



*Final North End Access and Transportation Management Plan  
and Environmental Assessment*

*April 2009*

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*Cumberland Island National Seashore*



*Prepared for:* The National Park Service



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## **Summary**

This final North End Access and Transportation Management Plan and Environmental Assessment evaluates alternatives, a preferred action, and the potential environmental impacts associated with the transportation of visitors at Cumberland Island National Seashore. The National Park Service has developed this plan as mandated by legislation (Public Law 108-447) enacted by Congress in December 2004.

The preferred alternative of the final plan will provide motorized trips to the north end of the island. Trips could originate at the Dungeness Dock, Sea Camp, or the Plum Orchard Dock. Operation of vehicles will be restricted to the Main Road, Plum Orchard Spur, and North Cut Road. In the High Point – Half Moon Bluff Historic District the tours will use the High Point Candler Road and Old Clubb Road (aka the Settlement Loop Road). No beach driving will be allowed as part of the guided trips.

The guided trips will be tailored around the historic and/or natural resources of the island's northern area. Select guided tours may access the beach on the north end at the North Cut Road Crossing (aka Candler Beach Road Crossing), where vehicles will stop west of the primary dune line and visitors may take a managed walk out to the beach.

Day-use hikers will be allowed to leave the tours at only two locations, Plum Orchard and The Settlement. These stops are located at some distance from the beach and the wilderness boundary, but close enough to allow hikers to access trails.

The preferred alternative also will offer a separate south-end-only shuttle service. This service will provide access to multiple destinations at the southern end of the island. No beach driving tours will be allowed as part of the south end motorized trips/shuttle service. The south end shuttle service will provide access to the beach at Dungeness Crossing, with the Stafford or Little Greyfield crossings used as alternate access points in the event of high water or other safety issues preventing reasonable access at Dungeness. The shuttle will likely be a single vehicle on an unscheduled route through the various points of interest on the south end.

The preferred alternative is designed to provide access to the north end of the island while also providing connections to destinations on the south end, particularly for visitors with mobility or disability challenges.

## **1.0 PURPOSE OF AND NEED FOR ACTION**

The National Park Service (NPS) has developed this final North End Access and Transportation Management Plan (TMP) as mandated by legislation (Public Law 108-447) enacted by Congress in December 2004. The legislation directs the NPS to initiate motorized visitor access to historic sites located adjacent to the wilderness area (Wilderness) at the north end of Cumberland Island National Seashore, located in Camden County, Georgia. The TMP also addresses visitor transportation over the entire island, including high visitor-use areas such as the island docks, the Dungeness Historic District and Ruins, beach access points, Sea Camp, Stafford, and the Plum Orchard mansion and Historic District. This action is needed to comply with the legal mandate and intention of Congress that NPS enhance access to and understanding of the many natural and cultural resources on the island while also addressing health and safety, accessibility, and mobility issues for island visitors.

The TMP is combined with an environmental assessment (EA). The purpose of an EA is to analyze a preferred action, alternatives, and their impacts on the environment. This EA has been prepared in accordance with the National Environmental Policy Act (NEPA) (42 U.S.C. 4321 et seq.) and regulations issued by the Council on Environmental Quality (CEQ) (40 CFR 1508.9).

### **1.1 Purpose and Significance of the Park**

The purpose of this project is to develop a transportation management plan for Cumberland Island National Seashore in response to the legal mandate of Public Law 108-447. The TMP's principal focus will be management of access to the north end of the island consistent with the foregoing statute, the park's mission, and its enabling legislation. Additionally, the TMP will also cover all other developed visitor use areas on the island.

Cumberland Island is the southernmost sea island of the Georgia coast and is separated from the mainland by the Cumberland River and Cumberland Sound, both of which are traversed by the Intracoastal Waterway. The island is located south of Jekyll Island, Georgia and north of Amelia Island, Florida, and consists of Little Cumberland and Great Cumberland islands. Great Cumberland is the southern portion that encompasses Cumberland Island National Seashore (CUIS or the Seashore). While the NPS does not administer Little Cumberland, it is included within the boundary of CUIS. Great Cumberland Island is approximately 17.5 miles long and 0.5 mile wide in the south, with the widest point being 3 miles. When Little Cumberland is included, the total length is approximately 19.5 miles long. See **Figure 1**, Project Location Map.

The island's undeveloped natural areas attract recreation enthusiasts for activities such as camping, swimming, fishing, hiking, bird watching, wildlife viewing, and beachcombing. Significant archaeological artifacts such as the shell middens on the island are evidence of visitation and occupation as early as the late Archaic Period of 4,000 to 5,000 years ago. Evidence of human burial in sand mounds also indicates pre-historic American Indian occupation of the island.



Other physical remains and ruins have added to the historical record of the island through the colonial times, the plantation era, and to the present day. See **Figure 2** for a general map of the island.

## **1.2 Project Background and Scope**

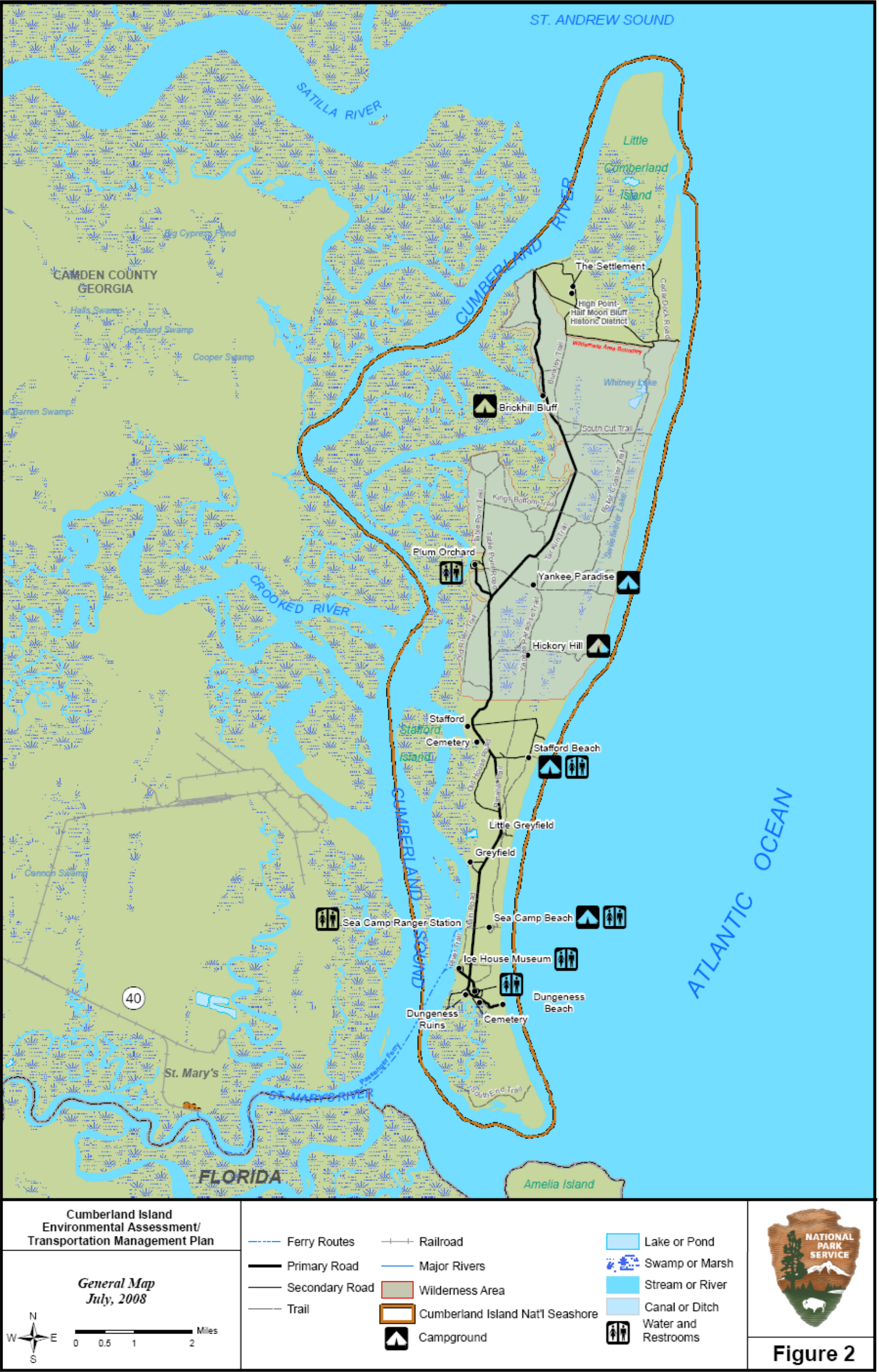
CUIS was established by Congress as a unit of the National Park System in the Act of October 23, 1972 (Public Law 92-536, codified at 16 U.S.C. 459i *et seq.*). The purpose of the park, as stated in Section 1 of the foregoing act, is “to provide for public outdoor recreation use and enjoyment of certain significant shoreline lands and waters of the United States and to preserve related scenic, scientific, and historical values.” On September 8, 1982, much of the northern half of CUIS was designated as Wilderness or Potential Wilderness to be managed as part of the National Wilderness Preservation System (Public Law 97-250, 16 U.S.C. 1131 *et seq.*).

The island can only be reached by boat, and there are no paved roads on the island. The CUIS General Management Plan (1984) limits visitation to no more than 300 persons per day. Most visitors travel to the island on a passenger ferry run by the park’s single concessionaire. Once on the island, visitors travel primarily by foot or concessionaire-provided bicycle. The backcountry and its campsites are accessible by trail networks; however visitors must travel a considerable distance to those locations. As a result, visitation to the park is primarily clustered on the south end of the island, where the concessionaire docks the boat. Areas receiving high visitor traffic include the Dungeness Historic District, Sea Camp, the Dungeness and Sea Camp docks, and the southern beach area. See **Figure 3** for a General Map of Southern Cumberland Island.

The island is traversed from north to south by a single principal roadway, a narrow historic trace known as the Main Road. See **Figure 4**, Main Road. Various shorter dirt tracks radiate from the Main Road, principally on the southern half of the island. The Main Road extends from the Dungeness Mansion ruins on the island’s south end to the Cumberland Wharf ruins on the north end, a distance of approximately 13 miles.

Before 2004, a large segment of the Main Road was included in the park’s potential and designated Wilderness areas. Until the passage of Public Law 108-447 in 2004, only island residents having a pre-existing legal right to do so could drive on that portion of the Main Road within the Cumberland Island Wilderness. The NPS was prevented from using motorized vehicles on this portion of the road for routine operations or most maintenance activities. For a time, the NPS offered a motorized trip to areas on the north end of the island once a month by “piggybacking” the tour onto a regularly scheduled administrative reconnaissance trip, which passed through the Wilderness on the Main Road. Sites of principal interest on the trip included the Plum Orchard Mansion and a historic African-American community known as The Settlement. The tours were legally challenged in court and were discontinued in 2004.





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Cumberland Island  
Environmental Assessment/  
Transportation Management Plan

## Main Road

Date: July 2008  
Scale: Not to Scale

**Figure 4**

In December, 2004, Congress included language in the Cumberland Island Wilderness Boundary Adjustment Act (Public Law 108-447) removing the Main Road and two other roads (North Cut Road and the Plum Orchard Spur) from Wilderness designation. This statute also directs the Seashore to develop a plan for managing visitor access to the north end. Specifically, the statute directs NPS to:

complete a management plan to ensure that not more than 8 and not less than 5 round trips are made available daily on the Main Road north of the Plum Orchard Spur and the North Cut Road by the National Park Service or a concessionaire for the purpose of transporting visitors to and from the historic sites located adjacent to [the Cumberland Island] Wilderness.

The purpose of this project is to develop the TMP for Cumberland Island. The TMP's principal focus will be the management of access to the north end of the island consistent with the foregoing statute, the park's mission, and its enabling legislation. Additionally, the TMP will cover all other developed visitor use areas on the island. Among other issues, the TMP will address options for travel routes, travel schedules, vehicle types, number of trips, and entities authorized to conduct tours, such as a concessionaire. The final TMP must be consistent with NPS policies and guidance documents, including but not limited to, Director's Order No. 89A ("Concession Management"), as well as NPS management policies 9.2 ("Transportation Systems") and 10.2 ("Concessions"). Because most of the north half of the island is congressionally designated Wilderness, it is imperative that the motorized transport of visitors through this area be compatible with Wilderness values to the greatest extent possible while complying with the legal intent and mandate of Public Law 108-447. The EA for this project will analyze the environmental consequences of implementing the TMP.

NPS planners have defined a single trip as follows: a group of up to 30 people in two to three vehicles taken to the north end of the island and returning to their point of origin. In accordance with the legislation, between five and eight of these trips would be offered per day.

Assuming that NPS offers the statutory maximum of eight round trips per day, with up to 30 persons per trip, the TMP would allow up to 240 people per day to travel to the north end of the island. This would make tours available to a majority of visitors within the park's 300 person-per-day visitation ceiling, while still maintaining a manageable tour size. When determining the definition of a trip based on potential visitor use, it was necessary to plan for maximum availability during peak visitation (March – May). This would also allow an assessment of the upper limit of potential impacts. Similarly, the definition of a trip was established to accommodate/limit peaks rather than set a standard for usage. The number of vehicles allotted is based on the type and number that would be compatible with the number of visitors, as well as compatibility with the affected environment and the operational environment, such as unpaved roads, low clearances, turning radii, etc.

Ultimately, a number of factors will determine the daily configuration of a trip. Low visitor interest in the tours could potentially result in a tour consisting of a few visitors in a single sport

utility vehicle. In the same way, attempting to conduct eight tours per day may present logistical difficulties that are insurmountable. In that case, NPS may end up conducting closer to five trips per day. For these reasons, the definition was left flexible to adapt to visitor and CUIS needs, while setting an upper limit.

### **1.3 Relationship to Other Planning Projects**

The North End Access and Transportation Management Plan is consistent with the objectives of the CUIS General Management Plan (1984); the CUIS Statement for Management (1990); Resource Management Plan (1994); and objectives specific to each that support the proposed action. The TMP is intended to do two things: (a) arrange a mechanism for getting members of the public to the historic sites on the north end of the island, and (b) manage visitor transportation on the island as a whole. The legal authority for providing north end access is Public Law 108-447, which directs NPS to provide not more than eight and not less than five trips to the north end of the island per day. The legal authority for managing overall transportation on the island is the NPS Organic Act of 1916 (16 U.S.C. 1-1(a)), as amended by the General Authorities Act of 1970 (16 U.S.C. 1, 2-4). The latter statutes empower the NPS to “promote and regulate the use of federal areas” within the National Park System. Such “regulation” includes the preparation of general management plans for individual parks, as well as more detailed implementation plans, e.g., transportation plans.

### **1.4 Issues and Impact Topics**

#### Issues Evaluated in Detail

Issues and concerns affecting this proposal were identified from past NPS planning efforts. Major issues are the conformance of this proposal with law, NPS policy and directives, the 1984 CUIS General Management Plan, natural resources, visitor use and experience, cultural resources, designated and potential Wilderness, and CUIS operations.

#### Derivation of Impact Topics

Specific impact topics were developed for discussion focus and to allow comparison of the environmental consequences of each alternative. These impact topics were identified based on Federal laws, regulations, Executive Orders, NPS *Management Policies* (2006), and NPS knowledge of limited or easily affected resources. A brief rationale for the selection of each impact topic is given below, as well as the rationale for dismissing specific topics from further consideration.

#### Impact Topics included in this Document

*Visitor Use and Experience:* In the past decade, visitation to CUIS has ranged between 38,000 and 50,000 people per year. Visitation is to remain at approximately 300 people a day according to the 1984 CUIS General Management Plan. This limitation provides for a continuation of the existing natural character of the island, free from extensive development and intensive visitor use. Travel on the island will be changed to include vehicular transportation and will expand

visitation on the northern end of the island. Visitor use and experience will be affected by the TMP and is addressed in the EA.

*Wilderness:* Approximately 45% of the federally-owned land at CUIS is congressionally-designated Wilderness. In 2004, Congress included language in Public Law 108-447 removing the Main Road and two other roads (North Cut Road and the Plum Orchard Spur) from the Cumberland Island Wilderness. The law also directed NPS to ensure that not more than eight and not less than five round trips are made available daily on the Main Road to the north end of the island. The action analyzed in this document would implement Public Law 108-447 by authorizing motorized trips to travel, in part, on the Main Road, North Cut Road, and the Plum Orchard Spur. Because these roads are flanked by designated Wilderness, trips on these roads could affect the wilderness experience of visitors to the Cumberland Island Wilderness. Therefore, wilderness will be addressed as an impact topic in the EA.

*CUIS Operations:* Transporting visitors to the north end of the island has the potential to affect CUIS operations due to increased requirements on the island for maintenance, ranger patrols, services, resource monitoring, mitigation, interpretation, administrative oversight, and facilities and infrastructure. Therefore, CUIS operations will be addressed in the EA.

*Socioeconomic Environment:* The historic and natural resources of CUIS are a major draw of visitors to the island. The TMP will not increase the established park visitation limitation of 300 people a day. However, the TMP may provide new activities, services, and opportunities that have the potential to affect the socioeconomic environment. Therefore, the socioeconomic environment will be included in the EA for further analysis.

*Community Character and Park Neighbors:* Cumberland Island has multiple private inholdings within the park boundary. The TMP and associated motorized trips may have an effect on these island residents as they will share the same roads and they have residences close to some of the activities. As a result, park neighbors will be included for further analysis in the EA.

*Vegetation and Wildlife:* NEPA requires examining the impacts that a proposed action may have on all components of affected ecosystems. NPS policy is to maintain all components and processes of naturally occurring ecosystems, including the natural abundance, diversity, and ecological integrity of plants and animals.

Over the past three hundred years, many of the natural communities on Cumberland Island have been extensively disturbed by human activities. For example, in the years leading up to the Civil War, a significant amount of forest cover on the island was cleared for cultivation of sea island cotton and other crops. Nevertheless, the island's natural communities began to recover in ensuing years, and they continue to undergo the processes of succession, albeit influenced by such human factors as the introduction of feral animals and the full suppression of fire. The island is now characterized by maturing forests and abundant wildlife.

It is possible that allowing visitors increased access to the north end of the island may cause impacts to vegetation and native wildlife habitat. Therefore, vegetation and wildlife will be addressed as an impact topic in the EA.

*Threatened and Endangered Species:* The Endangered Species Act requires examining the impacts of the action on all federally-listed threatened and endangered species. NPS policy requires an assessment of all Federal candidate species as well as State listed threatened, endangered, candidate, rare, declining, and sensitive species. This topic is included in the assessment because there are numerous potentially threatened or endangered plants and animals in the Camden County, Georgia area, which includes Cumberland Island.

*Soils:* The NPS strives to understand and preserve the soil resources of park units and to prevent, to the extent possible, the unnatural erosion, physical removal, or contamination of the soil or its contamination of other resources (NPS *Management Policies*, 2006). The implementation of an alternative to provide motorized access to the north end of the island has the potential to include minor to moderate soil disturbance through facility improvements, reinforcing existing structures, the grading and maintenance of existing roads, and vegetation removal. Additional soil disturbance may arise from the use of construction equipment, so soils are addressed in the EA.

*Geology and Topography:* NPS *Management Policies* (2006) require the protection of significant geologic and topographic features. Cumberland Island features topography that is inherently dynamic, shaped by wind and tidal action. The geology of the site is characterized as stable dune/beach ridges (NPS, 1980). The proposed alternatives contain some geologic features such as the beach and dune systems that could be affected. Geology and topography will be included in this document for further analysis.

*Water Resources (Water Quality and Wetlands):* NPS policies require protection of water quality in accordance with the Clean Water Act, including the Section 404 provisions governing wetlands. Executive Order 11990, *Protection of Wetlands*, requires Federal agencies to avoid, where possible, adversely affecting wetlands. The proposed alternatives could impact water quality and wetlands. Therefore, these resources will be included in this document for further analysis.

*Air Quality:* Section 118 of the Clean Air Act (CAA), as amended (33 U.S.C. 7401 *et seq.*), requires each park unit to meet all Federal, State, and local air pollution standards. CUIS is designated as a Class II air quality area under the CAA. Section 163 of the CAA indicates the maximum allowable increase in concentrations of particulate matter and sulfur dioxide over baseline concentrations for Class II designations. Further, the CAA provides that the Federal land manager has an affirmative obligation to protect air quality-related values including visibility, plants, animals, soil, water quality, cultural resources, and visitor health from adverse pollution impacts. The increase in vehicle usage that may be associated with the proposed action could result in increased vehicle exhaust and emissions, which in turn could potentially affect CUIS' Class II air quality. Therefore, air quality is included in the EA as an impact topic.

*Soundscape Management:* According to the NPS *Management Policies* (2006) and Director's Order #47, Sound Preservation and Noise Management, part of the NPS mission is the preservation of natural soundscapes associated with park units. Natural soundscapes exist in the absence of human-caused sound. Transportation of visitors to the northern end of the island would result in human-caused sound that may affect visitor experiences and will be addressed.

*Historic, Archaeological and Cultural Resources:* The National Historic Preservation Act, as amended (16 U.S.C. 470 *et seq.*); the National Environmental Policy Act (42 U.S.C. 4321 *et seq.*); the NPS's Director's Order #28, *Cultural Resource Management Guideline* (1997); *NPS Management Policies* (2006); and Director's Order #12 *Conservation Planning, Environmental Impact Analysis, and Decision-making* (2001) require the consideration of impacts on properties listed in or eligible for listing in the National Register of Historic Places. The island's resources may be affected by increased accessibility and visitation. Therefore, historic, archaeological and cultural resources are included in the EA for further analysis.

#### Impact Topics Dismissed from Further Analysis

*Prime and Unique Farmland:* In August 1980, the Council on Environmental Quality (CEQ) directed that Federal agencies must assess the effects of their actions on farmland soils classified by the U.S. Department of Agriculture's Natural Resource Conservation Service (NRCS) as prime or unique. Prime or unique farmland is defined as soil that particularly produces specialty crops such as fruits, vegetables, and nuts. No qualifying soils exist on Cumberland Island. The proposed action would result in neither the degradation nor irreversible conversion of existing prime farmland to nonagricultural uses. Therefore, the topic of prime and unique farmland was dismissed as an impact topic.

*Environmental Justice:* According to the Environmental Protection Agency, environmental justice is the fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including a racial, ethnic, or socioeconomic group, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of Federal, State, local, and tribal programs and policies.

Presidential Executive Order 12898, "General Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," requires all Federal agencies to incorporate environmental justice into their missions by identifying and addressing the disproportionately high and/or adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. The proposed action would not have health or environmental effects on minorities or low-income populations or communities as defined in the Environmental Protection Agency's Draft Environmental Justice Guidance (July 1996). Therefore, environmental justice was dismissed as an impact topic.



*Floodplains:* Executive Order 11988, Floodplain Management, requires all Federal agencies to avoid construction within the 100-year floodplain unless no practicable alternatives exist. Preferred actions that would require certain construction activities in the 100-year floodplain must be addressed in a Statement of Findings. Based on USGS elevation data, areas below the 13-14 foot elevation are generally assumed to define the 100-year floodplain of CUIS (NPS, 1980). The construction of new facilities is not anticipated as part of the final TMP. However, should construction of new structures be necessary in the future there is ample opportunity to locate such facilities outside the 100 year floodplain. Since locations for support facilities would avoid floodplains, potential floodplain impacts have been excluded from further water resources analysis.

*Lightscape Management:* In accordance with NPS *Management Policies* (2006), the agency strives to preserve natural ambient landscapes that exist in the absence of human-caused light. The proposed action would not be operated after dark. Therefore, lightscape management was dismissed as an impact topic.

## **2.0 ALTERNATIVES, INCLUDING THE PROPOSED ACTION**

### **Introduction**

The alternatives section describes a No Action Alternative and two action alternatives for the TMP. Alternatives for this project were developed to devise a management plan to ensure that the NPS or a concessionaire provide trips to the north end of the island. These trips would provide access to the north end of the island for visitors and ensure to the greatest extent possible universal accessibility for all. Alternatives were derived from an internal scoping meeting, input from a public scoping meeting, an external scoping process, an alternatives workshop, and the NPS “choosing by advantages” process.

The draft TMP was released for public comment in September 2008. Based in part on consideration of substantive comments received from the public and government agencies, the NPS has made revisions to its original preferred alternative. For this final TMP, the NPS’ preferred alternative is Revised Alternative 3.

### Summary of Principal Differences between Draft TMP and Final TMP:

In the draft TMP, alternatives 2 and 3 called for incorporation of a shuttle service that would stop for day-hikers at the various intersections of wilderness trails and road corridors on the north end of the island. Under Revised Alternative 3 (the preferred alternative of this final TMP), the NPS will *not* implement such a shuttle service. Public comments and consultation with the U.S. Fish and Wildlife Service has prompted NPS to conclude that a north-end shuttle would degrade the wilderness character of the Cumberland Island Wilderness and increase the possibility of disturbance to special status species, especially shorebirds. To protect these resources and values, while providing additional visitor access to the Cumberland Island Wilderness, Revised Alternative 3 would still allow day-use hikers to leave tours, but only at two locations. Specifically, day-use hikers could leave tours at Plum Orchard and The Settlement. These stops are located at some distance from the beach and the wilderness boundary, but close enough to allow hikers to access trails.

## **2.1 Description of Alternatives**

### Alternative 1 (No Action)

Alternative 1 describes the action of continuing the present management and operation of access to CUIS by ferry, the rental of bicycles on the island, and continued ranger-led pedestrian tours. The No Action Alternative provides a basis for comparing the management direction and environmental consequences of the other alternatives. Selection of the No Action Alternative would violate the mandates of Public Law 108-447 (2004). The NPS would respond to future needs and conditions in the project area without major actions or policy changes.

### Revised Alternative 2 (North End Access)

Revised Alternative 2 would provide motorized trips to the north end of the island. Trips could originate at the Dungeness Dock, Sea Camp, or the Plum Orchard Dock. The trips would use a combination of the Main Road, Plum Orchard Spur, and North Cut Road. In the High Point –

Half Moon Bluff Historic District the tours would use the High Point Candler Road and Old Clubb Road (aka the Settlement Loop Road). Operation of vehicles would be restricted to the aforementioned roads and no beach driving would be allowed as part of the guided trips. See **Figure 5** for a map of Revised Alternative 2.

The guided trips would be tailored around the historic and/or natural resources of the island's northern area. Select guided tours may access the beach on the north end at the North Cut Road Crossing (aka Candler Beach Road Crossing), where vehicles would stop west of the primary dune line and visitors would take a managed walk out to the beach.

Day-use hikers would be allowed to leave the tours at only two locations, Plum Orchard and The Settlement. These stops are located at some distance from the beach and the wilderness boundary, but close enough to allow hikers to access trails.

#### Revised Alternative 3 (Island Mobility: Preferred Alternative)

The Preferred Alternative, and the NPS's proposed action, calls for an integrated transportation plan to fulfill the Congressional mandate of Public Law 108-447 as well as increase visitor access opportunities. It incorporates the north end access in Revised Alternative 2 and offers a separate south end-only shuttle service. Implementation of this alternative would provide access to multiple destinations at both the southern and northern ends of the island. Specifically:

Revised Alternative 3 will provide motorized trips to the north end of the island. Trips could originate at the Dungeness Dock, Sea Camp, or the Plum Orchard Dock. The trips will use a combination of the Main Road, Plum Orchard Spur, and North Cut Road. In the High Point – Half Moon Bluff Historic District the tours will use the High Point Candler Road and Old Clubb Road (aka the Settlement Loop Road). Operation of vehicles will be restricted to the aforementioned roads and no beach driving will be allowed as part of the guided trips.

The guided trips will be tailored around the historic and/or natural resources of the island's northern area. Select guided tours may access the beach on the north end at the North Cut Road Crossing (aka Candler Beach Road Crossing), where vehicles will stop west of the primary dune line and visitors may take a managed walk out to the beach.

Day-use hikers will be allowed to leave the tours at only two locations, Plum Orchard and The Settlement. These stops are located at some distance from the beach and the wilderness boundary, but close enough to allow hikers to access trails.

Revised Alternative 3 also will offer a separate south-end-only shuttle service. This service will provide access to multiple destinations at the southern end of the island. No beach driving tours will be allowed as part of the south end motorized trips/shuttle service. The south end shuttle service will provide access to the beach at Dungeness Crossing, with the Stafford or Little Greyfield crossings used as alternate access points in the event of high water or other safety issues preventing reasonable access at Dungeness. The shuttle will likely be a single vehicle on an unscheduled route through the various points of interest on the south end.

Revised Alternative 3 is designed to provide access to the north end of the island while also providing connections to destinations on the south end, particularly for visitors with mobility or disability challenges. See Figure 6 for a map of Revised Alternative 3.







## 2.2 Alternative Development Process

In keeping with NEPA directives, the NPS conducted an alternatives and consequences analysis workshop to assess the feasibility of alternatives. The alternatives for the CUIS TMP were developed through an iterative evaluation process, which included public input from the scoping process (see the *CUIS Final Public Scoping Report* on file with the NPS or online at <http://parkplanning.nps.gov/cuis>). The purpose of the alternatives and consequences analysis was to determine which were the more reasonable alternatives for further evaluation and comparison.

The alternatives analysis procedure consisted of an initial pre-screening and a comparative evaluation process. The pre-screening phase served to advance only the alternatives that would have a reasonable chance for implementation. During this phase, alternatives were assessed on overall feasibility and whether or not they met the need and purpose of the TMP. The pre-screening was followed by a more detailed comparative analysis of the remaining alternatives. Some of the information considered during this process included the internal and public scoping reports that reflected public opinions on the TMP. During this process, alternatives were examined to determine degrees of effectiveness for achieving project goals.

Among the most heavily considered aspects of the evaluation process was modes of transportation. The pre-screening phase provided an opportunity to review all potential modes suggested internally and by the public, including several non-traditional modes such as Segways, golf carts, solar powered vehicles, horse drawn wagons and a variety of non-motorized methods of transport. The pre-screening phase eliminated a variety of possibilities because they lacked overall feasibility or did not meet the Need and Purpose of the TMP. For example, solar powered vehicles were eliminated because they have not been proven in this environment and could be unreliable due to heavy tree canopy on the Main Road or weather conditions on the island.

Non-motorized modes of transportation were also evaluated during the analysis process. However, it was determined that, although Public Law 108-447 does not expressly direct NPS to implement motorized trips to the north end, logistics on the island are such that the legislative requirement cannot be met without at least some use of motorized vehicles. The law directs NPS to “complete a management plan to ensure that not more than 8, and not less than 5, round trips are made available daily on the Main Road north of the Plum Orchard Spur and the North Cut Road by the National Park Service or a concessionaire for the purpose of transporting visitors to and from the historic sites located adjacent to Wilderness.” Most visitors to Cumberland Island are day-use visitors who arrive by ferry at Dungeness dock at 9:45 a.m. and 12:30 p.m. In order for visitors to return to the ferry by 4:45 p.m. (the last ferry pick-up of the day), some form of conveyance is needed that can make the round trip in approximately six hours or less. Using motorized vehicles, the round-trip travel time from Dungeness dock to the north end, with stops, is between three and five hours.

Horse-drawn conveyances were also considered for the trips during the pre-screening assessment, but travel times under this scenario would also be much longer and difficult to coordinate with the ferry schedule from St. Marys. In any event, it was determined that using horses for the trips is not feasible. One major consideration is visitor safety: the park recently dealt with an incident where a draft horse hooked to a wagon was challenged by some of the feral horses on the island. Ultimately, vehicles were required to screen the draft horse and escort it to safety. Other considerations are animal welfare and expense (costs for stabling, veterinary care, and weed-free feed). The NPS once stabled horses on the island for use in connection with ranger activities, but phased them out over time due to expense.

At the culmination of the alternatives and consequences analysis a full report was compiled and is on file with the NPS. Ultimately, the two action alternatives and the No Action Alternative were defined as the reasonable alternatives to be considered for further impact evaluation as part of the EA. (In addition, the three alternatives also went through a NPS Choosing by Advantages evaluation and a report showing the results of that process can be found in Appendix C.)

The Comparative Evaluation of the alternatives evaluated the following categories: Transportation Mode, Route, Trip Operations, Support Facilities, and Visitor Access:

#### Alternative 1- No Action

The NPS' concessionaire provides access to the island by ferry; however, once on the island motorized transportation is not provided for park visitors to access many cultural and natural sites located in the park. Destinations can be accessed from the ferry docks by foot, and more recently via bicycle rentals from the ferry concessionaire. Therefore, under the existing conditions, the only way for visitors to access the north end of the island is by hiking or biking in conjunction with an overnight stay on the island. Under the No Action Alternative, access to the north end would not be changed. No additional analysis is needed for impacts to Transportation Mode, Route, Trip Operations, Support Facilities, and Visitor Access.

#### Revised Alternative 2- North End Access

Revised Alternative 2 would provide motorized trips to the north end of the island using a combination of the Main Road, Plum Orchard Spur, and the North Cut Road. Trips could originate from Dungeness dock, Sea Camp, or the Plum Orchard dock.

#### *Transportation Mode*

Several factors must be considered as part of the evaluation to determine the preferred vehicle type for trips to the north end of the island. The following are some of the factors and preferences currently under consideration:

- Consider petroleum-powered vehicles. There are proven efficient petroleum-powered vehicles. Under Revised Alternative 2, the initial implementation plan could include a petroleum-based vehicle for timely start-up of trips. This may be an interim provision until the full TMP is implemented.



- The ultimate preferred vehicles would be alternative fuel vehicles, but the type and fuel source need to be further defined, i.e. E10 to E85, bio-diesel, etc. Fuel considerations must examine availability, reliability, disposal, and environmental effects. A flex-fuel vehicle is presently being considered as part of the Preferred Alternative.
- Vehicle should be 4-wheel drive, considering potential road and weather conditions.
- Vehicle should have adequate ground clearance for rough terrain.
- Vehicle should be able to operate on narrow dirt roads and be able to clear relatively low tree branches.
- Vehicles should be universally accessible for all passengers.
- Vehicles should be able to accommodate additional visitor gear including wheelchairs, strollers, backpacks, coolers, etc.

In order to meet the size specifications noted above, it is likely that the trip vehicle would be limited to a 10-15 passenger van, SUV, or modified truck type vehicle. Other limiting criteria include the existing timber bridges that are rated at 20-ton capacity and how much area may be needed for vehicle storage.

#### *Route*

As noted, a possible route for Revised Alternative 2 would start at Dungeness, Sea Camp or Plum Orchard and proceed to the north end of the island following the Main Road, Plum Orchard Spur, and North Cut Road. In the High Point – Half Moon Bluff Historic District the tours would use the High Point Candler Road and Old Clubb Road (aka the Settlement Loop Road). The return trip south would reverse the route taken to the north end.

The Main Road (which is designated to be within a 25-foot wide corridor excluded from Wilderness) is unpaved. Maintenance consists of periodic grading and limited clearing along the edges up to the northern edge of the Stafford Plantation, and occasionally as far north as the Plum Orchard Spur. Beyond this point, the Main Road receives minimal maintenance by the NPS and consequently is in an unimproved condition. Four timber bridges crossing tidal creeks provide an additional constraint as each has a 20-ton weight limit rating. These one-lane bridges, which are approximately 30 feet in length, are all in excellent shape. However, they limit the size of any transport vehicles used. North Cut and the other north end roads, similar to this section of the Main Road, are also not maintained. Currently, they are traveled less frequently than the Main Road. However, CUIS did receive FY2008 funding to conduct cyclic maintenance on the Main Road and was able to complete work as far north as King's Bottom. The maintenance project's primary objectives included filling and leveling ruts, dips, potholes, washboarding and other depressions that have developed in the roadbed.

The travel way for north end roads typically consists of one lane; therefore, vehicles that are traveling in the opposite direction are required to pass each other in a manner where they are only partially on the road. Periodic trimming or cutting of vegetation will be necessary to provide a safe, single-lane travel corridor. Some minor cutting of vegetation may be needed in isolated cases to allow safe passage of two vehicles. Potential hazards, site lines, and shoulder conditions will dictate if and where this type of work is needed for a vehicle to pull off and allow

safe passing. Additionally, using the 4-wheel drive vehicle proposed for this TMP will allow travelers more flexibility in passing on the roads in their current condition.

### *Trip Operations*

All trip operations would need to be coordinated with the ferry schedule to ensure visitors are returned to the docks prior to the last ferry departing from the island. Although the first ferry of the day does not arrive until 9:45 am, it would be feasible to begin trips at an earlier hour, which would service the campers and other visitors who are already on the island. This could also be true for the final trip of the day, which could provide service to visitors remaining on the island overnight, since they would not be restricted by the ferry schedule. (The last ferry leaves at 4:45 p.m.). A specific trip schedule for implementation is beyond the scope of this document. However, a hypothetical schedule has been developed to provide some ideas and guidance on trip possibilities. See Table 1 for a potential trip schedule.

**Table 1: Potential Trip Schedule**

	<b>*Trip 1: Depart 8:00AM, Return 1:00 PM</b>	<b>Trip 2: Depart 10:00AM, Return 3:00 PM</b>	<b>Trip 3: Depart 12:00 PM, Return 4:00 PM</b>	<b>Trip 4: Depart 1:30PM, Return 4:30 PM</b>	<b>*Trip 5: Depart 2:30 PM, Return 5:30 PM</b>
<b>Vehicle(s) 1</b>	<b>X</b>			<b>X</b>	
<b>Vehicle(s) 2</b>		<b>X</b>			<b>X</b>
<b>Vehicle(s) 3</b>			<b>X</b>		

*\*Trips offered to guests remaining on the island due to ferry schedule conflicts*

The guided trips would be tailored around the historic and/or natural resources of the island's northern area. Select guided tours may access the beach on the north end at the North Cut Road (aka Candler Beach Road) Crossing, where vehicles would stop west of the primary dune line and visitors would take a managed walk out to the beach.

Day-use hikers would be allowed to leave the tours at only two locations, Plum Orchard and The Settlement. These stops are located at some distance from the beach and the wilderness boundary, but close enough to allow hikers to access trails.

### *Interpretation*

As part of this project evaluation, potential trip routes were driven in an NPS vehicle to identify potential physical and environmental constraints associated with the different routes. An attempt to determine potential trip timeframes was also completed. Factors influencing travel time include the island's 25 MPH speed limit, road conditions, wheeled and pedestrian traffic encountered, and the safety and comfort of passengers.

Table 2 is a listing of potential stops and approximate times between each location. **Figure 7** identifies these locations on a map of the island. The trip began at the Sea Camp ranger station

at 8:35 a.m., which has been defined as time 0. The approximate speed of travel is noted periodically.

**Table 2: Elapsed Time between Points of Interest**

<b>Elapsed Time (in minutes)</b>	<b>Locations</b>	<b>Cumulative Time (in minutes)</b>	<b>Approximate Speed</b>
Time 0	Begin at Sea Camp		-
+ 6	Little Greyfield Crossing	6	20 MPH
+ 6	Stafford Cemetery	12	-
+ 4	Edge of Wilderness	16	10 – 15 MPH
+ 4	Willow Pond Trail	20	20 MPH
+ 8	Plum Orchard via spur road	28	-
+ 4	Return to Main Road at Plum Orchard Spur	32	-
+ 2	Duck House Trail	34	10 - 15 MPH
+ 6	Rayfield Chimney	40	-
+ 12	Brick Hill Camp Site	52	10 MPH
+ 15	Cumberland Wharf	67	-
+ 5	High Point Cemetery	72	-
+ 4	Church at Settlement	76	15 MPH
+ 2	North Cut Road	78	-
+ 15	North Cut/Candler Beach Crossing at primary dune	93	20 MPH
+ 80	Return to Sea Camp via North Cut and Main Roads	173	-



The times in Table 2 do not account for the time required for stops or interpretation. They are provided to develop potential trip routes and assess approximate route timing. It is not likely that each of the areas listed above would be a stop on each trip and, likewise, other points could be added. At a minimum, all trips would likely go to The Settlement. Trips would be offered based on level of demand, themes, services provided, time constraints, logistical constraints, natural conditions, and availability of resources including staff. Trips and interpretation could be developed around a specific theme, such as important cultural resource sites or specific ecological resource areas, to determine which areas would become stops on a particular trip. The routes for trips would likely be adjusted periodically based on the response of the public and the demand for visiting particular sites.

It is recommended that concessionaires, if used, would run operations and track number of people on the island via reservation systems and ferry coordination. Likewise, the primary role for the NPS during trips could be to provide interpretive services.

#### *Fares and Ticketing*

Fares would be established during the implementation phase and would be based on the estimated ridership, expenses including maintenance and start up costs, and funding sources. All relevant aspects would be addressed as part of the final service delivery plan.

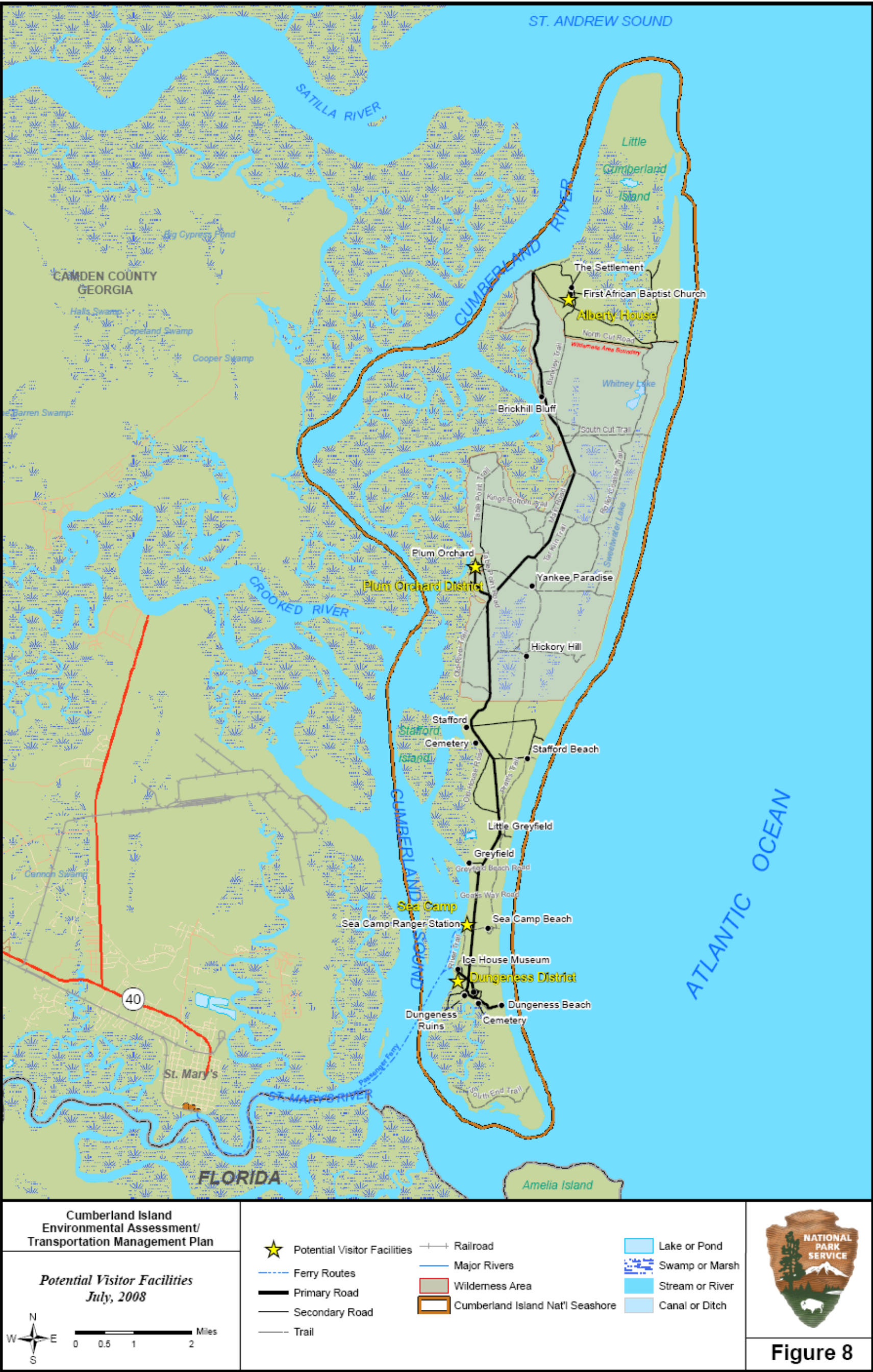
Currently, tickets for the island ferry can be purchased at the St. Marys Visitor Center and by phone and fax. An internet reservation system is presently in the planning stages. It is anticipated that the tickets for the north end trips could also be purchased at the Visitor Center. It is also anticipated that tickets should be available at a location on the island to enable campers and visitors an opportunity to purchase them during their stay.

#### *Support Facilities*

In order to provide trips to the north end of the island, additional facilities or modifications to existing island infrastructure may be required. As the TMP moves toward full implementation, further planning and review would be required on this topic. Some options are outlined in the following text and in **Figure 8**, Potential Visitor Facilities.

**Vehicle Storage/Maintenance:** Concessionaires, if used, may need facilities to provide weather protection for themselves and their vehicles. An economic feasibility study on file with the NPS assessed a projected trip program once it expanded beyond initial implementation to encompass the full intent of legislation. The study suggested multiple trip vehicles would be required in order to provide five to eight trips to the north end of the island on a daily basis, and further stated a maintenance facility may also be a consideration. Likewise, if the NPS were to operate the trips, the existing storage and maintenance facility would require minimal improvements to store and service additional vehicles. Regardless, vehicle storage, maintenance, and expenses associated with replacement will need further consideration to sustain the service.





North End Visitor Contact Station: The historic Alberty House, which is located in The Settlement next to the First African Baptist Church, is a possible location on the North End for visitor contact and restrooms. As a separate repair/rehabilitation project, the facility has been adapted to potentially serve in this capacity. The Alberty House is ADA (Americans with Disabilities Act) compliant and accessible for the mobility impaired. It has four rooms in the front for potential museum displays and NPS offices. A photo of the property can be found in **Figure 9**, Alberty House.

Restrooms: Restrooms will also be needed in some areas and could be provided at existing facilities such as Plum Orchard and the Alberty House on the north end. As part of the Alberty House repair/rehab project, two restrooms were installed in addition to a new well and new, approved septic system. These improvements make it an acceptable candidate to address visitor needs.

Trip Staging Area: A central area from which to initiate trips will be needed such as Sea Camp, the Dungeness Historic District, or Plum Orchard. This area would contain a possible ticketing/trip information area, and would be the point at which trip vehicles load and unload.

Ferry Docks: If Plum Orchard is proposed as the trip staging area, some improvement and expansion of the dock would be needed to handle the projected increase in activity. In addition to capacity improvements, all of the public docks need to be modified for access by mobility challenged visitors.

#### *Visitor Access*

Revised Alternative 2 would provide a major improvement for visitor access to the cultural and ecological resources of CUIS, which are now accessible only on a very limited basis. Currently, there are several key points of interest at the north end of the island including the recently restored Plum Orchard mansion, the Cumberland Wharf, Fort St. Andrews, High Point Cemetery, the Settlement and First African Baptist Church, and numerous pristine ecological resource areas. Currently, these areas can only be reached by island visitors on foot or in some cases bicycles. Island residents have easier access to these areas by private vehicle. Greyfield Inn also offers private motorized tours to many of these areas for its guests. With a round trip distance between Sea Camp and these sites at generally more than 20 miles, access is somewhat limited. This is especially true for visitors who are only coming to the island for a single day, small children, and visitors with limited physical capabilities.

With regard to access to the south end of the island, this alternative proposes no changes in access. Visitors would continue to access the island by ferry, and once on the island, they would be required to walk to their destination or rent a bicycle at Sea Camp.



Cumberland Island  
Environmental Assessment/  
Transportation Management Plan

## Alberty House

Date: July 2008  
Scale: Not to Scale

**Figure 9**



### Revised Alternative 3 - Island Mobility: Preferred Alternative

Revised Alternative 3 facilitates increased island mobility from the ferry docks to key south end sites including Dungeness, the beach area, and Sea Camp. It consists of the same north end motorized trips that were described in Revised Alternative 2, while adding a south end shuttle service. Rather than restate the specific details regarding the components of Transportation Mode, Route, Trip Operations, Support Facilities, and Visitor Access on the north end, the reader is referred to the Revised Alternative 2 description for this information. Only the additional changes in south end access will be presented in the following Revised Alternative 3 discussion.

#### *Transportation Mode*

The type of vehicle which meets the needs of a south end shuttle service will have to be carefully evaluated. It must have the capacity to carry numerous passengers on bench seating. It also must have 4-wheel drive and sufficient clearance to be able to traverse beach crossings. In addition, the vehicle needs to be environmentally sustainable such as an alternative fuel or electric-powered vehicle. It is anticipated that during the initial start-up phase the vehicles used will not likely meet all of these criteria, but will gradually be converted as the program develops.

#### *Route*

The proposed south end shuttle would follow the existing dirt roads between docks, Sea Camp, Dungeness, and the beach. No new roadway facilities or improvements to the existing roads on the south end of the island would be required to implement this portion of the alternative. The shuttle would access the beach at Dungeness Crossing to pick-up and drop-off passengers at that point, and return directly inland. The shuttle will not travel along the beach. In the event of high water or other safety complications at the Dungeness Crossing the shuttle may use Little Greyfield Crossing or Stafford Crossing to provide beach access.

#### *Trip Operations*

Currently, the only tour on the south end of the island is a walking tour which identifies some of the general island history with the Dungeness Historic District as the tour focal point. A portion of the shuttle service proposed in this alternative would traverse the existing south end walking tour route. Continued planning will explore options to separate vehicular and pedestrian traffic to the greatest extent possible.

#### *Support Facilities*

No new or additional support facilities would be needed to implement the Island Mobility Alternative apart from those described in Revised Alternative 2. It is anticipated that the existing storage and maintenance facilities could be used to service and accommodate the proposed vehicles for south end operations, or such requirements would be incorporated into those potentially needed for north end operations.

#### *Visitor Access*

Currently, there are no public motorized services available on the south end of the island. Revised Alternative 3 would improve mobility and visitor access to Sea Camp, the beach area, and the cultural resources on the south end of CUIS. Additionally, it would provide health and safety benefits to groups that are not prepared for the island's primitive conditions, or groups

having mobility limitations. This alternative would benefit those individuals who may have difficulty walking, including young children, the elderly, and mobility impaired visitors.

Under this alternative, visitors would continue to access the island by ferry, and once on the island, they would walk to their destination, rent a bicycle at Sea Camp, or use the proposed south end shuttle service. The proposed service would be coordinated with the ferry schedule to improve mobility between the docks and south end destinations including Sea Camp, the beach, and Dungeness.

### **2.3 Alternative Considered but Rejected**

A Comprehensive Island Mobility alternative was considered which was essentially identical to the original Alternative 3, except that it would have also allowed beach driving as part of island trips. This alternative was rejected as infeasible primarily because of beach driving's potential impact to 13 special status species, including: bald eagle, piping plover, Wilson's plover, least tern, American oystercatcher, peregrine falcon, gull-billed tern, black skimmer, red knot, wood stork, loggerhead sea turtle, leatherback sea turtle, and green sea turtle. Mitigation measures (including avoiding the beach during sensitive times) were considered but determined infeasible. Given the extensive array of potentially affected special status species and their widely varying habits and nesting behaviors, it was determined that beach driving would have to be curtailed for most of the year to protect all potentially affected species.

In addition, this alternative was deemed by the planning team to be inconsistent with the park's enabling legislation and its existing General Management Plan, both of which call for generally managing the island in such a way as to preserve its primitive character.

### **2.4 Mitigation Measures of the Preferred Alternative**

Mitigation measures are presented as part of the Preferred Alternative. These actions have been developed to lessen the adverse effects of the Preferred Alternative.

### Social Environment

To minimize potential impact to the social environment of CUIS from the Preferred Alternative, the proposed transportation management TMP should be implemented with the following conditions:

- Develop a buffer, probably vegetation, in The Settlement area between the reserved estate residence and the adjoining First African Baptist Church and Alberty House. The buffer will help minimize the effect on the park neighbor of increased visitation in the area. The design for the buffer should be done in coordination with the neighbor and must be compatible with both the historic landscape and the island environment.

### Natural Resources

To minimize potential impact to the natural resources of CUIS from the Preferred Alternative, the final TMP should be implemented with the following conditions:

- Manage visitor activity adjacent to the Plum Orchard Mansion pond to prevent disturbance of wood storks and other wading birds. Ideally, the number of visitors directly adjacent to the pond should be controlled. If necessary, fencing could be designed to complement and blend with the historic cultural landscape. If fencing is not feasible, then a screen/barrier using natural vegetation should be developed to prevent access to the pond.
- NPS staff will monitor the known bald eagle nest locations annually to determine if eagles are present. If visitor use patterns of these areas change significantly as a result of the Preferred Alternative the following actions should be considered. 1) Allow nest sites to go unregulated if human presence is outside the 330-foot buffer recommended by the USFWS National Bald Eagle Management Guidelines for non-motorized recreation and human entry. 2) Install signs posting a no entrance zone if NPS determines substantial visitor activity is present in these areas. A 330-foot buffer would be used as recommended by the USFWS National Bald Eagle Management Guidelines for non-motorized recreation and human entry. Resource management staff must weigh the benefits of not posting nest sites and having these areas remain relatively unknown, versus the potential for drawing more attention by posting signs that may act to advertise the presence of nests and tempt hikers to locate (and thus disturb) the site(s).
- Develop an educational program for concession staff and park interpretive staff involved in trips that focuses on Threatened and Endangered (T & E) species identification and proper actions when species are encountered. Provide refresher training for staff on a regular basis and ensure that new personnel receive training promptly.
- NPS staff will monitor trip activities on a regular basis for compliance and potential impacts to T & E species and natural resources in general.

- Evaluate the need for a slower speed limit on the Main Road from the Greyfield Inn entrance to Stafford Mansion to reduce the potential for gopher tortoise strikes. The current island-wide speed limit is 25 mph. This may be sufficient for vehicle operators to identify tortoises and other wildlife in the road and take preventative measures before a collision occurs.
- NPS staff will monitor visitor use of the beach north of Stafford Campground. Providing better access to north-end trails near Plum Orchard and The Settlement has the potential to place more visitors on the beach in this area relative to present use levels. Accesses include Willow Pond Trail, Duck House Trail, South Cut Road, and North Cut Road. As with the rest of the beach this northern section contains valuable nesting, feeding, and loafing habitat for a variety of shorebirds, including Federal and State listed species, and should remain as undisturbed as possible.
- Specific to north end tours, vehicle trips which provide tour participants access to the beach on the North Cut/Candler Beach Road may be suspended during certain times of the year. The Park's resource managers will make this determination based on the presence of nesting pairs or colonies of shorebirds, their proximity to the beach access point, and the likelihood that increased levels of human disturbance may negatively impact nesting success.
- NPS staff will monitor visitor use of the trails north of Stafford Campground. Visitation in these areas is currently minimal and it will be necessary to monitor any potential impacts to the trails and immediate environment from increased use.
- NPS staff will monitor the beach for nesting American oystercatcher pairs, least tern colonies, and other species of concern. Informational signs and rope barriers will be used to identify nesting areas and restrict access when and where necessary to protect the species of concern.
- Staff involved in the annual sea turtle nest monitoring and protection project will continue to maintain records of disturbances to nest sites. A database will be developed to evaluate trends in human disturbance potentially related to implementation of the Preferred Alternative. Mitigation in the form of increased visitor education efforts and nest protection measures will be necessary to maintain a reduced pedestrian presence/disturbance around nest sites.
- Transportation services within the TMP may be modified on a seasonal or emergency basis to protect species of concern or to address unacceptable impacts to park resources.
- No activity will generally occur from dusk to dawn, so artificial lighting would not be required, eliminating night time light and noise disturbances.

- In the event of high water in intermittent wetlands at the Dungeness Crossing, the south end shuttle will use Little Greyfield Crossing or Stafford Crossing to provide beach access.

### Cultural Resources

To minimize potential impact to the cultural resources of CUIS from the Preferred Alternative, all work is subject to the following conditions:

- NPS staff will monitor trip activities on a regular basis for conduct and potential impacts to historic structures and features, archeological sites, and cultural resources in general. If necessary, additional conditions will be developed to eliminate potential impacts.
- If the Rayfield Chimneys are part of a trip, the lone standing chimney and other prominent features will be cordoned off (fence, barricade) to discourage visitors from disturbing the fragile structures.

### Wilderness Resource and Values

To minimize potential impacts that the Preferred Alternative may have on users of the adjacent Cumberland Island Wilderness, the final TMP should be implemented with the following condition:

- Develop an educational program for concession staff and park interpretive staff involved in trips that explains what Congressionally designated Wilderness is, provides an understanding of the type of experience sought by typical Wilderness users, and describes methods for minimizing impacts to the Wilderness experience. Provide refresher training for staff on a regular basis and ensure that new personnel receive training promptly.

## **2.5 Sustainability**

The NPS has adopted the concept of sustainable design as a guiding principle of facility planning and development. The objectives of sustainability are to design CUIS facilities to minimize adverse effects on natural and cultural values; to reflect their environmental setting and to maintain and encourage biodiversity; to construct and retrofit facilities using energy-efficient materials and building techniques; to operate and maintain facilities to promote their sustainability; and to illustrate and promote conservation principles and practices through sustainable design and ecologically sensitive use. Essentially, sustainability is living within the environment with the least impact on the environment. By using existing island resources, the Preferred Alternative subscribes to and supports the practice of sustainable planning, design, and the intended use of the CUIS facilities. For example, under the TMP, the Alberty House is being adapted for possible use as a north end visitor contact station, only minor improvements are proposed for the Main Road rather than a complete overhaul, and alternative fuel vehicles are an objective.

## **2.6 Environmentally Preferred Alternative**

The CEQ has stated that the environmentally preferred alternative is the alternative that would promote the national environmental policy expressed in NEPA, Section 101(b). The environmentally preferred alternative is determined by applying the six following NEPA criteria. The environmentally preferred alternative would:

- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
- Assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings;
- Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;
- Preserve important historic, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment which supports diversity and variety of individual choice;
- Achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities; and
- Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

Revised Alternative 3 is the alternative that best achieves consistency with the values set forth in Sections 101 and 102(1) of NEPA. By confining trips to existing unpaved roads on the interior road system, Revised Alternative 3 would have only minor impacts on the important historic, cultural, and natural aspects of our national heritage preserved at CUIS, and thereby fulfill the responsibilities of this generation as trustee of the environment for succeeding generations. In addition, by providing access to cultural resources at the north end of the island, Revised Alternative 3 would facilitate the long-term appreciation and maintenance of those resources. Revised Alternative 3's call for motorized trips between the northern and southern portions of the island would allow the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences. Alternative 1 and Revised Alternative 2 would have somewhat fewer adverse environmental impacts than Revised Alternative 3 because they call for less (or no) use of island roads. They would also provide correspondingly fewer opportunities for visitors to experience the island. By allowing more access than Alternative 1 and Revised Alternative 2, with only minor adverse impacts, Revised Alternative 3 would maintain an environment that supports diversity and variety of individual choice, while achieving a balance between population and resource use that

permits a wide sharing of amenities. More so than the other alternatives, Revised Alternative 3 would allow NPS to offer all visitors a safe, healthful, productive, and aesthetically and culturally pleasing experience. Therefore, Revised Alternative 3 is the alternative that best achieves the requirements of sections 101 and 102(1) of NEPA.





### **3.0 AFFECTED ENVIRONMENT**

The affected environment section focuses on existing conditions of environmental and cultural resources that would affect or would be affected by the implementation of the alternatives. This information provides the baseline conditions for determining the resource impacts of the three alternatives. Major topics discussed include Social Environment; Natural Resources; and Cultural Resources. Subtopics are discussed under each of these major topics.

#### **3.1 Social Environment**

##### **Socioeconomics**

The City of St. Marys is located in Camden County. It is situated on the northern bank of the St. Marys River in the coastal plain region of Georgia. The CUIS visitor center and ferry dock are located at the waterfront. This is the only location where visitors can register with the NPS and travel to the island on the concessionaire ferry.

Population growth in St. Marys is anticipated to continue through at least 2025 (JJG Water and Sewer Master Plan). The proximity of the City to the coast makes it an attractive location for retirees and families purchasing second (vacation) homes. In fact, the majority of the land use within St. Marys is residential. The Interstate 95 (I-95) and State Route (SR) 40 corridors provide easy access to other nearby cities, such as Brunswick, GA, and Jacksonville, FL. A number of light commercial/retail centers have located in the area.

Greyfield Inn is the only commercial operation on Cumberland Island. The Inn has been in operation since the mid-1960s and houses related business activities. Most of the non-public properties on Big Cumberland Island are in reserved estate agreements with the NPS. The agreements allow the respective party(s) to retain use and occupancy of the property for a defined period of time ranging from as little as 25 years to the lifetime of a given descendant(s). These reserved estates are consistent with the CUIS enabling legislation, but the properties are NOT considered to be commercial.

Commercial operations related to the park itself are limited. Those identified in the CUIS draft Commercial Services Plan consist of the ferry concession, various Commercial Use Authorizations, a cooperating association, and holders of certain Special Use Permits, e.g., for commercial photography. The sole concessionaire, Lang's Seafood, Inc., has provided ferry service to the island for over a decade. Eastern National is a cooperating association with the NPS founded in 1947. Its one outlet in the park is located in the mainland Visitor Center, where books, videos, and related items are sold. Language in the 1972 Establishing Legislation and 1984 General Management Plan led the NPS to limit the number of concessions at CUIS in order to maintain its primitive state. Additionally, the 2004 Cumberland Island Wilderness Boundary Adjustment Act states that trips of CUIS may not be conducted with the use of more than three concession contracts.

## **Transportation**

Cumberland Island is accessible by private boat or passenger ferry only. Visitors seeking private transportation may charter a boat with the approved concessionaire or use personal boats. Day use docking is available at the north end of both Dungeness and Sea Camp docks, but only a limited amount of space is available, and the slips are on a first-come, first-served basis. Visitors are asked to deposit an entrance fee in collection boxes upon arrival at the docks. No overnight docking is permitted.

An NPS concessionaire runs the passenger ferry that departs from St. Marys to transport visitors to the island on a 45-minute ride to the Dungeness or Sea Camp Docks on the western shore of Cumberland Island. The ferry does not transport pets, bicycles, kayaks, or cars to the island. Bicycles and kayaks may be transported to the island by an authorized concessionaire charter boat.

The passenger ferry schedule varies throughout the year. From March 1<sup>st</sup> to November 30<sup>th</sup>, two daily round trips are made departing St. Marys at 9:00 a.m. and 11:45 a.m. and departing Cumberland Island at 10:15 a.m. and 4:45 p.m. From December 1<sup>st</sup> to February 28<sup>th</sup>, the ferry keeps the same departure and arrival times with no ferry service on Tuesdays or Wednesdays. From March 1<sup>st</sup> to September 30<sup>th</sup>, there is an additional departure from Cumberland Island at 2:45 p.m., Wednesday through Saturday.

Once on the island, visitor travel is primarily by foot or bicycle. Bicycles are available for rent at Sea Camp through contract with the passenger ferry concessionaire. NPS staff does not manage bike rentals. These limited travel options result in a concentration of visitation and day use on the southern end of the island.

While visitor transportation is generally pedestrian, there are approximately 85 vehicles on the island. Twenty-five of the vehicles are owned by the NPS. Private landowners, including the Greyfield Inn, and those with reserved estates have approximately 60 additional vehicles. Island driving is restricted for some by Wilderness areas and private roads. However, some reserved estate agreements allow for driving within the Wilderness. Beach driving is a permitted privilege regulated by the Georgia Department of Natural Resources (GA DNR). As of April 14, 2009, 331 permits have been issued by the GA DNR to allow driving on the beaches of Cumberland Island. Permits must be renewed every five years. Through an agreement with GA DNR, the NPS has the opportunity to review and comment on permit applications prior to issuance.

## **Visitor Use and Experience**

Visitor use and experience consists of: visitation patterns on CUIS, visitor experiences and activities, and interpretive opportunities for cultural and natural resources. CUIS is open year round with the exception of December 25th. In the past decade, visitation to CUIS has averaged approximately 43,500 people per year. Peak visitation is during spring break (March–May). Visitation is to remain at approximately 300 people a day according to the park's General

Management Plan (1984). This limitation provides for a continuation of the existing natural character of the island, free from extensive development and intensive visitor use. Overnight guests of Greyfield Inn, guests of island residents, and visitors by private boat (shoreline landings) are not counted toward the visitor limit number.

### *Activities*

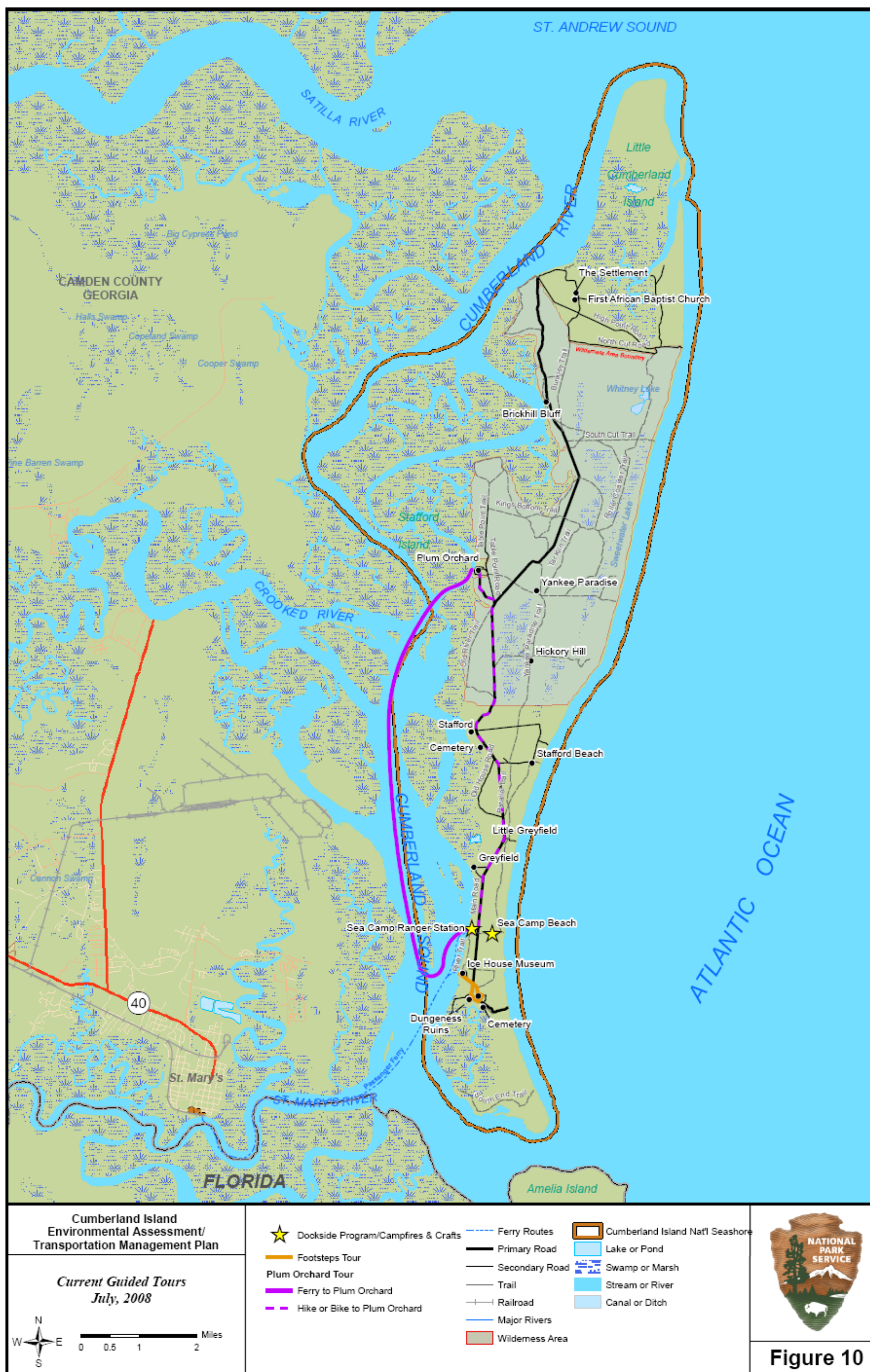
**Island Museums:** Visitors to Cumberland Island first begin their experience at the NPS Visitor Center in St. Marys. The facility is open daily from 8:00 a.m. to 4:30 p.m. While there, visitors can view limited exhibits of the natural and cultural features of the island. Some exhibits are designed to suggest places to visit and opportunities to enjoy the experience when visiting the island. Additional exhibits in the form of audiovisual programs about the island are presented daily.

The park also has a museum located in downtown St. Marys, just off of the waterfront, that has two primary exhibits. One is a general park museum that has interpretive information about natural resources and the island's continuum of human history from American Indian occupation through the Carnegie era. Included in these displays are pieces of a dug out canoe, a wagon room with three restored wagons/carriages and a replica of a cotton gin. Visitors to the museum may also watch videos about the history of the island in the viewing room. The second primary museum exhibit is dedicated to St. Marys' involvement in the War of 1812, and includes artifacts and displays related to archeological discoveries at nearby Point Peter.

The Dungeness Icehouse on the island has been adaptively restored for use as a museum and restroom facility. Photographs, descriptions, and other memorabilia of the island's history are displayed for visitor enjoyment.

**Guided Tours:** Four formal programs are currently offered by the NPS. See **Figure 10** for current guided tour paths and locations. All ranger-led activities are dependent on staff availability.

- The "Footsteps" tour is a ranger-guided, walking tour of the Dungeness Historic District. The walk begins at Dungeness Dock and continues along Coleman Avenue turning onto Grand Avenue (Main Road) to the entrance of the Dungeness ruins and concluding in the support area of the former estate. Visitors learn about the cultural history of the island from the Timucuan through the Carnegies. Additionally, the island's natural history is discussed including the maritime forest, marsh ecology, and wildlife. Tours are offered twice daily and last approximately an hour.



- The “Plum Orchard” tour is another walking tour offered by the NPS that allows visitors to see an early 20<sup>th</sup> century mansion with antiques from the Carnegie families. This tour requires an hour and a half roundtrip ferry ride from Sea Camp or seven-mile hike or bicycle ride to the Plum Orchard Historic District. The tour is currently offered on the second and fourth Sundays of each month.
- The “Dockside” tour is a 30-minute program presented at the Sea Camp Ranger Station on a daily basis. The programs highlight a variety of cultural and natural history topics and are often seasonal.
- Finally, the summer schedule also includes a daily “Campfires and Crafts” program at Sea Camp Ranger Station and evening programs on Saturday nights at the Sea Camp Campground. The topics of these presentations vary, but generally cover the native flora and fauna, and barrier island ecology.

**Self-Guided Interpretation:** Daytime visitors arriving at Dungeness Dock are presented with interpretive materials including maps and brochures regarding interpretive opportunities through the park including the Dungeness Historic District and other points of interest. Adjacent to the dock is the Dungeness Icehouse, which has been adaptively restored for use as a museum. Here, visitors can learn about the island’s history including American Indian habitation through the Carnegie period by looking at memorabilia, including photographs and artifacts. Restrooms are located in the rear of the building.

The NPS provides interpretive facilities to educate visitors about the sensitivity of park resources while enhancing the visitor experience on the island. In the Dungeness Ruins area, wayside panels educate visitors following the self-guided tour. After disembarking at the historic dock, visitors walk along the oak-lined Coleman Avenue to Grand Avenue (Main Road) – the formal entrance of the Dungeness Ruins. In this area, visitors can view the Dungeness Ruins, the gardens, a waterwheel, and other landscape features. Next, visitors walk to the Tabby House – a historic house museum that presents the house as it was used by the record keeper during the Carnegie Period. At the end of the tour, visitors can return to the dock or continue on to the beach and other points of interest such as the marsh boardwalk.

**Camping:** Both developed and backcountry camping is available. See **Figure 11** for photos of both camping options. Overnight visitation limit is set at 120. Sea Camp can accommodate 60 campers per night, and the additional 60 campers are divided among the remaining campgrounds. All camping is limited to seven days. Spring and late Fall are peak seasons. Reservations are encouraged and may be made up to six months in advance.





Developed Camping



Backcountry Camping



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## Camp Grounds

Date: July 2008  
Scale: Not to Scale

**Figure 11**

**Backcountry Camping:** Backcountry sites are \$2.00 per person per night. All of the backcountry sites are located within Wilderness, there are no facilities, and water must be treated. Campfires are not permitted in the backcountry, and portable stoves are recommended. The backcountry sites range from 5.5 to 10.5 miles from the Sea Camp ferry dock. Sites are assigned upon arrival.

- Hickory Hill: 5.5 miles from Sea Camp, in the heart of the island, offers visitors the opportunity to explore an interior freshwater wetland and its wildlife. Insects are seasonally prevalent due to the proximity of the campsite to a wetland area.
- Yankee Paradise: 7.5 miles from Sea Camp, also in the center of the island and a two hour round trip walk to the Plum Orchard Mansion.
- Brickhill Bluff: 10.5 miles from Sea Camp, located on the Brickhill River. This location is a favorite place for spotting dolphins.

**Developed Camping:** Developed camping sites are \$4.00 per person per night. Sites have various levels of facilities.

- Sea Camp Campground: Includes restroom facilities with cold water showers, a small amphitheater for ranger programs, boardwalk access to the beach, and a treated water supply. This campground consists of 16 individual camp sites and two group sites. Group sites can accommodate 10-20 people. Each campsite has a fire ring with grill, secure food storage, and picnic table. Sites are assigned upon arrival.
- Stafford Campground: Located 3.5 miles from the ferry dock. Restrooms, showers, and treated water are available at the site. Each campsite has a fire ring with grill.

**Hiking:** A total of 50 miles of hiking trails meander through maritime forests, interior wetlands, historic districts, marsh ecosystems, and beaches. Trails are accessible only by foot. On the south end of the island, trails provide an opportunity to view a number of different ecosystems including the maritime forest, marsh, and dune systems. The trail systems include Dungeness Trail, River Trail, and Nightingale Trail. For visitors traveling north on the island, there is an extensive network of north-south trails that provide a path through the heart of the island. Visitors can see a variety of plant life, open fields, tidal creeks, freshwater wetlands and lakes, Plum Orchard Mansion, and the site of the First African Baptist Church located in the historic Settlement area at the north end of Cumberland Island.

**Hunting and Fishing:** Hunting is permitted on the island during six managed hunts that are open to the public and held during the State of Georgia's hunting seasons. The hunts are advertised in newspapers, and a lottery drawing is held to select participants. Fishing is not restricted by season or participant selection but is subject to all State regulations. Anglers can enjoy numerous fresh and saltwater fishing opportunities. The island's surrounding waters and marshes offer additional recreational opportunities including the harvest of shrimp, crabs, and oysters. Anyone 16 years or older must possess a State of Georgia fishing license to fish.



**Photography:** Visitors to the island will find endless opportunities for photography. Numerous historic structures and ruins scatter the island. Sunrise at the beach, sunset over the marsh, gnarled live oak limbs, diverse island wildlife, and interesting cultural and natural features all provide excellent subjects for photos.

**Beach Combing:** Visitors are allowed to collect shark teeth and unoccupied sea shells with few limitations. The limit on unoccupied shells is 2 gallons. There is no defined limit on shark teeth due to their scarcity and unlikelihood that more than 2 gallons would be gathered in a day/visit. Shells and shark teeth may not be gathered for commercial purposes.

Beach findings may include coquinas, disc clams, heart cockles, ark shells, moon snails, and an occasional sand dollar or olive shell. Shark teeth can often be found in the roads because they are conditioned with dredge fill.

**Swimming:** Swimming is allowed anywhere on the island. However, visitors are encouraged to be mindful of riptides in the ocean and wildlife in freshwater ponds. There are no lifeguards, so visitors must swim at their own risk.

**Wildlife and Bird Watching:** Numerous species can be found at Cumberland Island, from threatened and endangered manatees and sea turtles to more than 300 species of birds. Often in the same day, visitors may see wild turkeys, armadillos, feral horses, vultures, dolphins, and lizards. Camping is encouraged for visitors who want to experience more elusive white-tailed deer, bobcats, alligators, and otters. Animal activity is often greater at dawn and dusk and camping allows visitors to be on location during these hours. Birding is often good at the south end at Pelican Banks, as well as on the marsh edge and in the interior wetlands. See **Figure 12** for photos of some of the island wildlife.

## **Wilderness**

On September 8, 1982, Congress designated much of the northern half of Cumberland Island as wilderness or potential wilderness to be managed as part of the National Wilderness Preservation System (Public Law 97-250, 16 U.S.C. 1131 *et seq.*). The Wilderness Act of 1964 requires the NPS to protect and manage designated wilderness so that it “generally appears to have been affected primarily by the forces of nature, with the imprint of man’s work substantially unnoticeable,” and so that it “has outstanding opportunities for solitude, or a primitive and unconfined type of recreation.” As a general rule, vehicular travel is prohibited in congressionally designated wilderness areas.

In the case of potential wilderness, NPS endeavors to preserve as much as possible of the area’s wilderness character so that it may be designated as wilderness once non-conforming uses cease.

Through the Cumberland Island Wilderness Boundary Adjustment Act of 2004 (Division E, Section 145 of Public Law 108-447), Congress directly and specifically removed three roads from the Cumberland Island Wilderness (i.e., the Main Road, North Cut Road, and the Plum Orchard Spur) and mandated that the NPS provide public access to the historic resources



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## Island Wildlife

Date: July 2008  
Scale: Not to Scale

**Figure 12**

adjacent to the Wilderness. It also adjusted the external boundary of the Cumberland Island Wilderness. Specifically, the act designated approximately 9,886 acres in the park as wilderness, and stated that an additional 231 acres are to become designated wilderness upon acquisition by NPS. The act also designated approximately 10,500 acres as potential wilderness. The act provides that when all uses prohibited by the Wilderness Act on the 10,500 acres of potential wilderness have ceased, the Secretary may designate those lands as wilderness.

NPS wilderness management policies are based on statutory provisions of the 1916 Organic Act for the National Park Service, the 1964 Wilderness Act, and legislation establishing individual units of the National Park System. NPS' *Management Policies* (2006) require that NPS-managed wilderness areas be administered for the use and enjoyment of the American people in such a manner as will leave them unimpaired for future use and enjoyment *as wilderness*. This means that NPS must protect the natural and cultural resources within a particular area while preserving its wilderness character. Most significantly, the Wilderness Act generally prohibits commercial activities and the use of motorized equipment in wilderness, subject to valid existing private rights. 16 U.S.C. 1133(c). The Cumberland Island Wilderness is managed in accordance with these laws and policies.

Recreational uses in National Park Service wilderness areas are to be such as will enable the areas to retain their primeval character and influence; protect and preserve natural conditions; leave the imprint of man's work substantially unnoticeable; provide outstanding opportunities for solitude or primitive and unconfined types of recreation; and preserve wilderness in an unimpaired condition.

### **Community Character and Park Neighbors**

Cumberland Island includes twenty private entities that have interests in at least one or more parcels of land on the island. These parcels are in either fee simple ownership or are under reserved estate agreements with the NPS. In addition, the U.S. Navy, U.S. Army Corps of Engineers, and State of Georgia own property within the legislated boundary. Although Little Cumberland Island is also within the CUIS boundary, it is completely under private ownership and is managed by a property owner's association.

The fee simple and reserved estate properties on Cumberland range in size from less than 1/3-acre to approximately 200 acres, generally include at least one residential structure, and are dispersed throughout the island. The national register historic districts of Dungeness, Stafford, Plum Orchard, and High Point – Half Moon Bluff all contain inholdings. Several other tracts are located within the Wilderness Area. The island properties serve a variety of functions including full-time residence, vacation homes, rental properties and commercial inn. The residents, their employees and guests use the Main Road as the primary transportation artery on the island.

### **3.2 Natural Resources**

Congress recognized the national significance of Cumberland Island when it included the island within the National Park System. The significance of the diverse resources on Cumberland Island received international recognition in 1986 when the UNESCO Bureau of the International

Coordinating Council for Man and the Biosphere designated CUIS as part of the Carolina-South Atlantic Biosphere Reserve-Sea Island Unit.

Cumberland Island is bounded by the Atlantic Ocean on the east, the Cumberland River on the west, by St. Andrews Sound on the north, and by Cumberland Sound on the south. The authorized boundary of CUIS encompasses both Cumberland and Little Cumberland islands, but Congress directed that Little Cumberland Island remain in private ownership so long as the residents of Little Cumberland maintain an irrevocable trust or other irrevocable agreement that ensures the preservation of that island's resources. Of Cumberland Island's 36,415 acres, approximately 19,565 acres are considered upland and 16,850 acres contain marsh, mud flats, and tidal creeks. The NPS owns 18,866.37 acres within the CUIS boundary, with most of the remainder being privately owned, owned by the State of Georgia, or owned by the NPS subject to reserved estates. Two other Federal entities own land within the CUIS boundary: the U.S. Army Corps of Engineers (518 acres) and the U.S. Navy (139 acres).

Barrier island landscapes are dynamic, with the ocean being the primary force of change. Beach sands are in constant motion as a result of southwest littoral (i.e., along-the-shore) currents, high waves and surge caused by storms, routine wave action, and rising sea levels. Sand movement changes the appearance of the island, sometimes increasing and sometimes eroding the shoreline.

### **Vegetation and Wildlife**

Vegetation is critical in maintaining stability on the island. Extensive root systems of maritime grasses and herbaceous plants help to stabilize sediments, whether windblown or waterborne. The grasses themselves trap windblown sand. In this way, sand dunes build naturally, and the topography is elevated just enough that other plant life can take root. Shrubs and trees shield other vegetation from the harsh salt-spray of the ocean, allowing different plant life to grow. Therefore, the vegetation forms distinctive ecological zones across the island.

Just over 10% of the island is composed of dune plant communities. This includes sparse stands of grasses, forbs, and sedges along the primary dunes, interdune meadow, and secondary dunes along the 17½-mile ocean beach. Sea oats (*Uniola paniculata*), railroad vine (*Ipomoea pes-caprae*), beach morning glory (*Ipomoea stolonifera*), and beach pennywort (*Hydrocotyle bonariensis*) are important stabilizing plants.

The entire tidal area of the west side of the island is linked into a single functional unit. Extensive salt marshes meander along the creeks and create pockets of stabilizing grasses dominated by salt-marsh cordgrass (*Spartina alterniflora*). *Spartina* grows over the entire marsh, is eaten by insects, dies, decomposes, and, as detritus, furnishes food for most of the other marsh fauna. Shrimp, crabs, and small fish use the marshes as a nursery and feeding area, moving in and out with the tides. Fiddler crabs are the most conspicuous animals that feed on the detritus covering the soft mud. The tidal amplitude in Georgia is large, approximately seven feet. Tidal data from Sea Camp dock shows the mean high water level at approximately 6.83 feet and the mean low water level at 0.0 feet. These "bar-built" estuaries are energy absorbing systems.

The aquatic systems of Cumberland Island are more extensive and diverse than those of other Georgia barrier islands. Permanent ponds comprise 0.2% of the island. Three quarters of these are freshwater ponds. Water levels in ponds and sloughs fluctuate, changing their salinity. These areas provide nesting, feeding, and roosting areas for a large number of wading birds and shore birds, as well as many amphibians, reptiles, and mammals.

Fire, storms, grazing, and agricultural use have been, and remain, significant influences in determining the present vegetation communities of Cumberland Island. Twenty-two (22) plant communities have been described and mapped (Hillestad 1975). Mature forests are dominated by broadleaf evergreen species. Thirty-nine percent of the island is made up of five upland forest communities, with oak species playing an important role in every one. Important tree species include live oak (*Quercus virginiana*), laurel oak (*Quercus laurifolia*), several species of pine (*Pinus spp.*), and bayberry (*Myrica cerifera*). Common understory plants include saw palmetto (*Serenoa repens*), bristly panic grass (*Panicum aciculare*), other grasses, and many vine species. No-federally listed plants have been found on the island. Hard (acorns) and soft (fruits) mast producing trees, shrubs, and vines are a significant food source for numerous species of wildlife on CUIS.

Thirty-nine (39) species of mammals, both marine and terrestrial, are known to occur or have occurred on CUIS. There are resident populations of white-tailed deer (*Odocoileus virginianus*), gray squirrels (*Sciurus carolensis*), and raccoons (*Procyon lotor*). There are many smaller mammals, including rodents, bats, opossums, marsh rabbits, mice, and voles. Armadillos were first documented on the island in 1974. Bobcats were reintroduced in 1989. The presence of coyotes was documented in 2006.

Feral animals exist in a wild or untamed state; especially, having reverted to such from a domesticated state. Two feral species inhabit Cumberland, hogs and horses, and both owe their presence to past activities of man. Primary concerns presented by feral animals include competition with native wildlife for food and habitat, and damage to the environment. The horses inflict unnatural grazing pressure on sea oats which stabilize dune systems and spartina which stabilizes the marsh environment. Trampling of dune and marsh areas denudes vegetation and facilitates erosion. Hogs are capable of damaging numerous facets of a local ecosystem due to their omnivorous feeding habits. They are known to consume hard and soft mast vegetation, roots and tubers, small reptiles and amphibians. During periods of high hog populations in the late 1990s and early 2000s Cumberland experienced significant damage to loggerhead sea turtle nests. In addition to their feeding habits, hogs can potentially damage soils and related communities through their intense rooting activities.

Birds are by far the most numerous animals on the island, with more than 300 species recorded within CUIS boundaries. Their abundance is due to the CUIS location on the Atlantic Flyway and the lack of development and human disturbance. At least 101 species are known to nest on the island. Of special importance are the bald eagle, wood stork, and peregrine falcon that use CUIS in limited numbers for feeding and resting. Eagles currently nest on the island and storks

have done so in the recent past. The piping plover is threatened along the Atlantic coast. Non-breeding migrant piping plovers spend a considerable amount of time on the CUIS coast annually, with individuals normally arriving in late July and early August and remaining into mid-May. Least terns, Wilson's plovers, and American oystercatchers nest behind beach/berm, among scattered low dunes, and on tidal flats. Cumberland Island provides critical nesting habitat for 18 species of colonial nesters such as least and gull-billed terns, wood storks, herons, and egrets. The mature oak forest provides nesting habitat for 77 species of tree nesting birds and feeding habitat for over 100 species of insect-eating birds. Large multi-species flocks of shorebirds frequent the beaches.

Reptiles dominate the herpetofauna of Cumberland Island. There are 44 species of reptiles and 17 species of amphibians. Many varieties of tree frogs, toads, snakes, and lizards are also common residents. The American alligator occurs commonly throughout aquatic areas.

Cumberland consistently supports one of the largest nesting sea turtle populations along the Georgia coast. The loggerhead sea turtle (*Caretta caretta*), a federally threatened species, is a regular summer visitor to Cumberland Island, nesting on or near the base of dunes fronting the beach. Over the last 15 years, CUIS has documented an average of 206 sea turtle nests established per year. During the 2007 nesting season, 177 loggerhead sea turtle nests were laid. Green, Kemp's ridley and leatherback sea turtles occasionally visit the shores of Cumberland, but rarely nest.

Numerous marine animals inhabit the intertidal zones of the beaches, tidal flats, and salt marshes. Manatees, dolphins, and several whale species frequent the waters adjacent to Cumberland. Burrowing mole crabs, ghost crabs, and coquina clams are found on the ocean beaches, and crustaceans and worms on the tidal flats. Many species of commercially valuable invertebrates and fish are supported by the food chain of CUIS salt marshes and tidal creeks.

### **Threatened and Endangered Species**

The Endangered Species Act requires an examination of impacts on all federally-listed threatened or endangered species. National Park Service policy also requires an assessment of the impacts on all Federal candidate species, as well as State listed threatened, endangered, candidate, rare, declining, and sensitive species. The Federal and State listed threatened or endangered species, candidate species, and species of special concern that may be potentially found in Camden County, Georgia, are discussed in this section. Table 3 provides a comprehensive list of those species, their habitat and potential known threats. Information on these species is from the U.S. Fish and Wildlife Service, National Marine Fisheries Service, and Georgia Department of Natural Resources. The list includes four mammals, thirteen birds, seven reptiles, one fish, and four plants. It is difficult to say that all of these species are in the study area because their range is likely at the county level. Camden County covers approximately 659 square miles.

**Table 3: Federal and State Listed Species Known to Occur in Camden County**

Species	Federal Status	State Status	Habitat	Threats
<b>Mammal</b>				
<b>Humpback whale</b> <i>Megaptera novaeangliae</i>	E	E	Coastal waters during migration	Entanglement in commercial fishing gear and collisions/disturbance associated with boats and barges
<b>Right whale</b> <i>Eubalaena glacialis</i>	E	E	Mate and calve in shallow coastal waters; critical habitat designated from the mouth of Altamaha River south to Sebastian Inlet, FL (from shoreline east 5-15 nautical miles)	Initial decreases probably due to over harvesting. Slow population growth after exploitation halted may be due to collisions/disturbance associated with boats and barges, inbreeding, inherently low reproductive rates, or a reduction in population below a critical size for successful reproduction.
<b>Round-tailed muskrat</b> <i>Neofiber alleni</i>	No Federal Status	T	Bogs and ponds; creates pyramid-shaped nest in vegetation	Habitat loss from human activities and natural succession. Loss of bog/floating mat vegetation-type habitat due to man's suppression of wildfires.
<b>West Indian manatee</b> <i>Trichechus manatus</i>	E	E	Coastal waters, estuaries, and warm water outfalls	Initial decreases probably due to over harvesting for meat, oil and leather. Current mortality due to collisions with boats and barges and from canal lock operations. Declines also related to coastal development and loss of suitable habitat, particularly destruction of seagrass beds.



Species	Federal Status	State Status	Habitat	Threats
<b>Bird</b>				
<b>Bachman's warbler</b> <i>Vermivora bachmanii</i>	E	E	Probably extinct; last seen in Georgia in 1976	
<b>Kirtland's warbler</b> <i>Dendroica kirtlandii</i>	E	E	Varying habitats during late spring and fall as the bird migrates between Michigan and wintering grounds in the Bahamas.	Habitat degradation as a result of wildfire suppression, and incubation and hatchling competition from brown-headed cowbirds are major threats for this species.
<b>Bald eagle</b> <i>Haliaeetus leucocephalus</i>	No Federal Status	T	Inland waterways and estuarine areas in Georgia. One active eagle nest was documented on Cumberland in 2007.	Major factor in initial decline was lowered reproductive success following use of DDT. Current threats include habitat destruction, disturbance at the nest, illegal shooting, electrocution, impact injuries, and lead poisoning.
<b>Peregrine Falcon</b> <i>Falco peregrinus</i>	No Federal Status	R	Extreme north Georgia is the southern limit of the historic nesting range. Peregrines are commonly seen along the Georgia coast during winter migration.	Major factor in initial decline was lowered reproductive success from DDT concentrations. While DDT use in South America is still a concern, expansion of human population and subsequent loss of undisturbed nesting habitat and foraging areas is a factor currently.
<b>Gull-billed tern</b> <i>Sterna nilotica</i>	No Federal Status	T	Nests in colonies on sandy sites; forages over salt marsh, dunes and other grassy areas for insects, spiders, and other invertebrates	Nest disturbance and loss of habitat to beach-front development are the major threats to this species.
<b>Piping plover</b> <i>Charadrius melodus</i>	T	T	Winter on Georgia's coast; prefer areas with expansive sand or mudflats (foraging) in close proximity to a sand beach (roosting)	Habitat alteration and destruction and human disturbance in nesting colonies. Recreational and commercial development has contributed greatly to loss of breeding habitat.

<b>Species</b>	<b>Federal Status</b>	<b>State Status</b>	<b>Habitat</b>	<b>Threats</b>
<b>Wilson's Plover</b>  <i>Charadrius wilsonia</i>	No Federal Status	T	Atlantic Coast breeding populations range from New Jersey to northern South America. Nesting habitat includes beaches, sand flats and spits.	Loss of nesting habitat from human development; predation from wild, feral, and domestic animals; and human disturbance in the form of pedestrians and vehicles are primary threats to this species.
<b>Least Tern</b>  <i>Sterna antillarum</i>	Not listed in GA; interior U.S. populations Endangered	R	Atlantic Coast breeding populations range from Massachusetts to Florida. Nesting colonies have been documented in all Georgia coastal counties.	Human disturbance of nesting colonies is the primary threat to this species' success. Predation also is a concern.
<b>American Oystercatcher</b>  <i>Haematopus palliatus</i>	Not Listed	R	Nests on marsh islands, upland dunes, beaches, and dredge spoils. Atlantic Coast population nests from Massachusetts to southern Florida.	Human disturbance, loss of nesting habitat to development, and predation are known threats to this species' success.
<b>Black Skimmer</b>  <i>Rynchops niger</i>	Not Listed	R	Atlantic Coast population nests on barrier island beaches and man-made dredge spoil islands primarily in the mid-Atlantic States. Winters in southern U.S. and Caribbean.	Main threats include loss of nesting habitat due to beachfront development and human disturbance at nesting colony sites.
<b>Red Knot</b>  <i>Calidris canutus</i>	Not Listed	R	Nests in the Arctic and winters on southern tip of South America. Georgia coast serves as a stopover for winter/early spring migrants.	Reduction in population is thought to be related to lack of preferred food sources during migration and subsequent decline in body condition.

Species	Federal Status	State Status	Habitat	Threats
<b>Red-cockaded woodpecker</b>  <i>Picoides borealis</i>	E	E	Nest in mature pine with low understory vegetation (<1.5m); forage in pine and pine hardwood stands > 30 years of age, preferably > 10" dbh	Reduction of older age pine stands and encroachment of hardwood midstory in older age pine stands due to fire suppression
<b>Wood stork</b>  <b>Mycteria americana</b>	E	E	Primarily feed in fresh and brackish wetlands and nest in cypress or other wooded swamps. Active rookeries were located in Camden County 1991-2002.	Decline due primarily to loss of suitable feeding habitat, particularly in south Florida. Other factors include loss of nesting habitat, prolonged drought/flooding, raccoon predation on nests, and human disturbance of rookeries.
<b>Reptile</b>				
<b>Eastern indigo snake</b>  <i>Drymarchon corais couperi</i>	T	T	During winter, den in xeric sand ridge habitat preferred by gopher tortoises; during warm months, forage in creek bottoms, upland forests, and agricultural fields	Habitat loss due to uses such as farming, construction, forestry, and pasture and to over collecting for the pet trade
<b>Gopher tortoise</b>  <i>Gopherus polyphemus</i>	Not listed in GA; federally threatened in portions of its range in AL, MS, and LA	T	Well-drained, sandy soils in forest and grassy areas; associated with pine overstory, open understory with grass and forb groundcover, and sunny areas for nesting	Habitat loss and conversion to closed canopy forests. Other threats include mortality on highways and the collection of tortoises for pets.
<b>Green sea turtle</b>  <i>Chelonia mydas</i>	T	T	Rarely nests in Georgia; migrates through Georgia's coastal waters	Exploitation for food, high levels of predation, loss of nesting habitat due to human encroachment, hatchling disorientation due to artificial lights on beaches, and drownings when trapped in fishing and shrimping nets

Species	Federal Status	State Status	Habitat	Threats
<b>Hawksbill sea turtle</b>  <i>Eretmochelys imbricata</i>	E	E	Migrates through Georgia's coastal waters	Primary causes of population decline are development and modification of nesting beaches and exploitation for the shell. Secondary causes include egg consumption, use of the skin for leather, and heavy predation of eggs and hatchlings.
<b>Kemp's ridley sea turtle</b>  <i>Lepidochelys kempi</i>	E	E	Migrates through Georgia's coastal waters	Over harvesting of eggs and adults for food and skins and drowning when caught in shrimp nets
<b>Leatherback sea turtle</b>  <i>Dermochelys coriacea</i>	E	E	Rarely nests in Georgia; migrates through Georgia's coastal waters	Human exploitation, beach development, high predation on hatchlings, and drowning when caught in nets of commercial shrimp and fish trawls and longline and driftnet fisheries
<b>Loggerhead sea turtle</b>  <i>Caretta caretta</i>	T	E	Nests on Georgia's barrier island beaches; forages in warm ocean waters and river mouth channels	Loss of nesting beaches due to human encroachment, high natural predation, drownings when turtles trapped in fishing and shrimping trawls, and marine pollution
<b>Fish</b>				
<b>Shortnose sturgeon<sup>1</sup></b>  <i>Acipenser brevirostrum</i>	E	E	Atlantic seaboard rivers	Construction of dams and pollution, habitat alterations from discharges, dredging or disposal of material into rivers, and related development activities.
<b>Plant</b>				
<b>Climbing buckthorn</b>  <i>Sageretia minutiflora</i>	No Federal Status	T	Calcareous rocky bluffs, forested shell middens on barrier islands, and evergreen hammocks along stream banks and coastal marshes. Recorded from 5 counties in Georgia.	

Species	Federal Status	State Status	Habitat	Threats
<b>Hartwrightia</b> <i>Hartwrightia floridana</i>	No Federal Status	T	Peaty muck of pine flatwoods, sedge meadows, and wettest parts of poorly drained ditches/sloughs; often with water-spider orchid ( <i>Habenaria repens</i> ). Recorded from 3 counties in Georgia.	
<b>Pondspice</b> <i>Litsea aestivalis</i>	No Federal Status	R	Margins of swamps, cypress ponds, and sandhill depression ponds and in hardwood swamps. Recorded from 13 counties in Georgia.	
<b>Wagner spleenwort</b> <i>Asplenium heteroresiliens</i>	No Federal Status	T	Marl outcrops, damp limestone ledges, and tabby masonry. Recorded from 3 counties in Georgia.	

Key: E = Endangered; T = Threatened; SC = Species of Concern; R = Rare

### Soils

Most of Cumberland Island's soils were derived from homogenous quartz sands deposited during the island's formation. These soils are highly resistant to weathering and closely resemble their parent materials. Some characteristics of these island soils are low water-retention capacity, rapid permeability, and vulnerability to leaching and low pH. Rapid leaching leads to soils that cannot retain essential plant nutrients. Therefore, nutrients must be retained by plants or they are briskly recycled. Barrier island soils are especially vulnerable to disturbances, and plant litter plays a major role in reducing nutrient leaching by dissipating the force of rainfall. Removal of plant litter or plant biomass results in rapid exhaustion and leaching of soil nutrients. Disruption of stabilizing vegetation permits wind erosion that is difficult to reverse. As sands begin to shift, a loss of productivity results in erosion to adjacent areas as well as where sand deposits bury stable soils and vegetation.

### Air Quality

Cumberland Island National Seashore is designated as a Class II air quality area under the Clean Air Act (CAA). Furthermore, Section 118 of the (CAA), as amended (33 U.S.C. 7401 *et seq.*), requires each park unit to meet all Federal, State, and local air pollution standards. There are no air quality (AQ) monitoring stations on Cumberland Island. However, modeling and estimates

generated by the NPS and based on regional AQ sites indicate that CUIS is within the national standards for ozone, particulates, and acid deposition.

### **Soundscape Management**

In accordance with NPS *Management Policies* (2006) and Director's Order #47, *Sound Preservation and Noise Management*, an important part of the NPS mission is preservation of natural soundscapes associated with national park units. Natural soundscapes exist in the absence of human-caused sound. The natural ambient soundscape is the aggregate of all natural sounds that occur in park units, together with the physical capacity for transmitting natural sounds. Natural sounds occur within and beyond the range of sounds that humans can perceive and can be transmitted through air, water, and solid materials. The frequencies, magnitudes, and duration of human-caused sound considered acceptable varies among NPS units, as well as potentially throughout each park unit, being generally greater in developed areas and less in undeveloped areas. Throughout Cumberland Island the natural soundscape may be affected by industrial and military facilities to the south and west, persistent mid and low level aircraft overflights, vessel traffic on the waterways surrounding the island, and day-to-day human activities associated with the park and residence settings.

### **3.3 Historic, Archaeological and Cultural Resources**

For more than 4,000 years, a variety of human visitors and residents have interacted with and relied upon the natural resources of Cumberland Island. The island and its inhabitants have played important roles in numerous significant periods of American history. The first occupation dates back to before 3000 BC, with early ceramic cultures appearing around 2000 BC. Cultural affiliations shifted over time, but, at the time of first contact with Europeans, the Timucua occupied Cumberland Island. Later, a tribe named the Guale by the Spanish used Cumberland Island seasonally, harvesting fish and shellfish.

Soon after Europeans arrived, the Sea Islands of North America's southeast coast were drawn into the larger Atlantic trading economy. In the sixteenth century, the natural abundance of Cumberland and other coastal islands attracted European galleons, which stopped long enough to load game birds, pelts, and naval stores. The sailors on these ships were drawn from various European and African trading areas, and these visits witnessed some of the first encounters between Africans, Europeans, and American Indians.

The southeastern coast of North America, lying between Spanish Florida and the British settlements in Virginia, was contested ground from the early seventeenth to the late eighteenth centuries. Around 1600, Spanish priests and soldiers established a string of missions and related forts on the Georgia Sea Islands, including the missions of San Pedro de Mocama and San Pedro y San Pablo de Porturibo on Cumberland Island. The Spanish sought to Christianize the native peoples and guard their more valuable possessions to the south.

The settlement of Carolina in 1670 led to increasing conflict between the British and Spanish and their respective native allies. Raids instigated by the British pushed the Spanish farther and

farther south. During King George's War in the 1740s, General James Oglethorpe, founder of the Georgia colony, fortified Cumberland Island against the Spanish with Fort St. Andrews at the north end of the island and Fort Prince William at the south end. The Battle of Bloody Marsh on St. Simons Island in 1742 ended the impending threat of Spanish occupation in Georgia, but the fate of the Georgia Sea Islands continued to be disputed in the French and Indian War, the American Revolution, and the War of 1812.

The plantation system began to take root on Cumberland in the late eighteenth century. The primary engine of development in the South, the plantation, was based on African slavery and the production of staple crops for export. Although timber, citrus fruit, and olives were cultivated on Cumberland, long-staple cotton, commonly known as sea-island cotton, emerged as the most profitable crop, commanding as much as one dollar per pound in international markets. Revolutionary War hero Nathaniel Greene began the development of plantation agriculture on Cumberland in the 1780s, but his widow, Catherine, and their descendants were the initial key players. An 1802 map of the island shows a system of roads and cotton fields cleared by slave labor. By the 1840s, much of the island was under cultivation by some 200 to 400 enslaved African workers under the direction of two to three dozen whites. The substantial black majority in coastal South Carolina and Georgia and the area's relative isolation from outside influences produced a unique African-American cultural complex known as Gullah (in South Carolina) or Geechee (more commonly used in Georgia). Hallmarks of this culture are a distinctive Gullah language and artistic, culinary, and religious traditions strongly influenced by African heritage. Although little is known specifically about Geechee culture on Cumberland, it likely resembled the more intensively studied Gullah culture of South Carolina.

Agricultural production on Cumberland peaked during the two decades preceding the Civil War. It was at this time that planter Robert Stafford assembled holdings on the island totaling some 8,000 acres. Early in the war, most white plantation masters abandoned their lands and field slaves when it became apparent that Confederate forces could not defend the Sea Islands. Union troops occupied Cumberland and surrounding waters in March 1862, holding the area for the remainder of the war. Much of the African-American population of Cumberland sought refuge under Federal auspices on nearby Amelia Island, just across the sound in Florida. Following the war and short-lived efforts to redistribute confiscated land to freed people, the landholdings on Cumberland reverted to their pre-war owners.

In the 1870s, an expanding railroad and steamship network opened the coastal South to more intensive recreational use. By 1878, hotel operations at High Point on the northern end of Cumberland Island were served by steamers from Brunswick. They reached a peak in the 1890s and 1900s, when groups like the Georgia Teachers Association and the Georgia State Dental Society held their annual meetings there. Starting in 1890, the hotel owners sold small plots of land at the nearby Settlement (also known as Half Moon Bluff) to several African-American families in order to ensure a steady supply of labor. The hotel shut down in 1920 when the Cumberland Island Club, a private organization, purchased the property. Eight years later, the property was acquired by the Candler family, which had made its fortune through the Coca-Cola Company.



Wealthy northern industrialist families also saw the potential for winter homes on the Sea Islands. In 1881, Thomas Morrison Carnegie – brother of Andrew Carnegie – purchased the Greene-Miller plantation at Dungeness for his wife Lucy Coleman Carnegie and their growing family. Despite Thomas' death in 1886, Lucy went on to amass 90 percent of Cumberland Island and proceeded to turn it into a complex of family estates, which included homes with extensively landscaped grounds for four of her children. Lucy's home, Dungeness Mansion, was built on the ruins of Catherine Greene's original Dungeness plantation house. During Lucy's lifetime, Cumberland Island was a highly organized, largely self-sufficient, private preserve. It was staffed by some 200 employees, most of whom were African Americans, and, through their labor, the extended Carnegie family was supplied with produce and livestock, supplemented by provisions brought daily from Amelia Island on the family yacht.

Lucy Carnegie established a trust that kept the family's holdings intact until the death of her last child, which occurred in 1962. By this time, plans for exploiting and developing the island's natural and scenic resources threatened the island's future preservation. Wanting to maintain its character, Carnegie and Candler descendants who were interested in preserving the island banded together to seek alternative ways to protect Cumberland Island from development. They, along with environmental organizations and the Department of the Interior, succeeded in having Cumberland Island set aside in 1972 as a National Seashore for all Americans.

The appearance of Cumberland Island today is largely a result of the overlay of these successive waves of human habitation and development. Many individual sites, such as Dungeness and Plum Orchard, bear the imprint of American Indian settlements, followed by the plantation regime, with a final dominant overlay of Carnegie-era development. From the late 1700s, the bulk of the labor that developed and maintained human life on the island was supplied by African Americans, enslaved until the 1860s and as paid laborers thereafter. Although many of the prominent extant structures on the island represent the leisure activities of the island residents, the artifacts below ground – the ruins of slave villages, patterns of field and forest, gardens and outbuildings – represent the considerable contributions of American Indians and African Americans to the development of the island.

Just as important as individual historic structures are the cultural landscapes or contexts in which the structures existed. The cultural landscape helps provide insight into the lives of plantation owners and slaves on CUIS. The cultural landscapes of CUIS are being preserved in entire historic districts rather than just individual buildings and structures.

Historic districts have been established around the historic structures and landscapes at Dungeness, Plum Orchard, Stafford, and High Point – Half Moon Bluff as part of the Cultural Resource Management Plan. Each of these historic districts has been included in the National Register of Historic Places. The privately owned Greyfield is also a federally listed historic district. Archaeological districts have been established at Rayfield and Table Point, and these districts have likewise been included in the National Register of Historic Places. In total, the park is responsible for 82 individual historic structures and 47 known archeological sites.

Table 4 lists and **Figure 13** shows the CUIS structures and sites listed in the National Register Information System (NRIS). The NRIS is a database about places listed on or determined eligible for the National Register of Historic Places.

**Table 4: National Register Information System**

<b>Resource Name</b>	<b>Date Listed</b>
Dungeness Historic District	1984-02-13
Plum Orchard Historic District	1984-11-23
Stafford Plantation Historic District	1984-11-23
High Point-Half Moon Bluff Historic District	1978-12-22
Greyfield Historic District (private)	2003-07-24
Table Point Archaeological District	1984-11-23
Rayfield Archaeological District	1984-02-13
Main Road	1984-02-13
Duck House	1984-02-13
Little Cumberland Island Lighthouse (private)	1989-08-28

Source: National Register Information System, 2007

