of available habitat in BICY, ample foraging and nesting habitat for these species will remain available in BICY and the Action Area. Based on the above considerations, habitat loss is considered an insignificant effect.

Habitat Degradation. Habitat degradation could occur during the reopening and ongoing operation phases of the Proposed Action. Habitat degradation could occur if a trail becomes heavily impacted by users, resulting in rutting or braiding, which could lead to sedimentation and/or changes to hydrology that expand outside of the proposed impact footprint. However, about 73% of the proposed reopened primary ORV land trails and over 90% of the proposed reopened secondary ORV land trails would traverse highly resilient to resilient substrate types, meaning that the trail could sustain prolonged recreational use without serious rutting or braiding. Virtually 100% of reopened airboat trails would traverse highly resilient to resilient substrate types, meaning that trail braiding would be minimal. Therefore, habitat degradation associated with rutting and braiding should not be a significant concern on most of the trails. Further, all proposed trails, destinations, and the backcountry campground will be clearly marked; therefore, users are not expected to veer off-trail or travel outside of the established areas where habitat could be impacted.

All proposed trails, destinations, and the backcountry campground will be monitored for user impacts. A permit is required by every hiker, biker, off-road vehicle, or watercraft entering the backcountry. This applies to both day use and overnight activities and allows the park to monitor visitor use. If an area appears to exhibit impacts such as excessive human disturbance (i.e., trash) rutting/braiding, sedimentation, or changes in hydrology that could lead to habitat degradation, the area will be closed and/or rehabilitated.

It is difficult to quantify the potential for habitat degradation; however, any such impacts are expected to be limited to the immediate area of the proposed impact footprint. Given that reopening the 38 miles of airboat trails will only require approximately 55.27 acres of vegetation removal, potential habitat degradation for these species is also expected to be limited to about this much potential disturbance. Habitat degradation is expected to occur on 0.006% of habitat within the Action Area and 0.008% of habitat within BICY. Because heavily impacted areas will be closed or rehabilitated, this impact is considered temporary. Further, the number of ORV permits issued each year will not change, and a significant increase in the number of non-ORV users is not expected. Based on the above considerations, habitat degradation is considered a temporary and insignificant effect.

Behavioral Changes. Behavioral changes could occur during the reopening and ongoing operations phases of the Proposed Action. Behavioral changes are expected to occur when the presence of people and/or ORVs disturb American alligators and American crocodiles. This disturbance is most likely to occur due to noise and vibration from ORV land vehicles and airboats. ORV land vehicle and airboat operation is an ongoing activity within the Action Area. Though the miles of ORV land and airboat trails will increase, the number of ORV permits issued each year will remain the same; therefore, a significant increase in noise is not expected.

Exposure to noise is expected to be ongoing, but short-term. In most cases, ORV noise, including airboats, would not last more than three minutes (the time a terrestrial vehicle is audible from a given point on the ground).

As previously discussed in Section 2.4, noise associated with chainsaw operations is expected to be the loudest noise associated with the Proposed Action. Chainsaw use is expected to be a rare occurrence, used only when necessary to clear vegetation during the reopening and ongoing operation phases of the Proposed Action. The noise generated by a chainsaw (110 dBA) is comparable to the average thunderstorm (100-120 dBA) (NPS 2013). Therefore, the periodic noise from a chainsaw is not expected to cause a significant change in behavior because these species are likely accustomed to short-term exposure to this level of noise. Campers are required to leave their ORVs next to trails; therefore, noise from campers at destinations, as well as hikers, is expected to be negligible when compared to the current ambient soundscape within the park that ranges from 34-70 dBA (NPS 2021). Based on the above considerations, behavioral changes are considered insignificant.

Summary. The Proposed Action has the potential to affect American alligators and American crocodiles. However, based on the current conditions within the Action Area, avoidance and minimization measures, and the analysis of potential stressors, effects from collision/crushing are considered discountable and effects from habitat loss, habitat degradation, and behavioral changes are considered insignificant. Consequently, the NPS has determined that the Proposed Action “may affect, but is not likely to adversely affect” the American alligator and American crocodile.

4.5.2 Eastern Indigo Snake

Eastern indigo snakes are a rare occurrence in the Action Area because much of the habitat within the Action Area is too wet for eastern indigo snakes to use for a significant portion of the year.

Collision/Crushing. There have been no documented occurrences of ORV land vehicles or airboats colliding with eastern indigo snakes in BICY. All ORV users are required to have a permit, complete the on-line ORV operator course, and adhere to authorized speed limits (15 mph); therefore, collisions between the eastern indigo snakes and ORVs are unlikely to occur because they will move from an area as a vehicle approaches and avoid collision. The Proposed Action does not propose any changes to ORV rules and regulations, or the number of permits issued each year; therefore, increased encounters with ORVs are unlikely. Eastern indigo snakes are likely to avoid areas during vegetation removal; therefore, crushing is unlikely. Based on the above considerations, collision/crushing is unlikely to occur and is considered discountable.

Habitat Loss. Much of the habitat within the Action Area is too wet for eastern indigo snakes to use for a significant portion of the year; however, at most, the Proposed Action will impact 266.4 acres of potential habitat for this species, or approximately 0.04% of habitat within BICY and 0.03% of the Action Area. During ongoing operations, vegetation removal would only occur within the proposed impact footprint, as necessary for safety and natural resource protection, and would not include any new loss of habitat. Given that the Proposed Action will only impact a

small percentage of available habitat in BICY, ample foraging and nesting habitat for this species will remain available in BICY and the Action Area. Based on the above considerations, habitat loss is considered an insignificant effect.

Habitat Degradation. Habitat degradation could occur during the reopening and ongoing operation phases of the Proposed Action. Habitat degradation could occur if a trail becomes heavily impacted by users, resulting in rutting or braiding, which could lead to sedimentation and/or changes to hydrology that expand outside of the proposed impact footprint. However, about 73% of the proposed reopened primary ORV land trails and over 90% of the proposed reopened secondary ORV land trails would traverse highly resilient to resilient substrate types, meaning that the trail could sustain prolonged recreational use without serious rutting or braiding. Virtually 100% of reopened airboat trails would traverse highly resilient to resilient substrate types, meaning that trail braiding would be minimal. Therefore, habitat degradation associated with rutting and braiding should not be a significant concern on most of the trails. Further, all proposed trails, destinations, and the backcountry campground will be clearly marked; therefore, users are not expected to veer off-trail or travel outside of the established areas where habitat could be impacted.

All proposed trails, destinations, and the backcountry campground will be monitored for user impacts. A permit is required by every hiker, biker, off-road vehicle, or watercraft entering the backcountry. This applies to both day use and overnight activities and allows the park to monitor visitor use. If an area appears to exhibit impacts such as excessive human disturbance (i.e., trash) rutting/braiding, sedimentation, or changes in hydrology that could lead to habitat degradation, the area will be closed and/or rehabilitated.

It is difficult to quantify the potential for habitat degradation; however, any such impacts are expected to be limited to the immediate area of the proposed impact footprint. Given that the Proposed Action will only impact 266.4 acres of habitat, most of which is previously disturbed, the potential for habitat degradation is also expected to be about this much potential disturbance. Because habitat degradation is most likely to occur in the immediate area of the proposed impact footprint, it is reasonable to assume that habitat degradation would only occur on approximately 0.03% of the Action Area and 0.04% of BICY. Because heavily impacted areas will be closed or rehabilitated, this impact is considered temporary. Further, the number of ORV permits issued each year will not change, and a significant increase in the number of non-ORV users is not expected. Based on the above considerations, habitat degradation is considered a temporary and insignificant effect.

Behavioral Changes. Behavioral changes could occur during the reopening and ongoing operations phases of the Proposed Action. Behavioral changes are expected to occur when the presence of people and/or ORVs disturb eastern indigo snakes. The species is unlikely to be affected by noise/vibration from airboats because airboats operate in habitat that is too wet for this species. Therefore, ORV land vehicles are the most likely source of noise/vibration disturbance. ORV land vehicle operation is an ongoing activity within the Action Area. Though the miles of ORV trail will increase, the number of ORV permits issued each year will remain the same; therefore, a significant increase in noise/vibration is not expected. Exposure is

expected to be ongoing, but short-term. In most cases, ORV noise/vibration would not last more than three minutes (the time a terrestrial vehicle is audible from a given point on the ground).

As previously discussed in Section 2.4, noise associated with chainsaw operations is expected to be the loudest noise/vibration associated with the Proposed Action. Chainsaw use is expected to be a rare occurrence, used only when necessary to clear vegetation during the reopening and ongoing operation phases of the Proposed Action. The noise generated by a chainsaw (110 dBA) is comparable to the average thunderstorm (100-120 dBA) (NPS 2013). Therefore, the periodic noise/vibration from a chainsaw is not expected to cause a significant change in behavior because the species, if present, is likely accustomed to short-term exposure to this level of noise. Campers are required to leave their ORVs next to trails; therefore, noise from campers at destinations, as well as hikers, is expected to be negligible when compared to the current ambient soundscape within the park that ranges from 34-70 dBA (NPS 2021). Based on the above considerations, behavioral changes are considered insignificant.

Summary. The Proposed Action has the potential to affect eastern indigo snakes. However, based on the current conditions within the Action Area, rarity of the species in the Action area, and implementation of avoidance and minimization measures, effects from collision/crushing are considered discountable and effects from habitat loss, habitat degradation, and behavioral changes are considered insignificant. Consequently, the NPS has determined that the Proposed Action “may affect, but is not likely to adversely affect” the eastern indigo snake.

4.6 EFFECTS TO PLANT SPECIES

Three federally listed plant species are known to occur in the Action Area: Everglades bully, Florida prairie clover, and Florida pineland crabgrass. Proposed critical habitat for these three species also occurs in the Action Area.

4.6.1 Everglades Bully, Florida Prairie Clover, and Florida Pineland Crabgrass

Crushing/Trampling. Crushing or trampling of plants could occur during the reopening and ongoing operation phases of the Proposed Action. Plants could be inadvertently crushed/trampled by ORVs and people resulting in damage or mortality of individual plants. There is currently only one known population of Florida prairie clover in the Action Area. This occurrence is not near any of the proposed reopened ORV trails, hiking trails, or destinations. Everglades bully and Florida pineland crabgrass are known to occur near several of the proposed reopened airboat trails. Prior to opening any trails or destinations qualified NPS staff will survey the area for listed plants. If plants are observed, the trails/destinations will be sited to avoid the occurrence by at least 150 feet or will not be reopened. All trails, destinations, and the backcountry campground will be clearly marked; therefore, users are not expected to veer off-trail or travel outside of the established areas. Additionally, if any federally listed plant species are newly discovered after an area has been reopened, the trail will be closed. Based on these considerations, crushing/trampling is considered discountable.

Habitat Loss. The Proposed Action will impact no more than 266.4 acres of vegetation, most of which is previously disturbed. Though this impact will be permanent, it is only 0.04% of the total habitat in BICY and 0.03% of the Action Area. During ongoing operations, vegetation removal would only occur within the proposed impact footprint, as necessary for safety and natural resource protection, and would not include any new loss of habitat. Given that the Proposed Action will only impact a small percentage of the total habitat in BICY, ample habitat for these species will remain available in BICY and the Action Area. Based on these considerations, habitat loss is considered a permanent, but insignificant effect.

Habitat Degradation. Habitat degradation could occur during the reopening and ongoing operation phases of the Proposed Action. Suitable habitat for the plant species could be temporarily disturbed by people and vehicles that leave designated trails. Habitat degradation could occur if a trail becomes heavily impacted by users, resulting in rutting or braiding, which could lead to sedimentation and/or changes to hydrology that expand outside of the proposed impact footprint. However, about 73% of the proposed reopened primary ORV land trails and over 90% of the proposed reopened secondary ORV land trails would traverse highly resilient to resilient substrate types, meaning that the trail could sustain prolonged recreational use without serious rutting or braiding. Virtually 100% of reopened airboat trails would traverse highly resilient to resilient substrate types, meaning that trail braiding would be minimal. Therefore, habitat degradation associated with rutting and braiding should not be a significant concern on most of the trails. Further, all proposed trails, destinations, and the backcountry campground will be clearly marked; therefore, users are not expected to veer off-trail or travel outside of the established areas where habitat could be impacted.

All proposed trails, destinations, and the backcountry campground will be monitored for user impacts. A permit is required by every hiker, biker, off-road vehicle, or watercraft entering the backcountry. This applies to both day use and overnight activities and allows the park to monitor visitor use. If an area appears to exhibit impacts such as excessive human disturbance (i.e., trash) rutting/braiding, sedimentation, or changes in hydrology that could lead to habitat degradation, the area will be closed and/or rehabilitated. Additionally, the Proposed Action could result in the spread or introduction of invasive plant species that could compete with federally listed plant species. To minimize the potential for invasive species to degrade habitat, NPS staff will monitor trails, destinations, and the backcountry campground and treat invasives following the South Florida and Caribbean Parks Exotic Plant Management Plan (2010).

It is difficult to quantify the potential for habitat degradation; however, any such impacts are expected to be limited to the immediate area of the proposed impact footprint. Given that the Proposed Action will only impact 266.4 acres, most of which is previously disturbed, the potential for habitat degradation is also expected to be about this much potential disturbance. Because habitat degradation is most likely to occur in the immediate area of the proposed impact footprint, it is reasonable to assume that habitat degradation would only occur on approximately 0.03% of the Action Area and 0.04% of BICY. Because heavily impacted areas will be closed or rehabilitated, this impact is considered temporary. Further, the number of ORV permits issued each year will not change, and a significant increase in the number of non-ORV users is not

expected. Based on the above considerations, habitat degradation is considered a temporary and insignificant effect.

Summary. The Proposed Action has the potential to affect Everglades bully, Florida prairie clover, and Florida pineland crabgrass. However, based on the implementation of avoidance measures and targeted trail closures, effects from crushing/trampling are considered discountable and effects from habitat loss and/or degradation are considered insignificant. Consequently, the NPS has determined that the Proposed Action “may affect, but is not likely to adversely affect” the Everglades bully, Florida prairie clover, and Florida pineland crabgrass.

4.6.1 Proposed Designated Critical Habitat

The proposed designated critical habitat unit for the Everglades bully, Florida prairie clover, and Florida pineland crabgrass that includes BICY totals 169,885 acres. Approximately 146,014 of these acres are within BICY, and 125,751 acres occur within the Action Area.

BICY will conduct surveys prior to reopening proposed trails and destination to ensure that no proposed designated critical habitat that also has documented occurrences of these species will be impacted by the Proposed Action. Suitable habitat for these species is limited in the Action Area and primarily occurs where the reopened ORV airboat trails and a portion of the proposed hiking trails and destinations occur. The majority of these areas have been previously disturbed by past and ongoing ORV/airboat use. The only areas that are not previously disturbed within the Action Area are the 84 miles of new hiking trail. Though the proposed new hiking trails are expected to be a permanent feature, opening hiking trails will require minimal to no vegetation removal/ground disturbance. Hiking after the trails are open is not an activity that is expected to degrade the area to such an extent that the PBFs identified in Section 3.1.4 will no longer be present.

In total, approximately 93.56 acres of proposed designated habitat is expected to be disturbed within the Action Area. This is only 0.07% of proposed designated critical habitat that occurs in the Action Area, and 0.055% of the total proposed designated critical habitat unit. After the reopening is complete, ongoing operations are not expected to significantly alter the baseline conditions of these previously disturbed areas to such an extent that if present, existing PBFs would no longer be available. Further, measures included above in the “Habitat Degradation” section will prevent reopened trails and destinations from becoming degraded, further protecting PBFs for these species.

Federal action agencies are only required to “confer” with the USFWS if an agency action is likely to result in “adverse modification” of proposed designated critical habitat. Given that impacts to proposed designated critical habitat will primarily occur in previously disturbed areas, will only impact 0.055% of the proposed designated critical habitat unit (as a worst case scenario), and because the NPS will implement avoidance and minimization measures to protect/maintain PBFs within the Action Area, the NPS has determined that the Proposed Action is “not likely to adversely modify” proposed designated critical habitat for the Everglades bully, Florida prairie clover, and Florida pineland crabgrass. In addition, for these same reasons, the

NPS has also determined that the Proposed Action “may affect, but is not likely to adversely affect” proposed designated critical habitat for these species.

4.7 CUMULATIVE EFFECTS

Cumulative effects are those effects of State or private activities, not involving Federal activities, that are reasonably certain to occur within the Action Area. All activities that occur within the boundaries of BICY would be subject to the park’s review/authorization. No significant changes to habitat are expected from private landowners. The southern portion of the Action Area overlaps with Everglades National Park. Because this is also federal land, activities that occur here would require consultation. The Action Area is bordered to the west by a State Forest and a State Park and to the east by wildlife management area. The park expects these areas will continue to be managed to conserve natural resources, including federally listed species and their habitats. A small portion of the northwest corner of the Action Area is adjacent to a national wildlife refuge. Activities on these lands would also be subject to consultation. The park is not aware of any state or private actions that are reasonably certain to occur within the northern portion of the Action Area that could cumulatively result in adverse effects to federally listed species or designated critical habitats in the Action Area.

5.0 ADDITIONAL SPECIES OF CONCERN

Ghost Orchid. Many orchids have become rare and endangered in Florida due to over-collecting. The ghost orchid has become a symbol of the South Florida landscape and is distinguished from other species by thin white marking dotting its roots. The species requires high humidity, mild temperatures, dappled shade, and the presence of a certain type of fungus, with which it has a symbiotic relationship. Roots of the ghost orchid cling tightly around the trunks of various trees, preferring deep swamps of pop ash and cypress, pond apple swamps, and palm trees. The species blooms in May to July. Habitat destruction, hurricanes, and hydrologic changes from human development in South Florida have contributed to the decline of the species, which is now protected in many public land areas, including the preserve (NPS 2020). The ghost orchid is only found in a few areas of the preserve and these areas comprise one of the largest remaining populations in the US, even though the population size is relatively small. If the species is identified during the reopening process for ORV trails, the trail would not be reopened and proposed trail alignments overlapping with new species documentations would be avoided. The NPS would avoid potential impacts by continuing to evaluate populations to ensure no unintended consequences occur to the species, avoiding habitat whenever possible, and identifying periods for certain trails to incorporate into targeted closures.

Monarch Butterfly. The monarch butterfly (*Danaus plexippus*) is a candidate species and not yet listed or proposed for listing under the ESA. Candidate species are species for which the USFWS has sufficient information on their biological status and threats to propose them as endangered or threatened under the ESA, but development of a proposed listing regulation is precluded by other higher priority listing activities. Monarch butterflies primarily lay their eggs

on milkweed (*Asclepias* species) during the breeding season (USFWS 2022e). Larval stages feed on the host milkweed plant. The species requires diverse breeding and migration nectar sources. The South Florida population is generally non-migratory, although it may incorporate migratory individuals. Suitable roosting area, including a variety of tree species, is required for overwintering and migratory sheltering. Monarch habitat includes prairies, meadows, grasslands. Impacts to monarch habitat are limited because the majority of vegetation impacts occur in previously disturbed areas. The monarch butterfly is a mobile species and individuals are expected to relocate from areas of active maintenance and construction activities to adjacent habitat, which is abundant within the preserve. After trail maintenance and construction is complete, individuals would be able to return to the original habitat.

6.0 CONCLUSION

The biological assessment and findings are based on the best current data and scientific information available. Effects to federally listed species and critical habitats are summarized in Table 7. Based on the current conditions within the Action Area that include ongoing noise/vibration from ORVs, hikers, campers, etc., previous habitat disturbance, and the minimal amount of direct impact to habitat, (266.4 acres); the NPS has determined that the Proposed Action “may affect, but is not likely to adversely affect” 14 federally listed/proposed species and 4 proposed designated critical habitats.

A new analysis and revised biological assessment must be prepared if one or more of the following occurs: (1) new species information (including, but not limited to, a newly discovered activity area or other species information) reveals effects on threatened, endangered, candidate, or proposed species or designated/proposed critical habitat in a manner or to an extent not considered in this assessment; (2) the action is subsequently modified or is not fully implemented as described herein, which causes an effect that was not considered in this assessment; or (3) a new species is listed or critical habitat is designated that may be affected by the action that was not previously analyzed herein.

Table 7. Summary of Species Determinations

Common Name	Status	Stressor	Potential Effects	Conservation Measures	Determination	Justification
Florida bonneted bat	E	Collision/crushing; Habitat loss; Habitat degradation; Behavioral Changes	Injury/mortality; loss or degradation of suitable roosting and foraging habitat; disturbance that leads to changes in normal foraging and roosting behaviors	No removal of known or potential roost trees; a 1,000-foot buffer will be established around known roost trees and Annette's Pond; heavy equipment operation will cease 30 minutes prior to sunset; vegetation removal limited to 266.4 acres; trails clearly marked; trails closed/rehabilitated as necessary; nightly ORV trail closures	NLAA	Collision/crushing-discountable; Habitat loss, degradation, and behavioral changes-insignificant
	PCH	Loss of PBFs	Habitat no longer supports PBFs	No removal of known or potential roosts; vegetation removal limited to 266.4 acres	NLAA	No loss of PBFs anticipated; insignificant
Tricolored bat	PE	Collision/crushing; Habitat loss; Habitat degradation; Behavioral Changes	Injury/mortality; loss or degradation of suitable roosting and foraging habitat; disturbance that leads to changes in normal foraging and roosting behaviors	No tree trimming during the pup season; trail maintenance reduced during the breeding season and when temperatures are below 40F when feasible; vegetation removal limited to 266.4 acres; trails clearly marked; trails closed/rehabilitated as necessary; nightly ORV trail closures	NLAA; NLJ	Collision/crushing-discountable; Habitat loss, degradation, and behavioral changes-insignificant

Common Name	Status	Stressor	Potential Effects	Conservation Measures	Determination	Justification
Florida panther	E	Collision/crushing; Habitat loss; Habitat degradation; Behavioral Changes	Injury/mortality; loss or degradation of denning, hunting, and traveling habitat; disturbance that leads to changes in normal denning, hunting, and traveling behaviors	ORV speed limits; vegetation removal limited to 266.4 acres; trails clearly marked; trails closed/rehabilitated as necessary; nightly ORV trail closures	NLAA	Collision/crushing-discountable; Habitat loss, degradation, and behavioral changes-insignificant
Audubon's crested caracara	T	Collision/crushing; Habitat loss; Habitat degradation; Behavioral Changes	Injury/mortality; loss or degradation of foraging and nesting habitat; disturbance that leads to changes in normal foraging and nesting behaviors	ORV speed limits; vegetation removal limited to 266.4 acres; no cabbage palms removed; trails clearly marked; trails closed/rehabilitated as necessary	NLAA	Collision/crushing-discountable; Habitat loss, degradation, and behavioral changes-insignificant
Eastern black rail	T	Collision/crushing; Habitat loss; Habitat degradation; Behavioral Changes	Injury/mortality; loss or degradation of foraging and nesting habitat; disturbance that leads to changes in normal foraging and nesting behaviors	ORV speed limits; vegetation removal limited to 266.4 acres; trails clearly marked; trails closed/rehabilitated as necessary	NLAA	Collision/crushing-discountable; Habitat loss, degradation, and behavioral changes-insignificant
Everglade snail kite	E	Collision/crushing; Habitat loss; Habitat degradation; Behavioral Changes	Injury/mortality; loss or degradation of foraging and nesting habitat; disturbance that leads to changes in normal foraging and nesting behaviors	ORV speed limits; vegetation removal limited to 266.4 acres; trails clearly marked; trails closed/rehabilitated as necessary	NLAA	Collision/crushing-discountable; Habitat loss, degradation, and behavioral changes-insignificant
Red-cockaded woodpecker	E	Collision/crushing; Habitat loss; Habitat degradation; Behavioral Changes	Injury/mortality; loss or degradation of foraging and nesting habitat; disturbance that leads to changes in normal foraging and nesting behaviors	ORV speed limits; vegetation removal limited to 266.4 acres ; no large trees, or known/potential cavity trees removed; two trails in buffers will be closed during nesting; trails clearly marked; trails closed/rehabilitated as necessary	NLAA	Collision/crushing-discountable; Habitat loss, degradation, and behavioral changes-insignificant

Common Name	Status	Stressor	Potential Effects	Conservation Measures	Determination	Justification
Wood stork	T	Collision/crushing; Habitat loss; Habitat degradation; Behavioral Changes	Injury/mortality; loss or degradation of core foraging and rookery habitat; disturbance that leads to changes in normal foraging and nesting behaviors	ORV speed limits; wetland impacts limited to 51.36 acres; no direct impacts to rookeries; trails clearly marked; trails closed/rehabilitated as necessary, especially if a rookery becomes active	NLAA	Collison/crushing-discountable; Habitat loss, degradation, and behavioral changes-insignificant
American alligator	T(S/A)	Collision/crushing; Habitat loss; Habitat degradation; Behavioral Changes	Injury/mortality; loss or degradation of habitat; disturbance that leads to changes in normal foraging and nesting behaviors	ORV speed limits; vegetation removal limited to 266.4 acres; trails clearly marked; trails closed/rehabilitated as necessary	NLAA	Collison/crushing-discountable; Habitat loss, degradation, and behavioral changes-insignificant
American crocodile	T	Collision/crushing; Habitat loss; Habitat degradation; Behavioral Changes	Injury/mortality; loss or degradation of habitat; disturbance that leads to changes in normal foraging and nesting behaviors	ORV speed limits; vegetation removal limited to 266.4 acres; trails clearly marked; trails closed/rehabilitated as necessary	NLAA	Collison/crushing-discountable; Habitat loss, degradation, and behavioral changes-insignificant
Eastern indigo snake	T	Collision/crushing; Habitat loss; Habitat degradation; Behavioral Changes	Injury/mortality; loss or degradation of habitat; disturbance that leads to changes in normal foraging and nesting behaviors	ORV speed limits; vegetation removal limited to 266.4 acres; trails clearly marked; trails closed/rehabilitated as necessary	NLAA	Collison/crushing-discountable; Habitat loss, degradation, and behavioral changes-insignificant
Everglades bully	T	Crushing/trampling; Habitat loss, Habitat degradation.	Injury/mortality; loss or degradation of habitat	Avoid known locations; trails clearly marked; trails closed/rehabilitated as necessary	NLAA	Crushing/trampling-discountable; Habitat loss, degradation, and behavioral changes-insignificant
	PCH	Loss of PBFs	Habitat no longer supports PBFs	Avoid known locations within PDCH; vegetation removal limited to 266.4 acres; targeted trail closures	NLAA; NLAM	No loss of PBFs anticipated; insignificant

Common Name	Status	Stressor	Potential Effects	Conservation Measures	Determination	Justification
Florida pineland crabgrass	T	Crushing/trampling; Habitat loss, Habitat degradation.	Injury/mortality; loss or degradation of habitat	Avoid known locations; trails clearly marked; trails closed/rehabilitated as necessary	NLAA	Crushing/trampling-discountable; Habitat loss, degradation, and behavioral changes-insignificant
	PCH	Loss of PBFs	Habitat no longer supports PBFs	Avoid known locations within PDCH; vegetation removal limited to 266.4 acres; targeted trail closures	NLAA; NLAM	No loss of PBFs anticipated; insignificant
Florida prairie-clover	E	Crushing/trampling; Habitat loss, Habitat degradation.	Injury/mortality; loss or degradation of habitat	Avoid known locations; trails clearly marked; trails closed/rehabilitated as necessary	NLAA	Crushing/trampling-discountable; Habitat loss, degradation, and behavioral changes-insignificant
	PCH	Loss of PBFs	Habitat no longer supports PBFs	Avoid known locations within PDCH; vegetation removal limited to 266.4 acres; targeted trail closures	NLAA; NLAM	No loss of PBFs anticipated; insignificant
E=endangered, T=threatened, PE=proposed endangered; T S/A= threatened by similarity of appearance; PCH=proposed designated critical habitat; PBF=primary biological features; NLAA=not likely to adversely affect; NLJ=not likely to jeopardize; NLAM=not likely to adversely modify						

APPENDICES

APPENDIX A: ACRONYMS

BA	Biological Assessment
BICY	Big Cypress National Preserve
CFR	Code of Federal Regulations
DCH	Designated Critical Habitat
ESA	Endangered Species Act
FNST	Florida National Scenic Trail
FWC	Florida Fish and Wildlife Conservation Commission
GIS	Geographic Information System
GPS	Global Positioning System
IPaC	Information for Planning and Consulting
NPS	National Park Service
ORV	Off-Road Vehicle
PCH	Proposed Critical Habitat
PDCH	Proposed Designated Critical Habitat
USC	United States Code
USFWS	US Fish and Wildlife Service

APPENDIX B: USFWS OFFICIAL SPECIES LIST AND IPAC REPORT

-See enclosure-

APPENDIX C: LIST OF PREPARERS

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APPENDIX D: LITERATURE CITATIONS

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Florida Ecological Services Field Office



July 31, 2024

Tom Forsyth, Superintendent,
Big Cypress National Preserve
33100 Tamiami trail East
Ochopee, FL 34141-9710

Service Consultation Code: 2023-0019448

Date Received: February 27, 2024

Project: Big Cypress National Preserve
Backcountry Access Plan

Applicant: National Park Service

Counties: Collier and Monroe

Dear Mr. Forsyth:

The U.S. Fish and Wildlife Service (Service) has reviewed the National Park Service's (NPS) request for consultation dated February 27, 2024, and other information submitted by the NPS for the proposed Big Cypress National Preserve (BCNP) Backcountry Access Plan (Project). The Project provides management guidelines for backcountry access, use, and enjoyment by the public while protecting the natural and cultural resources within the Action Area. The NPS has determined that the proposed Project may affect, but is not likely to adversely affect the endangered Florida bonneted bat (*Eumops floridanus*; FBB) and its critical habitat (CH), the proposed endangered Tricolored bat (*Perimyotis subflavus*; TCB), the endangered Florida panther (*Puma concolor coryi*; panther), the threatened Audubon's crested caracara (*Caracara plancus cheriway*; caracara), the threatened Eastern black rail (*Laterallus jamaicensis jamaicensis*; EBR), the endangered Everglade snail kite (*Rostrhamus sociabilis plumbeus*; SNKI) the endangered Red-cockaded woodpecker (*Picoides borealis*; RCW), the threatened wood stork (*Mycteria americana*), the threatened American alligator (*Alligator mississippiensis*; alligator) the threatened American crocodile (*Crocodylus acutus*; crocodile), the threatened Eastern indigo snake (*Drymarchon couperi*; EIS), the threatened Everglades bully (*Sideroxylon reclinatum ssp. austrofloridense*) and its proposed critical habitat (pCH), the threatened Florida pineland crabgrass (*Digitaria pauciflora*) and its pCH, the endangered Florida prairie-clover (*Dalea carthagenesis floridana*) and its pCH. This letter is submitted in accordance with section 7 of the Endangered Species Act of 1973, as amended (ESA) (87 Stat. 884; 16 U.S.C. 1531 et seq.),

PROJECT DESCRIPTION

The Project provides increased public access to BCNP by reopening specified primary off-road vehicle (ORV) land trails, secondary ORV land trails, and ORV airboat trails along previously disturbed routes. Many of the routes to be reopened have been closed to public use since 2013 but are still in use by NPS staff and private landowners within BCNP. The proposed action would also open hiking trails on pre-existing and new routes, reopen multiple backcountry “destinations” (small sites suitable for camping or nature and wildlife viewing) and establish one new backcountry campground (a 2-acre area suitable for group camping but without any amenities or infrastructure) on a previously disturbed, elevated, and denuded former petroleum production site. The proposed action also provides management approaches for backcountry recreation. In total, the Project consists of reopening 14.6 miles of primary ORV trails, 52.9 miles of secondary ORV trails, 38 miles of airboat trails, and 122 miles of hiking trails that include a reroute of about 8 miles of the Florida National Scenic Trail (FNST), 87 new backcountry destinations, and one proposed backcountry campground (see summary in Table 1). The realignment of 8 miles of the FNST is being proposed to improve the backcountry experience of hikers by separating ORV and non-ORV users. After realignment, the FNST would total 44 miles within BCNP, along with 141 miles of general-purpose hiking trails. This Project would raise the total mileage of ORV trails in BCNP to 383 miles, the total number of backcountry destinations to 111, and the total number of backcountry campgrounds to 5. Permits for the operation of ORVs and airboats would continue to be capped at 2,000 per year. The proposed action does not include any actions on the currently opened trail system (motorized and nonmotorized).

According to the NPS Biological Assessment (BA) of the proposed action, primary ORV land trails are trails that emanate from designated access points and provide recreational access within BCNP. Primary ORV land trails are the principal motorized routes in the terrestrial portion of BCNP. Secondary ORV land trails branch off primary ORV land trails and lead to one or more backcountry destinations. Secondary trails are terrestrial out-and-back trails and do not connect one trail with another. Airboat trails are similar in function to primary ORV land trails but cover water routes. Airboat trails emanate from designated access points/trailheads and provide recreational access into and within those parts of the Action Area that are flooded for all or most of the year. Destinations are reached by a secondary ORV land trail. A backcountry destination is a specific campsite or geographic point of interest in the backcountry of BCNP. 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. The Project does not dictate the visitor activity at a destination; therefore, impacts were based on camping, with a camping stay limited to 14 consecutive days.

Trail/Destination Type		Open / Existing	Reopened / Proposed	Total	Unit
Primary ORV	Airboat	57	38	95	Miles
	ORV	220.5	14.6	235.1	Miles
Secondary ORV	ORV	0	52.9	52.9	Miles
Hiking Trails	General	27	114	141	Miles
	FNST	36	8	44	Miles
Destinations		24	87	111	Number
Backcountry Campground		4	1	5	Number

Table 1. Summary of Reopened/Open ORV and Airboat Trails, Proposed/Open Hiking Trails, Reopened/Opened Destinations, and Existing/Proposed Campgrounds.

Conservation Measures

1. Signs or other means would be used to protect sensitive resources on or adjacent to trails and destinations. Visitors would be informed of the importance of protecting the natural resources and leaving these undisturbed for the enjoyment of future generations.
2. The trail alignments are based on a geographic information system (GIS) analysis and extensive field observations. Final alignments are subject to additional ground truthing. Trails and destinations would be established in previously disturbed areas to the maximum extent possible. Final trail alignments and destinations would be reviewed by NPS's natural and cultural resources experts in the field to ensure impacts to sensitive resources are avoided 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 would be surveyed in more detail so that impacts can be avoided and/or an alternate route can be established. If the resource impact could not be practically avoided, the trail would remain closed/not reopened.
3. 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, would be timed to avoid sensitive periods, such as nesting or breeding seasons.
4. Overhanging vegetation would be hand-trimmed along the trails and destinations. No removal of trees > 8-inch diameter at breast height (dbh), snags 15 feet or higher, or any trees > 30 feet in height will occur. When feasible, tree trimming would be avoided on days when daytime ambient temperatures are below 40 degrees Fahrenheit to protect species.
5. 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.
6. Standard noise abatement measures would be followed during trail and destination improvements, reopening, and maintenance. Use of heavy equipment, including chainsaws, will cease 30 minutes prior to sunset. Standard noise abatement measures could include a schedule that reduces impacts on adjacent noise-sensitive resources. These measures would also include the use of electric power tools, and the use of the best available noise control techniques (wherever feasible).

7. If trail braiding, rutting, or widening is observed additional trail markings will be added to discourage off-trail use, the trail may be temporarily or permanently closed. In addition, BCNP may also implement spot repairs and/or recontouring. If BCNP determines that the trail should be re-routed and federally listed species/critical habitat could be affected in a manner or to an extent not previously considered, additional consultation with the Service will occur.
8. If invasive plant species are observed, standard measures would 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.
9. The NPS will implement targeted trail/destination closures to avoid potential impacts to special status species. Targeted closures will be adaptive and based on site-specific information and recommendations from NPS natural resource staff. Targeted closures may occur during species-specific sensitive timeframes and/or to avoid impacts to known/potential habitat.

Action area

For consultation purposes, the Action Area for the Project is defined as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action” (50 CFR §402.02). The BA used the greatest indirect impact, noise, to determine the extent of the Action Area. NPS used the noise from chainsaws to calculate the area since they emit the loudest noise (110 dBA) of all equipment used for the reopening or maintenance of any ORV trail, hiking trail, destination, or the backcountry campground. NPS drew a 18,930-foot buffer around these features to determine the Action Area. This buffer was based on the sound pressure attenuation rate of 6 dBA for every doubling of the distance. For the purposes of conducting a conservative analysis, the average parkwide ambient sound level of 34 dBA was used for the BA. To reach the ambient sound level of 34 dBA, a chainsaw measuring 110 dBA at 3 feet attenuates to 34 dBA at 18,930 feet. The proposed action is not expected to result in changes to the ambient noise level beyond 18,930 feet. Based on the inclusion of the currently opened trail system, proposed reopened ORV land and airboat trails, hiking trails, destinations, proposed backcountry campground, and incorporation of the 18,930-foot noise buffer, the Action Area encompasses 846,242 acres (see Figure 1 of the BA), some of which occurs outside of the BCNP boundary.

THREATENED AND ENDANGERED SPECIES

Florida bonneted bat and critical habitat

The Project lies within the consultation area of the FBB, with known occurrences across the entire Action Area and six known roost trees located in BCNP. BCNP has also been designated part of Unit 6 (Big Cypress Unit) of CH for the FBB, with approximately 530,790 acres of the CH unit occurring in BCNP and overlapping the Action Area (Service 2024). Clustering of acoustic data around certain areas in BCNP such as Annette’s Pond, combined with low roost tree detection probability, suggest there are more FBB roosts in BCNP than currently identified. According to the CH rule (89 FR 16624), the species prefers live or dead trees and tree snags,

especially longleaf pine, slash pine, bald cypress, and royal palm, that are on average 57 feet in height and with an average 15-inch dbh. They prefer trees that are emergent from the surrounding canopy and have sufficient unobstructed space, with cavities averaging 35 feet above the ground and roost trees averaging 14 feet from the nearest tree, to emerge from roost trees; this may include open or semi-open canopy and canopy gaps. FBBs in South Florida forage and breed year-round. Their highest activity occurs roughly a half hour before sunset when they emerge from roost trees and forage through the night, and then when they return to the roost roughly a half hour before sunrise.

The project could have multiple effects on FBB. Collision or crushing from ORV or maintenance equipment is possible, however any trail maintenance would take place during the daytime hours when FBB are not active, and the trail system will be closed from 10pm to 5am so injury due to collision or crushing is unlikely. The project will not affect any roosting trees but there may be a small amount of foraging habitat lost in the 266.4 acres of vegetation removal. A significant amount of available foraging area will remain undisturbed, including areas with known high bat foraging activity such as Annette's Pond, so this habitat loss should be insignificant to FBB. Habitat degradation should also be insignificant given the small acreage disturbed (0.04% of total habitat). Noise and vibration from ORVs and maintenance equipment could affect FBB, but FBB are found throughout the action area despite existing ORV trails with the same levels of activity. NPS does not anticipate a significant increase in noise or vibration from existing levels.

Unit 6 (Big Cypress Unit) includes 714,085 acres of FBB CH. Approximately 530,790 acres of this occur in BCNP and overlap the Action Area. The proposed action will impact no more than 266.4 acres of vegetation, the majority of which is previously disturbed. This disturbance is only 0.05% of the FBB CH in BCNP. Further, the proposed action will not remove any known or potential FBB roost trees. This small amount of impact is not expected to diminish the Physical Biological Features (PBFs) identified in the CH rule. No loss of roosting habitat will occur and habitat within the Action Area would still provide adequate prey and space for foraging.

Recognizing the widespread distribution of FBB in BCNP, and its sensitivity to light, noise and disturbance, the BA lists additional conservation measure specifically for the FBB and its CH to minimize effects from the Project:

1. NPS will not remove any known or potentially suitable FBB roost trees (including hazard trees).
2. NPS will buffer known roost trees by 1000 feet, which is the distance when noise disturbance attenuates to winter daytime sound level (34 decibels).
3. Due to the high level of FBB acoustic activity around Annette's Pond, a 1,000-foot buffer will also be established around the pond.
4. All trail maintenance involving heavy equipment, including chainsaws, will cease 30 minutes prior to sunset.
5. If new roosts are discovered that could be negatively affected by activities associated with the proposed action, the trail/destination will be closed and no longer open to the public.

Based on analysis of effects from collision/crushing, habitat loss, habitat degradation, and behavioral changes plus implementation of avoidance and minimization measures provided in the BA, the NPS has determined that the Proposed Action “may affect, but is not likely to adversely affect” the FBB and the Service concurs with this determination. Additionally, given that impacts to CH will primarily occur in previously disturbed areas, will only impact 0.05% of the CH in BCNP (as a worst-case scenario), and FBB roost trees will not be removed within the Action Area, the Service concurs with the NPS determination that the Project is “not likely to adversely affect” designated critical habitat for the FBB.

Tricolored bat

The Proposed Rule to designate the TCB as endangered was published in the Federal Register on September 14, 2022 (Service 2022b). In accordance with section 7(a)(4) of the ESA, the NPS is requesting to conference on the proposed action’s effects to the proposed endangered TCB. TCBs have been captured during mist-netting efforts in nearby Fakahatchee Strand Preserve State Park (FSPSP) and are regularly detected during acoustic survey efforts within the BCNP (FWC 2022). TCB are active year-round in BCNP and use a wide variety of trees for roosting, often roosting among live and dead leaf clusters of live or recently dead deciduous hardwood trees. TCB face the same impacts from the project as FBB: collision/crushing, habitat loss/degradation and increased noise and vibration.

Injury or mortality from a collision with maintenance equipment or ORVs is unlikely since maintenance activities will take place during the daytime hours when TCBs are less active, and ORV trails will be closed at night when TCBs are most active. Most vegetation removal and maintenance activities will be of short duration and intermittent, allowing the bats to move into another area during most of the year. TCBs are less likely to flee during the pup season. To protect female TCBs and nonvolant pups, BCNP will avoid tree removal during the TCB pup season (May 1 to July 15). When feasible, tree trimming would be avoided on days when daytime ambient temperatures are below 40 degrees Fahrenheit since winter roosting TCBs in torpor might be slow to respond to disturbance and unable to move trees. Lack of roosting, commuting, and foraging habitat is not a limiting factor for TCBs in BCNP. NPS states the proposed action will permanently impact no more than 266.4 acres of vegetation, most of which was previously disturbed. Though this habitat loss will be permanent, it is approximately 0.04% of the total TCB habitat available in BCNP and 0.03% of the Action Area. This small loss of potential foraging, roosting, and commuting habitat will have a negligible effect on TCBs, because a significant amount of available habitat will remain undisturbed in the Action Area and BCNP. The Service expects temporary and permanent impacts to TCB habitat from the action to be insignificant and unlikely to adversely affect TCBs.

Though noise/vibration is likely to be ongoing from maintenance and recreational use, exposure at any one location is expected to be periodic and temporary. NPS calculated the highest level of noise exposure from the actions in the plan at the decibel level of a chainsaw, which is comparable to that of a thunderstorm. TCBs are exposed frequently to thunderstorms and are unlikely to flush from roost trees at that intermittent decibel level. If new roosts are discovered that could be negatively affected by activities associated with the proposed action, the trail/destination will be closed. Noise and disturbance from periodic vegetation removal,

maintenance activities, and recreational use proposed under this plan could negatively affect TCB behavior, however, the Service expects it to only be of short duration and intermittent. TCBs are already exposed to some level of noise and disturbance from existing ORV, hiking, and dispersed camping use of BCNP and still occur throughout the Action Area, suggesting a tolerance to a low level of use related disturbance. The Service expects noise and disturbance effects on TCBs to be insignificant.

Recognizing the widespread distribution of TCB in BCNP, and its' sensitivity to light, noise and disturbance, the BA lists additional conservation measures specifically for the TCB to minimize effects from the Project:

1. To protect female TCBs and non-volant pups, the NPS will avoid tree removal and limb trimming during the TCB pup season (May 1 to July 15).
2. NPS will minimize trail maintenance activities to the greatest extent possible during the TCB breeding season (April 15 to August 15).
3. When feasible, tree trimming would be avoided on days when daytime ambient temperatures are below 40 degrees Fahrenheit.

Based on analysis of potential effects from collision/crushing, habitat loss, habitat degradation, and behavioral changes and implementation of avoidance and minimization measures, provided in the BA, the NPS has determined that the Proposed Action “may affect, but is not likely to adversely affect” the TCB and the Service concurs with this determination.

Florida panther

Panthers use the Action Area extensively for foraging and denning according to telemetry data from radio collared cats. Collision with maintenance vehicles or ORVs is unlikely due to the nighttime trail closure and BCNP has never documented a panther/ORV collision on existing trails. Habitat degradation and loss could occur during the reopening and ongoing operation phases of the plan, from opening and maintenance activities and from visitor use of the trails causing rutting, braiding etc. Habitat degradation is most likely to occur in the immediate area of the proposed impact footprint, so it is reasonable to assume that habitat degradation would only occur on approximately 0.03% of the Action Area and 0.04% of BCNP. Since heavily impacted areas will be closed or rehabilitated, this impact is considered temporary. Given that the proposed action will only impact 266.4 acres of habitat out of 846,242 acres, the potential for habitat loss and degradation negatively impacting the panther is unlikely. Additionally, the proposed action is not expected to result in any reduction of foraging habitat or prey for panthers. About 90% of panther diet is feral hog, white-tailed deer, raccoon, and armadillo (NPS 2022). The proposed action will result in no measurable reduction of these species. Based on the above considerations, habitat degradation is considered a temporary and insignificant effect.

Behavioral changes from disturbance could affect the panther in the Action Area during the daytime, as they stay in their dens mostly during the day. Florida panthers are likely accustomed to noise, vibration, and human activity in the Action Area due to existing trails, and because denning typically occurs in dense understory vegetation (unlikely to be close to a proposed trail). Panthers are not expected to alter their denning behavior because of the proposed action.

However, if any active dens are observed near trails/destinations, the trail will be closed. Foraging behavior is also likely unimpacted by the plan actions, since most activity will occur during daylight hours with the trails system closed every night between 10 a.m. and 5 p.m.

Based on analysis of potential effects from collision/crushing, habitat loss, habitat degradation, and behavioral changes, plus implementation of closures if denning is observed, provided in the BA, the NPS has determined that the Proposed Action “may affect, but is not likely to adversely affect” the TCB and the Service concurs with this determination.

Audubon’s crested caracara

Caracara have been observed in BCNP in the northern portion known as the Bear Island Unit and along State Road 29. Nesting has not been documented in BCNP. Caracara also face the same potential impacts: collision/crushing, habitat loss/degradation, noise and vibration. NPS has never documented a caracara injury from collision or crushing along existing trails. Vegetation removal will not include cabbage palms, which is the preferred nesting habitat for this species, so effects to potential nesting habitat will not occur. Caracaras most often utilize prairie habitat in the Bear Island Unit, which would require no vegetation trimming or maintenance under this plan, thus impacts to foraging habitat and injuries from collision with maintenance equipment are discountable. Behavioral changes could occur during the reopening and ongoing operations phases of the proposed action. Behavioral changes are expected if the presence of people and/or vehicles disturb foraging birds. This disturbance is most likely to occur due to noise and vibration from ORV land vehicles and airboats. ORV land vehicle and airboat operation is an ongoing activity within the Action Area. Though the total miles of ORV land and airboat trails will increase, the number of ORV permits issued each year will remain the same; therefore, an insignificant increase in noise/vibration from ORVs is expected. Exposure to noise is expected to be ongoing but short-term. In most cases, ORV noise, including airboats, would not last more than three minutes (the time a terrestrial vehicle is audible from a given point on the ground). The species regularly forages alongside developed roads with regular high-speed traffic on State Road 29 and Highway 41, suggesting a high tolerance to high-speed vehicular noise and traffic, while foraging. Impacts to foraging behavior would be insignificant. Changes in nesting behavior are discountable due to the lack of suitable nesting habitat within the BCNP.

If caracara nesting is observed in the Action Area, the NPS would close trails and destinations that occur within 1,000 feet of the nesting site during incubation and early nesting. Based on analysis of effects from collision/crushing, habitat loss, habitat degradation and behavioral changes provided in the BA, the NPS has determined that the Proposed Action “may affect, but is not likely to adversely affect” caracara and the Service concurs with this determination.

Eastern black rail

GIS data indicate a scattered presence of EBR habitat throughout BCNP, largely overlapping with areas of freshwater and non-forested wetlands. EBR also face the same potential impacts: collision/crushing, habitat loss/degradation, noise and vibration. Collision or crushing injuries are unlikely due to the secretive nature of the species, and its preference for dense vegetation. The proposed action will impact no more than 266.4 acres of vegetation, of which approximately

51.63 acres are wetland impacts. Though this impact will be permanent, it is less than 0.04% of the 135,300 acres of wetland that occur in BCNP. Therefore, ample EBR nesting and foraging habitat will remain available in BCNP and the Action Area. During ongoing operations, vegetation removal would only occur within the proposed impact footprint, as necessary for safety and natural resource protection and would not include any new loss of EBR habitat. Based on the above considerations, habitat loss is considered a permanent, but insignificant effect. Habitat degradation due to use would be temporary and insignificant given BCNP has committed to closing any area if it exhibits habitat degradation impacts such as braiding or rutting. Behavioral changes could occur during the reopening and ongoing operations phases of the proposed action. Behavioral changes are expected if the presence of people and/or vehicles disturb foraging or nesting birds. Foraging birds are more likely to move to nearby wetland habitats than nesting birds, but the BA states that if EBRs are observed nesting in an area that could be impacted by the proposed action, the area will be closed during the nesting season. Based on the above considerations, EBR behavioral changes would be considered temporary and insignificant.

Based on analysis of potential effects from collision/crushing, habitat loss, habitat degradation, and behavioral changes provided in the BA, the NPS has determined that the Proposed Action “may affect, but is not likely to adversely affect” the EBR and the Service concurs with this determination.

Everglade snail kite

SNKI have been observed in the Action Area, most commonly south of Highway 41, near several of the proposed reopened and opened ORV airboat trails. From 1996-2012, SNKIs were documented nesting in BCNP, but nesting has not been documented since 2012. GIS data indicate a scattered presence of SNKI habitat throughout BCNP, largely overlapping with areas of freshwater and non-forested wetlands. SNKI also face the same potential impacts: collision/crushing, habitat loss/degradation, noise and vibration. No documented collision or crushing injuries to SNKI have occurred along existing ORV trails. The proposed action will impact no more than 266.4 acres of vegetation, of which approximately 51.63 acres are wetland impacts. Though this impact will be permanent, it is less than 0.04% of the 135,300 acres of wetland that occur in BCNP. Therefore, ample nesting and foraging habitat will remain available in BCNP and the Action Area. During ongoing operations, vegetation removal would only occur within the proposed impact footprint, as necessary for safety and natural resource protection and would not include any new loss of SNKI habitat. Based on the above considerations, habitat loss is considered a permanent, but insignificant effect. Habitat degradation due to use would be temporary and insignificant given BCNP has committed to closing an area if it exhibits habitat degradation impacts such as braiding or rutting. Behavioral changes could occur during the reopening and ongoing operations phases of the proposed action. Behavioral changes are expected if the presence of people and/or vehicles disturb foraging or nesting birds. This disturbance is most likely to occur due to noise and vibration from airboats. Airboat operation is an ongoing activity within the Action Area. Though the miles airboat trails will increase, the total number of ORV permits issued each year will remain the same; therefore, a significant increase in noise/vibration from airboats is not expected. Exposure to noise is expected to be ongoing, but short-term. Foraging birds are more likely to move to nearby

wetland habitats than nesting birds, but this disturbance would likely be temporary and only have a minor effect on normal SNKI behaviors. However, as an added precaution, if SNKI are observed nesting in an area that could be impacted by the proposed action, the area will be closed during the nesting season.

Based on analysis of potential effects from collision/crushing, habitat loss, habitat degradation, and behavioral changes plus implementing avoidance and minimization measures, provided in the BA, the NPS has determined that the Proposed Action “may affect, but is not likely to adversely affect” the RCW and the Service concurs with this determination.

Red-cockaded Woodpecker

RCWs in south and central Florida including the BCNP population, were designated as essential support populations in the recovery plan (FWS 2003). Pine stands, or pine-dominated pine/hardwood stands, with a low or sparse understory and ample old-growth pines, constitute primary RCW nesting and roosting habitat. In BCNP, hydric slash pine (*P. elliotii* var. *densa*) flatwoods provide the preferred nesting and foraging habitat for the RCW (FWS 2019).

The Florida Fish and Wildlife Commission (FWC) surveys RCW populations around the state on a yearly basis. BCNP had 126 RCW clusters, with 92 considered active, 23 inactive and 8 that were not assessed according to the most recent report (FWC 2022a). The BA states there are currently 128 RCW clusters, with not all of them active, after the last field season. BCNP is one of the few support populations in this recovery unit that has met the recovery goal of 40 or more potential breeding groups, (FWS 2006), with a low but increasing population size growth rate (FWS 2019).

Similar to the other species, RCWs face potential project impacts from collision, habitat loss/degradation and noise/vibration. RCWs nest and forage currently in the Action Area without injury from collision or crushing, it is unlikely that would occur with reopened trails. Vegetation removal for reopening and maintenance of trails will not include any RCW roost trees or any likely foraging habitat so this potential impact will be discountable to RCWs. Habitat degradation could occur along the reopened trails, but the BA states trail usage within or near RCW clusters will be monitored by the BCNP’s natural resource staff. If an area appears to exhibit impacts such as excessive human disturbance (i.e., trash), rutting/braiding, sedimentation, or changes in hydrology that could lead to RCW habitat degradation, the area will be closed and/or rehabilitated. Habitat degradation is therefore a discountable impact to RCWs.

Behavioral changes from disturbance on the reopened and newly opened trails could occur the presence of people and/or vehicles disturb RCWs. This disturbance is most likely to occur due to noise and vibration from ORV land vehicles near RCW clusters #26 and #16. ORV use is an ongoing activity on existing trails, including near these two clusters. Given that there is ongoing noise and vibration from ORV traffic in these two areas, these RCWs are likely conditioned to noise/vibration, and proposed action is not expected to cause a significant change in behavior. However, as an added precaution, the BA states the two secondary trails in the vicinity of RCW clusters #26 and #16 will be closed to public access during the RCW nesting season. The Service expect behavioral changes from disturbance to be insignificant to the RCWs.

RCW protection measures in the Project include:

1. During the nesting season, NPS will avoid chainsaw use within RCW cluster buffers for clusters #26 and #16.
2. If new cavity trees are identified in an area that could be impacted by the Project in a manner not previously considered, the area will be closed.
3. Secondary trails within buffers will be closed to public access during the nesting season.

Based on analysis of potential effects from collision/crushing, habitat loss, habitat degradation, and behavioral changes plus implementation of avoidance and minimization provided in the BA, the NPS has determined that the Proposed Action “may affect, but is not likely to adversely affect” the RCW and the Service concurs with this determination.

Wood stork

There are seven wood stork rookeries that occur in the Action Area. Several wood stork rookeries are within 0.47 mile of reopened trails. Wood stork rookeries in BCNP are typically only used during periods of especially high water, which is likely the highest use period of the airboat ORV trails; however, all the rookeries are near existing trails that are currently open to the public and used regularly. Injury due to collision or crushing has never occurred on existing airboat trails so that is an unlikely threat to the wood stork from the project. There are approximately 90,588 acres of core foraging habitat within BCNP, compared to the 51.63 acres of wetland impacted by the Project, and foraging storks would likely avoid areas during vegetation removal. If trails show degradation from use, the BCNP will close them for rehabilitation. Therefore, temporary and permanent impacts from habitat loss thru vegetation removal and from trail use are insignificant as storks have ample foraging habitat within the Action Area to utilize.

Noise and vibration from airboat operation could impact wood storks, however all known rookeries within the Action Area occur in areas with existing noise and vibration. Four rookeries within the Action Area are on the eastern boundary of BCNP and are not close to any reopened ORV land or airboat trails or proposed hiking trails/destinations but could still be exposed to noise from the proposed action. However, these rookeries are adjacent to the L-28 canal used by the South Florida Water Management District, the L-28 Tieback Road, and the Dade-Collier Training and Transition Airport. When active, these colonies are likely conditioned to noise and vibration. Two rookeries occur in Stairsteps Zone 4 of BCNP. The Big Cypress Mitchell Landing rookery (just south of Loop Road) is near a reopened ORV airboat trail but is also adjacent to numerous intersecting ORV airboat trails that are currently open. The Service last recorded the Big Cypress Mitchell Landing as active in 2009. The status of the remaining rookery on the far southwest corner of BCNP is unknown; however, this rookery is also located in an area with several open airboat trails. Given the current exposure to noise and vibration, when wood storks are using these rookeries, they would not be expected to change nesting or foraging behaviors due to the proposed action. However, should one of these rookeries become active, the BA states that trails in the area will be closed while the rookery remains active. Changes in behavior due to the proposed action will be insignificant to the wood stork.

Based on analysis of potential effects from collision/crushing, habitat loss, habitat degradation, and behavioral changes provided in the BA, the NPS has determined that the Proposed Action “may affect, but is not likely to adversely affect” the wood stork and the Service concurs with this determination.

American alligator

In 1987, the American alligator was downlisted to Threatened status due to a similarity of appearance throughout the remainder of its range (52 FR 21059). Species listed under a similarity of appearance are not biologically endangered and are not subject to section 7 consultation. Listing by similarity of appearance depends on the degree of difficulty law enforcement personnel would have in distinguishing the species from a threatened species and where the additional threat posed to the threatened species by the similarity of appearance. Species listed under a similarity of appearance may be protected by the take prohibitions of section 9 under the ESA, where they overlap with the listed entity they were listed to protect. Therefore, there is no need for the Service to consult on alligators in the Action Area.

American crocodile

Although American crocodile occurrences have not been documented within the Action Area, the southern portion of Stairsteps Zone 4 occurs within the range of the species and is bordered to the south by Everglades National Park (ENP) which has confirmed crocodile presence. Mortality from airboat collisions has not been documented in ENP, and, if present in BCNP, crocodiles have been exposed to airboat traffic and noise from existing airboat trails. Crocodiles can readily move away from trails during use, reopening, and maintenance.

While crocodiles are known to occur, or have the potential to occur, throughout the Action Area, they most likely occupy habitat that overlaps with reopened ORV airboat trails. According to the BA, the reopening of 38 miles of airboat trails will only require approximately 55.27 acres of vegetation removal. This is only 0.006% of habitat within the Action Area and 0.008% of habitat within BCNP. Given that the proposed action will only impact a small percentage of available habitat in BCNP, ample foraging and nesting habitat for this species will remain available in BCNP and the Action Area. Based on the above considerations, habitat loss is considered an insignificant effect to the crocodile. Habitat degradation along airboat trails would be temporary and addressed as discussed in previous sections, overall habitat impacts for the crocodile would be insignificant given the large amount of habitat they can utilize beyond the trails. Behavioral changes could occur during the reopening and ongoing operations phases of the proposed action. Behavioral changes are expected to occur when the presence of people and/or airboats disturb crocodiles from noise and vibration. Airboat operation is an ongoing activity within the Action Area. Though the miles of airboat trails will increase, the number of ORV permits issued each year will remain the same; therefore, a significant increase in noise is not expected, and impacts to crocodile behavior will be insignificant.

Based on analysis of potential effects from collision/crushing, habitat loss, habitat degradation, and behavioral changes plus implementation of avoidance and minimization provided in the BA,

the NPS has determined that the Proposed Action “may affect, but is not likely to adversely affect” the crocodile and the Service concurs with this determination.

Eastern indigo snake

EIS are a rare occurrence in the Action Area, with only a few known occurrences inside BCNP. Much of the habitat within the Action Area is too wet for EIS to use for a significant portion of the year, but this is a cryptic species with a low detection rate and no reliable survey method exists for south Florida. There is likely more EIS presence than the few detections in BCNP indicate. Potential effects from the Project include collision/crushing with user ORV or maintenance vehicles, habitat loss and/or degradation, and behavioral changes associated with disturbance/vibration from either trail use or maintenance.

There have been no documented occurrences of ORVs colliding with EIS in BCNP. All ORV users are required to have a permit, complete the on-line ORV operator course, and adhere to authorized speed limits (15 mph); therefore, collisions between EIS and ORVs are unlikely to occur because they will move from an area as vehicles approach to avoid collision. Collision impacts to EIS should be discountable in the Action Area. As stated above. Much of the habitat within the Action Area is too wet for EIS to use for a significant portion of the year; however, at most, the proposed action will impact 266.4 acres of potential habitat for this species, or approximately 0.04% of habitat within BCNP and 0.03% of the Action Area. Given that the proposed action will only impact a small percentage of available habitat in BCNP, ample foraging and nesting habitat for this species will remain available in BCNP and the Action Area. Based on the above considerations, habitat loss and/or habitat degradation is considered an insignificant effect.

Based on analysis of potential effects from collision/crushing, habitat loss, habitat degradation, and behavioral changes provided in the BA, the NPS has determined that the Proposed Action “may affect, but is not likely to adversely affect” the EIS and the Service concurs with this determination.

Everglades bully

The Everglades bully is present within the Action Area. Most of these plants occur in the Stairsteps Zones 3 and 4 and occurs near several proposed reopening airboat trails. According to the BA, proximity of the plants to trails will be verified prior to reopening to ensure that no occurrences are in proposed trails. Potential stressors to the Everglades bully include crushing/trampling, habitat loss and habitat degradation during reopening and ongoing operational phases of the Project from vegetation removal, heavy use impacts such as braiding or rutting from users, disturbance by users that leave designated trails, and spread of invasive plants that could compete with the Everglades bully.

Habitat loss and degradation could occur during the reopening and ongoing operation phases of the proposed Project. However, because the proposed action will only impact 266.4 acres of habitat out of 169,885 acres, the potential for habitat degradation negatively affecting the Everglades bully is unlikely given the remaining suitable habitat available in BCNP.

Prior to any trail or destination opening, qualified NPS staff will survey the area for Everglades bully, and if observed, the trails/destinations will be sited to avoid the occurrence by a 150 feet buffer or will not be reopened. Additionally, all trails, destinations, and the backcountry campground will be clearly marked to prevent off-trail use or use beyond established areas. If new plants are discovered in recently opened areas, BCNP will close the area.

Based on analysis of potential effects from habitat loss and habitat degradation, provided in the BA, the NPS has determined that the Proposed Action “may affect, but is not likely to adversely affect” the Everglades bully and the Service concurs with this determination.

Florida pineland crabgrass

The Florida pineland crabgrass is present within the Action Area and is known to occur near several proposed reopening airboat trails. According to the BA, proximity of the plants will be verified prior to reopening to ensure that no occurrences are in proposed trails. Potential stressors to the Florida pineland crabgrass include crushing/trampling, habitat loss and habitat degradation during reopening and ongoing operational phases of the Project from vegetation removal, heavy use impacts such as braiding or rutting from users, disturbance by users that leave designated trails, and spread of invasive plants that could compete with the Florida pineland crabgrass.

Habitat loss and degradation could occur during the reopening and ongoing operation phases of the Project. However, because the proposed action will only impact 266.4 acres of habitat out of 169,885 acres, the potential for habitat degradation negatively affecting the Florida pineland crabgrass is unlikely given the remaining suitable habitat available in BCNP.

Prior to any trail or destination opening, qualified NPS staff will survey the area for Florida pineland crabgrass, and if observed, the trails/destinations will be sited to avoid the occurrence by a 150 feet buffer or will not be reopened. Additionally, all trails, destinations, and the backcountry campground will be clearly marked to prevent off-trail use or use beyond established areas. If new plants are discovered in recently opened areas, will close the area.

Based on analysis of potential effects from habitat loss and habitat degradation, provided in the BA, the NPS has determined that the Proposed Action “may affect, but is not likely to adversely affect” the Florida pineland crabgrass and the Service concurs with this determination.

Florida prairie-clover

The Florida prairie-clover is present within the Action Area. There were previously four known populations of Florida prairie-clover present in BCNP, but only one population is known to remain within BCNP. While the population does occur within the Action Area for the Project, it does not occur within the footprint of any proposed trails or destinations. Potential stressors to the Florida prairie-clover include crushing/trampling, habitat loss and habitat degradation during reopening and ongoing operational phases of the proposed Project from vegetation removal, heavy use impacts such as braiding or rutting from users, disturbance by users that leave

designated trails, and spread of invasive plants that could compete with the Florida prairie-clover.

Habitat loss and degradation could occur during the reopening and ongoing operation phases of the Project. However, because the proposed action will only impact 266.4 acres of habitat out of 169,885 acres, the potential for habitat degradation negatively affecting the Florida prairie-clover is unlikely given the remaining suitable habitat available in BCNP.

Prior to any trail or destination opening, qualified NPS staff will survey the area for Florida prairie-clover, and if observed, the trails/destinations will be sited to avoid the occurrence by a 150 foot buffer or will not be reopened. Additionally, all trails, destinations, and the backcountry campground will be clearly marked to prevent off-trail use or use beyond established areas. If new plants are discovered in recently opened areas, will close the area.

Based on analysis of potential effects from habitat loss and habitat degradation, provided in the BA, the NPS has determined that the Proposed Action “may affect, but is not likely to adversely affect” Florida prairie-clover and the Service concurs with this determination.

Proposed Critical Habitat (pCH)

The pCH for the Everglades bully, Florida pineland crabgrass, and Florida prairie-clover includes one critical habitat unit totaling 169,885 acres, 74% of which overlaps the Action Area of the Project (125,751 ac). However, only 93.56 acres are expected to be disturbed within the Action Area (about 0.07% of the pCH within the Action Area).

Most areas of pCH that may be impacted have already been previously disturbed by past and ongoing usage, except for 84 miles of new hiking trails. However, the new hiking trails require minimal to no vegetation removal/ground disturbance that would negatively impact habitat despite its permanence after reopening, and therefore any disturbance by this action is determined to be insignificant and temporary in nature. Use of the trails is not expected to degrade the habitat to such an extent that the PBF’s will no longer be present for the habitat to persist.

Based on the information above and the avoidance and minimization measures in the BA, NPS has determined that the Proposed Action “may affect, but is not likely to adversely affect” pCH for the listed plant species and the Service concurs with this determination.

Communication with the Miccosukee Tribe of Indians of Florida (MTIF)

The MTIF requested a formal government-to-government (G2G) consultation with the Service as a result of the NPS’s consultation with the Service on this Project. The Service met with the MTIF on June 17, 2024, during which the MTIF expressed concerns that the Project will lead to an increase in nuisance/invasive species, particularly plants, and a decrease in the ability to manage invasives, as well as an increase in trail braiding, and an increase in difficulty surrounding the NPS’s enforcement ability of unauthorized trail use, and protection of natural and Tribal cultural resources. These concerns were also shared in the MTIF’s September 28,


2022, letter to the BCNP. Additionally, the MTIF expressed an interest in assisting the NPS with regards to the enforcement of unauthorized trail use. The Service is sharing the MTIF's concerns and their interest in working with NPS to alleviate their concerns as a result of our G2G meeting with the MTIF.

This letter fulfills the requirements of section 7 of the Act and further action is not required. If modifications are made to the Project, if additional information involving potential effects to listed species becomes available, or if a new species is listed, reinitiation of consultation may be necessary.

Thank you for your cooperation in the effort to conserve fish and wildlife resources. Should you have additional questions or require clarification regarding this letter, please contact Tammy Ash by email at: tammy_ash@fws.gov.

Sincerely yours,

**BONNIE
IRVING**

 Digitally signed by
BONNIE IRVING
Date: 2024.07.31 16:31:44
-04'00'

Bonnie Irving
Everglades Program Supervisor
Florida Ecological Services Office

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APPENDIX I: AFFECTED ENVIRONMENT REFERENCE MAP

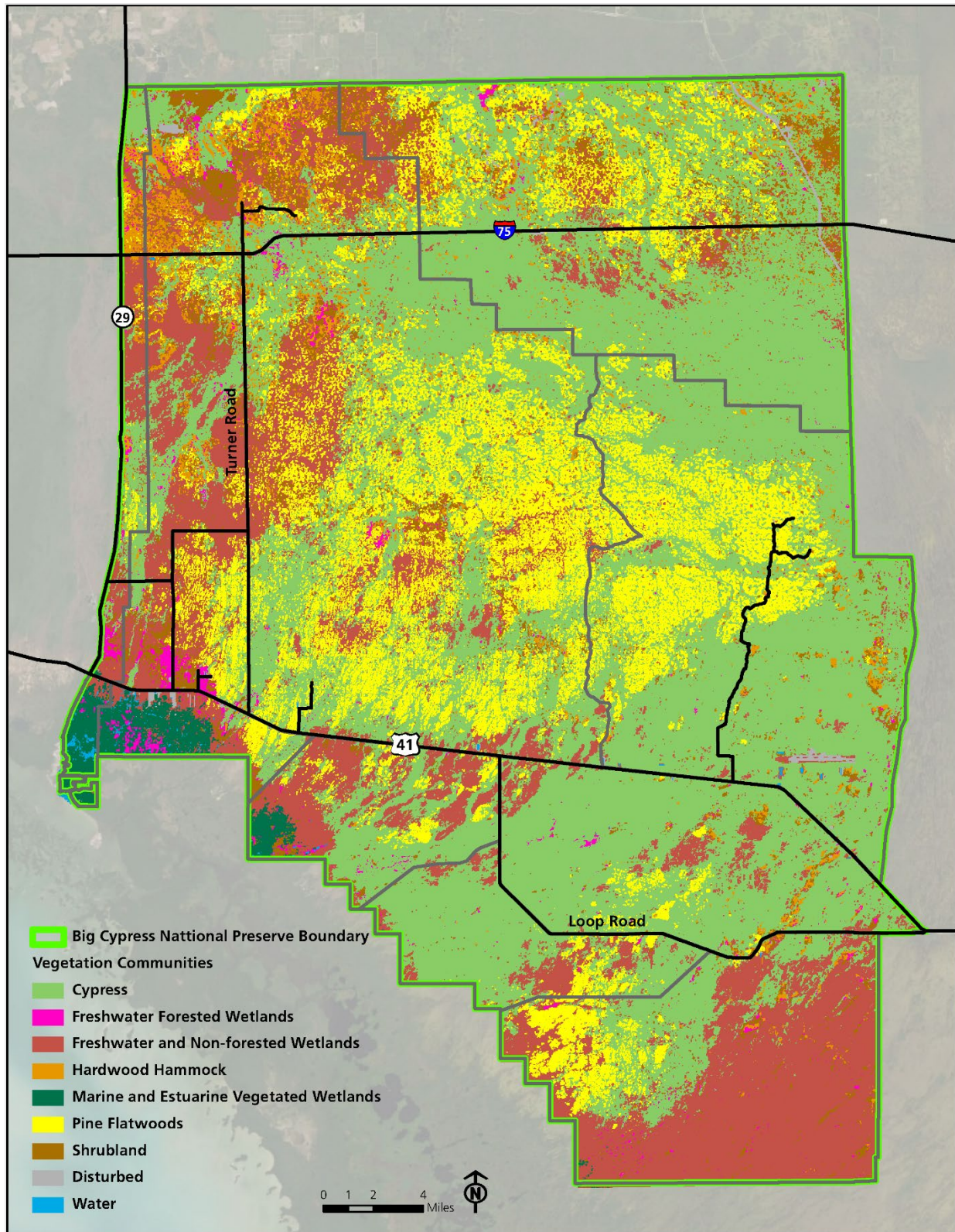


FIGURE I-1. VEGETATION COMMUNITIES WITHIN THE PRESERVE

APPENDIX J: RESPONSE TO PUBLIC COMMENTS

INTRODUCTION

Pursuant to NEPA and its implementing regulations, the NPS must assess and consider comments submitted on the Environmental Impact Statement (EIS) for the Big Cypress National Preserve Backcountry Access Plan / Wilderness Study (Final Plan/FEIS) and provide responses to concerns raised in these comments.

The Draft Plan/DEIS was made available for a 50-day public review from October 26, 2020, to December 15, 2020. During this time, three virtual meetings were held via webinar. The public was encouraged to submit comments through the NPS's Planning, Environment, and Public Comment (PEPC) website (<https://parkplanning.nps.gov/BICYBAP>). Comments were also accepted by hard copy correspondence. Public comment generally favored substantial revision of the Draft Plan/DEIS. The NPS agreed and decided to prepare a Supplemental Draft Plan/SDEIS to address the stated issues. The Supplemental Draft Plan/SDEIS was made available for a 45-day public review from August 12, 2023, to September 26, 2023. During this time, three virtual meetings were held via webinar. This report describes how the NPS considered public comments for both the Draft Plan/DEIS and Supplemental Draft Plan/SDEIS. The report includes comments received during and after the Supplemental Draft Plan/SDEIS public comment period and provides responses to substantive comments on both the Draft Plan/DEIS and Supplemental Draft Plan/SDEIS. An overview of public outreach during the comment period is provided in chapter 5 of the Final Plan/FEIS, as well as in topic 1 below.

DEFINITION OF TERMS

Primary terms used in this document are defined below.

Correspondence: A correspondence is the entire document received from a commenter. This includes letters, comments entered directly into the NPS PEPC website and any other written comments provided either by postal mail or in person at the preserve.

Comment: A comment is a portion of the text within a correspondence that addresses a single subject. It could include information such as an expression of support or opposition for an alternative, additional data regarding the existing condition, or suggestions for resource topics to be considered. Specifically, substantive comments are defined by the 2015 NPS *NEPA Handbook* as those that:

- question, with reasonable basis, the accuracy of the information in the NEPA document;
- question, with reasonable basis, the adequacy of the environmental analysis;
- present reasonable alternatives other than those presented in the NEPA document; or
- cause changes or revisions in the proposal.

Concern: Concerns are statements that summarize the issues identified in comments.

COMMENT ANALYSIS METHODOLOGY

All correspondence submitted by government agencies, Tribes, organizations, and members of the public are retained in the project record and were carefully reviewed and substantive comments were identified. The NPS then grouped similar comments together into 37 different concern statements arranged into 11 topics. Concern statements generally reflect individual subjects gleaned from multiple comments, which are presented as summaries or paraphrases of the original comments. If changes were made to the Final Plan/FEIS as a result of public comments, the location of the changes are noted in the response.

TOPIC 1: PUBLIC SCOPING

1.1 Concern Statement: Comment Clarification

Commenters requested clarity on the public and stakeholder comments during the scoping period.

NPS Response:

Big Cypress National Preserve first initiated public scoping for the Final Plan in the fall of 2013 through press releases, posts to the preserve website, and an announcement on the NPS Planning, Environment, and Public Comment (PEPC) website. In the spring of 2014, a notice of intent was also announced in the *Federal Register*. The NPS held public scoping open house events in the spring of 2014 (April 7–8, 2014) to receive input and inform the public on the development of draft alternatives. Overall, during the public scoping period, a total of 232 individual correspondences were received. The NPS 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.

After public scoping ended, the NPS 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 Final Plan/FEIS. 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 further evaluated in the DEIS.

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. Open house events were held on Wednesday, February 10, 2016, and on Thursday, February 11, 2016. 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. All public comments were then compiled and analyzed to assess the needs and values of the public.

The NPS released the Draft Plan/DEIS 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. Public comment generally favored substantial revision of the Draft Plan/DEIS. The NPS agreed and decided to prepare a Supplemental Draft Plan/SDEIS to address the stated issues.

The Supplemental Draft Plan/SDEIS was released for public review on August 12, 2023. The public comment period extended from August 12, 2023, to September 26, 2023. Public meetings were held online on August 29, 30, and 31, 2023. Comparatively few substantive comments were received during the comment period in response to the Supplemental Draft Plan/SDEIS. However, in the time since its release, the preserve has received numerous correspondence and comments, including from Tribes, state agencies, local governments, and congressional delegates, in strong opposition to any wilderness proposal. These were largely received outside of the public comment period. The NPS's responses to these comments and to relevant comments on the Draft Plan/DEIS are contained within this appendix.

TOPIC 2: COMPLIANCE WITH NATIONAL PARK SERVICE ORGANIC ACT

2.1 Concern Statement: NPS Organic Act

Commenters stated the NPS Organic Act should be followed regarding visitor use versus resource protection. They also state the NPS Organic Act should be referenced in the document, as this law provides the legal standard the NPS should meet.

NPS Response:

The NPS has added language to “Chapter 1: Introduction” to emphasize that the Final Plan/FEIS was developed in accordance with the Organic Act.

By enacting the Organic Act, Congress directed the US Department of the Interior and the NPS to manage units “to conserve the scenery, natural and historic objects, and wild life in the System units and to provide for the enjoyment of the scenery, natural and historic objects, and wild life in such manner and by such means as will leave them unimpaired for the enjoyment of future generations” (54 USC 100101). NPS *Management Policies 2006*, section 1.4.4, explains the prohibition on impairment of park resources and values as follows:

While Congress has given the Service the management discretion to allow impacts within parks, that discretion is limited by the statutory requirement (generally enforceable by the federal courts) that the Park Service must leave park resources and values unimpaired unless a particular law directly and specifically provides otherwise. This, the cornerstone of the Organic Act, establishes the primary responsibility of the National Park Service. It ensures that park resources and values will continue to exist in a condition that will allow the American people to have present and future opportunities for enjoyment of them.

Units of the national park system vary based on their enabling legislation, natural and cultural resources present, and mission. Likewise, the activities appropriate for each unit and for areas in each unit also vary. For example, an action appropriate in one unit could impair resources in another unit.

For the preferred alternative, a determination of non-impairment has been made for each of the impact topics carried forward for detailed analysis in the Final Plan/FEIS. This will be further emphasized in the Record of Decision for the Final Plan/FEIS.

2.2 Concern Statement: The Precautionary Principle

The NPS previously committed to applying a “precautionary principle,” which would favor resource protection over resource use in the bureau’s management of motorized recreational ORVs. The Backcountry Access Plan violates the precautionary principle.

NPS Response:

The precautionary principle was part of NPS Director’s Order 100: *Resource Stewardship for the 21st Century*, which was rescinded in 2017. However, as guided by the Organic Act and NPS policy, resource protection takes priority, but recreational use is allowed and encouraged to the extent resources remain protected. As the NPS says in the 2000 Recreational ORV Management Plan (page 29), “In all situations involving conflicts between resource protection and resource use, the [NPS] would decide in favor of resources protection.” This does not mean, however, that the NPS can only propose recreational uses that have zero impacts on preserve resources. Most recreational use degrades resources to some extent. Rather, the burden is on the NPS to show that the proposed level of recreational use prioritizes resource protection. The NPS did this in the Big Cypress National Preserve Addition GMP/Recreational ORV Management Plan and its analysis was upheld by the US Court of Appeals for the 11th Circuit (National Parks Conservation Assoc. v. Department of the Interior, 835 F.3d 1377, 1386 [11th Cir. 2016]). Chapter 4 of the Final Plan/FEIS similarly demonstrates that the level of recreational use outlined therein, while having limited adverse impacts, is fundamentally protective of preserve resources.

TOPIC 3: NEPA ISSUES

3.1 Concern Statement: Reasonable Range of Alternatives Considered

Commenters suggested that the NPS must consider a reasonable range of alternatives, including alternatives that would reduce recreational ORV use from the status quo and that would propose all eligible lands for wilderness designation.

NPS Response:

NEPA requires the NPS to consider a reasonable range of alternatives that are technically and economically feasible and meet the purpose and need of the proposed action (40 CFR 1508.1[hh]). Reducing trail mileage does not meet the purpose and need of the proposed action with respect to the dispersal of public use and maintaining public safety during hunting seasons. Regarding wilderness designation, the NPS is not required to include an alternative proposing that all eligible lands be designated wilderness when doing so would conflict with long-term land management goals. The NPS anticipates that in the coming decades it will need to use motorized tools and mechanized transport in large parts of eligible wilderness to combat invasive species. The NPS decided not to consider wilderness designation for lands it won't be able to effectively manage as wilderness for the foreseeable future. Table 2-1 in the Final Plan/FEIS has been amended to reflect this decision, which was referred to obliquely in section 2.13 of the draft SDEIS. Under the circumstances, the NPS believes that the range of wilderness alternatives in the Final Plan/FEIS is reasonable.

TOPIC 4: CONSISTENCY OF PROPOSED TRAIL SYSTEM WITH 2000 RECREATIONAL ORV PLAN

4.1 Concern Statement: Primary Trails

Commenters suggested that the preserve should open additional primary trails to reach the objective of 400 miles to comply with the 2000 Recreational ORV Management Plan. One commentor asked the NPS to confirm that the term "primary trails," as used in appendix E, refers only to "currently open primary trails" and not to the theoretical maximum number of primary trails identified in the 2000 Recreational ORV Management Plan but never built.

NPS Response:

The total number of miles for primary trails in the 2000 Recreational Off-Road Vehicle Management Plan was intended as a threshold, not an absolute target, as the plan states there would be "no more than 400 miles of designated primary trails." Components of the 2000 plan have been incorporated and affirmed. However, the Final Plan/FEIS makes clear that the new plan is amending (rather than "clarifying") the prior plan (section 1.4.1. There is no requirement to comply with the 2000 Recreational Off-Road Vehicle Management Plan in the new document, as the NPS regularly amends plans as new information becomes available and circumstances change.

The NPS has added language to appendix E clarifying that the term "primary trails" as used therein refers only to "currently open primary trails."

4.2 Concern Statement: Secondary Trails

Commenters suggested that the secondary trails are too close to private land. Commenters also express concern regarding the clarity of the definition and location of destinations for secondary trails.

NPS Response:

In accordance with park policy, a variance of 660 feet will be allowed when making determinations of backcountry locations of land and structures (NPS Memorandum L30 dated October 27, 1978).

Therefore, as part of this Final Plan/FEIS, the NPS is committed to locating all backcountry destinations at least 660 feet (0.125 mile) from privately held lands. 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.

Furthermore, per section 2.6.3 of the Final Plan/FEIS, 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.

Section 1.4.2 identifies two needs of the Final Plan/FEIS as follows: (1) to 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 and (2) to clarify definitions of key terms (e.g., primary trails, secondary trails, backcountry destinations) within the 2000 Recreational ORV Management Plan and the 2010 Addition GMP.

Accordingly, section 2.1 of the Final Plan/FEIS provides key terms relevant to all alternatives, including secondary ORV trail and backcountry destination. 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 on resources. NPS maintenance actions would generally be limited to the removal of obstacles (such as downed trees and branches), hand and mechanical trimming of vegetation obstructing the trail corridor, the treatment of invasive plant species, and sign installation. 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.

4.3 Concern Statement: Secondary Trail System.

Commenters suggested that the Final Plan/FEIS improperly adds a new system of secondary trails with undefined mileage, which violates applicable law.

NPS Response:

The new secondary trail system differs from the system envisioned in the 2000 Recreational ORV Management Plan. However, the Final Plan/FEIS makes clear that the new plan is amending (rather than “clarifying”) the prior plan (section 1.4.1). The NPS regularly amends plans.

The 2000 Recreational ORV Management Plan specifically states that “secondary trails would be identified to provide access to . . . specific destinations such as campsites” (p. 34). The system of secondary trails proposed in the Final Plan/FEIS is consistent with this approach. Moreover, the allowed mileage of secondary trails is not “undefined,” but is specifically set forth in the Final Plan/FEIS alternatives.

The 2000 Recreational ORV Management Plan states that “ORV use can occur only to the extent that it does not significantly adversely affect the preserve and its natural and cultural resources. Appropriate use of ORVs in this context, and the means for achieving that use, are provided in this plan.” (2000 Recreational ORV Management Plan, pages 9, 29). The Final Plan/FEIS follows the same approach. ORV use on the new proposed secondary trail system can occur only if the NPS demonstrates that (1) the new configuration is consistent with legal requirements of the Organic Act, Endangered Species Act, executive

orders, etc., and (2) the new system does not significantly adversely affect the preserve and its natural and cultural resources. So long as the NPS makes the necessary showing that the plan elements comply with applicable law, the Final Plan/FEIS can lay out appropriate use of ORVs and the means for achieving that use. That showing is made in chapter 4 of the Final Plan/FEIS.

4.4 Concern Statement: Secondary ORV Trails as de Facto Primary ORV Trails

Commenters suggested that under the 2000 Recreational ORV Management Plan, the NPS cannot allow secondary trails to access recreational destinations and thereby become the equivalent of primary trails. The 2000 Recreational ORV Management Plan provided that secondary trails could only go to designated campsites at one of the preserve's designated campgrounds.

NPS Response:

The 2000 Recreational ORV Management Plan (page 34) specifically states that "secondary trails would be identified to provide access to . . . specific destinations such as campsites." The plan does not require that access be provided only to "designated campsites" at one of the preserve's eight designated campgrounds. But even if it did, the NPS is using the Final Plan/FEIS to formally amend the earlier plan (pages 1, 7).

The secondary trail system proposed by the Final Plan/FEIS is consistent with the 2000 Recreational ORV Management Plan in that it proposes a set of "in and out" trails that are short (as compared to the primary trails) and lead to specified recreational destinations. This is consistent with the management approach of the 2000 Recreational ORV Management Plan, which states that "secondary trails would be identified to provide access to . . . specific destinations such as camp sites. . . . Secondary trails would branch off primary trails and would receive less use. . . . Secondary trails for public recreational use accessing features such as designated campsites would extend a short distance from the primary trail" (2000 Recreational ORV Management Plan, page 34).

In fact, a clear distinction exists in the Final Plan/FEIS between primary and secondary trails. The distinction is based on the type and level of use, as well as the extent of active maintenance. Primary trails are the main transportation arteries for ORVs in the preserve and are actively maintained by preserve staff. Secondary trails receive less use, lead to a particular recreational destination, and are resilient enough not to need active maintenance.

4.5 Concern Statement: Secondary ORV Trail System and Court Orders

Commenters suggested that the establishment of the proposed secondary trail system would violate previous court decisions addressing ORV trails in the Bear Island Unit.

NPS Response:

The secondary ORV trail system in the Final Plan/FEIS is consistent with the approach of the 2000 Recreational ORV Management Plan, as well as with previous court rulings, in that the mileage of secondary trails is less than the mileage of the primary trails, and the secondary trails are short and lead to specific destinations identified on the preserve map. In any event, previous decisions in the Bear Island litigation were interpreting the 2000 Recreational ORV Management Plan, which the Final Plan/FEIS amends (section 1.4.1).

No judicial decision in the Bear Island litigation ruled that the NPS is absolutely prohibited from expanding the existing system of preserve trails; rather, previous decisions found that the NPS had failed to do the requisite impact analysis under NEPA before reopening certain Bear Island trails (*Defenders of Wildlife v. Salazar*, pages 60–61). It was the failure to comply with NEPA that led to the adverse decision for the NPS, not the reopened trails themselves. The court specifically noted that "expansion of ORV use

in the preserve does not inherently violate the (Big Cypress National Preserve) Establishment Act or the Organic Act” (Defenders of Wildlife v. Salazar, pages 64–65).

TOPIC 5: FLORIDA NATIONAL SCENIC TRAIL AND L-28 CANAL

5.1 Concern Statement: Florida National Scenic Trail Management

The Florida Trail Association requested the consideration of managing the FNST as an official corridor to protect against encroachment and preserve trail values. They also expressed support for alternative 3, given specific changes are included in the Final Plan/FEIS. These changes include additional access points along the FNST, the separation of secondary trails and the FNST, map edits, and access to potable water.

NPS Response:

The 1986 FNST Comprehensive Plan⁴ outlines the “musts,” including meeting laws, regulations, and higher order plans as mandated by law. Preserve staff have a long-established partnership with the Florida Trail Association in caring for and educating the public about FNST and hope this continues into the future.

Commenters requested that additional access points be provided along the FNST while also ensuring secondary trails are not collocated with the FNST. One of the stated purposes of the Final Plan/FEIS is to establish a permanent route for the FNST and other nonmotorized recreational opportunities. All action alternatives for the Final Plan/FEIS would realign the FNST 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, 8 miles longer than the existing alignment. In addition to the few instances where primary ORV trails intersect with the FNST, the NPS preferred alternative also includes several secondary ORV trails and destinations that are relatively close to but separate from the FNST. This should provide additional locations from which segments of the FNST could be accessed for trail maintenance and rescue efforts, as needed.

Comments indicated that the names of 10- and 13-mile camps are not accurately named in terms of mileage and can often lead to hikers under or overestimating the distance to camp. The preserve is in the process of ensuring mile markers are at the correct intervals. However, trail names would be formalized once they are cited during plan implementation.

Commenters requested the addition of Stephen’s Camp to the maps. Stephen’s Camp is accessible on foot, and the preserve intends for it to remain open. However, preserve staff will not maintain a motorized or nonmotorized trail leading to the camp. Hikers are free to explore throughout the preserve.

The availability of potable water, including the installation of pitcher pumps, is outside of the scope for this planning effort, as, per section 2.1, site development for backcountry destinations is limited to a sign or stake identifying the location of the destination. However, alternatives for potable water availability may be considered in the future. If pursued, additional compliance would be conducted, as needed, before implementation. In the case of pitcher pumps, preserve staff would need to establish a way to verify water quality on a recurring basis.

⁴ See http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5356779.pdf.

5.2 Concern Statement: Access from L-28 Canal

Two commenters stated that access to the preserve from the L28 must remain open in compliance with the Traditional Use Clause in the preserve's amended enabling legislation.

NPS Response:

Two primary ORV trails identified on the map for the preferred alternative (figure 2-4) lead to sections of the L-28 canal. One trail leads to the L-28 Tieback Canal (not depicted in figure 2-4), a point approximately 2.5 miles northeast of the Raccoon Point Oil Field, located near the terminus of Eleven Mile Road. The other trail leads to the L-28 Interceptor Canal, located in the Northeast Addition near I-75. Both points would continue to provide access to the ORV trail system that connects throughout the preserve. The Western Everglades Restoration Project is not anticipated to affect the use of these access points; however, the preserve does not have jurisdiction over canal access and can only ensure the presence of trails within the preserve's boundary. While modeling is still occurring, preserve staff do not anticipate any change to usability of the trails.

TOPIC 6: CAMPING RULES AND REGULATIONS

6.1 Concern Statement: Dispersed Backcountry Camping

Commenters requested clarification regarding rules governing dispersed backcountry camping, particularly within the Bear Island Unit and along secondary ORV trails.

NPS Response:

Under existing conditions, as provided in section 3.6.2 of the Final Plan/FEIS, backcountry camping is permitted only at designated campsites; dispersed camping within the Bear Island Unit is prohibited. The NPS preferred alternative (section 2.6.3) removes this restriction by stating, "dispersed backcountry camping via foot or nonmotorized vessel would be permitted throughout the preserve, including Bear Island." This section further clarifies the few restrictions pertaining to dispersed camping within the preserve.

Section 2.6.3 of the DSEIS states, "camping would be permitted anywhere along primary ORV trails as long as ORV's parked next to the designated trail did not block travel." While camping along secondary ORV trails is not an issue, secondary trails, in many cases, are too narrow to allow a parked buggy that would allow another buggy to pass. However, the NPS acknowledged the need to clarify that camping along secondary ORV trails is permitted.

The NPS has clarified language pertaining to dispersed camping in section 2.6.3 of the Final Plan/FEIS to read, "camping would be permitted along primary and secondary ORV trails as long as trails remain passable to other ORV users. ORVs parked alongside the designated trail must not block travel."

6.2 Concern Statement: 14 Consecutive Days Stay Limit

A commenter suggested that the 14 consecutive days stay limit needs additional clarification pertaining to equipment presence.

NPS Response:

Per section 2.5.4 of the Final Plan/FEIS, 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, meaning the 14-day limit applies to occupancy, regardless of camper

presence. If equipment is there, the site would be unavailable for others. This approach would increase destination turnover rate and prevent hunters from holding campsites for the entire hunting season.

Per the Superintendent's Compendium, hunters occupying a backcountry camp site may bring camping equipment onto the preserve after 8:00 a.m. one day before the opening of a specific hunting season and must remove camping equipment from the preserve before 6:00 p.m. one day after the above stated seasons end. Individuals who leave their camping equipment longer than 24 hours must visibly mark the equipment with their identification (name, address, telephone number). The information must be clearly visible with or on the camping equipment.

Backcountry camping in the preserve, either designated or dispersed, 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. While permits are required, no reservation system would be implemented for backcountry camping. Therefore, backcountry camping destinations would be claimed on a first-come, first-served basis.

TOPIC 7: MISCELLANEOUS MANAGEMENT ISSUES

7.1 Concern Statement: Nighttime Closure

Commenters were in favor of removing or modifying the nighttime ORV closure, stating that this closure makes getting to camp after work on Fridays difficult. Additionally, getting to a hunting site before sunup is also difficult. Commenters suggest modifying the closure hours from 11:00 a.m. or 12:00 a.m. to 3:00 or 4:00 a.m.

NPS Response:

In accordance with the Outdoor Lighting Management Plan, a voluntary parkwide lighting curfew will be established approximately between the hours of 10:00 p.m. and 6:00 a.m. The continuous use of exterior lights should be avoided during these hours, though the limited use of exterior lighting for immediate needs is to be expected. During the curfew period, all interior lights should either be turned off or window and door blinds should be closed to prevent light trespass outdoors.

Many wildlife species, including several special status species, are typically most active in the early evening/at night when foraging, hunting, and/or traveling occurs. During this time, they are most vulnerable to human interactions, including collisions, noise, and light impacts. As stated in section 4.7.2 of the Final Plan/FEIS, 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 tricolored bat, 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 nighttime hunting and would minimize campground noise from returning and departing ORVs.

7.2 Concern Statement: 60-day ORV Closure

Many commenters stated they were in favor of keeping the 60-day ORV closure (81%), while others were in favor of removing the 60-day ORV closure. Commenters in favor of the targeted closures requested a clear and timely method of communicating which trails would be closed and the time line. Another commenter requested the development of a methodology for closing and opening trails. Commenters who were against removing the 60-day closure stated this time allowed wildlife to move freely throughout Big Cypress National Preserve. Commenters requested that the NPS include a literature review summary as an appendix to the Final Plan/FEIS that identifies the studies the NPS has to document the lack of benefit of the 60-day closure at Big Cypress National Preserve and/or rebut the many studies about the adverse impacts of ORVs on wildlife.

NPS Response:

The annual 60-day closure in June and July was implemented as part of the 2000 Recreational ORV Management Plan to allow resources a time free from any pressures related to ORV/Airboat Use. This closure was based on supposition using best management practices at the time. Big Cypress National Preserve staff do not possess any data that show a direct correlation between the existing 60-day closure and a material benefit to wildlife. As identified in section 2.6.7 of the Final Plan/FEIS, this annual 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, extensive trail braiding, or wildlife impacts. The use of targeted closures would increase access while still giving resources the opportunity to recover, as needed, from pressures related to ORV use. Targeted closures would be adaptive and based on site-specific information and recommendations from NPS natural resource staff. 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.

Removing the annual 60-day closure for ORVs is not expected to adversely affect resources because (1) the summer months typically receive the lowest visitation at the preserve due to the heat and humidity, and (2) ORVs would remain on designated trails, which would be situated on resilient substrates. Furthermore, the implementation of targeted closures is expected to be more beneficial to special status species (e.g., Florida panther, Florida bonneted bat) than the 60-day seasonal closure, as targeted closures would be informed by NPS staff with specific knowledge of sensitive areas and species. Targeted closures may occur during species-specific sensitive time frames and/or to avoid impacts on known/potential habitat.

The annual closure would not be reinstated unless observation of adverse impacts demonstrated that the resumption of the closure would have a beneficial impact on preserve resources.

7.3 Concern Statement: Minors Operating ORVs

Some commenters were in favor of reducing the minimum age requirements for ORV operators.

NPS Response:

Big Cypress National Preserve assimilates State of Florida Title 23, Motor Vehicles; Chapter 316, State Uniform Traffic Control related to minors operating an ORV.

To obtain an ORV permit for ORV use along designated ORV trails (<https://www.nps.gov/bicy/planyourvisit/designated-trail-implementation.htm>) in the preserve, three steps are required: obtaining an operator permit, an inspection sticker, and an annual vehicle permit. To get a permit for operating an ORV in the preserve, users must present their valid state driver's license or learner's permit. Those who have a learner's permit must be accompanied by a licensed adult 18 years or older (while operating an ORV) who also possesses a Big Cypress National Preserve ORV operator permit. Unlicensed drivers are not permitted to operate ORVs at the preserve.

Operators under the age of 16 while operating an all-terrain vehicle on public land or roads in Florida must have proof of completion of a Florida Department of Agriculture and Consumer Services safety course and must be supervised by an adult (State of Florida Title 23, Chapter 316, § 261.20).

7.4 Concern Statement: Additional Vehicle Types

Several commenters expressed support for the use of street-legal 4x4 vehicles on additional ORV trails not outlined in the Final Plan/FEIS, such as within the Turner River Unit.

NPS Response:

Section 2.6.6 of the Final Plan/FEIS states, “street legal vehicles would be allowed on above-grade primary ORV trails (former tram or agricultural roads) in the Bear Island Unit and Northeast Addition but would be prohibited on at-grade primary ORV trails and all secondary ORV trails.” Street-legal vehicles are generally not built for the conditions that typically occur along other ORV trails in the preserve. Stuck vehicles would have the potential to further damage natural resources along the trail and would require preserve staff to devote limited resources to extract vehicles.

7.5 Concern Statement: ADA Access

Commenters requested more ADA access- friendly trails and expressed concern regarding the number of trails with ORV access.

NPS Response:

Many kinds of devices improve mobility for the one in four Americans with a disability (from walkers, canes, crutches, or braces to traditional manual or power wheelchairs and off-road mobility wheelchairs or electric scooters).

The ADA definition of a wheelchair (Title V section 508c) is a manually operated or power-driven device designed primarily for use by an individual with a mobility disability for the main purpose of indoor or of both indoor and outdoor locomotion.

Mobility device technology has come a long way in recent years, spanning a variety of shapes, sizes, and capability in varied terrain. Those devices that meet the definition of a wheelchair are allowed anywhere foot travel is allowed in our national parks, and this includes the opportunity to participate in wilderness experiences.

The NPS practice is to provide users with the information necessary (on signs and in literature) to make decisions on their own abilities related to trail condition. Opening the secondary ORV trail system will provide significantly more access to the preserve for mobility-impaired users than current conditions.

7.6 Concern Statement: Mountain Biking

Commenters expressed support for including trails specifically designated for mountain bikes.

NPS Response:

Section 2.3 of the Final Plan/FEIS states that bicycles and e-bikes would be allowed on primary and secondary ORV trails, to the extent authorized by the Superintendent’s Compendium.

The superintendent identified the following trails for bicycle use in 2021 after a planning process that evaluated the impacts of bicycle use on each trail pursuant to 36 CFR 4.30:

- Designated ORV trails
- Bear Island Grade, including within the addition lands
- The Fire Prairie Trail
- Noble’s Grade Trail

Section 2.3 further states that trail routes for each alternative are shown in figures 2-1, 2-2, and 2-3. Because primary and secondary trail 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 (section 2.2). 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 (section 2.11). 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 2.10; impacts on 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.

7.7 Concern Statement: Enforcement/Security/Personnel

Commenters expressed support for additional enforcement at the preserve for campground areas and for nighttime closures. However, they also expressed concern regarding the ability to hire/pay for additional personnel.

NPS Response:

The Big Cypress National Preserve Division of Resource and Visitor Protection is responsible for law enforcement, emergency medical services, dispatch, search and rescue, fire management, fees, and security of preserve facilities, buildings, and park-owned housing. Staffing levels are determined by budget allocated at the national level. The plan is unable to require additional enforcement without identifying associated funding. Preserve staff will continue to work within its fiscal environment.

While the preferred alternative would expand the miles of ORV trails, the number of ORV permits issued would not change. Per section 2.6.5 of the Final Plan/FEIS, ORV/airboat permits 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). While permit holders may be more dispersed, the maximum number of ORVs present would not change from current conditions.

To increase a presence in the backcountry, preserve staff have recently reinstituted the “trail patrol” program, a group of volunteers who will be in the backcountry providing additional support to the Visitor and Resource Protection team.

7.8 Concern Statement: Cost Recovery Program for Permits

Commenters expressed concern regarding references to a fixed fee for ORV special use permits and stated that a permit cost recovery program should be developed.

NPS Response:

The NPS has revised text in the Final Plan/FEIS to remove references to a fixed, unchanging fee for ORV and backcountry camping permits. Big Cypress National Preserve does use ORV fees to pay for both work and employees in the preserve and considers the need to raise fees periodically over time.

TOPIC 8: WILDERNESS AREAS

8.1 Concern Statement: Wilderness Study

Commentors on the DEIS requested a wilderness study be completed before moving forward with the Backcountry Access Plan.

NPS Response:

The NPS agrees that a wilderness study should be included with the Final Plan/FEIS. Accordingly, a wilderness proposal has been developed for each of the action alternatives. As stated in section 1.3.2 of the Final Plan/FEIS, 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 NPS revised and refined the 2015 wilderness eligibility assessment. The full 2021 Wilderness Eligibility Assessment is included in the Final Plan/FEIS as appendix E. Using this revised assessment, the NPS 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 2010 Addition Wilderness Study.

8.2 Concern Statement: Wilderness Designated Areas

Commentors requested that more of the eligible wilderness outlined in appendix E be included in the Final Plan/FEIS. Some requested that all eligible wilderness be proposed for designation in the Final Plan/FEIS. At the same time, other commentors asserted that none of Big Cypress National Preserve is eligible for wilderness designation by Congress and that doing so would complicate preserve staff's ability to manage resources effectively.

NPS Response:

According to the 2021 Wilderness Eligibility Assessment provided as appendix E of the Final Plan/FEIS, a total of 257,762 acres of the 599,691 acres assessed meet the eligibility criteria in the Wilderness Act for wilderness designation. Section 2.12 of the Final Plan/FEIS discusses how only Congress can formally designate lands as wilderness. The wilderness study serves as the basis for any wilderness recommendation that the president may submit to Congress, should they choose to do so.

Using a variety of considerations that are detailed in section 2.12 of the Final Plan/FEIS, the wilderness study considered a range of alternatives for wilderness designation, including a "no wilderness" alternative. The wilderness alternatives were then combined with the alternatives in the Backcountry Access Plan, based on the overarching concept of each alternative, resulting in 190,528 and 147,910 acres proposed for alternatives 2 and 3, respectively. Alternative 3 was the preferred alternative in the SDEIS and supported proposing 25% of the original preserve for wilderness designation by Congress. However, in the time since its release, the NPS has received numerous correspondence and comments, including from Tribes, state agencies, local governments, and congressional delegates, in strong opposition to any wilderness proposal, with concerns centered on the effect a wilderness proposal and subsequent wilderness designation may have on resource management and access, including by Tribal members.

NPS Policy Memorandum 22-03 sets forth guidance on how the NPS will implement Secretary's Order No. 3403, *Joint Secretarial Order on Fulfilling the Trust Responsibility to Indian Tribes in the Stewardship of Federal Lands and Waters*. This policy states that the NPS will give due consideration to Tribal recommendations and Indigenous knowledge in the planning and management of federal lands and waters. Per Executive Order 13007, "Indian Sacred Sites," the NPS will, to the greatest extent practicable, accommodate access to and the ceremonial use of Indian sacred sites by Indian religious practitioners and avoid adversely affecting the physical and spiritual integrity of such sacred sites; collaborate with Indian and other traditionally associated peoples who have identified sacred sites within units of the national park system to prepare mutually agreeable strategies for providing access; and enhance the likelihood of privacy during religious ceremonies.

Through formal consultation and informal discussions, it became apparent that the Tribes would not recommend nor support proposing or designating wilderness within the preserve. Their primary concern was that a wilderness proposal would risk the exclusion of Tribal members from accessing ceremonial

grounds and sacred sites on wilderness lands by motorized means. Furthermore, respecting the legislated customary and traditional uses afforded to the Tribes, as well as out of respect for privacy of the Tribes during traditional practices, the NPS is unable to ascertain the frequency of use or routes that Tribal members take to access wilderness-eligible areas for customary uses. In other words, the amount and extent of motorized use in wilderness-eligible areas by Tribal members is unclear.

The NPS also acknowledges the need to routinely access and/or take management actions on wilderness-eligible lands for resource management purposes, such as wildland and prescribed fire, invasive species management, and ecological restoration, including future manipulations to restore a more naturally functioning hydrologic regime. While many of these activities would not typically be an issue because the NPS retains the management flexibility to act as necessary to preserve wilderness character provided the minimum activity is used, not proposing the lands as wilderness would likely provide the NPS with some greater degree of management flexibility to address resource management concerns in eligible wilderness. For this reason, as well as the continued access of wilderness-eligible areas by Tribal members via motorized means, the lack of clarity as to the frequency and extent of such access, and the concerns expressed by the Tribes regarding their continued access, the NPS incorporated alternative 4 into the Final Plan/FEIS (section 2.7), which is identical to alternative 3 minus the wilderness proposal. Alternative 4 is identified as the NPS preferred alternative in the Final Plan/FEIS.

Under alternative 4, wilderness-eligible lands would continue to be managed to preserve their eligibility for designation, but any future actions proposed to occur on these lands would be exempt from applying the concept of “minimum requirement.” The NPS acknowledges the concern that this would allow greater adverse impacts on wilderness character from potential future actions, but any adverse impacts should be temporary and/or removable. The lands remain protected by the NPS Organic Act and subject to NPS management policies, under which the NPS routinely mitigates for impacts on preserve resources, and the land would be managed to preserve its wilderness eligibility pursuant to NPS policy. Further, while no wilderness would be proposed, the wilderness study helped inform where to place certain activities, such as ORV use, in a way that is sustainable over the long term without affecting the integrity of the most delicate and primitive areas of the preserve. As a result, there are no wilderness-eligible lands in conflict with routes that would be authorized for ORV traffic.

TOPIC 9: ENVIRONMENTAL IMPACTS

9.1 Concern Statement: Soils

Commenters suggested that the discussion of soil suitability was lacking data and suggested connecting soil type and soil suitability. They also claimed the NPS assertion that all proposed trails in the preferred alternative are “currently disturbed” or that they mostly avoid unsuitable or least-resilient habitat is erroneous.

NPS Response:

Section 2.2 of the Final Plan/FEIS discusses the methodology used for determining substrate suitability. The NPS used the latest remotely sensed vegetation data to categorize habitat types and identify the likely substrates underlying routes and destinations. The NPS also 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 of the Draft Plan/DEIS.

For the in-person assessment, all previously proposed trails were traveled and the true route established to an accuracy of +/- 16 feet using global positioning system. The substrate suitability of the actual trail track was assessed rather than the general area through which it passed. In so doing, it was observed that in areas of deep soils, ORV trails typically stayed near 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 historical photography to assess the previous disturbance caused by ORV use on each of the trails still under consideration. 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 in the Final Plan/FEIS. Preserve staff do not expect significant braiding due to the substrate selections. However, if it occurred, the trail would be closed to allow for recovery.

9.2 Concern Statement: Wetlands

Commenters expressed concern regarding impacts on wetlands, stating impacts were not accurately quantified and do not include avoidance and minimization measures.

NPS Response:

Section 2.8 of the Final Plan/FEIS discusses activities required to implement the action alternatives, including potential impacts on wetlands. On primary ORV 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 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 a loss of wetland function and must be compensated for via mitigation within the preserve 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 the restoration or enhancement of wetland function in another.

As stated in section 2.10.4, 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 not feasible, would otherwise comply with Executive Order 11990, the Clean Water Act, and NPS 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 on wetlands and ensure no net loss of wetland area.

9.3 Concern Statement: Wetland Mitigation

Commenters expressed concern that the proposed adaptive management actions do not include mitigation measures that may be required to compensate for functional loss of wetlands.

NPS Response:

Section 2.10.4 states that 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 ORV trails. Mitigation measures presented in table 2.6 of the Final Plan/FEIS includes mitigation for fills/stabilization (see Indicator: Impacts on wetlands).

Section 2.8 states that on primary ORV 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 in wetlands would be authorized by permit before construction, as would (to the extent required) anticipated future rutting associated with the recreational and administrative use of the secondary trail system.

Permits have already been obtained by preserve staff to fill existing primary trails. Operations would comply with the conditions of those permits.

9.4 Concern Statement: Water Resources

Commenters expressed concern regarding the ORV trails, stating they would disrupt the hydrologic conditions within Big Cypress National Preserve. Other commenters stated they would like to see how this plan considers/connects with the Comprehensive Everglades Restoration Plan.

NPS Response:

Section 2.10.4 of the Final Plan/FEIS discusses the prevention of disruption to 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. If trail conditions eventually became degraded in areas and surface flow became altered, the indicator thresholds and adaptive management actions would be applied 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 the 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.

9.5 Concern Statement: Noise and Soundscape

Commenters stated that noise from campgrounds and ORV use were not adequately addressed.

NPS Response:

As stated in section 2.10.6 of the Final Plan/FEIS, 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).

Section 3.7 discusses human-generated sounds. 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.

Section 4.10.1 states that the audibility distance for ORV noise is generally 0.5–2 miles depending on background noise levels, vegetation cover, and type of ORV used. To ensure that ORV impacts on existing noise levels are kept to a minimum, the NPS requires ORV users to abide by certain vehicle specifications, as well as permitting and operational policies. Pursuant to the specifications of the 2000 Recreational ORV Management Plan, motorized vehicles (i.e., swamp buggies, ORVs, all-terrain vehicles, street-legal 4x4s, 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.

The Final Plan/FEIS impact analysis 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.

9.6 Concern Statement: Artificial Lights, Night Sky, and Impacts on Nocturnal Species

Commenters expressed concern regarding the impacts from artificial lights from campers and ORV users on protected species, including the Florida panther and the Florida bonneted bat. Commenters also expressed concern regarding the preserve’s night sky views.

NPS Response:

In October 2016, Big Cypress National Preserve was designated by the International Dark-Sky Association (now DarkSky International) as an International Dark Sky Place. As part of that process, preserve staff developed the Big Cypress National Preserve Outdoor Lighting Management Plan that specifies when, where, and for how long artificial lighting is necessary to achieve a basic level of safety, security, and convenience for NPS employees, residents, and visitors. This Backcountry Access Plan is consistent with the Big Cypress outdoor lighting guidelines described below. Lights on privately owned property are exempt from the guidelines outlined in the park’s Outdoor Lighting Management Plan.

In accordance with the Outdoor Lighting Management Plan, a voluntary parkwide lighting curfew will be established approximately between the hours of 10:00 p.m. and 6:00 a.m. The continuous use of exterior lights should be avoided during these hours, though limited use of exterior lighting for immediate needs is to be expected. During the curfew period, all interior lights should either be turned off or window and door blinds should be closed to prevent light trespass outdoors.

As stated in section 4.7.2 of the Final Plan/FEIS, 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 nighttime hunting and would minimize campground noise from returning and departing ORVs.

Appendix B of the Final Plan/FEIS dismisses night sky/lightscapes. Lighting is not a direct component of any of the proposed alternatives, and no measurable impacts on 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 Final Plan/FEIS.

9.7 Concern Statement: Climate and Water Resources

Commenters suggested that the NPS failed to analyze the adverse impacts of the Final Plan/FEIS that pertain to climate change, water quality, quantity, timing, distribution, and related impacts on the Greater Everglades ecosystem and the Comprehensive Everglades Restoration Plan.

NPS Response:

Secretarial Order 3355 directs Department of the Interior bureaus “to focus on issues that truly matter rather than amassing unnecessary detail.” It also directs bureaus to “discuss briefly issues that are not significant.” The impact topics addressed in the Backcountry Access Plan are those that could be impacted significantly by the proposed action in the Backcountry Access Plan. The impact topics pointed to by the commenter, while important in other contexts, are not likely to be significantly affected by the trail systems and other recreational provisions of the Backcountry Access Plan and hence need not be addressed in detail in the Final Plan/FEIS (see appendix B).

TOPIC 10: THREATENED AND ENDANGERED SPECIES

10.1 Concern Statement: Florida Panther

Commenters expressed concern for the Florida panther and stated the finding is not consistent with the biological opinion completed in 2010 for the Addition GMP.

NPS Response:

The biological opinion for the Addition GMP acknowledged that the cause of certain behaviors, such as movements away from ORV trails during hunting season, is not well-known and cannot be controlled when studying Florida panther in situ. As a result of this lack of certainty, the NPS agreed that a conservative approach to addressing the potential effects of implementing the Addition GMP’s preferred alternative would be to assume that the changes in human use of the Addition lands could create stressors that would elicit a response in panthers. This led to the determination of “may affect and is likely to adversely affect” the Florida panther in the addition lands. The biological opinion goes on to say that alterations in behavior have not been correlated with any change in reproductive success or survival in Florida panthers. The movements may, in fact, be more related to hydropatterns and prey movements as the wet season transitions to the dry season in south Florida. The biological opinion concluded that implementation of the proposed action for the Addition Lands is not likely to jeopardize the continued existence of the Florida panther.

The distinction between the Addition GMP and this Final Plan/FEIS is the former proposed opening of new primary trails where none previously existed, whereas the Final Plan/FEIS would reopen previously existing trails (section 2.6.1). Furthermore, the Final Plan/FEIS would not increase the number of ORVs authorized to operate within the preserve, whereas the Addition GMP resulted in new access.

The Biological Assessment (BA), as provided in appendix H of the Final Plan/FEIS, stipulates that actions proposed in the preferred alternative have the potential to affect Florida panthers. However, based on the current conditions within the Action Area, the implementation of avoidance and minimization measures, and the analysis of potential stressors, effects from collision/crushing are considered discountable, and

effects from habitat loss, habitat degradation, and behavioral changes are considered insignificant. Consequently, the NPS has determined that the proposed action “may affect, is not likely to adversely affect” the Florida panther. The USFWS concurred with this assessment on July 31, 2024.

Despite habitat disturbance due to increases in trail mileage and backcountry destinations, 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 the injury, mortality, extirpation, or loss of designated critical habitat important to special status species in the preserve, including those of the Florida panther.

10.2 Concern Statement: Impacts on Other Listed Species

Commenters expressed concern regarding impacts on other protected species, including, but not limited to, the Florida bonneted bat and its critical habitat, Big Cypress fox squirrel, red-cockaded woodpecker, wood stork, Eastern indigo snake, Cape Sable seaside sparrow, and rare plants such as ghost orchids, bromeliads, and the endangered Everglades crabgrass. Commenters suggested that the impacts on these species were not fully disclosed nor fully justified.

NPS Response:

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. Eleven 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. Section 4.7 of the Final Plan/FEIS examines the environmental consequences of the implementation of each alternative on special status species. The BA, as provided in appendix H of the Final Plan/FEIS, provides additional analysis for federally listed species.

The NPS obtained an official species list from the USFWS Information for Planning and Consultation database, then reviewed existing literature and remotely sensed GIS data, as well as field studies conducted by experts (e.g., planners, resource specialists, and biologists) to determine that 14 species are reasonably certain to occur in the Action Area. The preferred alternative in the Final Plan/FEIS was determined to have no effect on all other species. A “no effect” determination is made when (1) no suitable habitat occurs within the Action Area, (2) the Action Area is outside the known distributional range of the species (or species-specific data suggests the species would not be present in the Action Area), and/or (3) the species and its habitat will not be exposed to the potential stressors associated with the proposed action.

Per section 4.7.1 of the Final Plan/FEIS, two of the three federally listed plant species were determined to be affected by each alternative, including the no-action alternative, due to proximity to existing primary ORV trails. The NPS will maintain up-to-date information on Florida pineland crabgrass and Florida prairie-clover species and coordinate with staff managing trail maintenance to avoid impacts on individual plants from trail maintenance activities.

Five special status wildlife species—Florida panther, red cockaded woodpecker, Eastern indigo snake, Florida bonneted bat, and Eastern black rail—were determined to have the potential to be affected by the proposed alternatives and were therefore subject to detailed evaluation. This analysis can be found in section 4.7.2 of the Final Plan/FEIS.

The NPS has worked with the Florida Fish and Wildlife Conservation Commission (FWC) to incorporate strategies for the reduction of potential impacts on select species (section 4.7.2). However, 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 FWC before implementation of the Final Plan/FEIS.

TOPIC 11: DOCUMENT CLARIFICATION/EDITS

11.1 Concern Statement: Purpose and Need

One commenter expressed concern that the purpose and need of the Final Plan/FEIS was not supported and that maximizing access and a need for a secondary trail network was not clearly explained.

NPS Response:

The Executive Summary of the Final Plan/FEIS discusses the plan purpose and need. The purpose of the Final Plan/FEIS is to provide management guidelines for backcountry access and use while protecting the preserve's natural and cultural resources. The purpose and need is also intended to determine which parts of the original preserve, if any, should be proposed for wilderness designation by Congress.

One of the reasons the Final Plan/FEIS is needed is to evaluate potential alternatives for a secondary ORV trail network in the original preserve that provides access to backcountry destinations while protecting the natural and cultural resources of the preserve. The framework for the preserve's system of trails, including primary, secondary, and airboat, was initially identified in the 2000 Recreational ORV Management Plan. The Final Plan/FEIS formally amends the 2000 plan, as well as the 2010 Addition GMP, by (1) providing definitions of certain key terms (specifically, "primary ORV trail," "secondary ORV trail," "airboat trail," and "backcountry destination"), (2) modifying the nature and purpose of the secondary ORV trail system, and (3) giving supplemental management direction regarding backcountry recreation. A secondary trail network would provide safe and sustainable access to backcountry destinations and would be located and managed to protect the natural and cultural resources of the preserve.

11.2 Concern Statement: Description of No Action Alternative

Commenters expressed that the description of the no-action alternative was not accurately depicted. Commenters felt the no-action alternative mischaracterizes, did not consider, or was not consistent with the 2000 Recreational ORV Management Plan.

NPS Response:

The no-action alternative (alternative 1) is "no action" in the sense that it would continue current management rather than propose new actions or facilities. Under alternative 1, the NPS would continue to manage the backcountry in the preserve as it does now. Alternative 1 would, of course, have impacts on the human environment, and those impacts are described in chapter 4 of the Final Plan/FEIS. The purpose of including a no-action / continue current management alternative is to provide a baseline of impacts against which the impacts of the other alternatives can be compared.

Section 2.4 of the Final Plan/FEIS states that the no-action alternative 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 GMP/Final EIS (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. The no-action alternative provides a baseline for comparison in evaluating the changes and impacts of the other alternatives.

Section 1.4.1 discusses how the Final Plan/FEIS 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 Final Plan/FEIS includes a wilderness study to determine which parts of the original preserve, if any, should be proposed for wilderness designation.

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

11.3 Concern Statement: Cumulative Impacts

Commenters expressed concerns with the analysis contained in the cumulative impacts section of the Final Plan/FEIS as it is not consistent with the 2000 Recreational ORV Management Plan.

NPS Response:

Federal agencies have the responsibility of determining how and the extent to which cumulative impacts are assessed in NEPA documents and documenting that effort. Cumulative impacts are reviewed and discussed in section 4.3 of the Final Plan/FEIS. Within the Final Plan/FEIS, 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.

11.4 Concern Statement: Justification for Preferred Alternative

One commentor requested clarification regarding why preserve managers chose alternative 3 as the preferred alternative, considering it would have the most environmental impact of the evaluated alternatives.

NPS Response:

Due to significant opposition to the wilderness proposal included in alternative 3, alternative 4 (section 2.7) was developed and is identified as the preferred alternative in the Final Plan/FEIS. Alternative 4 is identical to alternative 3 minus the wilderness proposal. This distinction is responsive to concerns articulated by the Seminole and Miccosukee Tribes during Tribal consultation, in particular, their concerns that a wilderness proposal would risk the exclusion of Tribal members from accessing ceremonial grounds by motorized means. Alternative 4 is also responsive to concerns raised about having the flexibility to address resource management issues. Though no wilderness will be proposed under the preferred alternative, the wilderness study helped inform the NPS about where to place certain activities, such as ORV use, in a way that is sustainable over the long term without affecting the integrity of the most delicate and primitive areas of the preserve.

The rationale for the preferred alternative is provided in section 2.15 of the Final Plan/FEIS. Alternative 4 is the preferred alternative of the NPS because it (1) calls for increased access for both motorized and nonmotorized users, (2) achieves the best balance between increased public access and substrate sustainability, and (3) is responsive to the concerns expressed by the Seminole and Miccosukee Tribes during Tribal consultation. While this alternative does not include a wilderness proposal, areas identified as eligible for wilderness designation would continue to be managed to preserve their wilderness character. However, any future actions proposed to occur on these lands would be exempt from applying the concept of “minimum requirement.” This will provide the NPS with added flexibility to manage these areas in an ecologically responsible way while being mindful to maintain the area’s wilderness eligibility.

While alternative 2 would afford better protection of natural and cultural resources than the preferred alternative (and would thus be the environmentally preferable alternative), it proposes substantially fewer opportunities for recreation (i.e., use and enjoyment) than the preferred alternative and fails to meet one of the objectives of the proposed secondary trail network, which is to disperse motorized use during the hunting season to enhance visitor safety.

Both alternatives 3 and 4 (preferred) would best meet the stated need and objectives by dispersing visitor use among an increased number of primary ORV, secondary ORV, and airboat trails and destinations, thereby enhancing safety, especially during hunting season. At the same time, they concentrate use on the most resilient substrate types. Furthermore, by maintaining the existing ORV permit levels while expanding the network of trails, they would better disperse users, expand their choices for destinations, and reduce the intensity of natural resource impacts by dispersing use.

11.5 Concern Statement: Confusing Language

One commenter requested clarification in appendix D where, in one place, the NPS uses a ratio of “5 ORV users per 1 mile of trail” (i.e., 5:1); and in the other place the NPS uses a ratio of “5 miles of trail for each [backcountry] user” (i.e., 1:5).

NPS Response:

The NPS has corrected language in appendix D clarifying a “ratio of 5 backcountry users for every 1 mile of nonmotorized trail.”

APPENDIX K: LIST OF PREPARERS AND CONSULTANTS

The following individuals contributed to the preparation of this Final Plan/FEIS.

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Alan Ellsworth, former Acting Superintendent
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APPENDIX L: LIST OF RECIPIENTS OF THE FINAL PLAN/ ENVIRONMENTAL IMPACT STATEMENT

The NPS posted the Final Plan/FEIS on the NPS Planning, Environment, and Public Comment website for public comment. In addition, the Final Plan/FEIS was provided to the agencies, elected officials, organizations, and businesses below.

US DEPARTMENT OF AGRICULTURE

Forest Service

Natural Resources Conservation Service

US DEPARTMENT OF DEFENSE

Army Corps of Engineers

US 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

Collier County

Manager

Commission

Sheriff

Everglades City

Mayor

Council

Miami-Dade County Commissioner, Juan
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Southwest Florida Regional Planning Council

NATIVE AMERICAN TRIBES

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Seminole Nation of Oklahoma

Miccosukee Tribe of Indians of Florida

FLORIDA CONGRESSIONAL DELEGATION

US House of Representatives

Mario Diaz-Balart (26th Congressional District)

María Elvira Salazar (27th Congressional District)

Carlos A. Giménez (28th Congressional District)

US Senate

Marco Rubio

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FLORIDA STATE LEGISLATURE

Florida House of Representatives

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ORGANIZATIONS AND BUSINESSES

Allied Sportsmen's Associations of Florida

Audubon of Florida and Collier County

Big Cypress Sportsmen's Alliance

BreitBurn Energy Partners L.P.

Burnett Oil Co., Inc.

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

The Future of Hunting in Florida, Inc.

The Humane Society of the United States

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

Tropical Audubon Society

The Wilderness Society

Wildlands CPR

APPENDIX M: LITERATURE CITATIONS

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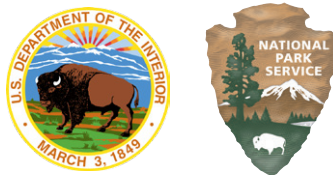
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As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our 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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