

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



ENVIRONMENTAL ASSESSMENT

Loop Road Improvements

Big Cypress National Preserve, Florida

Public Comment

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Please address written comments to:

Office of the Superintendent

ATTN: Loop Road Improvements EA Comments

Big Cypress National Preserve

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EXECUTIVE SUMMARY

ENVIRONMENTAL ASSESSMENT LOOP ROAD IMPROVEMENTS

BIG CYPRESS NATIONAL PRESERVE, FLORIDA

The National Park Service (NPS) proposes to rehabilitate and repair damage along 16.53 miles of Loop Road, the main scenic drive through Big Cypress National Preserve (the Preserve). This road provides access to the Loop Road Education Center and is used by thousands of visitors each year. The road is also the only access route for some of the owners of land within Preserve boundaries (private inholders). The proposed project area includes approximately 5 miles of paved and 11.53 miles of unpaved gravel road. The NPS, in cooperation with the Federal Highway Administration (FHWA), has proposed the rehabilitation of the 5-mile paved portion of the road, and the NPS has proposed the rehabilitation of the 11.53-mile unpaved portion of the road.

The project is needed because Loop Road is one of the main scenic driving roads within the Preserve and provides access to visitors and persons who live adjacent to the road. Loop Road needs to be repaired to provide safe access to up to 371 visitors per day. Continuous drainage problems have plagued the road, and in October 2005, Hurricane Wilma caused severe damage to Loop Road and other structures in the area. Due to inadequate drainage under the existing road, water is impounded on the north side during high water, and road segments are commonly overtopped, resulting in road deterioration. On the low sections of the roadway, 3 to 8 inches of standing water have been present for weeks at a time. The road shoulders have been washed out, which creates a safety hazard and undermines the road.

Two alternatives were analyzed for meeting the following objectives: provide a sustainable roadbed and road surface for Loop Road; minimize the effects of floodwaters overtopping the gravel portion of Loop Road; preserve the rural, scenic character of Loop Road; and reduce Preserve operations burdened by providing a stable, long-term solution to Loop Road maintenance. The alternatives are:

Alternative A: No Action. Under the No Action Alternative improvements to Loop Road would not be performed. Maintenance on the paved portion of the road would include minor patches to pavement potholes, and maintenance on the unpaved portion of the road would include grading of the gravel surface. However, these maintenance activities would not improve the overall function of the road and would not prevent long-term deterioration of the road. The road would continue to serve as an impediment to natural surface water flows.

Alternative B: Preferred Alternative. The Preferred Alternative includes road improvements to the 5-mile segment of paved roadway to include asphalt pavement rehabilitation, safety improvements, replacing old culverts, and installing new culverts to improve water flow beneath the roadbed. The Preferred Alternative also includes rehabilitation of the 11.53-mile gravel section within Monroe County by adding and grading more base material, replacing existing culverts and installing new culverts to improve water flow.

This environmental assessment (EA) has been prepared in compliance with the National Environmental Policy Act (NEPA) to provide the decision-making framework that 1) analyzes a reasonable range of alternatives to meet objectives of the proposal, 2) evaluates potential issues and impacts to the Preserve resources and values, and 3) identifies mitigation measures to lessen the degree or extent of these impacts. Resource topics included in this document because the resultant impacts may be greater-than-minor include water quality, hydrology, wetlands, wildlife, special status species, cultural landscape, and visitor use, recreational resources, and transportation. All

other resource topics were dismissed because the project would result in negligible or minor impacts to those resources. No major impacts are anticipated as a result of this project.

The documents related to the National Historic Preservation Act (NHPA), in accordance with the Advisory Council on Historic Preservation's regulations implementing Section 106 (36 CFR Part 800.8, *Coordination with the National Environmental Policy Act*) have been completed as a separate submittal to the State Historic Preservation Office. NPS has found that the preferred alternative (Alternative B) would have no adverse effect on the historic character of Loop Road. The Florida State Historic Preservation Officer has concurred with that finding.

In addition to analyzing impacts to the abovementioned resources, this document addresses cumulative impacts for all alternatives; identifies the environmentally preferred alternative; and makes findings on impairment of park resources and values.

Public scoping was conducted to assist with the development of this document, and comments were received. These comments were taken into consideration when developing the alternatives and assessing the impacts of those alternatives.

United States Department of the Interior • National Park Service

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CHAPTER 1: PURPOSE AND NEED FOR ACTION

INTRODUCTION

The National Park Service (NPS) proposes to rehabilitate and repair damage along 16.53 miles of Loop Road, one of the main scenic drives through Big Cypress National Preserve (Preserve). This road provides access to the Loop Road Education Center and is used by thousands of visitors each year. The road is also the only access route for some of the private landowners within Preserve boundaries (private inholders). The proposed project area includes approximately 5 miles of paved and 11.53 miles of unpaved gravel road. The NPS, in cooperation with the Federal Highway Administration (FHWA), has proposed the rehabilitation of the 5-mile paved portion of the road, and the NPS has proposed the rehabilitation of the 11.53-mile unpaved portion of the road.

This Environmental Assessment (EA) evaluates impacts on the human environment of continued current management (the No Action Alternative) and the proposed action to repair the road and replace culverts to reduce flooding conditions (the Preferred Alternative). This EA was prepared in compliance with the National Environmental Policy Act (NEPA) of 1969 and implementing regulations, 40 Code of Federal Regulations (CFR) Parts 1500-1508 and NPS Director's Order #12: *Conservation Planning, Environmental Impact Analysis, and Decision-making* (NPS, 2001a) and NPS *Management Policies* (NPS, 2006a). The documents related to the National Historic Preservation Act (NHPA), in accordance with the Advisory Council on Historic Preservation's regulations implementing Section 106 (36 CFR Part 800.8, *Coordination with the National Environmental Policy Act*) have been completed as a separate submittal to the State Historic Preservation Office.

PURPOSE

The purpose of the proposed project is to provide a structurally and functionally adequate pavement with a long-term service life for the paved portions of Loop Road and to improve the unpaved sections of Loop Road by replacing collapsed drainage culverts, installing additional culverts to improve drainage, and augmenting the base material (gravel) on the road surface. Repairing and improving both the paved and gravel sections of Loop Road would allow the Preserve to provide a safer road for visitors and private inholders that own land within Preserve boundaries. Rehabilitation techniques would be employed with minimal impact to the road shoulders and would not expand the existing road footprint. The proposed actions for the entire 16.53-mile project would take place within the previously disturbed roadway prism.

Objectives

Objectives are specific statements of purpose; they describe what must be accomplished to a large degree for the plan to be considered a success. To be able to measure success of the project, criteria such as improved flow across the roadbed must be identified. The following primary objectives were developed by the Preserve staff and will be used in the analysis of alternatives in the EA. The primary objective of the repairs to the unpaved road portion is to minimize the effects of floodwaters overtopping the gravel-surfaced portion of Loop Road. The primary objective of the repairs to the paved portion of the road is to provide a structurally and functionally adequate pavement with a long-term service life. Efforts that meet these objectives would achieve the following:

- Provide a sustainable roadbed and road surface for paved and unpaved segments of Loop Road;
- Minimize the effects of floodwaters overtopping the gravel portion of Loop Road;
- Preserve the rural, scenic character of Loop Road; and

- Reduce Preserve operations burdened by providing a stable, long-term solution to Loop Road maintenance.

NEED

Loop Road is one of the main scenic driving roads within the Preserve and provides access to visitors and inholders. Loop Road was originally constructed by excavation of a parallel canal (Loop Road Canal) along the entire length of Loop Road. The culverts of Loop Road discharge into this canal, and the water then feeds into three strands and sloughs. Loop Road needs to be repaired to provide safe access to up to 371 visitors per day. Continuous drainage problems have plagued the road, and in October 2005, Hurricane Wilma caused severe damage to the unpaved portion of Loop Road and other structures in the area. Due to inadequate drainage under the existing road, water is impounded on the north side during high water, and road segments are commonly overtopped, resulting in road deterioration. On the low sections of the roadway 3 to 8 inches of standing water have been present for weeks at a time. The paved portion of Loop Road was showing signs of aging and required repairs prior to Hurricane Wilma, but there is no evidence that the hurricane made the paved portion of Loop Road worse. The road shoulders in both paved and unpaved sections have been washed out, which creates a safety hazard and undermines the road.

The proposed project is being considered to correct deficiencies in the existing road. Loop Road is not currently in a condition where routine maintenance and repair work would be sufficient to provide a suitable road. The portion of Loop Road that is within Monroe County is the most degraded. The portions of Loop Road within Collier County (north end of the road) and Miami-Dade County (east end of road) are in better condition and are maintained by the respective counties. The required repairs to Loop Road are entirely within Monroe County, and hereafter references to improvements on Loop Road refer to the portion of the road within the project area, Monroe County. The paved portion of the road is currently considered in moderate to severe distress, as evidenced by severe potholes and inadequate pavement depth, and in many areas, due to insufficient road width for two-way traffic, the edges of the road show moderate signs of fatigue cracking (FHWA, 2009). In addition to the pavement problems, many of the culverts under the road are showing signs of fatigue, some culverts have collapsed, and several culverts are inadequately sized to convey water during high water events. Most of the existing culverts, in both the paved and unpaved sections of Loop Road, would have to be replaced with new pipe or box culverts to provide adequate water conveyance. Repairs to the culverts to minimize the effects of floodwaters overtopping the gravel portion of Loop Road would also require that the road be raised. To raise the gravel portion of Loop Road, it would be necessary to raise the gravel road surface up to 9 inches (measured at the centerline of the road) and up to 18 inches at the locations of box culverts. This increase in gravel depth would prevent road overtopping and would provide the appropriate protection for the new culverts but would not widen the existing road.

There are four small single span bridges with a 10-foot wide clear span and a depth ranging from 3 to 5 feet on the Loop Road project area. The top layer of the single span bridges consists of multiple, 3-foot-wide slabs placed on top of vertical wall abutments. The bridge spans are in good condition, but the bridge abutments have experienced some washout damage due to high water events. For each of the four bridge locations, riprap would be placed at the outlet end of the bridges to protect against contraction scour and at bridge abutments as needed.

PURPOSE AND SIGNIFICANCE OF BIG CYPRESS NATIONAL PRESERVE

Big Cypress National Preserve (Figure 1) was established by Public Law 93-440 in 1974 out of a desire by outdoorsmen, environmentalists, and others to protect this ecologically sensitive area of south Florida from encroaching development. Big Cypress was to be administered by the NPS as the nation's first National Preserve. The National Preserve designation was chosen in order to allow the continuance of activities, such as oil and gas production, hunting, grazing, and off-road vehicle (ORV) use, which are not normally allowed in national parks. Public Law 93-440 also provides that members of the Miccosukee Tribe of Indians of Florida and Seminole Tribe of Florida would be allowed their usual and customary use and occupancy of Federal lands and waters within the Preserve, including tribal ceremonies, hunting, fishing, and trapping on a subsistence basis. The name Big Cypress comes not from the size of the cypress trees, but their extent. Although cypress trees comprise a large portion of the Preserve's acreage, there are also large tracts of open prairies, forested swamps, pinelands, and numerous hardwood hammocks and tree islands (Duever, *et al.*, 1986; Ewel, 1990). The purpose of the Preserve, as stated in Public Law 93-440, is "to assure the preservation, conservation, and protection of the natural, scenic, hydrologic, floral and faunal, and recreational values of the Big Cypress Watershed in the State of Florida and to provide for the enhancement and public enjoyment thereof."

The Preserve contains vestiges of primitive southwest Florida. It is significant as a unit of the national park system because it:

- Is a large wetland mosaic that supports a vast remnant of vegetation types found only in this mix of upland and wetland environments;
- Contains the largest stands of dwarf cypress in North America;
- Is habitat for the Florida panther and other animal and plant species that receive special protection or are recognized by the State of Florida, the U.S. government, or the Convention on International Trade in Endangered Species;
- Provides opportunities for the public to pursue recreational activities in a subtropical environment;
- Is home to the Miccosukee Tribe of Indians of Florida and Seminole Tribe of Florida and sustains resources that are important to their cultures; and
- Is a watershed that is an important component to the survival of the greater Everglades ecosystem.

OTHER RELATED PLANS

Big Cypress National Preserve General Management Plan

The General Management Plan (GMP) and Final Environmental Impact Statement (NPS, 1991) was developed to guide the Preserve in visitor use, natural and cultural resources management, and general development within the original 1974 Preserve boundaries.

Big Cypress National Preserve Resource Management Plan

The *Resource Management Plan* (NPS, 2001b) is designed to serve as a framework for implementing the natural and cultural resources, as set forth in Public Law 93-440, 100-301, and 100-696.

Figure 1. Location of Big Cypress National Preserve



IMPAIRMENT OF RESOURCES

In addition to determining the environmental consequences of implementing the preferred and other alternatives, NPS Management Policies 2006 (section 1.4) requires analysis of potential effects to determine whether or not proposed actions would impair a park's resources and values.

The fundamental purpose of the national park system, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve park resources and values. NPS managers must always seek ways to avoid, or to minimize to the greatest degree practicable, adverse impacts on park resources and values. However, the laws do give the National Park Service the management discretion to allow impacts on park resources and values when necessary and appropriate to fulfill the purposes of the park. That discretion is limited by the statutory requirement that the National Park Service must leave resources and values unimpaired unless a particular law directly and specifically provides otherwise.

The prohibited impairment is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values (NPS Management Policies 2006). Whether an impact meets this definition depends on the particular resources that would be affected; the severity, duration, and timing of the impact; the direct and indirect effects of the impact; and the cumulative effects of the impact in question and other impacts.

An impact on any park resource or value may or may not constitute impairment. An impact would be more likely to constitute impairment to the extent that it affects a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park, or
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or
- identified in the park's general management plan or other relevant NPS planning documents as being of significance.

An impact would be less likely to constitute an impairment if it is an unavoidable result of an action necessary to preserve or restore the integrity of park resources or values and it cannot be further mitigated.

Impairment may result from visitor activities, NPS administrative activities, or activities undertaken by concessioners, contractors, and others operating in the park. Impairment may also result from sources or activities outside the park.

An impairment determination is not made for visitor experience, recreation resources, and transportation, as these impact areas are not generally considered to be park resources or values according to the Organic Act and cannot be impaired in the same way that an action can impair park resources and values.

The determination of impairment for the preferred alternative is found in Appendix C.

SCOPING

As part of the EA scoping process, comments were solicited from the public, the federally recognized tribes including the Miccosukee Tribe of Indians of Florida and the Seminole Tribe of Florida, and other stakeholders. Comments were sought concerning the issues and alternatives addressed in the EA, and the rationale for suggesting that the resource areas be analyzed in the EA. Copies of scoping letters are provided in Appendix A.

A public scoping meeting was held on Wednesday, April 28, 2010, from 5 to 7 p.m. at the Oasis Visitor Center. The comments, in general, were supportive of the proposed project. Copies of agency and public comments are provided in Appendix B.

However, some commenters were concerned about the potential for increased traffic or increased speed on Loop Road.

A request was submitted to provide additional turn-around areas and accommodations for parking along the existing roadway. However, the proposed action does not include expansion of the road beyond the current footprint; therefore, road widening for parking and turn-around areas would not be conducted as part of this proposed action.

ISSUES AND IMPACT TOPICS

Specific impact topics were developed for further discussion to assess the potential environmental consequences of each alternative. These impact topics were identified based on Federal laws, regulations, and executive orders, and based on the issues identified in the NPS *Management Policies 2006* (NPS, 2006a). Internal and external scoping comments were considered in the choice of impact topics and were used in the development and evaluation of alternatives discussed in this EA.

Table 1 presents the impact topics, the reasons for retaining the topic, and the relevant laws, regulations, and policies. Scoping issues or impact topics that were considered but not retained for further analysis are discussed below in “Impact Topics Dismissed from Further Consideration”.

Table 1
Impact Topics Retained for Further Evaluation and Relevant Laws,
Regulations, and Policies.

Impact Topic	Reasons for Retaining Impact Topic	Relevant Laws, Regulations, and Policies
Water Quality	The waters within the Preserve have been designated by the State of Florida as “Outstanding Florida Waters” because of their exceptional recreational and ecological significance. Water quality could be affected by the proposed action.	NPS <i>Management Policies 2006</i> ; Florida Administrative Code 17-3.041; Clean Water Act (1972)
Hydrology	The proposed action may affect the local hydrology and sheet flow in the area and may have some effect on the regional hydrology.	Big Cypress National Preserve Resource Management Plan (2001); Big Cypress National Preserve General Management Plan (1991)
Wetlands	The majority of the Preserve can be considered wetlands, with the exceptions being those areas described as upland vegetation. Wetland vegetation and wetland hydroperiod may be affected by the proposed action.	NPS <i>Management Policies 2006</i> ; Executive Order 11990; Directors Order 77-1; Clean Water Act (1972)
Wildlife	The area surrounding the Preserve includes habitats for most of the wildlife species native to south Florida. Disturbance to wildlife species may occur in areas within or adjacent to the project area.	NPS Organic Act (1916); NPS <i>Management Policies 2006</i> ; Big Cypress General Management Plan(1991)

Impact Topic	Reasons for Retaining Impact Topic	Relevant Laws, Regulations, and Policies
Special Status Species	The Preserve is home to an exceptional concentration of rare and protected species, including one of the United States' most endangered mammals, the Florida panther (<i>Puma concolor coryi</i>). The proposed action may affect habitat used by one or more special status species.	NPS <i>Management Policies 2006</i> ; Section 7 of the Endangered Species Act (16 USC 1535 Section 7(a)(2); 50 CFR Section 402; Big Cypress General Management Plan (1991)
Cultural Landscape	Loop Road was constructed in the 1920's as part of the Tamiami Trail. The proposed action described in this EA would have the potential to impact the historic features of the Loop Road landscape.	NPS Organic Act (1916); NPS <i>Management Policies 2006</i> ; NHPA (16 USC 470 <i>et seq.</i>); NPS Director's Order #28, <i>Cultural Resource Management Guideline</i> (1998).
Visitor Use, Recreational Resources, and Transportation	The area is used for recreational use (e.g., camping, hiking, hunting, fishing, and ORV use). Inholders utilize the same roads as the visitors and recreational users. Loop Road is used to access the Loop Road Education Center. Improvements to Loop Road under the proposed action may affect visitor use, access to recreational resources and transportation within the Preserve.	NPS <i>Management Policies 2006</i> ; Director's Order #87A (park roads and parkways) (1984); Director's Order #87D (Non-NPS federal aid roads) (2000a).

Impact Topics Dismissed from Further Analysis

Floodplains

Executive Order 11988, "Floodplain Management" was issued to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative. The order requires Federal agencies to provide leadership and take action to (1) reduce the risk of flood loss, (2) minimize the impact of floods on human safety, health and welfare, and (3) restore and preserve the natural and beneficial values served by floodplains.

A Class I floodplain includes the location or construction of administrative, residential, warehouse and maintenance buildings, non-excepted parking lots or other man-made features, which by their nature entice or require individuals to occupy the site, are prone to flood damage or result in impacts to natural floodplain values. Actions in this class are subject to the floodplain policies and procedures if they lie within the 100-year regulatory floodplain (the Base Floodplain). A Statement of Findings is often prepared if an action falls within a floodplain; however, in this case, the Class I floodplains of the Preserve would not be altered by the proposed action, and the floodplain boundaries would remain the same. The proposed actions would not interfere with natural floodplain functions or cause or exacerbate upstream or downstream flooding outside the bounds of the Preserve. Culvert improvements and the addition of culverts would improve floodwater conveyance and have beneficial impacts to floodplains. Therefore, floodplains will not be retained for further analysis.

Soils

NPS *Management Policies 2006* (NPS, 2006a) direct that the Preserve prevent or minimize adverse, potentially irreversible impacts on soils. The soils of the Preserve are not true soils in the textbook

sense – layers of mixed mineral and organic materials with characteristic profiles – but are instead simple biological and geological products which have not had sufficient time or proper environmental conditions for evolution of true soils (Duever et al., 1986). Rocks in the area are largely limestone, and the covering materials are basically one of four substrate types, rock, marl, sand, and organic soils (Brown et al., 1990).

Hydric soils in the Preserve were formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part of the soil profile (U.S. Department of Agriculture [USDA], Soil Conservation Service, 1987). Hydric soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation. The effects of proposed actions on hydric soils are included in the wetlands impact analysis.

The soils in the project area would be disrupted during construction, but the impacts would be short-term and negligible to minor. Most of this disruption would be to non-native soil, i.e., the filled roadbed. The Preserve would minimize soil excavation to the extent possible and prevent erosion and soil loss through the use of Best Management Practices (BMPs). BMPs for soil are described in detail in the Mitigation Measures section of this EA. Therefore, for these reasons, soils will not be retained for further analysis.

Vegetation

The Preserve hosts a variety of plant communities, including pinelands, prairies, marshes, hammocks, cypress savannas, and mixed swamp forests. The variability within the Big Cypress ecosystem results from elevation, water, fire, and soil conditions. Within the limited range of elevation within the Preserve, minor changes in elevation bring about vastly different plant communities. Marshes, mangroves, cypress strands, and cypress savannas are found at the lowest elevations. Prairies typically are found at the middle elevations, while the higher elevations are characterized by pinelands and hammocks (Ewel, 1990; Kushan, 1990). Vegetation associated with wetlands, including wetlands dominated by woody plants (e.g., cypress strands) are addressed separately in the wetlands section of this EA.

Several non-native plant species have been documented in the Preserve, including melaleuca (*Melaleuca quinquenervia*), Australian pine (*Casuarina* spp.), Brazilian pepper (*Schinus terebinthifolius*), and Old World climbing fern (*Lygodium microphyllum*). Melaleuca and Brazilian pepper are the non-native plant species that most commonly occur adjacent to Loop Road (NPS, 2006b). The Preserve has an aggressive exotic plant management program, which has greatly reduced the occurrences of melaleuca and Brazilian pepper. However, monitoring and treatment of infestations is an ongoing process.

Construction activities associated with the proposed action would disturb vegetation immediately adjacent to the existing road corridor, but these communities are not considered upland vegetation. The proposed action would have a negligible effect on native upland vegetation communities, and the proposed action would not affect the Preserve's exotic plant management plan – non-native plants will continue to be controlled and monitored. Loop Road is actively monitored by the Preserve botanist for exotic species. Therefore, native upland vegetation will not be retained for further analysis.

Wilderness

There are no designated wilderness areas in the Preserve. A wilderness study conducted in 1979 and the Preserve's general management plan concluded that none of the lands within the original Preserve were eligible for wilderness designation. Although there is designated wilderness in neighboring Everglades National Park, the effects of the proposed action, if any, would be negligible, and this topic will not be retained for further analysis.

Soundscapes

According to NPS, a soundscape is defined as the “total acoustic environment of an area”, which includes both natural and human sounds. NPS *Management Policies 2006* direct the Preserve to restore degraded soundscapes to the extent possible. During construction and road repairs, heavy construction equipment would increase the ambient noise levels. However, at the completion of the repairs to Loop Road, the soundscapes are expected to return to the conditions in the area consistent with the time before Hurricane Wilma. After construction, visitor traffic on Loop Road may increase from current levels because cars would be able to travel with greater ease on the road. However, the effect on soundscapes is expected to be negligible to minor because traffic patterns are expected to be approximately the same as the traffic patterns prior to Hurricane Wilma, approximately 371 visitors per day. For these reasons, soundscapes will not be retained for further analysis.

Prime and Unique Farmland

The Farmland Protection Policy Act (USDA, 1981; Public Law 97-98) was passed to minimize the amount of land irreversibly converted from farmland due to federal actions. Prime farmland as defined by the USDA Natural Resources Conservation Service (NRCS) is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It would be cultivated land, pastureland, forestland, or other land, but it is not urban or build-up land or water area. According to the USDA NRCS, there are no prime or unique farmlands within the areas of the proposed action, nor are areas within the Preserve available for farming activities; therefore, this topic will not be retained for further analysis.

Archeological Resources

No previously recorded archeological sites in the Preserve that have been determined to be eligible for listing in the National Register of Historic Places are located within or in proximity to the project area. The proposed Loop Road rehabilitation project is not expected to impact archeological resources because construction activities would be confined to previously disturbed areas, including the road prism and designated staging areas. Therefore, this impact topic will not be retained for further analysis.

In the unlikely event that unmarked human remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered during construction, all work would stop immediately and the proper authorities would be notified in accordance with Section 872.05, Florida Statutes and the Native American Graves Protection and Repatriation Act (Public Law 101-601; 25 USC 3001 et seq.) would be followed, and the proper authorities would be notified. The NPS would also ensure that all contractors and subcontractors are informed of the penalties for illegally collecting artifacts or intentionally damaging archeological sites.

Historic Structures

Properties more than 50 years old may be eligible for the National Register of Historic Places if they meet the criteria for listing and for contributions at the national, state, or local level. In order for a structure or building to be listed in the National Register, it also must possess historic integrity of those features necessary to convey its significance, i.e., location, design, setting, workmanship, materials, feeling, and association. No National Register-eligible or -listed properties are located within the project area. Therefore, this topic will not be retained for further analysis.

Ethnographic Resources

Ethnographic resources are defined by the NPS as any “site, subsistence, or other significance in the cultural system of a group traditionally associated with it” (Director’s Order – 28). American Indian tribes traditionally associated with the Preserve include the Seminole Tribe of Florida and

Miccosukee Tribe of Indians of Florida. The Preserve has several known sacred sites for the Miccosukee and Seminole people. Executive Order 13007, Indian Sacred Sites (1966), directs federal agencies, to the extent practicable, to accommodate access and ceremonial uses of Indian sacred sites and avoid adversely affecting the physical integrity of such sacred sites. The Executive Order also states that, where appropriate, locations of sacred sites should be confidential. The proposed action would be conducted so as to preserve the ethnographic resources of the area and maintain the integrity of Loop Road. Native American consumptive uses for sustenance and ceremonial uses would continue after the construction is complete. Therefore, ethnographic resources will not be retained for further analysis.

Museum Collections

Museum collections include historic artifacts, natural specimens, and archival and manuscript material. They may be threatened by fire, vandalism, natural disasters, and careless acts. The NPS requires the consideration of impacts on museum collections and provides further policy guidance, standards, and requirements for preserving, protecting, documenting, and providing access to and use of NPS museum collections. The proposed activities would not require additional curatorial services or increase the number of museum objects at the Preserve; therefore, museum collections will not be retained for further analysis.

Indian Trust Resources

Indian trust assets are owned by American Indians but are held in trust by the United States. Requirements are included in the Secretary of the Interior's Secretarial Order 3206, American Indian Tribal Rites, Federal – Tribal Trust Responsibilities, and the Endangered Species Act, and Secretarial Order 3175, Departmental Responsibilities for Indian Trust Resources. Miccosukee tribal lands are located east of the Monroe/Dade County line, and are outside of the project area. Therefore, Indian Trust Resources will not be retained for further analysis. However, the Preserve sought input from the Miccosukee Tribe on potential impacts and mitigation strategies, as outlined in the consultation and coordination section in Chapter 3 of this document.

Air Quality / Climate Change

According to the NPS *Management Policies 2006* (NPS, 2006a) park units have a responsibility to protect air quality under the NPS Organic Act (NPS, 1916) and Clean Air Act (Environmental Protection Agency [EPA], 1970, as amended). Big Cypress has been designated as a class II area under the Clean Air Act. Under class II, modest increases in air pollution are allowed beyond baseline levels for sulfur dioxide and particulate matter, provided that the national ambient air quality standards established by the EPA are not exceeded. Air quality degradation related to other development activities stem from vehicle use. Fugitive dust generated during road construction increases air particulate content. Smoke from internal combustion engines, as well as sulfur dioxide, nitrogen dioxide, carbon monoxide, and hydrocarbons, also adds to the total air quality impact. Maintenance and use of applicable pollution control devices on internal combustion engines and fuel storage tanks minimize impacts from these pollutants. Construction activities associated with the proposed action would include use of heavy equipment during the construction period, which could affect air quality, including visibility (dust), and exhaust from gasoline- or diesel-powered vehicles and equipment.

In addition to the air quality issues described above, the use of gasoline- or diesel-powered equipment during construction could cause increases in "greenhouse gases" that contribute to climate change, and may contribute to sea level rise. However, these emissions would be negligible in comparison to other local and regional sources of greenhouse gas emissions. Because the vehicle emission impacts described above would be local, temporary, and negligible, air quality will not be retained for further analysis.

Lightscape Management

According to *NPS Management Policies 2006* (NPS, 2006a), park units will preserve to the extent possible the natural lightscapes. Under the proposed action construction activities would occur during the day, and if construction lighting is required for the project, the lights would be shielded so that lights are not pointing toward the sky, and lighting would be removed at the conclusion of the construction project. No permanent lighting is proposed for the project. Therefore, lightscape management will not be retained for further analysis.

Public Health and Safety

Loop Road is generally used as a scenic driving road, and public health and safety issues are primarily concerned with driving hazards. The preferred alternative would provide a smoother more consistent driving surface and have a beneficial impact on public health and safety. The current speed limit is 25 miles per hour, which allows visitors to observe the surrounding landscape. The speed limit is enforced by the Preserve and by Miccosukee tribal police. The speed limit on Loop Road would not change under the proposed action, and therefore driving hazards are not expected to differ from current conditions. Therefore, Public Health and Safety will not be retained for further analysis.

Natural or Depletable Resource Requirements and Conservation Potential

The NPS uses sustainable practices to minimize the short- and long-term environmental impacts of development and other activities through resource conservation, recycling, waste minimization, and the use of energy-efficient and ecologically responsible materials and techniques. Construction activities would require expenditures of energy, including natural and depletable resources during the construction period from construction equipment. The alternatives analyzed in this EA would not require an increase in energy consumption, nor would the alternatives have appreciable effects on energy availability or costs. Adverse impacts would be no greater than short-term and negligible. Therefore, this impact topic was dismissed from further analysis.

Socioeconomics

The proposed action would provide short-term beneficial impacts to local communities from increased construction employment opportunities and a related short-term increase in business for local businesses. These impacts would be negligible and would not change local economic conditions in the long term; therefore, this topic will not be retained for further analysis.

Environmental Justice

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 impacts of their programs and policies on minorities and low-income populations and communities.

There are both minority and low-income populations in the vicinity of the Preserve. The Preserve staff and planning team actively solicited public participation as part of the planning process and gave equal consideration to all input from persons regardless of age, race, income status, or other socioeconomic or demographic factors. Based on public scoping and tribal consultation meetings, the impacts associated with the implementation of the alternatives considered would not disproportionately affect any minority or low-income population or community; therefore, this impact topic was not retained for further analysis.

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CHAPTER 2: THE ALTERNATIVES

INTRODUCTION

NEPA implementing regulations provide guidance on the consideration of alternatives in an EA. These regulations require the decision-maker to consider the environmental impacts of the proposed action and a range of alternatives (40 CFR § 1502.14). The range of alternatives includes reasonable alternatives that must be explored, as well as other alternatives that are eliminated from detailed study. To be “reasonable,” an alternative must meet the stated purpose of and need for the project.

The purpose of including a No Action Alternative in environmental impact analyses is to ensure that agencies compare the potential impacts of the proposed action to the known impacts of maintaining the *status quo*. Current conditions are used as a benchmark. Proposed alternatives will be compared to the no action alternative as the existing baseline.

The Preferred Alternative presents the NPS’s management proposed action and defines the rationale for the action in terms of resource protection and management, visitor and operational use, cost, and other applicable factors. Also included in this chapter is a comparison of how well the alternatives meet project objectives and a summary comparison of the environmental impacts of the alternatives.

ALTERNATIVE A, THE NO ACTION ALTERNATIVE

Under the No Action Alternative, improvements would not be made to Loop Road. The unpaved portion of Loop Road would continue to degrade and pose a travel hazard for visitors and people who live in the area. Standing water would continue to pool adjacent to the road for long periods of time and cause additional washed-out areas. The paved portion of Loop Road would continue to show signs of wear and degradation, including pavement fatigue on the edges of the road and large potholes that require extensive pavement patching (including full depth patches) would not be repaired. Culverts that are showing signs of fatigue or have collapsed would not be replaced in either the paved or unpaved sections of the road. Under the No Action Alternative, routine maintenance to Loop Road would continue, including grading of the gravel covered section of the road and minor patches to pavement potholes. The road would continue to serve as an impediment to natural surface water flows.

The No Action Alternative provides a basis for comparison with the Preferred Alternative and the respective environmental consequences. Should the No Action Alternative be selected, the NPS would respond to future needs and conditions without major actions or changes in the present course.

ALTERNATIVE B, THE PREFERRED ALTERNATIVE

The Preferred Alternative includes road improvements to the 5-mile segment of paved roadway to include asphalt pavement rehabilitation, safety improvements, replacing old culverts, and installing new culverts to improve water flow beneath the roadbed. The Preferred Alternative includes road improvements to the 11.53-mile segment of the unpaved roadway to include installing new culverts and replacing damaged culverts, increasing the gravel roadbed depth, and repairing washed out sections of the road.

The paved portion of Loop Road exhibits varying types and severities of distress; therefore, improvements would be performed using a combination of shallow and full-depth patching. Shallow patches would consist of removing the existing asphalt and gravel material to a depth of two inches below the existing pavement surface and placing two inches of new asphalt concrete. Full-

depth patches would be used in areas that exhibit moderate to high severity distress that is structural in nature. The full-depth patches would consist of removing the existing asphalt and gravel material to a depth of eight inches below the existing pavement surface and placing two inches of new asphalt concrete and six inches of gravel base. All corrugated metal circular culverts would be replaced with higher capacity horizontal elliptical concrete pipes. At the four single span bridges, additional riprap would be placed at the abutments to protect against contraction scour and damage from pooled water.

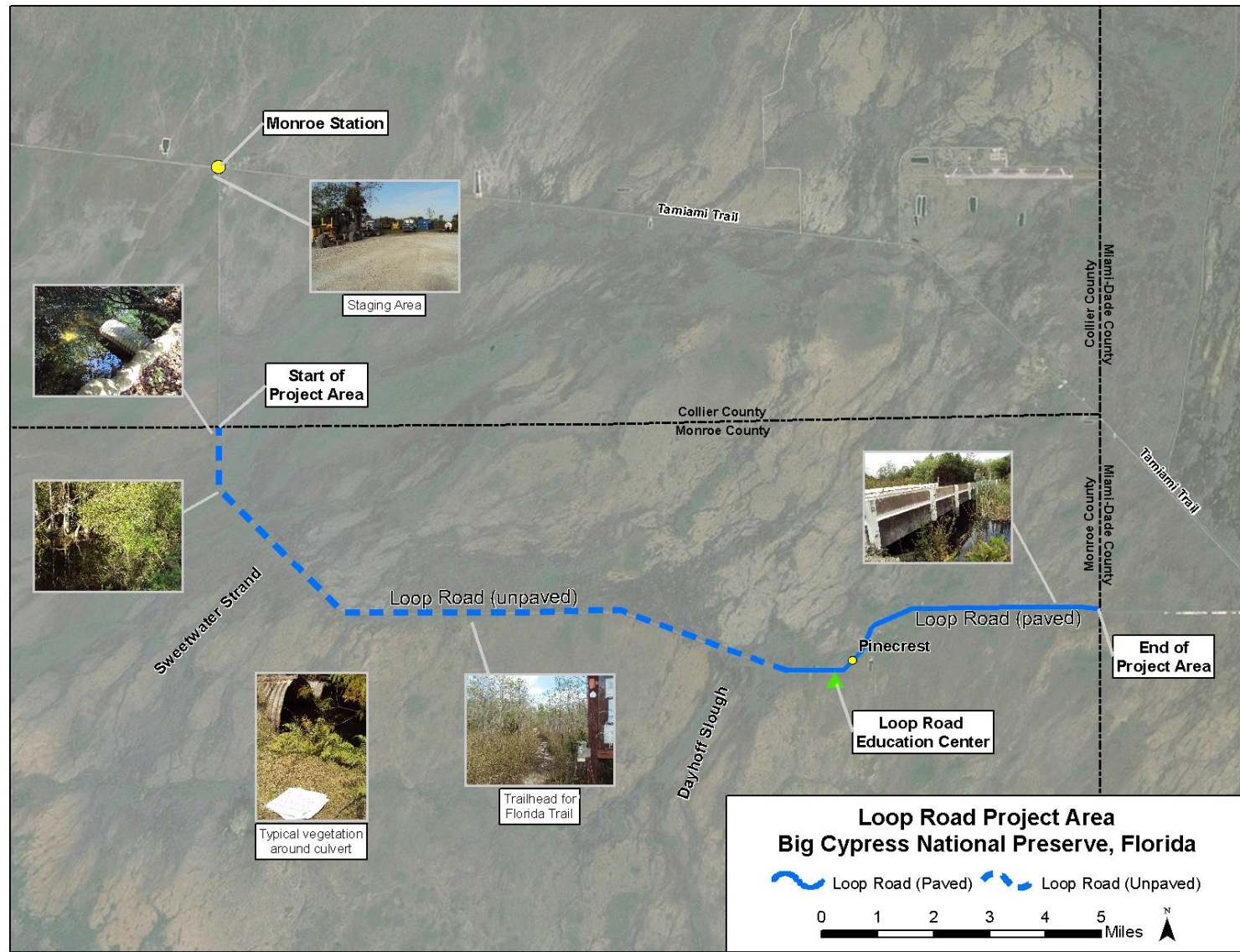
The Preferred Alternative also includes work on the 11.53-mile unpaved segment of the road to include complete rehabilitation of the graveled section of Loop Road and its drainage structures. The repairs to the gravel portion include replacement of damaged culverts and installation of a small percentage of additional pipe or box culverts (approximately 12 new culverts and more than 70 existing culvert locations). The road bed would also be raised up to nine inches where the gravel has deteriorated and raised up to 18 inches over new culverts and drains to provide sufficient depth to prevent damage to the new culverts. Finally, additional gravel material would be added as needed.

The overtopped and washed out areas along the edges of Loop Road would be repaired by placing small diameter riprap to an elevation of one foot above the waterline and then filling the remaining portions of the washed out areas above the riprap with sand/limerock base material. Approximately 265 tons of riprap would be used for repairing washed out areas and at culvert inlets and outlets for erosion protection along the entire 16.53-acre project area. The quantity would vary from less than one ton to 11 tons at each location. These areas would be designed to be at a minimum functional yet not intrude into the canal. The proposed unpaved road resurfacing material would be acquired from a borrow area at "50-mile Bend," located approximately 15 miles from Loop Road within the Preserve, or at a commercial borrow site approved by NPS.

Failing and/or inadequately-sized pipe culverts would be replaced and new pipe and box culverts would be installed at numerous locations along the unpaved and paved portions of Loop Road. Numerous existing pipe culverts would be replaced with either larger pipe culverts or box culverts. It is anticipated that fifteen of the replacement or new culverts would be box culverts (precast or cast-in-place) with headwalls. Excavation of limestone may be required to achieve the required culvert invert elevations at some of the culvert locations; over-excavation would be backfilled with crushed stone to the culvert invert elevation. At some of the culvert replacement locations, the invert elevations would likely result in the culverts and/or headwalls bearing on soft or loose saturated natural soils. In these cases, soft or loose soils would be over-excavated to the underlying limestone and backfilled with crushed stone to the culvert invert elevation and to the headwall bearing elevation.

Construction of the proposed project is expected to be completed within one non-hurricane season. The Atlantic hurricane season is June 1 through November 30; therefore, construction would occur between December 1 and May 31. However, construction may be extended to two seasons if weather conditions stop or slow construction (e.g., how long the rainy season lasts) or depending on when construction begins.

Figure 2. Loop Road Project Area, Big Cypress National Preserve



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MITIGATION MEASURES OF THE PREFERRED ALTERNATIVE

Mitigation measures to protect natural resources, cultural resources, and other values as described below would be implemented under the Preferred Alternative. All protection measures would be clearly stated in the construction specifications/special construction requirements.

General Considerations

- Construction zones would be identified with construction tape or similar material prior to any construction activity. All protection measures would be clearly stated in the construction specifications, and workers would be instructed to avoid conducting activities and disturbing areas beyond the construction limits.
- All tools, equipment, barricades, signs, surplus materials, demolition debris, and rubbish would be removed from the project work limits upon project completion.
- Contractors would be required to properly maintain construction equipment and generators (i.e., mufflers) to minimize noise from use of the equipment.
- All equipment on the project would be maintained in a clean and well-functioning state to avoid or minimize contamination from automotive fluids. All equipment would be checked daily.
- Material would be stored, used, and disposed of in a proper manner.
- Prior to beginning construction, an approved Management of Traffic Plan and construction schedule would address how material and equipment would be transported to the site. This plan would promote site safety and minimize the impacts of trucks and equipment on the public and the residents of Loop Road. Acceptable alternatives would consist of one-way hauling from the west with no truck turn-around or completing half the project at a time with designated turn-around locations away from resident properties.
- Staging areas for equipment and materials would be away from residential properties, and residential property access roads would not be used for truck turn-around areas.
- During construction visitors and residents would be alerted to activities through additional signage along the road, and information would be provided on the Preserve webpage (www.nps.gov/bicy).
- Law enforcement presence would be apparent on Loop Road during construction activities.
- Material used for construction activities, particularly road fill material, would be of an approved Department of Transportation road grade fill rather than unspecified generic fill material.
- In areas where work extends beyond paved surfaces, construction fencing would be installed to clearly delineate project limits.
- Traffic delays would be limited to no more than 15 minutes.
- Fill material would be processed according to specific requirements provided by the NPS according to contract requirements.
- A hazardous spill plan would be approved by the Preserve prior to construction. This plan would state what actions would be taken in the case of a spill, notification measures, and preventive measures to be implemented, such as the placement of refueling facilities, secondary containment, and storage and handling of hazardous materials.
- Best management practices (BMPs) for drainage and sediment control would be implemented to prevent or reduce nonpoint source pollution and minimize soil loss and sedimentation in

drainage areas. BMPs would include all or some of the following actions, depending on site-specific and Clean Water Act Section 401 and 404 permit requirements:

- Construction would ideally occur during the dry season to limit standing water that may be affected by sediment transport. The Preserve is typically flooded with a shallow sheet of surface water starting after the onset of the rainy season, usually in June, ending in the winter. November is a popular gun hunting season in the Preserve when some standing water is generally present. Therefore, the Preserve would begin construction in November when standing water would still be present in the area but after hunting season has peaked, and use BMPs to limit sediment transport.
- Fence, silt fence, or similar material prior to construction activity would define the construction zone and confine activity to the minimum area required for construction. Fencing or silt fence would be installed immediately prior to the start of construction, would be limited in extent to those areas that require protection, and would be removed immediately upon completion of the project.
- Waste and excess excavated materials would be stored outside of drainages to avoid sedimentation. Silt fences, temporary earthen berms, temporary water bars, sediment traps, check dams or other equivalent measures would be installed around the perimeter of stockpiled fill material.
- Regular site inspections would occur during construction to ensure that erosion-control measures are properly installed and are functioning effectively. The contractor would be required to ensure that the erosion control measures (such as silt fences) are repaired at all times and are emptied frequently. Further, if there is evidence of breaks in the fencing due to animal crossings, the contractor would repair the fence, remove the fence, or contact Preserve personnel if some animals had crossed through a break in the fence and then could not find their way back. Small mammals, alligators, snakes, and turtles are particularly susceptible to negative effects of the fence, including strandings.
- Water sprinkling would be used as needed to reduce fugitive dust in work zones.

Water Quality and Soils

- Erosion-control BMPs for drainage and sediment control, as identified and used by the NPS (and outlined above), would be implemented to prevent or reduce nonpoint source pollution and minimize soil loss and sedimentation in drainage areas.
- Accumulated sediments would be removed when the fabric is estimated to be approximately 75 percent full. Silt removal would be accomplished in such a way as to avoid introduction into any flowing water bodies.
- The operation of ground-disturbing equipment would be temporarily suspended during large precipitation events to reduce the production of sediment.

Vegetation

- Although rare plants are not known to occur in the area, a plant survey would be completed prior to project construction to determine the presence of rare plants. If rare plants are found they would be avoided or relocated if possible, as determined by the Preserve botanist.
- Temporary barriers would be provided to protect existing vegetation. Trees or other plants would not be removed, injured, or destroyed without prior approval.

- In an effort to avoid introduction of non-native species, no hay or straw bales would be used during revegetation or for temporary erosion control.
- To prevent the introduction of and minimize the spread of nonnative vegetation and noxious weeds, the following measures would be implemented during construction:
 - Soil disturbance would be minimized;
 - All construction equipment would be pressure washed and/or steam cleaned before entering the Preserve to ensure that all equipment, machinery, rocks, gravel, and other materials are clean and weed free;
 - All haul trucks bringing fill materials from outside the Preserve would be covered to prevent seed transport;
 - Vehicle and equipment parking would be limited to within construction limits or approved staging areas;
 - Staging areas outside the Preserve would be surveyed for noxious weeds and treated appropriately prior to use;
 - All fill, rock, and additional topsoil would be obtained from stockpiles from previous projects or excess material from this project, if possible; and if not possible, then weed-free fill, rock, or additional topsoil would be obtained from sources outside the Preserve; and
 - Monitoring for exotic vegetation would occur after project activities are completed. If exotic plants are found, they would be treated according to the methods in the existing exotic plant management plan (NPS, 2006b), including hand pulling of seedlings and herbicide control. Existing exotic plant monitoring stations are located along Loop Road.

Wildlife and Special Status Species

- Construction activities would be limited to 7 a.m. – 6 p.m.
- The construction contractor would be required to keep all garbage and food waste contained and removed daily from the work site to avoid attracting wildlife into the construction zone. Construction workers would be instructed to remove food scraps and not feed or approach wildlife.
- Wildlife collisions would be reported to Preserve personnel.
- Surveys for special status species would be conducted prior to disturbance of suitable habitat. If any of these species are found, the area would be avoided (if practicable), mitigation measures would be implemented to minimize impacts (e.g., work would only be conducted between 7 a.m. and 6 p.m. to avoid disturbing nocturnal or crepuscular activities; construction personnel would be advised of the potential presence of special status species and instructed to avoid disturbance or injury to these animals). If affected animals need to be relocated, appropriate Preserve personnel would be contacted.

Cultural Resources

- Preserve staff would be available during construction to advise or take appropriate actions should any archeological resources be uncovered during construction. In the unlikely event that human remains are discovered during construction, all work would stop immediately and the proper authorities notified in accordance with Section 872.05, Florida Statutes and the Native American Graves Protection and Repatriation Act (Public Law 101-601; 25 USC 3001 et seq.).

- The NPS would ensure that all contractors and subcontractors are informed of the penalties for illegally collecting artifacts or intentionally damaging archeological sites or historic properties. Contractors and subcontractors also would be instructed on procedures to follow in case previously unknown archeological resources are uncovered during construction.

Visitor Experience and Preserve Operations

- Preserve employees, visitors, and local landowners would be informed in advance of construction activities via a number of outlets including the Preserve website, press release, and visitor contact facility.
- During construction, visitors and residents would be alerted to activities through additional signage along the road, and information would be provided on the Preserve webpage (www.nps.gov/bicy).
- Law enforcement personnel would also be present during construction activities to protect public health and safety and provide information on construction activities.

ENVIRONMENTALLY PREFERRED ALTERNATIVE

The Council on Environmental Quality (CEQ) defines the Environmentally Preferred Alternative as "... the alternative that will promote the national environmental policy as expressed in NEPA §101." Section 101 states that, "... it is the continuing responsibility of the Federal Government to:

1. Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
2. Assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings;
3. Attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences;
4. 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;
5. Achieve a balance between population and resource use, which would permit high standards of living and a wide sharing of life's amenities; and
6. Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources."

The identification of the Environmentally Preferred Alternative was based on an analysis that balances factors such as physical impacts on various aspects of the environment, mitigation measures to deal with impacts, and other factors such as the statutory mission of the NPS and the purposes for the project.

While the No Action Alternative would preserve existing conditions, it would not be considered the Environmentally Preferred Alternative because it would not improve public safety and the effectiveness and efficiency of Preserve operations and would not meet environmental goals in the same manner as the Preferred Alternative. The No Action Alternative is not the Environmentally Preferred Alternative for the following reasons: 1) it would not meet the stewardship responsibility for protecting Preserve resources (criterion 1, above); 2) it would not improve public health and safety (criteria 2 and 3); and 3) it would not improve visitor access and services within the Preserve

(criterion 5). Put another way, the No Action Alternative does not fully meet the provisions of NEPA §101 criteria 1, 2, 3, and 5 as well as the preferred alternative.

The NPS determined that the Preferred Alternative is the Environmentally Preferred Alternative because it surpasses the No Action Alternative in realizing the full range of national environmental policy goals, as stated in §101 of NEPA. The Preferred Alternative would provide the widest range of beneficial uses without degradation and would fulfill the Preserve's stewardship responsibility to protect resources (criterion 1). The Preferred Alternative would improve public health and safety (criteria 2 and 3) and sustainability of the Preserve (criteria 4 and 5).

ALTERNATIVES COMPARISON TABLE

A comparison of the alternatives and the degree to which each alternative fulfills the needs and objectives of the proposed project is summarized in Table 2.

Table 2
Alternatives Comparison

Objective	Alternative A, the No Action Alternative	Alternative B, the Preferred Alternative
Provide a sustainable roadbed and road surface for Loop Road.	Fails to meet or partially meets this objective because the road has deteriorated to an extent where shoulders have been washed out, which creates a safety hazard and undermines the road.	Meets this objective because the road surface and shoulders would be restored, and culverts would be repaired to allow adequate drainage and minimize future deterioration.
Minimize the effects of floodwaters overtopping the gravel portion of Loop Road.	Fails to meet or partially meets this objective because continuous drainage problems cause damage to the road surface. Due to inadequate drainage, water is impounded by the road and road segments are commonly overtopped, resulting in road deterioration.	Meets this objective because the road surface would be elevated and drainage improved to minimize future flooding and overtopping of floodwaters during high water events.
Preserve the rural, scenic character of Loop Road.	Fails to meet or partially meets this objective because continued deterioration would diminish the character of Loop Road.	Meets this objective because the road would be improved without changing the rural, scenic character.
Reduce Preserve operations burden by providing a stable, long-term solution to Loop Road maintenance.	Fails to meet or partially meets this objective because routine maintenance to provide safe access to visitors and residents cannot be performed on the road in its current deteriorated state.	Meets this objective because the road surface and shoulders would be restored to conditions that can be maintained by Preserve staff for long-term, safe access by visitors and residents.

IMPACT SUMMARY

A summary of potential environmental impacts for the alternatives is presented in Table 3.

Table 3
Impact Summary Table

Impact Topic	No Action Alternative	Preferred Alternative Repair and Rehabilitate paved and unpaved sections of Loop Road
Water Quality	Long-term minor adverse localized impacts from interruption of natural sheet flow. Road degradation (e.g., washout of sediment and debris) may also adversely affect local water quality.	Short-term minor adverse localized impacts from construction. Long-term and beneficial effects at both a local and regional scale from improved water flow.
Hydrology	Long-term minor localized adverse impacts from continued interruption of natural sheet flow.	Short-term minor localized adverse impacts from construction. Long-term and beneficial effects at both a local and regional scale from reestablishment of natural sheet flow.
Wetlands	Long-term localized minor to moderate and adverse impacts from conversion of wetland plant species to a composition that is more tolerant of less water flow in the area (e.g., increased quantity of cattails).	Short-term minor localized adverse impacts from construction. Long-term and beneficial effects at both a local and regional scale from improved wetland hydration and hydrology.
Wildlife	Long-term and short-term localized negligible impacts to wildlife.	Short-term negligible to minor and adverse localized impacts from construction. Long-term localized and beneficial impacts to wildlife, in particular, improved wetlands would benefit the species that utilize wetlands.
Special Status Species	Long-term localized minor to moderate adverse impacts to special status species habitat from the continued degradation of wetlands and lack of sheet flow.	Short-term minor localized adverse impacts from construction. Long-term localized and beneficial impacts to special status species due to improved habitats, in particular, improved wetlands habitats.

Table 3 (continued)
Impact Summary Table

Impact Topic	No Action Alternative	Preferred Alternative Repair and Rehabilitate paved and unpaved sections of Loop Road
Cultural Landscape	Short-term and long-term minor to moderate adverse impacts on Loop Road cultural landscape. The condition and integrity of Loop Road would continue to degrade due to deferred maintenance and the ongoing effects of flooding and erosion.	Short-term minor adverse impacts to Loop Road cultural landscape during construction. Long-term and beneficial impacts to the cultural landscape because the condition of the Loop Road roadbed would be improved, and culvert drainage would be rehabilitated.
Visitor Use, Recreational Resources, and Transportation	Long-term, minor to moderate, adverse impacts on visitor experience, recreational resources and transportation. Periodic maintenance projects would require traffic delays at random times and locations. Roadway conditions would continue to deteriorate to the point that the quality of the visitor experience is diminished from a visibly and eventually structurally damaged road. Road closures would continue, furthering the adverse impacts to transportation.	Short-term minor adverse impacts on visitor use, recreational resources, and transportation during road repair and rehabilitation activities. Long-term and beneficial impacts would result from improved road conditions.

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CHAPTER 3: AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

This section describes the resources potentially impacted by the alternatives and the likely environmental consequences of each alternative. This section is organized by impact topic, which allows a standardized comparison between alternatives based on issues. The impact topics were derived from internal Preserve and external public scoping. Consistent with NEPA, the analysis also considers the context, duration, intensity, and whether they are direct, indirect, or cumulative impacts.

GENERAL EVALUATION METHODS

For each impact topic there is a description of the affected environment and an evaluation of the effects of implementing each alternative. The analysis is conducted on actions described in the “Alternatives” section. Specifically this EA analyzes: a) the No Action Alternative and b) the Preferred Alternative. The analyses are based on the assumption that the mitigation measures identified in the “Mitigation” section of this EA would be implemented for the Preferred Alternative. The impact analyses were based on information provided by Preserve staff, relevant references and technical literature citations, and subject matter experts. The impact analyses involved the following steps:

- Define issues of concern, based on internal and external scoping;
- Identify the geographic area that could be affected;
- Define the resources within that area that could be affected;
- Impose the action on the resources within the area of potential effect; and
- Identify the impacts caused by the alternative, in comparison to the baseline represented by the No Action Alternative, to determine the relative change in resource conditions.

The impacts of the proposed action are characterized based on the following factors:

- Whether the impact would be beneficial or adverse;
- Intensity of the impact: negligible, minor, moderate, or major. Threshold values were developed based on federal and state standards, consultation with regulators, and discussions with subject matter experts;
- Duration of the effect: short-term or long-term, with specificity for each impact topic;
- Context or area affected by the proposed action: local (in the project area), Preserve-wide (within Big Cypress National Preserve), or regional (in Monroe County, Florida and adjacent counties); and
- Whether the effect would be a direct result of the action or would occur indirectly because of a change to another resource or impact topic. An example of an indirect impact would be increased mortality of an aquatic species that would occur because an alternative would increase soil erosion, which would reduce water quality.

CUMULATIVE IMPACTS

Cumulative impacts are defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or nonfederal) or person undertakes such other actions” (40 CFR 1508.7). Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. The CEQ regulations that implement NEPA require assessment of cumulative impacts in the decision-making process for federal projects.

Cumulative impacts were determined by combining the impacts of the Preferred and No Action alternatives with other past, present, and reasonably foreseeable future actions. Therefore, it was necessary to identify other ongoing or reasonably foreseeable future projects within the Preserve or the surrounding region that might contribute to cumulative impacts. The geographic scope of the analysis includes actions in the project area as well as other actions in the Preserve or surrounding lands where overlapping resource impacts are possible. The temporal scope includes projects within a range of approximately 10 years. Projects and activities identified include:

- Fire management programs in the Preserve and adjacent public and tribal lands, including Florida Panther National Wildlife Refuge, Fakahatchee Strand Preserve State Park, Collier-Seminole State Park, Rookery Bay National Estuarine Research Reserve, Everglades National Park, state water conservation areas, and the Miccosukee and Seminole reservations. Most if not all of these entities use prescribed fire for resource benefit and fuels reduction. An EA of the Preserve Fire Management Plan has been completed (NPS, 2005) and is used as a guideline for fire management in the area.
- Over the next 50 years a number of major water management projects are anticipated to have considerable consequences on the hydrology and water quality of the greater Everglades ecosystem, including the Preserve. Most of these projects fall under the auspices of either the Comprehensive Everglades Restoration Plan (CERP) or the Everglades Forever Act (EFA). Implementation of CERP is expected to either partially or fully modify the system of levees and canals along the eastern extent of the Preserve in the next 20 years. The purpose of these projects is to restore the surface water flow regime between the eastern Big Cypress Swamp and the Everglades. A CERP-sponsored study is also under way to evaluate ecosystem restoration options in southwest Florida that may result in similar actions in the western half of the Preserve. Implementation of the EFA is expected to reduce water pollution upstream within the Everglades Agricultural Area. These are waters that do not enter the Preserve under current conditions but may do so in the future as CERP and other projects are completed. The Big Cypress Seminole Indian Reservation Water Conservation Plan currently underway will result in considerable changes to water volume, distribution, and quality within the reservation which will affect downstream areas in the Preserve. Water management practices from citrus expansion north of the Preserve may influence hydrology and water quality in the Preserve as well.
- An Everglades Ecosystem Restoration Critical Project to construct 87 additional culverts under Tamiami Trail is underway. In conjunction with the added culverts, a total of 29 blocking plugs will be constructed in the existing highway borrow canal. Blocking the east-west flow of the borrow canal will balance runoff conveyed by the proposed culverts. The success of this project will rely on the location of the culverts, placed to provide maximum benefits for hydrology as well as achieving the habitat modifications intended. When fully funded, this project will improve the natural sheet flow of surface water within the watersheds of Ten Thousand Islands National Wildlife Refuge and Aquatic Preserve, Picayune Strand State Forest, Fakahatchee Strand Preserve State Park, the Preserve, and Everglades National Park. By creating greater flow beneath the Tamiami Trail, a more natural hydropattern will be established on either side of the highway. The objective of this project is to improve natural hydrology, which will improve

biological restoration for this region. Currently, only the portion of the project west of the Preserve has been funded and completed.

- A *Recreational Off-Road Vehicle Management Plan* (NPS, 2000b) for the Preserve prescribes designating ORV trails and establishing parking/staging areas for ORV users. Implementation of this plan will concentrate ORVs onto the Preserve's designated trail system via 15 access points, five of which are located on Loop Road. This will result in beneficial impacts by reducing the estimated 22,000 miles of ORV trails to no more than 400 miles of primary trails, thus reducing the widespread impacts now associated with dispersed ORV use. This project is anticipated to have impacts to visitor use and transportation and long-term, moderate benefits to wetlands, vegetation, and wildlife.
- Approximately 5 years ago the NPS completed construction of 10 visitor safety highway improvements along U.S. 41 and Loop Road in the Preserve. These improvements have resulted in long-term moderate benefits to visitor use by improving visitor safety and providing visitors information about the Preserve and its resources. The construction has resulted in long-term impacts to vegetation and wetlands; however, the impacts are minor to moderate, since the improvements were located to maximize the use of previously disturbed lands.
- A Commercial Services Plan for the Preserve was completed in July 2009. The selected alternative for the Commercial Services Plan assesses the levels of necessary and appropriate commercial services operations at the Preserve, and the means to manage those activities. Commercial services that would be expanded under the plan include developing the Preserve's visitor services by developing new frontcountry locations, at Monroe Station and Seagrape Drive, and developing a new backcountry camping complex, potentially introducing more visitors to the Loop Road, resulting in visitor use and transportation impacts.

WATER QUALITY

Affected Environment

The original boundary of the Preserve was established in 1974 at the perimeter of a predominantly self-contained, rain-driven watershed that is upgradient of Everglades National Park. Major cypress strands were logged in the early 1900s, and areas of the watershed were used as farmland in the decades prior to the Preserve's establishment. However, the area's remoteness limited it to only sparse development, much of which has been reclaimed since the Preserve's establishment. In 1988, an additional 146,000 acres of land were added to the Preserve (Public Law 100-301).

The waters of the Preserve are currently designated as Outstanding Florida Waters. This is a state designation delegated by the EPA under the Clean Water Act (EPA, 1972) and is intended to protect existing, high-quality waters.

Water quality in the Preserve is naturally affected by seasonal and long-term changes in rainfall, water levels, and water flows through the Preserve. In addition to these natural factors water quality in the Preserve may be affected by agricultural practices, proposed water diversions around the Preserve, and changes in land use in the watershed upstream of the Preserve (Miller, et al., 2004). The low-nutrient, high-quality water in the Preserve is vulnerable to degradation from contaminants, and even small amounts of contaminants could result in relatively large adverse impacts. Potential external sources of non-point source pollution primarily include nutrient-enriched runoff from upstream agricultural activities, especially along the northern boundary of the Preserve (Miller et al., 2004). Potential internal contaminant sources include leakage and ancillary activities associated with oil and gas exploration and development, operation of vehicles along roads, and oil and fuel leakage and soil disturbance caused by the operation of ORVs. Subtle changes in vegetation may indicate

changes in local water quality. Because the nutrients in water are generally very low, the plants tend to sequester all available nutrients, and, for example, sawgrass (*Cladium jamaicense*) may attain competitive dominance due to its ability to assimilate nutrients. However, this capacity may be limited, and in areas where increased nutrient loading has occurred (e.g., from agricultural runoff and at streams and canals), species composition may change. High nutrient concentrations have been responsible for an increase in cattail (*Typha latifolia*) along canals and elsewhere where nutrient inputs are higher (Kushlan, 1990).

Impact Thresholds

Available information on water quality in the project area was compiled. Potential impacts for the alternatives were based on professional judgment and experience with similar actions. The threshold of change for the intensity of an impact and duration of impact on water quality is defined below:

- *Negligible*: The impacts on water quality would be below or at a very low level of detection (e.g., no evidence of impaired water quality would be apparent). Water quality would not be affected, and natural processes would not be affected.
- *Minor*: The impact would be detectable and natural processes may be affected in a localized area. The impacts on water quality would occur in a relatively small area.
- *Moderate*: The action would have a detectable impact on water quality, and the potential for the impact to persist would be present.
- *Major*: The impact would result in highly noticeable changes in water quality and alterations of biological productivity in the waters adjacent to the project area.

Duration:

- Short-term: Recovers in less than one year.
- Long-term: Recovers in one or more years.

Environmental Consequences

Impacts of Alternative A, No Action Alternative

Regional water quality is generally considered good within the Preserve. However, there are areas adjacent to Loop Road where local water quality may be degraded from higher than ambient nutrient concentrations, based on the presence of a large number of cattails in some areas. Water pooling adjacent to the road may alter local water quality through vegetation decay, and pollutants from road run-off or ORV use may degrade local water quality.

Under the No Action Alternative, the road would not be repaired, new culverts would not be installed to improve overland flow during high water events, and localized water quality degradation would continue.

Cumulative Impacts. Past, present, and reasonably foreseeable future actions with the potential to affect water quality include ongoing road and bridge maintenance activities such as pothole paving, pavement crack sealing, repairs of drainage culverts, and resurfacing the unpaved portion of Loop Road. These actions have the potential to affect water quality during maintenance actions by increasing erosion, which would increase turbidity and conductivity resulting in short-term, negligible to minor, adverse impacts on water quality. The No Action Alternative would contribute slightly to the overall short-term adverse, cumulative effects on water quality, as these activities would continue in the future under this alternative. The No Action Alternative would not improve

water quality in the region, and minor localized changes in water quality under the No Action Alternative (e.g., due to road washouts or runoff) are not expected to contribute to regional declines in water quality. The overall cumulative impacts on water quality from past, present, and reasonably foreseeable future projects, in combination with the impacts of the No Action Alternative, would be short-term, minor, and adverse.

Conclusion. The No Action Alternative would result in long-term minor adverse localized effects from continued road degradation, including additional sediment and debris from water flowing over the road and road washouts. These effects are not expected to cause declines in regional water quality. The overall cumulative impacts on water quality from past, present, and reasonably foreseeable future projects, in combination with the impacts of the No Action Alternative, would be short-term, minor, and adverse.

Impacts of Alternative B, the Preferred Alternative

Construction activities associated with repairs and improvements to Loop Road, particularly where areas would be excavated for new culverts, could result in additional sediment transport to adjacent waters, thus deteriorating water quality during the construction period. Water quality could also be affected by increased turbidity and pollution from construction vehicles during the construction period. These impacts would be mitigated by the use of BMPs during the construction activities.

After the construction period, when the additional culverts are in place, water quality is expected to improve because the reestablishment of sheet flow would move water away from pooling along the road and into the marshes, where plants would sequester any additional nutrients.

Cumulative Impacts. Past, present, and reasonably foreseeable future actions with the potential to affect water quality include ongoing road and bridge maintenance activities such as pothole paving, pavement crack sealing, repairs of drainage culverts, and resurfacing the unpaved portion of Loop Road. In addition to routine maintenance actions under the Preferred Alternative, construction activities to repair and improve Loop Road would occur. Although improvements to the road are expected to decrease the frequency of maintenance, cyclic maintenance actions would continue after construction. The maintenance and construction actions have the potential to affect water quality by increasing erosion, which would increase turbidity and conductivity, resulting in short-term, negligible to minor, adverse impacts on water quality. Under the management options proposed for CERP and the Tamiami Trail culvert project, the sheet flow in the region would be improved, which may allow better interaction between the water and vegetation and improved filtering of pollutants by plants. The Preferred Alternative would improve sheet flow and therefore would improve local to regional water quality, adding a beneficial increment to overall cumulative impacts. The overall cumulative impacts on water quality from past, present, and reasonably foreseeable future projects in combination with the Preferred Alternative would be beneficial, long-term, and at a regional scale.

Conclusion. During construction, the Preferred Alternative would result in short-term minor adverse localized impacts to water quality. After construction is complete, the Preferred Alternative would result in long-term and beneficial effects to water quality at a local and regional scale. The overall cumulative impacts on water quality from past, present, and reasonably foreseeable future projects in combination with the Preferred Alternative would be beneficial, long-term, and at a regional scale.

HYDROLOGY

Affected Environment

The elevation of the land areas within the Preserve varies from sea level to 19 feet above sea level. The hydrologic regime of the Big Cypress physiographic province largely determines the patterns in

which vegetative communities and their related wildlife species occur. During the summer and fall wet season, when heavy rains lead to widespread surface inundation, the almost imperceptible slope of the land creates a slow-moving, overland sheet flow, and water generally drains southwest towards the coast (Miller et al., 2004). During the winter and spring dry season natural surface water flows are confined to the lower elevations of strands, swamps, and sloughs. During extremely dry periods even these lower elevations may have no surface flow, with only pockets of standing water.

The Preserve is essentially a self-contained hydrologic unit recharged primarily by local rainfall (Miller et al., 2004). The Tamiami Trail and subsequent roads obtained road fill via excavation of a parallel canal, resulting in both an elevated obstruction to sheet flow as well as channeling of water in open canals. The results of the changes in hydrology due to road excavation have not been fully evaluated.

The construction of Loop Road also included excavation of a parallel canal to provide road fill. The result of this is seen in both the paved and unpaved sections of the road. During the high water event after Hurricane Wilma, the north side of the unpaved section had pooled water adjacent to the road, overtopping of the road, and resulting in severe road erosion, including wash-outs. The paved section of the road also experienced overtopping. These events indicate that the sheet flow hydrology has been interrupted by the presence of Loop Road.

Impact Thresholds

Available information on hydrology in the project area was compiled. Potential impacts for the alternatives were based on professional judgment and experience with similar actions. The threshold of change for the intensity of an impact and duration of impact on hydrology is defined below:

- *Negligible*: The impacts on water flow would be below or at a very low level of detection (e.g., no changes in water flow would be apparent). Hydrological processes would not be affected.
- *Minor*: The impact is detectable (e.g., there are apparent changes in water flow) and natural hydrological processes may be affected in a localized area.
- *Moderate*: The impacts would have a detectable effect on hydrology, either by changes in volume or timing of sheet flow, and the potential for the impact to persist would be present.
- *Major*: The impact would result in highly noticeable changes in hydrological processes and substantial changes in sheet flow would be present and would persist after the action is complete.

Duration:

- Short-term: Recovers in less than one year.
- Long-term: Recovers in one or more years.

Environmental Consequences

Impacts of Alternative A, the No Action Alternative

Under current conditions, natural sheet flow within the Preserve typical of the Everglades ecosystem is hampered. The road acts as a dam, ponding water in specific locations along the road. This is a long-term, minor, localized, adverse effect.

Cumulative Impacts. Past, present, and reasonably foreseeable future actions with the potential to affect hydrology include ongoing road and bridge maintenance activities such as pothole paving, pavement crack sealing, repairs of drainage culverts, and resurfacing the unpaved portion of Loop Road but do not include improvements to Loop Road to improve hydrology. The management

options being implemented under CERP and the Tamiami Trail culvert project are designed to improve sheet flow to large areas of the Preserve. The construction of these projects has the potential to improve overall hydrology in the region. The No Action Alternative would have an incrementally local adverse minor impact on the overall improvements in hydrology because hydrologic improvements would not be made under the No Action Alternative. The overall cumulative impacts on hydrology from past, present, and reasonably foreseeable future projects in combination with the impacts of the No Action Alternative would be regional, long-term, and beneficial.

Conclusion. Loop Road would not be improved or repaired. Therefore, there would be no improvements to water conveyance during high water events, and under current conditions, Loop Road would continue to flood during high water events, erosion of the road would continue, Loop Road would remain in a deteriorated condition for visitors, and the overall goals of the NPS to improve the hydrology in the region would not be met. The environmental consequences of the No Action Alternative would be adverse, minor and adverse, and long-term at a local scale. The overall cumulative impacts on hydrology from past, present, and reasonably foreseeable future projects in combination with the impacts of the No Action Alternative would be regional, long-term, and beneficial.

Impacts of Alternative B, the Preferred Alternative

Repairs and improvements to Loop Road under the Preferred Alternative include installation of additional culverts at locations where water naturally pools and flows (e.g., at the outlet or inlet of three sloughs) to improve the sheet flow of water in the local area and to reduce the damage to the existing road during high water events.

Cumulative Impacts. Past, present, and reasonably foreseeable future actions with the potential to affect hydrology include ongoing road and bridge maintenance activities such as pothole paving, pavement crack sealing, repairs of drainage culverts, and resurfacing the unpaved portion of Loop Road, and improvements to Loop Road to improve hydrology, including installation of additional culverts. The management options being implemented under CERP and the Tamiami Trail culvert project are designed to improve sheet flow to large areas of the Preserve. The construction of these projects has the potential to improve overall hydrology in the region. The Preferred Alternative would have an incrementally local beneficial impact on the overall improvements in hydrology. The overall cumulative impacts on hydrology from past, present, and reasonably foreseeable future projects in combination with the beneficial impacts of the Preferred Alternative would be regional, long-term, and beneficial.

Conclusion. This alternative would result in short-term minor adverse localized impacts during construction and long-term and beneficial effects to hydrology at both a local and regional scale. The overall cumulative impacts on hydrology from past, present, and reasonably foreseeable future projects in combination with the beneficial impacts of the Preferred Alternative would be regional, long-term, and beneficial.

WETLANDS

Affected Environment

Wetlands comprise approximately 88 percent of the Preserve. The vast majority of wetland acreage is palustrine, under the Cowardin (1979) classification system. Most of the remaining wetlands are estuarine, located in the tidally influenced, southwest corner of the Preserve. Freshwater marshes are generally wetlands with an open expanse of grasses, sedges, rushes, and other herbaceous plants and where standing water occurs most of the year. Marshes generally contain few, if any, trees and

shrubs (Kushlan, 1990; Florida Natural Areas Inventory [FNAI], 1990). The dominant species in prairies include a variety of grasses and sedges, such as muhly (*Muhlenbergia filipes*), sawgrass (*Cladium jamaicense*), love grass (*Eragrostis* spp.), beakrush (*Rhynchospora* spp.), broomsedges (*Andropogon* spp.), white-topped sedge (*Dichromena colorata*), and arrowfeather (*Aristida purpurascens*). Some areas may have low shrubs such as wax myrtle (*Myrica cerifera*), coastal plain staggerbush (*Lyonia fruticosa*), and saw palmetto (*Serenoa repens*). However, in the absence of fire, these shrubs can form a complete canopy within 5-10 years and become the dominant vegetation type (Ewel, 1990; Kushlan, 1990).

Where woody plants occur, cypress is the dominant woody vegetation, covering approximately 43 percent of the Preserve. Cypress strands are dominated by bald cypress (*Taxodium distichum*) as well as other mixed hardwoods such as red maple (*Acer rubrum*), pop ash (*Fraxinus caroliniana*), willow (*Salix* spp.), and myrsine (*Rapanea punctata*). Dwarf cypress (*Taxodium distichum* var. *imbricarium*) is dominant in cypress savannas, with a sparse understory of mixed grasses and sedges (Ewel, 1990). The dwarf cypress in this community type rarely grows taller than 10 m, with a maximum diameter at breast height of 15 cm. Cypress may also form “domes” in shallow depressions that may contain water for longer periods of time (Ewel, 1990). Dome swamps are characterized as shallow, forested, usually circular depressions that generally present a domed profile because smaller trees grow in the shallower waters at the outer edge, while bigger trees grow in the deeper water in the interior. Pond cypress (*Taxodium distichum* var. *nutans*) and swamp tupelo (*Nyssa biflora*) are common plants (FNAI, 1990) in the cypress domes.

The Preserve’s wetlands serve a wide range of ecological functions, including floodwater retention, erosion buffering, substrate stabilization, sediment trapping, and water filtration. The wetlands also serve as habitat for numerous species of birds, mammals, reptiles, amphibians, fish, and insects.

The herbaceous wetlands in the project area are primarily freshwater marshes as described above and by Kushlan (1990). The wetlands with woody vegetation are generally cypress strands and cypress savannas as described above and by Ewel (1990).

Impact Thresholds

Available information on wetlands in the project area was compiled and scientific literature reviewed. Potential impacts for the alternatives were based on expected disturbance to wetland communities and professional judgment and experience with previous projects. The threshold of change for the intensity of an impact and duration of impact on wetlands is defined below.

- *Negligible*: Impacts to wetlands would be barely perceptible (e.g., there would be no changes in extent or plant species composition in wetlands). Impacts would have no principal effect on wetland functions and values.
- *Minor*: Impacts would be detectable and would not be expected to have an overall effect on wetland functions and values. The proposed action would remove less than 0.1 acres of wetlands.
- *Moderate*: Impacts would be detectable and could have an appreciable effect on individual plant species composition or wetland functions and values. The proposed action would remove more than 0.1 acres of wetlands and would require mitigation. The mitigation would likely be successful.
- *Major*: Impacts would result in substantial loss of wetlands resources, and there may be noticeable effects on wetland functions and values. Mitigation would be at a larger scale, and mitigation success would not be guaranteed.

Duration:

- Short-term: Recovers in less than one year.
- Long-term: Recovers in one or more years.

Environmental Consequences

Impacts of Alternative A, the No Action Alternative

Under the No Action Alternative, no improvements or repairs would be made to Loop Road. No additional culverts would be installed under the road, and no existing culverts would be repaired to improve water flow to and from the wetlands in the area. Therefore, wetlands present in the area may receive too much or too little flow, and the vegetation in wetlands may be converted to a different species composition that is characteristic of this altered hydrology.

Washouts along Loop Road may also contribute additional sediment to adjacent wetlands, which may alter the soils or vegetation in the wetlands or may to some extent fill the adjacent wetlands if the sediment load is excessive.

Cumulative Impacts. Past, present, and reasonably foreseeable future actions with the potential to affect wetlands include ongoing road and bridge maintenance activities such as pothole paving, pavement crack sealing, repairs of drainage culverts, and resurfacing the unpaved section of Loop Road. Other past actions include recreational users driving ORVs in adjacent areas. These actions have the potential to affect wetlands by increasing erosion, disturbing the soil surface and increasing sediment loads and turbidity, and damaging wetland structure (e.g., by ruts caused by ORVs), resulting in short-term, minor, adverse impacts to wetlands. Past and ongoing land uses and housing development may have a local short-term negligible to minor impact to wetlands through erosion and loss of wetlands. Management projects related to CERP and the Tamiami Trail Culverts projects may have a regional, long-term, and beneficial impact to wetland resources within the Preserve through improved sheet flow to the area. The no action alternative would have a slight adverse local increment to the overall cumulative effect from the alteration of wetland hydrology. The overall cumulative impacts to wetlands from past, present, and reasonably foreseeable future projects, in combination with the No Action Alternative, would be regional, long-term, and beneficial.

Conclusion. Wetlands in the area may decline over the long-term because the improvements to sheet flow, and thus improved water delivery to wetlands, would not occur. The impacts would be adverse, minor to moderate, and long-term at a local scale. The overall cumulative impacts to wetlands from past, present, and reasonably foreseeable future projects, in combination with the No Action Alternative would be regional, long-term, and beneficial.

Impacts of Alternative B, the Preferred Alternative

During construction activities associated with this alternative, some wetlands may be impacted or removed, particularly in areas where new culverts are installed. Wetland soils and vegetation may be disturbed or removed where new culverts are installed or culverts are replaced. The removal of wetlands would be minimized to the extent possible during construction, and wetlands that are removed would be mitigated elsewhere. It is expected that the construction activities would remove 0.02 acres of wetlands, and these wetlands would be mitigated at a site near the Preserve Headquarters. The use of BMPs during construction would reduce the transport of sediment to adjacent wetlands during construction.

Under the Preferred Alternative, installation of additional culverts to improve sheet flow would benefit adjacent wetlands by mimicking the natural hydrology of the wetlands, with the natural cycles of wetting and drying, which would address the NPS concern of improving wetland function

where possible. After installation of the additional culverts is completed, the impacts of the alternative are anticipated to be long-term, beneficial, and at a local scale.

Cumulative Impacts. Past, present, and reasonably foreseeable future actions with the potential to affect wetlands include ongoing road and bridge maintenance activities such as pothole paving, pavement crack sealing, repairs of drainage culverts, and resurfacing the unpaved section of Loop Road. Other past actions include recreational users driving ORVs in adjacent areas. These actions have the potential to affect wetlands by increasing erosion, disturbing the soil surface and increasing sediment loads and turbidity, and damaging wetland structure (e.g., by ruts caused by ORVs), resulting in short-term minor adverse impacts to wetlands. Past and ongoing land uses and housing development may have a local short-term negligible to minor impact to wetlands through erosion and loss of wetlands. Improvements to Loop Road are expected to improve wetlands at a local scale due to improved local hydrology and improved local water quality. Management projects related to CERP and the Tamiami Trail culverts projects would improve wetland function by restoring more natural hydrological processes in the Preserve and have a regional long-term and beneficial impact to wetlands. The overall cumulative impacts to wetlands from past, present, and reasonably foreseeable future projects in combination with the Preferred Alternative would be regional, long-term, and beneficial.

Conclusion. The Preferred Alternative would result in short-term minor adverse localized impacts during construction. After installation of the additional culverts is completed, the impacts of the alternative are anticipated to be long-term, beneficial, and at a local scale. The overall cumulative impacts to wetlands from past, present, and reasonably foreseeable future projects in combination with the Preferred Alternative would be regional, long-term, and beneficial.

WILDLIFE

Affected Environment

The Preserve is home to species of birds, reptiles, fish, invertebrates, and mammals, and most of the species utilize wetlands of the Preserve to some extent. Woody plant communities, including dwarf cypress savannas and cypress domes, provide food, cover, nesting sites, and hibernating places for a variety of animals, which spend a portion of the year in the woody vegetation within wetlands and then move to upland areas as water levels fluctuate (Ewel, 1990). Within open wetlands, small invertebrates are important components of aquatic food chains, and fish species are generally limited to only a few species, including mosquitofish (*Gambusia affinis*), least killifish (*Heterandria formosa*), and several cyprinodonts (Kushlan, 1990). Amphibians and reptiles are also present in the marshes of southern Florida, including the leopard frog (*Rana sphenoccephala*), pig frog (*Rana grylio*), bullfrog (*Rana catesbeiana*), green tree frog (*Hyla cinerea*), fire-bellied newt (*Notophthalmus viridescens*), and dwarf newt (*Pseudobranchius striatus*). Water snakes that may occur in the marshes and wetlands include Mississippi green watersnake (*Nerodia cyclopion*), swamp snake (*Seminatrix pygaea*), cottonmouth (*Agkistrodon piscivorus*), and mud snake (*Farancia abacura*). A number of waterbirds use the marshes and wet prairies of southern Florida, including least bittern (*Ixobrychus exilis*), American bittern (*Botaurus lentiginosus*), green-backed heron (*Butorides striatus*), white ibis (*Eudocimus albus*), glossy ibis (*Plegadis falcinellus*), marsh wren (*Cistothorus palustris*), common yellowthroat (*Geothlypis trichas*), red-winged blackbird (*Agelaius phoeniceus*), and boat-tailed grackle (*Quiscalus major*) (Kushlan, 1990).

The American alligator (*Alligator mississippiensis*) is a common wildlife species in the Preserve and is considered a keystone species because of the “gator holes” it creates and maintains. A keystone species is a species that plays a critical role in maintaining the structure of an ecological community

and whose impact on the community is greater than would be expected based on relative abundance or total biomass. During the dry season, the gator holes are vigorously defended and are generally where small fish and other animals congregate to survive the dry season (J. Noel, personal observation) and then recolonize the marshes when water levels rise (Kushlan, 1990). The alligator was overhunted, and during the 1960's, was threatened with extinction. However, due in part to the canals in Florida and aggressive conservation measures, the populations have recovered and in some more developed areas of Florida have become a nuisance.

There are 13 wildlife species that are hunted in the Preserve, and the two most important hunted animals are white-tailed deer and feral hogs, both of which serve as prey for the endangered Florida panther, discussed under Special Status Species. The 1991 *General Management Plan* (NPS, 1991) contains a detailed description of wildlife, and several species lists are available at the Preserve's website (www.nps.gov/bicy).

Impact Thresholds

The NPS Organic Act, which directs parks and preserves to conserve wildlife unimpaired for future generations, is interpreted to mean that native animal life should be protected and perpetuated as part of the Preserve's natural ecosystem. Natural processes are relied on to control populations of native species to the greatest extent possible; otherwise, they are protected from harvest, harassment, or harm by human activities. Management goals for wildlife include maintaining components and processes of naturally evolving park ecosystems, including natural abundance, diversity, and the ecological integrity of plants and animals. Information on the Preserve wildlife was taken from Preserve documents and records, Preserve natural resource management staff, and scientific literature. The threshold of change for the intensity of an impact and duration of impact on wildlife is defined below.

- *Negligible:* There would be no observable or barely perceptible impacts to native species, their habitats, or the natural processes sustaining them. Impacts would be within natural fluctuations.
- *Minor:* Impacts would be detectable and would not be expected to be outside the natural range of variability of native species' populations, their habitats, or the natural processes sustaining them. Ecosystem processes and community structure would be retained at the local level.
- *Moderate:* Impacts would be readily apparent and outside the natural range of variability. Breeding animals of concern would be present, animals would be present during vulnerable life stages, and mortality of interference with activities necessary for survival would be expected on an occasional basis but would not be expected to threaten the continued existence of the species in the Preserve. Key ecosystem processes and community structure would be retained at the landscape (regional) level.
- *Major:* Impacts on native species, their habitats, or the natural processes sustaining them would be severely adverse or exceptionally beneficial and would be expected to be outside the natural range of variability. Key ecosystem processes and community structure might be disrupted. Loss of habitat might affect the viability of at least some native species. Habitat for native species may be rendered nonfunctional at the landscape level.

Duration:

- Short-term: Recovers in less than one year or within one breeding season.
- Long-term: Recovers in more than one year or more than one breeding season.

Environmental Consequences

Impacts of Alternative A, the No Action Alternative

Under this alternative, no repairs or improvements to Loop Road would be made. Routine road and bridge maintenance activities would continue. Any wildlife currently using the area adjacent to the road would continue using the area in the same manner. In the ponds adjacent to the road, alligators are present, and there is evidence that alligators may also be using existing culvert openings as gator holes. Wildlife adjacent to the road during maintenance activities may be disturbed and move away from the road during those activities. The continued degradation of wetlands and sheet flow would affect wildlife habitat over the long-term.

Cumulative Impacts. Past, present, and reasonably foreseeable future actions with the potential to affect wildlife include ongoing road and bridge maintenance activities such as pothole paving, pavement crack sealing, repairs of drainage culverts, and resurfacing the unpaved section of Loop Road. These actions have the potential to affect wildlife through disruptive noise during the action and disturbance of habitats used by wildlife species, resulting in an incremental short-term, negligible to minor, adverse impact to wildlife due to the No Action Alternative. Other past actions include recreational users driving ORVs in adjacent areas and the Preserve plans to restore some areas impacted by ORV trails as part of the *ORV Management Plan* (NPS, 2000b), particularly within the Loop Unit. Management projects related to CERP and the Tamiami Trail culverts project may have a regional, long-term, and beneficial impact to wildlife resources within the Preserve through improved sheet flow to the area, which would improve habitats used by wildlife species. These restoration projects are expected to have a cumulative benefit to wildlife. The No Action Alternative would contribute a negligible adverse increment to overall cumulative impacts. The overall cumulative impacts to wildlife from past, present, and reasonably foreseeable future projects in combination with the No Action Alternative would be regional, long-term, and beneficial.

Conclusion. This alternative would result in negligible impacts to wildlife. The impacts of this alternative would be negligible, long-term and short-term, adverse and occur at a local scale. The overall cumulative impacts to wildlife from past, present, and reasonably foreseeable future projects in combination with the No Action Alternative would be regional, long-term, and beneficial.

Impacts of Alternative B, the Preferred Alternative

The construction associated with the Preferred Alternative would not substantially alter the existing wildlife habitats in the area, nor would it be anticipated to affect the home ranges or foraging areas of wildlife species in the area. During construction, heavy equipment would be used, which may cause some individuals to move away from the area. Because no large-scale additional infrastructure would be added to the area under the Preferred Alternative, the wildlife species present would be expected to return to the area after construction is completed.

There are alligators present in the ponds adjacent to the road, and these animals are using existing culvert openings as gator holes. The installation of additional new culverts would temporarily displace these animals, but they would be expected to rapidly re-inhabit the new culvert openings after construction is complete.

Cumulative Impacts. Past, present, and reasonably foreseeable future actions with the potential to affect wildlife include ongoing road and bridge maintenance activities such as pothole paving, pavement crack sealing, repairs of drainage culverts, and resurfacing the unpaved section of Loop Road. These actions have the potential to affect wildlife through disruptive noise during the action and disturbance of habitats used by wildlife species, resulting in an incremental short-term, negligible to minor, adverse impact to wildlife due to the Preferred Alternative. The construction activities associated with the Preferred Alternative would result in an incremental short-term negligible to minor adverse impact to wildlife during construction, but after construction is complete

the Preferred Alternative is expected to improve sheet flow and wildlife habitats at a local scale. Other past actions include recreational users driving ORVs in adjacent areas and the Preserve plans to restore some areas impacted by ORV trails as part of the *ORV Management Plan* (NPS, 2000b), particularly within the Loop Unit. Management projects related to CERP and the Tamiami Trail culverts project may have a regional, long-term, and beneficial impact to wildlife resources within the Preserve through improved sheet flow to the area, which will improve habitats used by wildlife species. These restoration projects are expected to have a cumulative benefit to wildlife. Improvements to Loop Road are expected to improve wildlife habitat at a local scale and would contribute a beneficial increment to overall cumulative impacts. The overall cumulative impacts to wildlife from past, present, and reasonably foreseeable future projects in combination with impacts associated with improving sheet flow and wildlife habitats under the Preferred Alternative would be regional, long-term, and beneficial.

Conclusion. During construction the effect of the Preferred Alternative would be short-term negligible to minor and adverse. After construction is complete, the Preferred Alternative is anticipated to result in beneficial and long-term impacts to wildlife at a local scale. The overall cumulative impacts to wildlife from past, present, and reasonably foreseeable future projects in combination with impacts associated with improving sheet flow and wildlife habitats under the Preferred Alternative would be regional, long-term, and beneficial.

SPECIAL STATUS SPECIES

Affected Environment

Special Status Species are those listed under federal and state statutes and species considered sensitive by the Preserve to provide protection from further loss of the species. The Endangered Species Act (ESA) of 1973, as amended (Public Law 93-205), was developed to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. It is NPS policy (NPS, 2006a) to survey for, protect, and strive to recover all species listed under the ESA native to national park system units. The NPS strives to fully meet its obligations under the NPS Organic Act (NPS, 1916) and the ESA to both proactively conserve federally listed species and prevent detrimental impacts on these species. According to the USFWS website: [http://www.fws.gov/verobeach/images/pdflibrary/Monroe County 3. pdf](http://www.fws.gov/verobeach/images/pdflibrary/Monroe%20County%203.pdf), many federally listed species are known to occur in Monroe County. However, suitable habitat for the majority of these listed species does not occur in the proposed project area. Based on preliminary analysis by the USFWS, four federally listed species may be present in the project area: wood stork (*Mycteria americana*), Florida panther (*Puma concolor coryi*), Everglade snail kite (*Rostrhamus sociabilis plumbeus*), and Eastern indigo snake (*Drymarchon corais couperi*). These federally listed species are also state listed and have the following state classifications: wood stork (Endangered), Florida panther (Endangered), Everglade snail kite (Endangered), and Eastern indigo snake (Threatened). Each is discussed separately below.

In addition to the federally listed species, there are four state-listed species that may occur in the area. Based on the Florida Natural Areas Inventory (FNAI), state-listed species that also may occur in the project area include the Everglades mink (*Mustela vison evergladensis*; Endangered), Florida black bear (*Ursus americanus floridana*; Threatened), Florida sandhill crane (*Grus canadensis pratensis*; Threatened), and limpkin (*Aramus guaranauna*; Species of Special Concern).

All native birds within the Preserve are protected under the Migratory Bird Treaty Act (MBTA). The MBTA made it illegal for people to “take” migratory birds, their eggs, feathers or nests. Take is defined in the MBTA to include by any means or in any manner, an attempt at hunting, pursuing, wounding, killing, possessing, or transporting any migratory bird, nest, egg, or part thereof. The

MBTA allows for legal hunting of certain species protected under the MBTA and within the hunting regulations established by the State of Florida.

Wood Stork

Wood storks are birds of freshwater and brackish wetlands, primarily nesting in cypress or mangrove swamps. They feed in freshwater marshes, narrow tidal creeks, or flooded tidal pools, primarily on fish between 2 and 25 centimeters in length (USFWS, 1999). Particularly attractive feeding sites are depressions in marshes or swamps where fish become concentrated during periods of falling water levels. The United States breeding population of the wood stork declined from an estimated 20,000 pairs in the 1930s to about 10,000 pairs by 1960. Since 1978, fewer than 5,000 pairs have bred each year (NPS, 2006b). The decline is believed to be due primarily to the loss of suitable feeding habitat, especially in south Florida rookeries, where repeated nesting failures have occurred despite protection of the rookeries. Feeding areas in south Florida have decreased by about 35 percent since 1900 because of human alteration of wetlands. Additionally, human-made levees, canals, and floodgates have greatly changed natural water regimes in south Florida. These human-made alterations have resulted in an influx of exotic plants in south Florida, which also affects the freshwater wetlands, exacerbating the hydrological effects (USFWS, 1996). Melaleuca and Brazilian pepper change the character of the marshes to shrub swamps unsuitable for the foraging tactics used by the wood storks. Old World climbing fern can destroy a cypress swamp that may provide habitat for a rookery. The Old World climbing ferns climb into the canopies of the cypress trees, weaken the trees, and eventually pull them down. The nesting season of wood storks varies geographically, but in Florida the nesting season can extend from early October to late June (USFWS, 1999).

The project is located within the core foraging areas (CFA) (lands within 18.6 miles) of 6 active breeding colonies of the endangered wood stork. The USFWS believes the loss of wetlands within a CFA may reduce foraging opportunities for wood storks. To minimize adverse impacts to the wood stork, the *Draft Supplemental Habitat Management Guidelines for the Wood Stork in the South Florida Ecological Services Consultation Area (Guidelines)* (USFWS, 2004) recommends the project proponent replace wetlands if any are lost due to the action. The compensation plan should include a temporal lag factor, if necessary, to ensure wetlands provided as compensation adequately replace the wetland functions lost due to the project. Moreover, wetlands offered as compensation should be of the same hydroperiod and located within the CFA of the affected wood stork colony. In some cases, the USFWS accepts wetlands compensation located outside the CFA of the affected wood stork nesting colony. Specifically, wetland credits purchased from a “USFWS Approved” mitigation bank located outside the CFA would be acceptable to the USFWS, provided the impacted wetlands occur within the permitted service area of the bank.

Florida Panther

The Florida panther, whose preferred prey is white-tailed deer (*Odocoileus virginianus*), is found in the Preserve and Everglades National Park. In general, panther population centers appear to indicate a preference toward large, remote tracts with adequate prey, cover, and reduced levels of disturbance. Only preliminary data are available on Florida panther reproduction. Existing data indicate that breeding may occur throughout the year, with a peak during the period of winter and spring, a gestation period of around 90 to 95 days, litter sizes of 1 to 4 kittens, and a breeding cycle of 2 years for females successfully raising young to dispersal, which occurs around 18 to 24 months (USFWS, 2005). Reports show that while subadults and nonbreeding female panthers feed almost exclusively on small prey, such as raccoon, marsh rabbit, and alligator, breeding females prey primarily on white-tailed deer. If deer populations decline, the panther population declines (NPS, 2006b).

The project is located within the USFWS Focus Area for the endangered Florida panther and the panther primary zone (USFWS, 2009). These lands are considered important to Florida panther

conservation in south Florida, and development projects within the Focus Area have the potential to impact the panther. If the project results in the loss of panther habitat, the USFWS recommends that currently unprotected panther habitat be acquired and managed to compensate for impacts to panther habitat resulting from the project. The USFWS's functional panther habitat assessment should be used to determine the habitat value of the lands impacted and the lands provided as compensation in Panther Habitat Units.

Everglade Snail Kite

The Everglade snail kite is an endangered raptor that inhabits the freshwater marshes and marl prairies of the Florida peninsula. The species' breeding season varies within a period extending from February into July. The exact dates are influenced by prevailing weather conditions. The Everglade snail kite feeds almost exclusively on the apple snail (*Pomacea paludosa*), so the continued existence of this snail decides the fate of the snail kite. The apple snail lives in freshwater wetlands with sparsely distributed emergent vegetation consisting predominantly of grass and sedge species. While managing the hydrology of these marshes is important to the survival of the snails, maintaining the vegetative composition is also important. Infestation of woody species, such as Brazilian pepper and melaleuca, would probably cause a decline in the apple snail and snail kite populations (USFWS, 1996).

The project is located in the geographic range of the endangered Everglade snail kite. Critical habitat has been designated for the Everglade snail kite in the adjacent Everglades National Park, but critical habitat does not extend into the project area.

Eastern Indigo Snake

The Eastern indigo snake is a large, docile, nonvenomous snake that has declined in numbers over the last 100 years because of the loss of habitat, pesticide use, and collection for the pet trade. The snake uses the burrows of other animals for denning or to lay eggs. The preferred diet of these snakes is frogs, other snakes, toads, salamanders, small mammals, and birds. The presence of exotic plants would not directly affect the Eastern indigo snake, but if the habitat becomes a monoculture of Brazilian pepper or melaleuca, the prey species and the burrowing animals it depends on to provide denning sites would decline. This would indirectly contribute to the decline of this species (USFWS, 1996).

The project occurs within the geographic range of the threatened Eastern indigo snake (USFWS, 2007b); however, there are only anecdotal reports of the snake in the Preserve.

Impact Thresholds

Section 7 of the ESA mandates all federal agencies to determine how to use their existing authorities to further the purposes of the ESA to aid in recovering listed species and to address existing and potential conservation issues. Section 7(a)(2) states that each federal agency shall, in consultation with the Secretary of the Interior, ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. NPS *Management Policies 2006* (NPS, 2006a) also state that potential effects of agency actions would also be considered for state or locally listed species (i.e., special status species). The thresholds of change for the intensity of impacts and duration of impacts to special status species are defined below.

- *Negligible*: There would be absolutely no effects to the species or its critical habitat, either positive or negative. In the case of federally listed species, this impact intensity would equate to a USFWS determination of "no effect".

- *Minor:* The action would result in a change to a population or individuals of a special status species. The change could be measurable, but small and localized and not outside the range of natural variability. Mitigation measures, if needed, would be simple and successful. In the case of federally listed species, this impact intensity would equate to a USFWS determination of “may affect, not likely to adversely affect”.
- *Moderate:* Impacts on special status species, their habitats, or the natural processes sustaining them would be detectable and occur over a large area. Breeding animals of concern would be present, and animals would be present during vulnerable life stages. Mortality or interference with activities necessary for survival would be expected on an occasional basis but would not be expected to threaten the continued existence of the species in the Preserve or conservation zone. Mitigation measures would be extensive and likely successful. In the case of federally listed species, this impact intensity would equate to a USFWS determination of “may affect, likely to adversely affect”.
- *Major:* The action would result in noticeable effects to the viability of the population or individuals of a species. Impacts on special status species or the natural processes sustaining them would be detectable, both inside and outside of the Preserve. Loss of habitat might affect the viability of at least some special status species. Extensive mitigation measures would be needed to offset any adverse effects and their success could not be guaranteed. In the case of federally listed species, the impact intensity would equate to a USFWS determination of “may affect, likely to jeopardize the continued existence of a species.”

Duration:

- Short-term: Recovers in less than one year or within one breeding season.
- Long-term: Recovers in more than one year or within more than one breeding season.

Environmental Consequences

Impacts of Alternative A, No Action Alternative

Under this alternative, no repairs or improvements to Loop Road would be made. Sheet flow in the area would not be restored, and therefore, habitat for wood storks would not have improved water levels; however, no wood stork foraging habitat would be removed, and wood storks would continue to utilize their CFA. Florida panthers would continue to utilize habitat near the Loop Road within the Panther focus area. Snail kites would continue to forage in the area, and if Eastern indigo snakes are present, they would continue to utilize the area for habitat. Therefore, there would be no direct impact on special status species in the project area. There would be no direct impact to state-listed species and migratory birds under the no action alternative. However, the continued degradation of wetlands and lack of sheet flow would affect special status species habitat over the long-term.

Cumulative Impacts. Past, present, and reasonably foreseeable future actions with the potential to affect special status species (both federally- and state-listed) include ongoing road and bridge maintenance activities such as pothole paving, pavement crack sealing, repairs of drainage culverts, and resurfacing the unpaved section of Loop Road. These actions have the potential to affect special status species through disruptive noise during the action and disturbance of habitats used by special status species, resulting in an incremental short-term, negligible to minor, adverse impact to special status species due to the No Action Alternative. Other past actions include recreational users driving ORVs in adjacent areas, and the Preserve plans to restore some areas impacted by ORV trails as part of the *ORV Management Plan* (NPS, 2000b), particularly within the Loop Unit. Management projects related to CERP and the Tamiami Trail culverts project may have a regional, long-term, and beneficial impact to special status species resources within the Preserve through improved sheet flow to the area, which would improve habitats used by wood storks, and possibly habitats used by

Everglade snail kite. These restoration projects are expected to have a cumulative benefit to special status species, particularly those that utilize wetlands. The continued degradation of special status species habitat under the no action alternative would contribute a negligible adverse increment to overall cumulative impacts. The overall cumulative impacts to special status species from past, present, and reasonably foreseeable future projects, in combination with the No Action Alternative, would be regional, long-term, and beneficial.

Conclusion. The No Action Alternative would have long-term, local, and minor impacts to special status species. The No Action Alternative would add a slight adverse increment to overall cumulative impacts. The overall cumulative impacts to special status species from past, present, and reasonably foreseeable future projects, in combination with the No Action Alternative, would be regional, long-term, and beneficial.

Impacts of Alternative B, the Preferred Alternative

Under the proposed alternative, the road would be improved and culverts installed to improve sheet flow in the area, improving special status species habitat. During construction activities, special status species would move away from the project area and re-colonize after construction is complete. No more than 0.02 of an acre of wetlands in the wood stork CFA and Florida panther focus area would be removed as a result of the proposed project. These wetland impacts would be mitigated as described under Wetlands. After the construction is completed, improved sheet flow may indirectly benefit the Everglades mink, Florida sandhill crane, limpkin, and swallow-tailed kites by providing improved foraging habitat. Implementation of the Preferred Alternative would directly benefit wood storks by improving foraging habitat within their CFA lands and indirectly benefit the Florida panther by providing wetland foraging habitat for their primary prey, the white-tailed deer, within the panther focus area. Implementation of the Preferred Alternative may also indirectly benefit the snail kite if improving the wetlands also improves sparsely vegetated wetlands where their primary prey, the apple snail, lives. It is not known if Eastern indigo snakes are present in the area; however, if they do occur, implementation of the Preferred Alternative would likely have a neutral impact on the species because no suitable habitat would be lost.

Migratory birds would benefit from improved wetland habitat. There would be no impact anticipated for the remaining special status species in the project area: Florida black bear and evening bat.

Cumulative Impacts. Throughout south Florida, the largest source of impacts on special status species is habitat loss and fragmentation. Habitat loss and fragmentation have also occurred in the Preserve. Past, present, and reasonably foreseeable future actions with the potential to affect special status species (both federally- and state-listed) include ongoing road and bridge maintenance activities such as pothole paving, pavement crack sealing, repairs of drainage culverts, and resurfacing the unpaved section of Loop Road. These actions have the potential to affect special status species through disruptive noise and disturbance of habitat used by special status species. The construction activities associated with the Preferred Alternative would result in an incremental short-term negligible to minor, adverse impact to special status species during construction, but after construction is complete the Preferred Alternative is expected to improve sheet flow, which would improve special status species habitats at a local scale. Other past actions include recreational users driving ORVs in adjacent areas, and the Preserve plans to restore some areas impacted by ORV trails as part of the *ORV Management Plan* (NPS, 2000b), particularly within the Loop Unit. Management projects related to CERP and the Tamiami Trail culverts project may have a regional long-term beneficial impact to special status species resources within the Preserve; these projects would improve sheet flow to the area, which would improve habitats used by wood storks and possibly habitats used by Everglade snail kites. These restoration projects are expected to have a cumulative benefit to special status species, especially those that utilize wetlands. Improvements to Loop Road are expected to improve wildlife habitat at a local scale and would contribute a beneficial increment

to overall cumulative impacts. The overall cumulative impacts to special status species from past, present, and reasonably foreseeable future projects in combination with the Preferred Alternative would be regional, long-term, and beneficial.

Conclusion. The Preferred Alternative would result in short-term, local, minor adverse impacts during construction. After construction is complete, the Preferred Alternative would result in long-term, local, and beneficial impacts to special status species (both state and federally listed species). The determination of minor adverse impacts to special status species known to potentially occur in the project area equates to the USFWS determination of “may affect, not likely to adversely affect” for federally listed species. The overall cumulative impacts to special status species from past, present, and reasonably foreseeable future projects in combination with the Preferred Alternative would be regional, long-term, and beneficial.

CULTURAL LANDSCAPE

Affected Environment

Captain James Franklin Jaudon first proposed a road connecting Florida’s Gulf and Atlantic coasts to develop his properties in the Everglades. Construction of what was to be called the Tamiami Trail began in 1914. Loop Road was originally constructed to be part of the Tamiami Trail. In 1919, Captain Jaudon offered to build a portion of the Tamiami Trail through Monroe County if Dade and Lee Counties agreed to changed the original route and re-route the Trail through Monroe County. Captain Jaudon’s company, the Chevelier Corporation, began construction in 1921. In 1922, the State of Florida ran out of funds to construct the east-west section and in the intervening year or so, factions developed regarding the eventual alignment. The Florida State Road Department agreed with the Collier County alignment, but the Dade County Board of County Commissioners backed the Chevelier segment because so much money had already been spent and because only a few miles of road were not already completed.

Despite the protest, the Florida State Road Department reinstated the original route of the Tamiami Trail, and the already completed portion of roadway in Monroe County was accepted as a “South Loop” of the Tamiami Trail. In 1928, the Tamiami Trail was considered a feat of engineering because it transversed the impenetrable Everglades, although no one considered the damage to the Everglades by the roadway and Tamiami Canal.

The 5-mile paved section of Loop Road was first paved prior to the establishment of Big Cypress National Preserve in 1974. In 1990, 30 culverts were replaced or repaired, and the road surface has been continually maintained by patching potholes. In 1999, the Monroe County portion of the roadway was officially acquired by the Preserve. In 2005, Hurricane Wilma caused severe damage to the road.

Impact Thresholds

According to the Director’s Order # 28, “Cultural Resource Management Guideline,” a cultural landscape is “. . . a reflection of human adaptation and use of natural resources and is often expressed in the way land is organized and divided, patterns of settlement, land use, systems of circulation, and the types of structures that are built. The character of a cultural landscape is defined by both physical materials, such as roads, buildings, walls, and vegetation, and by use reflecting cultural values.”

Properties more than 50 years old, including cultural landscapes, may be eligible for the National Register if they meet the criteria for listing and for contributions at the national, state, or local level. In order for a property to be listed in the National Register, it also must possess historic integrity of

those features necessary to convey its significance, (i.e., location, design, setting, workmanship, materials, feeling, and association). To date, Loop Road has not been formally evaluated for National Register eligibility. Nonetheless, the cultural landscape category is useful in examining the impacts of the alternatives on Loop Road. The intensity level definitions are as follows:

- A *negligible* impact is at the lowest level of detection; the impact would be barely perceptible or measurable.
- A *minor* impact would be perceptible and measurable, but would be localized and confined to a single character-defining pattern or feature.
- A *moderate* impact to a character-defining pattern(s) or feature(s) would not diminish the integrity of the landscape's location, design, setting, materials, workmanship, feeling or association.
- A *major* impact would result in substantial and highly noticeable changes to character-defining pattern(s) or feature(s), diminishing the integrity of the landscape's location, design, setting, materials, workmanship, feeling, or association.

Duration: Impacts on cultural landscape would be short-term during construction and long-post-construction.

Environmental Consequences

Impacts of Alternative A, No Action Alternative

Under this alternative, no repairs or improvements to Loop Road would be made. No additional culverts would be installed, and no existing culverts would be repaired. The unpaved section of Loop Road would remain closed, and the asphalt would continue to degrade on the paved section of Loop Road. The degradation of the resource due to the ongoing effects of flooding and erosion would reduce the potential value of the road as a cultural landscape.

Cumulative Impacts. Under the No Action Alternative, continued flooding and overtopping with water would continue to degrade the character-defining features of the Loop Road landscape, including the roadbed and drainage features. The rural, scenic character of Loop Road would not be maintained under the No Action Alternative. The No Action Alternative would contribute a slight adverse increment to overall cumulative impacts. The impacts of the No Action Alternative, combined with the beneficial effects of other projects, are expected to have a moderate adverse cumulative impact on the cultural landscape.

Conclusion. The No Action Alternative would result in short-term and long-term moderate adverse impacts on the cultural landscape, due to continued degradation of Loop Road. The impacts of the No Action Alternative, combined with the beneficial effects of other projects, are expected to have a moderate adverse cumulative impact on the cultural landscape.

Impacts of Alternative B, the Preferred Alternative

Under the Preferred Alternative, repairs and improvements would be made to Loop Road. The Preferred Alternative would not alter the alignment, width of the road prism, or change the historic character of the existing roadway. Additional culverts would be installed, and existing culverts would be repaired. Upon completion of this alternative, Loop Road would be re-opened to the public.

The visual impact to the overall landscape setting and individual culvert features would be apparent during the construction process and would result in short-term minor adverse impacts to the Loop Road cultural landscape. In the long-term, the impacts to this landscape would be beneficial. The

condition of the roadbed would be improved, culvert drainage would be rehabilitated, and the rural, scenic character of the road would be maintained. The proposed improvements would not preclude a future evaluation of Loop Road for National Register eligibility.

Cumulative Impacts. Under the Preferred Alternative, flooding and overtopping of Loop Road would be minimized and the integrity of the landscape would be maintained. The Preferred Alternative would contribute a beneficial increment to overall cumulative impacts. The impacts of the Preferred Alternative, combined with the beneficial effects of other projects, are expected to have beneficial effects on the cultural landscape.

Conclusion. Implementation of the Preferred Alternative would result in short-term minor adverse impacts to the cultural landscape. The visual impact to the overall landscape setting and individual culvert features would be apparent during the construction process. In the long-term, the impacts to this landscape would be beneficial. The condition of the Loop Road roadbed would be improved, culvert drainage would be rehabilitated, and the rural, scenic character of the road would be maintained. The proposed improvements would not preclude a future evaluation of Loop Road for National Register eligibility. The proposed project would have no adverse effect on the historic character of Loop Road. On July 28, 2010, the Florida State Historic Preservation Officer concurred with this finding in writing. See Appendix B. The impacts of the Preferred Alternative, combined with the beneficial effects of other projects, are expected to have beneficial effects on the cultural landscape.

VISITOR EXPERIENCE, RECREATION RESOURCES, AND TRANSPORTATION

Affected Environment

The Preserve has approximately one-half million visitor use days per year. Most of these visits are brief stops between the Florida west and east coasts. The Oasis Visitor Center on U.S. 41 receives an average of about 150,000 people per year. In 2009, the Big Cypress Swamp Welcome Center opened; since that time, approximately 2,000 visitors utilize the facility each month. Other forms of visitor and recreational use include educational trips, wildlife and plant viewing, hunting, camping, recreational vehicle trips, fishing, boating, bicycling, and hiking. In addition to visitors from outside the area, the Preserve is also used by local people with long traditions of hunting, fishing, and canoeing within the Preserve boundaries.

The Tamiami Trail (U.S. 41) crosses the Preserve from east to west and connects to Loop Road and other local county- and NPS-maintained roads used by the public. The Loop Road Education Center is located near Pinecrest at approximately the intersection of the paved and unpaved portions of Loop Road. The Loop Road Education Center provides an opportunity for Preserve visitors to gain interpretive information on the Preserve in general, including biological and cultural resources. The road is used by residents and visitors, but most visitors do not travel on the unpaved section because of the poor road condition. Residents and visitors travelling from the west who prefer to avoid the deteriorated, unpaved portion of Loop Road must take a lengthy detour to access destinations along the eastern portion of the road.

Impact Thresholds

NPS *Management Policies 2006* (NPS, 2006a) state that the enjoyment of park resources and values by the people of the United States is part of the fundamental purpose of all parks and that the NPS is committed to providing appropriate high-quality opportunities for visitors to enjoy the parks. Part of the purpose of the Preserve is to offer opportunities for recreation, education, inspiration, and enjoyment. Consequently, one of the Preserve's management goals is to ensure that visitors safely

enjoy and are satisfied with the availability, accessibility, diversity, and quality of Preserve facilities, services and appropriate recreational opportunities.

Public scoping input and observations of visitation patterns, combined with an assessment of amenities available to visitors under current Preserve management, were used to estimate the impacts of the alternatives. Impacts on the ability of visitors to experience a full range of Preserve resources and the quality of the experience were considered. The threshold of change for the intensity of an impact and duration of impact on visitor experience, recreation resources, and transportation is defined below.

- *Negligible:* Changes in visitor experience, recreation resources, and transportation resources would be at a barely perceptible level of detection. The visitor would not likely be aware of the impacts associated with the action.
- *Minor:* The visitor might be aware of the impacts associated with the action or of changes in transportation but would likely not express an opinion about the changes.
- *Moderate:* Changes to visitor experience, recreation resources, or transportation would be readily apparent. The visitor would be aware of the impacts associated with the action and would likely express an opinion about the changes.
- *Major:* Changes in visitor experience, recreation resources, or transportation would be readily apparent and severely adverse or exceptionally beneficial. The visitor would be aware of the impacts associated with the action and would likely express a strong opinion about the changes.

Duration:

- Short-term: Occurs only during construction period.
- Long-term: Impact continues after project construction is completed.

Environmental Consequences

Impacts of Alternative A, No Action Alternative

Under this alternative, Loop Road would not be repaired or improved. The unpaved portion of Loop Road would remain in poor travel condition for visitor traffic, and the asphalt on the paved portion of Loop Road would continue to deteriorate. Because Loop Road would continue to present a driving difficulty, the visitor experience would likely be diminished. Visitors would have to take lengthy detours to access eastern portions of the road from the west. Recreational uses along Loop Road, including fishing, hiking on the Florida Trail, and other uses would continue to require access through a poor quality road, reducing recreational opportunities within the Preserve.

Cumulative Impacts. Past, present, and reasonably foreseeable future actions with the potential to affect visitor experience, recreation resources, and transportation include ongoing road and bridge maintenance activities such as pothole paving, pavement crack sealing, repairs of drainage culverts, and resurfacing the unpaved section of Loop Road. Although routine maintenance of the road would occur under the No Action Alternative, visitor use and transportation may be impaired long-term because the minor repairs would not improve the road enough to prevent long-term deterioration. This may result in the closure of Loop Road, which would adversely impact visitors, recreational users, and residents. While management projects related to CERP and the Tamiami Trail culverts project may have a regional, long-term, and beneficial impact to wetlands, wildlife, and special status species resources within the Preserve, Loop Road will not be extensively repaired, and therefore those visitors who prefer not to drive on rough roads will not have the opportunity to observe the wildlife associated with the improved wetlands. Other actions that may affect visitor use and experience include the Commercial Services Plan, which would provide a means for additional

guide and instructional services to visitors. If Loop Road remains in the present condition or deteriorates further under the No Action Alternative, there would be less incentive for concessioners to provide additional guide and instructional services, thereby not improving the visitor experience. The No Action Alternative would contribute a slight adverse increment to overall cumulative impacts. The overall cumulative impacts to visitor experience, recreational resources and transportation in combination with the No Action Alternative would be local, long-term, minor and adverse.

Conclusion. This alternative would not improve or repair Loop Road and may diminish the educational and visitor experience opportunities at the Loop Road Education Center. The impact may be long-term, minor to moderate and adverse at the local to regional level for visitor experience, recreation resources, and transportation. The overall cumulative impacts to visitor experience, recreational resources and transportation in combination with the No Action Alternative would be local, long-term, minor and adverse.

Impacts of Alternative B, the Preferred Alternative

During construction, portions of Loop Road may be closed to all traffic (except residents) or traffic may be reduced to a single travel lane. Portions of the paved road would be replaced, and culverts would be replaced or new culverts would be installed. During construction, visitor and recreational access to Loop Road would be limited due to the altered traffic patterns. After construction activities are completed, Loop Road would be available for use by visitors, recreational users, and residents without restriction.

Cumulative Impacts. Past, present, and reasonably foreseeable future actions with the potential to affect visitor experience, recreation resources, and transportation include ongoing road and bridge maintenance activities such as pothole paving, pavement crack sealing, repairs of drainage culverts, and resurfacing the unpaved section of Loop Road. In addition to routine maintenance, the Preferred Alternative would improve the road for visitors, recreational users, and residents, and provide a safer, more comfortable road. The management projects related to CERP and the Tamiami Trail culverts project may have a regional, long-term, and beneficial impact to wetlands, wildlife, and special status species resources within the Preserve, which may improve the opportunities for visitors to observe the wildlife associated with the improved wetlands on Loop Road. Other actions that may affect visitor use and experience include the Commercial Services Plan, which would provide a means for additional guide and instructional services to visitors. If Loop Road is repaired and improved under the Preferred Alternative, concessioners would provide additional guide and visitor services at Monroe station, which would be more accessible from the improved Loop Road, thereby improving the visitor experience. The Preferred Alternative would contribute a beneficial increment to overall cumulative impacts. The overall cumulative impacts to visitor experience, recreational resources and transportation, in combination with the Preferred Alternative, would be local to regional, long-term and beneficial.

Conclusion. During construction, the traffic patterns would be altered and the recreational opportunities reduced, and the impact would be short-term, minor and adverse at a local scale. After construction is complete, it is expected that the improved road would be beneficial at a regional scale to property owners within in the area, tourists seeking recreational, educational, and scenic opportunities in the Preserve, and to local recreational users of the Preserve. The impact of the proposed alternative on transportation would be short-term minor localized adverse impacts during construction followed by beneficial long-term impacts at a regional scale. The overall cumulative impacts to visitor experience, recreational resources and transportation, in combination with the Preferred Alternative, would be local to regional, long-term and beneficial.

CONSULTATION AND COORDINATION

The National Park Service consulted with tribes and the federal and state agencies responsible for the protection and management of natural and cultural resources. Consultation letters are included as Appendix A of this document.

SUMMARY OF TRIBAL CONSULTATION

The Miccosukee Tribe of Indians of Florida and the Seminole Tribe of Florida were sent scoping letters on February 25, 2010, describing the proposed project and requesting comments. The NPS also met with the Miccosukee Tribe on May 6, 2010; requests identified by the Miccosukee Tribe during that meeting include the following:

- Loaded dump trucks enter the project area from the west and exit only if empty to the east;
- Identify the trucks with good size (18-inch by 18-inch or better) placards or numbered signs in the event there is a need to report driving behavior or other observations about the trucks to the NPS;
- Avoid residential areas when selecting staging areas. Recommended use Pinecrest campground, Golightly's, former Giese property, and areas to the west of Crooked Culvert (former Smith property) on the north side of the road, and west before the curve;
- Law enforcement presence and monitoring on Loop Road during construction;
- Provide culvert plan for Tribe review; and
- Use Department of Transportation road grade fill material instead of generic fill.

Further, the Miccosukee Tribe stated their concerns about the prompt removal of silt fencing upon completion of construction.

To date, the Seminole Tribe of Florida has not provided comments in response to the scoping letter.

Each tribe will receive copies of this document for their review and comment. If subsequent issues or concerns are identified, appropriate consultations will be undertaken.

SUMMARY OF AGENCY CONSULTATION

The following federal and state agencies were sent a scoping letter on February 25, 2010, describing the proposed project and requesting comments.

- U.S. Fish and Wildlife Service, South Florida Ecological Services Office
- Department of Environmental Protection, Florida State Clearinghouse
- State Historic Preservation Office, Florida Department of State

Additionally, the NPS initiated National Historic Preservation Act Section 106 Consultation with the Florida State Historic Preservation Officer on June 24, 2010, requesting concurrence with the finding that the proposed action would have no adverse effect on cultural resources. On July 28, 2010, the Florida State Historic Preservation Officer provided a letter concurring with that finding. A copy of the letter is provided in Appendix B.

The U.S. Fish and Wildlife Service, South Florida Ecological Services Office will be sent a copy of the EA for review with a transmittal letter initiating informal consultation and requesting concurrence with the NPS determinations described in the Special Status Species section.

SUMMARY OF PUBLIC SCOPING

A scoping notice was sent to local stakeholders in February 2010 in which the NPS proposed to complete an EA to analyze the impacts of implementing Loop Road Improvements in Big Cypress National Preserve. Responses received are provided in Appendix B. In addition, Preserve staff and resource professionals under contract with the National Park Service Denver Service Center conducted a public meeting on April 28, 2010, to discuss the proposed project. Written comments received are provided in Appendix B.

LIST OF PREPARERS AND CONTRIBUTORS

BIG CYPRESS NATIONAL PRESERVE

Pedro Ramos, Preserve Superintendent
Damon Doumlele, Environmental Protection Specialist
Ron Clark, Division of Resource Management Chief
Dennis Bartalino, Facility Manager

NATIONAL PARK SERVICE, DENVER SERVICE CENTER

Kristie Franzmann, Project Manager
Mary Devine, Landscape Architect
Ginger Molitor, Natural Resource Specialist
Lee Terzis, Cultural Resource Specialist

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John Hoesterey, Technical Director
Colleen Conklin, Senior Project Manager
Jill Noel, Senior Scientist
Jacklyn Bryant, Senior Project Manager
Alexa Miles, Senior Scientist
Tim Saldaña, GIS Specialist
Pat Ditzel, Senior Word Processor

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REFERENCES CITED

- Brown, R.B., E.L. Stone, and V.W. Carlisle.
1990. Soils. *In: Ecosystems of Florida*, edited by R.L. Meyers and J.J. Ewel. University of Central Florida Press, Orlando.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe.
1979. Classification of Wetlands and *Deepwater Habitats of the United States*. Prepared for the U.S. Fish and Wildlife Service, Office of Biological Services. Washington, D.C.
- Duever, M.J., L.A. Riopelle, and J.M. McCollom.
1986. *Long Term Recovery of Experimental Off-Road Vehicle Impacts and Abandoned Old Trails in the Big Cypress National Preserve*. Big Cypress National Preserve. SFRC-86/09. National Audubon Society, Ecosystem Research Unit.
- Environmental Protection Agency
1970. EPA Clean Air Act, 1970, as amended. <http://www.epa.gov/air/caa/>
- Environmental Protection Agency.
1972. EPA Clean Water Act, 1972, as amended.
http://cfpub.epa.gov/npdes/cwa.cfm?program_id=6
- Ewel, K.
1990. Swamps. *In: Ecosystems of Florida*, edited by R.L. Myers and J.J. Ewel. University of Central Florida Press, Orlando.
- Executive Order 11988.
1977. Floodplain Management. <http://www.epa.gov/wetlands/regs/eo11988.html>
- Executive Order 12898.
1994. Federal Actions to Address Environmental Justice in Minority Populations and low-Income Populations. <http://www.archives.gov/federal-register/executive-orders/pdf/12898.pdf>
- Federal Emergency Management Agency
2005. FEMA Map Product Search
<http://msc.fema.gov/webapp/wcs/stores/servlet/FemaWelcomeView?storeId=10001&catalogId=10001&langId=-1> Map ID 12087C0100K and 12087C0125K Monroe County unincorporated areas
- Florida Natural Areas Inventory (FNAI)
1990. Guide to the Natural Communities of Florida. Prepared by the Florida Natural Areas Inventory and Florida Department of Natural Resources. Available at:
<http://www.fnai.org/NaturalCommGuide.cfm>
- Kushlan, J.
1990. Freshwater Marshes. *In: Ecosystems of Florida*, edited by R.L. Myers and J.J. Ewel. University of Central Florida Press, Orlando.
- Miller, R. L., B.F. McPherson, R. Sobczak, and C. Clark.
2004. Water Quality in Big Cypress National Preserve and Everglades National Park – Trends and Spatial Characteristics of Selected Constituents. U.S. Geological Survey, Reston, Virginia: 2004.
- National Park Service
1916. NPS Organic Act. <http://www.nps.gov/legacy/organic-act.htm>
- National Park Service
1984. Director's Order #87A. Park Roads Standards. National Park Service, Office of Policy, 1984.

REFERENCES CITED

National Park Service

1991. General Management Plan and Final Environmental Impact Statement. National Park Service, Big Cypress National Preserve. 1991.

National Park Service

1998. Cultural Resource Management Guideline. National Park Service, Office of Policy. 1998. http://www.nps.gov/history/history/online_books/nps28/28contents.htm

National Park Service

2000a. Director's Order #87D. Non-NPS roads. National Park Service, Office of Policy 2000.

National Park Service

2000b. Recreational Off-Road Vehicle Management Plan. National Park Service, Big Cypress National Preserve, 2000.

National Park Service

2001a. NPS Director's Order #12: Conservation Planning, Environmental Impact Analysis, and Decision-making. National Park Service, 2001.

National Park Service

2001b. Resource Management Plan. National Park Service, Big Cypress National Preserve, 2001

National Park Service

2003. NPS Directors Order #18, Wildland Fire Management. Office of Policy and Regulations, National Park Service, Washington, D.C. 2003 (updated 2008)
http://www.nps.gov/fire/download/fir_wil_do18.pdf

National Park Service

2005. Environmental Assessment, Fire Management Plan. 2005. National Park Service, Big Cypress National Preserve, 2005.

National Park Service

2006a. NPS Management Policies, Washington, D.C.

National Park Service

2006b. South Florida and Caribbean Parks: Draft Exotic Plant Management Plan and Environmental Impact Statement. Washington, D.C.

U.S. Department of Agriculture

1981. USDA Farmland Protection Policy Act
http://www.nrcs.usda.gov/programs/fppa/pdf_files/FPPA_Law.pdf

USDA, Soil Conservation Service

1987. Hydric Soils of the United States. In cooperation with the National Technical Committee for Hydric Soils. USDA-SCS, Washington, DC.

U.S. Fish and Wildlife Service

1996 USFWS Endangered and Threatened Species of the Southeastern United States. (The Red Book). USFWS Region 4.

U.S. Fish and Wildlife Service

1999. South Florida Multi-Species Recovery Plan. Available on the internet at:
http://ecos.fws.gov/docs/recovery_plans/1999/990518.pdf.

U.S. Fish and Wildlife Service.

2004. Draft Supplemental Habitat Management Guidelines for the Wood Stork in the South Florida Ecological Services Consultation Area. Fish and Wildlife Service, South Florida Ecological Services Office; Vero Beach, Florida.

U.S. Fish and Wildlife Service

2005 Division of Endangered Species, Species Account: Florida panther (*Felis concolor coryi*). Available on the internet at: <http://www.fws.gov/endangered/i/a/saa05.html>.

U.S. Fish and Wildlife Service

2007a. Wood Stork Foraging Analysis Methodology on the foraging habitat to be impacted and the foraging habitat provided as mitigation.

U.S. Fish and Wildlife Service

2007b. Eastern Indigo Snake and Wood Stork Key (Service Federal Activity Code Number 41420-2007-FA-1494).

U.S. Fish and Wildlife Service

2009. USFWS Biological Opinion for Widening of Oil Well Road from Immokalee Road. Available on the internet at

http://www.fws.gov/verobeach/images/biologicalopinion/20090226_letter_Service_to_Corps_FA_0548_panther_BO_Oil_Well_Road1.pdf

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ACRONYMS AND ABBREVIATIONS

BMP	Best Management Practices
CEQ	Council on Environmental Quality
CERP	Comprehensive Everglades Restoration Plan
CFA	Core Foraging Areas
CFR	Code of Federal Regulations
EA	Environmental Assessment
EFA	Everglades Forever Act
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FNAI	Florida Natural Areas Inventory
FONSI	Finding of No Significant Impact
FY	Fiscal Year
GMP	General Management Plan
MBTA	Migratory Bird Treaty Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
OAHP	Office of Archeology and Historic Preservation
ORV	Off-road Vehicle
Preserve	Big Cypress National Preserve
SHPO	State Historic Preservation Officer
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service

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APPENDICES

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Appendix A

Scoping Letters

Item 1	Miccosukee Tribe of Indians of Florida
Item 2	Seminole Tribe of Florida
Item 3	U.S. Fish and Wildlife Service
Item 4	Florida State Clearinghouse
Item 5	Florida State Historic Preservation Office
Item 6	Everglades National Park

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United States Department of the Interior



NATIONAL PARK SERVICE

Big Cypress National Preserve
33100 Tamiami Trail E
Ochopee, Florida 34141-1000

IN REPLY REFER TO:

L7617 (BICY-S)

February 25, 2010

Chairman Colley Billie
Miccosukee Tribe of Indians of Florida
P.O. Box 440021, Tamiami Station
Miami, Florida 33144

Dear Chairman Billie:

Big Cypress National Preserve proposes to rehabilitate and repair damage along 16.53 miles of Loop Road, the main scenic drive through the preserve. The proposed project area includes approximately 5 miles of paved and 11.53 miles of gravel road. This road provides access to the Everglades Environmental Education Center and is used by thousands of visitors each year. The road is also the only access route for some Preserve inholders.

Loop Road is not currently in a maintainable condition, because the necessary repair work is too extensive to be accomplished through routine maintenance. In addition to severe pavement rutting and potholes, most of the existing culverts within the project limits are in very poor condition and will need to be replaced. Continuous drainage problems have plagued the road, and severe damage occurred in 2005 from Hurricane Wilma. Due to inadequate drainage under the existing road, water is impounded on the north side during high water, and road segments are commonly overtopped, resulting in deterioration. On the low sections of the roadway, 3-8" of standing water have been present for weeks at a time. The road shoulders have been washed out, which creates a safety hazard and undermines the road. The proposed actions for the entire 16.53 miles project will take place within the previously disturbed roadway prism.

Public scoping is the initial phase of the environmental compliance process required before the project can be accomplished. The National Park Service (NPS) invites and welcomes comments during this early planning stage of the process. Public comments will help Preserve managers make well-informed decisions about whether and how to implement this project. Based on information received during scoping, the NPS will begin preparation of an Environmental Assessment (EA) to investigate the potential for effects on Preserve resources. The EA should be released for public comment later this year.

Please submit your comments by March 25, 2010, either online at <http://parkplanning@nps.gov> or by mailing to the address at the top of this letter. Thank you in advance for your comments.

Sincerely,

Pedro Ramos
Superintendent



United States Department of the Interior



NATIONAL PARK SERVICE

Big Cypress National Preserve
33100 Tamiami Trail E
Ochopee, Florida 34141-1000

IN REPLY REFER TO:

L7617 (BICY-S)

February 25, 2010

Chairman Mitchell Cypress
Seminole Tribe of Florida
6300 Stirling Road
Hollywood, Florida 33024

Dear Chairman Cypress:

Big Cypress National Preserve proposes to rehabilitate and repair damage along 16.53 miles of Loop Road, the main scenic drive through the preserve. The proposed project area includes approximately 5 miles of paved and 11.53 miles of gravel road. This road provides access to the Everglades Environmental Education Center and is used by thousands of visitors each year. The road is also the only access route for some Preserve inholders.

Loop Road is not currently in a maintainable condition, because the necessary repair work is too extensive to be accomplished through routine maintenance. In addition to severe pavement rutting and potholes, most of the existing culverts within the project limits are in very poor condition and will need to be replaced. Continuous drainage problems have plagued the road, and severe damage occurred in 2005 from Hurricane Wilma. Due to inadequate drainage under the existing road, water is impounded on the north side during high water, and road segments are commonly overtopped, resulting in deterioration. On the low sections of the roadway, 3-8" of standing water have been present for weeks at a time. The road shoulders have been washed out, which creates a safety hazard and undermines the road. The proposed actions for the entire 16.53 miles project will take place within the previously disturbed roadway prism.

Public scoping is the initial phase of the environmental compliance process required before the project can be accomplished. The National Park Service (NPS) invites and welcomes comments during this early planning stage of the process. Public comments will help Preserve managers make well-informed decisions about whether and how to implement this project. Based on information received during scoping, the NPS will begin preparation of an Environmental Assessment (EA) to investigate the potential for effects on Preserve resources. The EA should be released for public comment later this year.

Please submit your comments by March 25, 2010, either online at <http://parkplanning@nps.gov> or by mailing to the address at the top of this letter. Thank you in advance for your comments.

Sincerely,

Pedro Ramos
Superintendent

TAKE PRIDE
IN AMERICA



United States Department of the Interior



NATIONAL PARK SERVICE

Big Cypress National Preserve
33100 Tamiami Trail E
Ochopee, Florida 34141-1000


IN REPLY REFER TO:

L7617 (BICY-S)

February 25, 2010

Memorandum

To: U.S. Fish and Wildlife Service, South Florida Ecological Services Office
Attention: Mr. Paul Souza

From: Pedro Ramos, Superintendent 

Subject: Loop Road Rehabilitation and Repair, Request for Scoping Comments

Big Cypress National Preserve proposes to rehabilitate and repair damage along 16.53 miles of Loop Road, the main scenic drive through the preserve. The proposed project area includes approximately 5 miles of paved and 11.53 miles of gravel road. This road provides access to the Everglades Environmental Education Center and is used by thousands of visitors each year. The road is also the only access route for some Preserve inholders.

Loop Road is not currently in a maintainable condition, because the necessary repair work is too extensive to be accomplished through routine maintenance. In addition to severe pavement rutting and potholes, most of the existing culverts within the project limits are in very poor condition and will need to be replaced. Continuous drainage problems have plagued the road, and severe damage occurred in 2005 from Hurricane Wilma. Due to inadequate drainage under the existing road, water is impounded on the north side during high water, and road segments are commonly overtopped, resulting in deterioration. On the low sections of the roadway, 3-8" of standing water have been present for weeks at a time. The road shoulders have been washed out, which creates a safety hazard and undermines the road. The proposed actions for the entire 16.53 miles project will take place within the previously disturbed roadway prism.

Public scoping is the initial phase of the environmental compliance process required before the project can be accomplished. The National Park Service (NPS) invites and welcomes comments during this early planning stage of the process. Public comments will help Preserve managers make well-informed decisions about whether and how to implement this project. Based on information received during scoping, the NPS will begin preparation of an Environmental Assessment (EA) to investigate the potential for effects on Preserve resources. The EA should be released for public comment later this year.

Please submit your comments by March 25, 2010, either online at <http://parkplanning@nps.gov> or by mailing to the address at the top of this memorandum. This memorandum also constitutes our request for a list of federally endangered or threatened species or critical habitat in the project area. Thank you in advance for your comments.



United States Department of the Interior



NATIONAL PARK SERVICE

Big Cypress National Preserve
33100 Tamiami Trail E
Ochopee, Florida 34141-1000

IN REPLY REFER TO:

L7617 (BICY-S)

February 25, 2010

Ms. Lauren P. Milligan
Department of Environmental Protection
Florida State Clearinghouse
3900 Commonwealth Boulevard, M.S. 47
Tallahassee, Florida 32399-3000

Dear Ms. Milligan:

Big Cypress National Preserve proposes to rehabilitate and repair damage along 16.53 miles of Loop Road, the main scenic drive through the preserve. The proposed project area includes approximately 5 miles of paved and 11.53 miles of gravel road. This road provides access to the Everglades Environmental Education Center and is used by thousands of visitors each year. The road is also the only access route for some Preserve inholders.

Loop Road is not currently in a maintainable condition, because the necessary repair work is too extensive to be accomplished through routine maintenance. In addition to severe pavement rutting and potholes, most of the existing culverts within the project limits are in very poor condition and will need to be replaced. Continuous drainage problems have plagued the road, and severe damage occurred in 2005 from Hurricane Wilma. Due to inadequate drainage under the existing road, water is impounded on the north side during high water, and road segments are commonly overtopped, resulting in deterioration. On the low sections of the roadway, 3-8" of standing water have been present for weeks at a time. The road shoulders have been washed out, which creates a safety hazard and undermines the road. The proposed actions for the entire 16.53 miles project will take place within the previously disturbed roadway prism.

Public scoping is the initial phase of the environmental compliance process required before the project can be accomplished. The National Park Service (NPS) invites and welcomes comments during this early planning stage of the process. Public comments will help Preserve managers make well-informed decisions about whether and how to implement this project. Based on information received during scoping, the NPS will begin preparation of an Environmental Assessment (EA) to investigate the potential for effects on Preserve resources. The EA should be released for public comment later this year.

Please forward copies of this EA to all appropriate state and local agencies for comment. Please submit your comments by March 25, 2010, either online at <http://parkplanning@nps.gov> or by mailing to the address at the top of this letter. Thank you in advance for your comments.

Sincerely,

Pedro Ramos
Superintendent





United States Department of the Interior



NATIONAL PARK SERVICE

Big Cypress National Preserve
33100 Tamiami Trail E
Ochopee, Florida 34141-1000

IN REPLY REFER TO:

L7617 (BICY-S)

February 25, 2010

State Historic Preservation Officer
Florida Department of State
Division of Historical Resources
500 South Bronough Street
Tallahassee, Florida 32399-0250

Dear Sir:

Big Cypress National Preserve proposes to rehabilitate and repair damage along 16.53 miles of Loop Road, the main scenic drive through the preserve. The proposed project area includes approximately 5 miles of paved and 11.53 miles of gravel road. This road provides access to the Everglades Environmental Education Center and is used by thousands of visitors each year. The road is also the only access route for some Preserve inholders.

Loop Road is not currently in a maintainable condition, because the necessary repair work is too extensive to be accomplished through routine maintenance. In addition to severe pavement rutting and potholes, most of the existing culverts within the project limits are in very poor condition and will need to be replaced. Continuous drainage problems have plagued the road, and severe damage occurred in 2005 from Hurricane Wilma. Due to inadequate drainage under the existing road, water is impounded on the north side during high water, and road segments are commonly overtopped, resulting in deterioration. On the low sections of the roadway, 3-8" of standing water have been present for weeks at a time. The road shoulders have been washed out, which creates a safety hazard and undermines the road. The proposed actions for the entire 16.53 miles project will take place within the previously disturbed roadway prism.

Public scoping is the initial phase of the environmental compliance process required before the project can be accomplished. The National Park Service (NPS) invites and welcomes comments during this early planning stage of the process. Public comments will help Preserve managers make well-informed decisions about whether and how to implement this project. Based on information received during scoping, the NPS will begin preparation of an Environmental Assessment (EA) to investigate the potential for effects on Preserve resources. The EA should be released for public comment later this year.

Please submit your comments by March 25, 2010, either online at <http://parkplanning@nps.gov> or by mailing to the address at the top of this letter. Thank you in advance for your comments.

Sincerely,

Pedro Ramos
Superintendent



United States Department of the Interior



NATIONAL PARK SERVICE

Big Cypress National Preserve
33100 Tamiami Trail E
Ochopee, Florida 34141-1000


IN REPLY REFER TO:

L7617 (BICY-S)

February 25, 2010

Memorandum

To: Superintendent, Everglades National Park

From: Superintendent, Big Cypress National Preserve 

Subject: Loop Road Rehabilitation and Repair, Request for Scoping Comments

Big Cypress National Preserve proposes to rehabilitate and repair damage along 16.53 miles of Loop Road, the main scenic drive through the preserve. The proposed project area includes approximately 5 miles of paved and 11.53 miles of gravel road. This road provides access to the Everglades Environmental Education Center and is used by thousands of visitors each year. The road is also the only access route for some Preserve inholders.

Loop Road is not currently in a maintainable condition, because the necessary repair work is too extensive to be accomplished through routine maintenance. In addition to severe pavement rutting and potholes, most of the existing culverts within the project limits are in very poor condition and will need to be replaced. Continuous drainage problems have plagued the road, and severe damage occurred in 2005 from Hurricane Wilma. Due to inadequate drainage under the existing road, water is impounded on the north side during high water, and road segments are commonly overtopped, resulting in deterioration. On the low sections of the roadway, 3-8" of standing water have been present for weeks at a time. The road shoulders have been washed out, which creates a safety hazard and undermines the road. The proposed actions for the entire 16.53 miles project will take place within the previously disturbed roadway prism.

Public scoping is the initial phase of the environmental compliance process required before the project can be accomplished. The National Park Service (NPS) invites and welcomes comments during this early planning stage of the process. Public comments will help Preserve managers make well-informed decisions about whether and how to implement this project. Based on information received during scoping, the NPS will begin preparation of an Environmental Assessment (EA) to investigate the potential for effects on Preserve resources. The EA should be released for public comment later this year.

Please submit your comments by March 25, 2010, either online at <http://parkplanning@nps.gov> or by mailing to the address at the top of this memorandum. Thank you in advance for your comments.

Appendix B

Agency Responses and Public Comments

Item 1	U. S. Fish and Wildlife Service
Item 2	Public Comments: Frank F. Denninger
Item 3	Florida State Historic Preservation Office Response to Scoping Letter
Item 4	Florida State Clearinghouse
Item 5	Public Comments: Everglades Coordinating Council
Item 6	Florida State Historic Preservation Office Finding Letter

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March 5, 2010

To: National Park Service, Big Cypress National Preserve, 33100 Tamiami Trail East, Ochopee, Florida 34141-1000, Attention: parkplanning@nps.gov

From: John Wrublik, Fish and Wildlife Biologist, South Florida Ecological Services Office, Vero Beach, Florida

Subject: Loop Road Rehabilitation and Repair, Scoping Comments; Service Federal Activity Code: 41420-2010-CPA-0984, Service Consultation Code 41420-2010-I-0757

The U. S. Fish and Wildlife Service (Service) has received the memo from Superintendent Pedro Ramos dated February 25, 2010, for the project referenced above. We offer the following comments.

PROJECT DESCRIPTION

The proposed action consists of rehabilitation and repair of a 16.53 segment of Loop Road. The project area includes 5 miles of paved and 11.53 miles of unpaved roadway. The project will also include replacement of existing culverts. The proposed works will occur within the existing roadway footprint. The project site is located in Monroe County, Florida.

THREATENED AND ENDANGERED SPECIES

Wood Stork

The project is located within the core foraging areas (CFA) (lands within 18.6 miles) of six active breeding colonies of the endangered wood stork (*Mycteria americana*). The Service believes the loss of wetlands within a CFA may reduce foraging opportunities for wood storks. To minimize adverse effects to the wood stork, the Service's *Draft Supplemental Habitat Management Guidelines for the Wood Stork in the South Florida Ecological Services Consultation Area* (Guidelines) (Service 2004) recommends the applicant replace wetlands lost due to the action. The compensation plan should include a temporal lag factor, if necessary, to ensure wetlands provided as compensation adequately replace the wetland functions lost due to the project. Moreover, wetlands offered as compensation should be of the same hydroperiod, and located within the CFA of the affected wood stork colony. In some cases, the Service accepts wetlands compensation located outside the CFA of the affected wood stork nesting colony. Specifically, wetland credits purchased from a "Service Approved" mitigation bank located outside the CFA would be acceptable to the Service, provided the impacted wetlands occur within the permitted service area of the bank.

For projects that impact five or more acres of wood stork foraging habitat, the Service requires a functional assessment be conducted using our “Wood Stork Foraging Analysis Methodology” (Methodology) on the foraging habitat to be impacted and the foraging habitat provided as mitigation. The Methodology can found in the Service’s November 9, 2007, Eastern Indigo Snake and Wood Stork Key (Service Federal Activity Code Number 41420-2007-FA-1494) provided to the U. S. Army Corps of Engineers to guide their effect determinations for these two species (available upon request).

Florida Panther

The project is located with the Service’s Focus Area for the endangered Florida panther (*Puma concolor coryi*) and the panther primary zone. These lands are considered important to Florida panther conservation in south Florida, and development projects within the Focus Area have the potential impact the panther. If the project results in the loss of panther habitat, the Service recommends that currently unprotected panther habitat be acquired and managed to compensate for impacts to panther habitat resulting from the project. The Service’s functional panther habitat assessment should be used to determine the habitat value of the lands impacted and the lands provided as compensation in Panther Habitat Units. A detailed description of the Service’s functional panther habitat assessment can be found in one of our recent biological opinions (available upon request).

Everglade snail kite

The project is located in the geographic range of the endangered Everglade snail kite (*Rostrhamus sociabilis plumbeus*). A small portion of the eastern portion of the project corridor is located in critical habitat designated for the Everglade snail kite.

Eastern indigo snake

The project occurs within the geographic range of the threatened Eastern indigo snake (*Drymarchon corais couperi*).

No other records of federally listed species were not identified on your project site. The Service has not conducted a site inspection to verify species occurrence or validate the GIS results. However, we assume listed species occur in suitable ecological communities and recommend site surveys to determine the presence or absence of listed species. Ecological communities suitable for listed species can be found in the species accounts in the *South Florida Multi-Species Recovery Plan*. This document is available on the web at:

<http://www.fws.gov/verobeach/index.cfm?Method=programs&NavProgramCategoryID=3&programID=107&ProgramCategoryID=3>. We have also provided for your consideration two computer links:

(1) <http://www.fws.gov/verobeach/index.cfm?Method=programs&NavProgramCategoryID=3&programID=37&ProgramCategoryID=3>,

and (2) <http://migratorybirds.fws.gov/>.

The first link provides links to lists of species protected under the Endangered Species Act of 1973 (as amended, 87 Stat. 884; 16 U.S.C. 1531 *et seq.*) for each county in south Florida. The County lists do not include State-listed species. Please contact the Florida Fish and Wildlife Conservation Commission to identify potential State-listed species occurring in the vicinity of your project. The second link provides information on species the Service is required to protect and conserve under other authorities, such as the Fish and Wildlife Coordination Act of 1958, as amended (48 Stat. 401; 16 U.S.C. 661 *et seq.*) and the Migratory Bird Treaty Act (40 Stat. 755; 16 U.S.C. 701 *et seq.*). A variety of habitats in south Florida occasionally provide resting, feeding, and nesting sites for a variety of migratory bird species. As a public trust resource, migratory birds must be taken into consideration during project planning and design.

Thank you for the opportunity to comment. If you have any questions, please contact John Wrublik at 772-562-3909, extension 282.

LITERATURE CITED

U.S. Fish and Wildlife Service (Service). 2004. Draft Supplemental Habitat Management Guidelines for the Wood Stork in the South Florida Ecological Services Consultation Area. Fish and Wildlife Service, South Florida Ecological Services Office; Vero Beach, Florida.

John M. Wrublik
U.S. Fish and Wildlife Service
Vero Beach Ecological Services Office
1339 20th Street
Vero Beach, Florida 32960
Phone: 772-562-3909, x-282
Fax: 772-562-4288

frank denninger
<gladesman@gmail.com>

03/11/2010 10:13 PM

To: Damon Doumlele <Damon_Doumlele@nps.gov>

cc

Subject: Scoping Comments regarding Loop Road Maintenance

To: Damon Doumlele
Big Cypress National Preserve
Ochopee, Florida 34141

Re: Scoping Comments regarding Loop Road Improvements Project

Date: March 11, 2010

Loop Road has always been a slightly to very rough and narrow road to drive. It would be good to reinforce the road structurally and prevent sheetflow flood degradation but at the same time maintain the roughness so as to maintain its traditional cultural character. To a newcomer the excitement or apprehension caused by Loop Roads roughness and narrowness is and should be retained so that a drive down it continues to be a very memorable experience especially for first timers (tourists).

It would be problematic from an ecological perspective to keep it very smooth as this would allow for speeds of 40 -60 miles per hour for 15 miles of its length. This would cause an increase in roadkill that does not happen much currently. In my opinion wildlife along the Loop are not adapted to high speed traffic and never have been since it was built. It might create negative effects upon the public perception of NPS if they were to facilitate high motorist speeds through this area that houses Florida Panthers, Red Cockaded Woodpeckers, Black Bears Wood Storks and myriad other endangered and threatened species that all Americans are spending billions to preserve for future generations to enjoy.

One solution to the real problem of Loop Road being inundated by water in the wet season is to install many many more culverts (100's of them) to facilitate natural sheet flow to pass through the culverts rather than over the top of road bed. There was an Comprehensive Everglades Restoration Plan project scheduled to do that 8 or 10 years ago but it had its funding pulled in favor of some other work.

Just a few quick thoughts about improving Loop Road.

Frank F. Denninger
461 E. 40 St.
Hialeah, Florida 33013



FLORIDA DEPARTMENT OF STATE
Kurt S. Browning
Secretary of State
DIVISION OF HISTORICAL RESOURCES

Ms. Lauren Milligan
Director, Florida State Clearinghouse
3900 Commonwealth Boulevard, Mail Station 47
Tallahassee, Florida 32399-3000

March 17, 2010

RECEIVED

MAR 24 2010

RE: DHR Project File No: 2010-1050
SAI #: FL201003035129C
National Park Service – Scoping Notice
Rehabilitate and Repair 16.53 Miles of Loop Road in Big Cypress National Preserve
Collier County

DEP Office of
Intergov't Programs

Dear Ms. Milligan:

Our office reviewed the above referenced project for possible impact to historic properties listed, or eligible for listing, in the National Register of Historic Places, or otherwise of historical, architectural or archaeological value. The review was conducted in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended, 36 C.F.R., Part 800: Protection of Historic Properties, Chapter 267, *Florida Statutes*, Florida's Coastal Zone Management Program, and implementing state regulations.

We note that Loop Road has been assigned a Florida Master Site File number (8DA6984) as part of a recent ethnographic evaluation of the Gladesman/Swamp Folk Culture conducted by New South Associates. The ethnographic report and completed resource group form for the road have not been received by this office for review. Nonetheless, we request that potential effects of this project on Loop Road be addressed in the proposed Environmental Assessment.

For any questions concerning our comments, please contact Samantha Earnest, Historic Preservationist, by phone at 850.245.6333, or by electronic mail at searnest@dos.state.fl.us. We appreciate your continued interest in protecting Florida's historic properties.

Sincerely,

Laura A. Kammerer
Deputy State Historic Preservation Officer
For Review and Compliance

500 S. Bronough Street • Tallahassee, FL 32399-0250 • <http://www.flheritage.com>

☐ Director's Office
850. 245.6300 • FAX: 245.6436

☐ Archaeological Research
850. 245.6444 • FAX: 245.6452

☒ Historic Preservation
850. 245.6333 • FAX: 245.6437



Florida Department of Environmental Protection

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

March 23, 2010

Mr. Pedro Ramos, Superintendent
Big Cypress National Preserve
National Park Service
33100 Tamiami Trail East
Ochopee, FL 34141-1000

RE: National Park Service - Scoping Notice - Rehabilitate and Repair 16.53 Miles of
Loop Road in Big Cypress National Preserve - Collier County, Florida.
SAI # FL201003035129C

Dear Mr. Ramos:

The Florida State Clearinghouse has coordinated a review of the referenced public notice under the following authorities: Presidential Executive Order 12372; Section 403.061(40), *Florida Statutes*; the Coastal Zone Management Act, 16 U.S.C. §§ 1451-1464, as amended; and the National Environmental Policy Act, 42 U.S.C. §§ 4321-4347, as amended.

The Florida Department of Environmental Protection (DEP) supports the proposal and recommends that the National Park Service install appropriate conveyance features, especially along existing slough flow ways, to improve drainage. Although impacts to wetlands maybe necessary to reduce roadway flooding and restore natural hydrology, any impacts to wetlands or threatened or endangered species should be avoided, minimized, and mitigated as required. If the paved area (if asphalt) is to be repaved, the materials should be recycled or replaced with pervious materials to reduce runoff and local materials should be used where possible. Please refer to the enclosed DEP memo and contact Ms. Katelyn Lynch at (850) 245-8350 for additional information.

The Florida Fish and Wildlife Conservation Commission (FWC) states that the proposed project would have minimal impacts to wildlife and their habitats. Adherence to U.S. Fish and Wildlife Service guidelines for consultation on the Florida panther, red-cockaded woodpecker, and Cape Sable seaside sparrow is recommended, however, under Section 7 of the Endangered Species Act. In order to maintain the hydroperiods that support native fish and wildlife resources in the area, FWC also recommends installation of culverts using designs and elevations that mimic natural wetland drainage and hydrological patterns. Please refer to the enclosed FWC letter for further details.

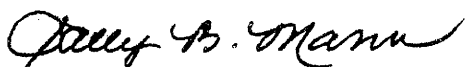
Mr. Pedro Ramos
March 23, 2010
Page 2 of 2

The South Florida Water Management District (SFWMD) advises that the project has been permitted by the SFWMD.

Based on the information contained in the scoping notice, enclosed state agency comments and issuance of an Environmental Resource Permit by the SFWMD, the state has determined that the proposed project is consistent with the Florida Coastal Management Program (FCMP). The state's continued concurrence will be based on the activity's compliance with FCMP authorities, including federal and state monitoring of the activity to ensure its continued conformance. The state's final concurrence of the project's consistency with the FCMP was determined during the environmental permitting process in accordance with Section 373.428, *Florida Statutes*.

Thank you for the opportunity to review the proposed project. Should you have any questions regarding this letter, please contact Ms. Lauren P. Milligan at (850) 245-2170.

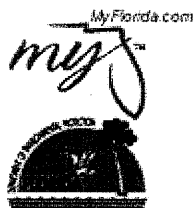
Yours sincerely,



Sally B. Mann, Director
Office of Intergovernmental Programs

SBM/Im
Enclosures

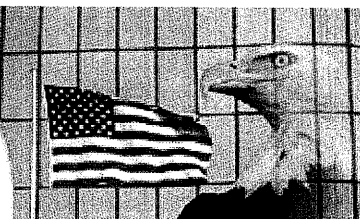
cc: John Outland, DEP, Ecosystem Projects
Ernie Marks, DEP, Everglades RPPP
Jennifer Nelson, DEP, South District
Tim Gray, DEP, Southeast District
Mary Ann Poole, FWC
Jim Golden, SFWMD



Florida

Department of Environmental Protection

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Project Information

Project:	FL201003035129C
Comments Due:	03/22/2010
Letter Due:	03/25/2010
Description:	NATIONAL PARK SERVICE - SCOPING NOTICE - REHABILITATE AND REPAIR 16.53 MILES OF LOOP ROAD IN BIG CYPRESS NATIONAL PRESERVE - COLLIER COUNTY, FLORIDA.
Keywords:	NPS - REHABILITATE LOOP ROAD IN BIG CYPRESS NATIONAL PRESERVE - COLLIER CO.
CFDA #:	15.916

Agency Comments:

COMMUNITY AFFAIRS - FLORIDA DEPARTMENT OF COMMUNITY AFFAIRS

FISH and WILDLIFE COMMISSION - FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

The FWC states that, although the proposed project would have minimal impacts to wildlife and their habitats, staff recommends adherence to the U.S. Fish and Wildlife Service's guidelines for consultation on the Florida panther, red-cockaded woodpecker, and Cape Sable seaside sparrow under Section 7 of the Endangered Species Act. In order to maintain the hydroperiods that support native fish and wildlife resources in the area, FWC also recommends installation of culverts using designs and elevations that mimic natural wetland drainage and hydrological patterns.

STATE - FLORIDA DEPARTMENT OF STATE

No Comments Received

ENVIRONMENTAL PROTECTION - FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

The DEP supports the proposal and recommends that the National Park Service install appropriate conveyance features, especially along existing slough flow ways, to improve drainage. Although impacts to wetlands maybe necessary to reduce roadway flooding and restore natural hydrology, any impacts to wetlands or threatened or endangered species should be avoided, minimized, and mitigated as required. If the paved area (if asphalt) is to be repaved, the materials should be recycled or replaced with pervious materials to reduce runoff and local materials should be used where possible. Please refer to the enclosed DEP memo and contact Ms. Katelyn Lynch at (850) 245-8350 for additional information.

SOUTH FLORIDA WMD - SOUTH FLORIDA WATER MANAGEMENT DISTRICT

This project has been permitted by the SFWMD.

For more information or to submit comments, please contact the Clearinghouse Office at:

3900 COMMONWEALTH BOULEVARD, M.S. 47
TALLAHASSEE, FLORIDA 32399-3000
TELEPHONE: (850) 245-2161
FAX: (850) 245-2190

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Memorandum



TO: Florida State Clearinghouse

THROUGH: Ernie Marks, Administrator
Restoration Planning and Permitting

FROM: Inger Hansen, John Outland, Katelyn Lynch, Annet Forkink, Jennifer Nelson

DATE: March 23, 2010

SUBJECT: National Park Service - Scoping Notice - Rehabilitate and Repair 16.53 Miles of Loop Road in Big Cypress National Preserve - Collier County, Florida.

SAI#: SAI # FL201003035129C

BACKGROUND

Big Cypress National Preserve proposes to rehabilitate and repair damage along 16.53 miles of Loop Road, the main scenic drive through the preserve. The proposed project area includes approximately 5 miles of paved and 11.53 miles of gravel road. This road provides access to the Everglades Environmental Education Center. The road is also the only access route for some Preserve inholders.

Loop Road is not currently in a maintainable condition, because the necessary repair work is too extensive to be accomplished through routine maintenance. In addition, most of the existing culverts within the project limits are in poor condition and will need to be replaced. Due to inadequate drainage under the existing road, water is impounded on the north side during high water and road segments are commonly overtopped, resulting in deterioration. On the low sections of the roadway, 3-8" of standing water have been present for weeks at a time. The road shoulders have been washed out, which creates a safety hazard and undermines the road. Drainage improvements are necessary as the current roadway acts as a dam impounding water to the north. All road rehabilitation will take place in the existing disturbed roadway area and the gravel portion will not be paved.

COMMENTS

The Florida Department of Environmental Protection (Department) supports the National Park Service (NPS) in moving forward with the rehabilitation and repair of the 16.53 miles of Loop Road in Big Cypress National Preserve. The rehabilitation project may require an Environmental Resource Permit (ERP) from the South Florida Water Management District (SFWMD). Contacting the SFWMD for a pre-application meeting once design of the project has been completed is recommended.

The Department provides the following comments on the scoping notice to rehabilitate and repair 16.53 miles of Loop Road in Big Cypress National Preserve:

- The existing roadway acts as a dam and tends to impound water on the north side. It is critical to improve conveyance across the road in order to mitigate this effect. It may be necessary to build conveyance features to help get the water from the north side to south side of the road. Alternatives for conveyance such as culverts under the road, small bridges, or conveyance swales should be considered to allow water to flow across the existing road section. Additional culverts to improve drainage should be aligned along slough flow ways.
- It may be necessary to slightly enlarge the existing foot print of the road section to accomplish this. Since the conveyance of flows across the road is critical to both restoring the natural hydrology in the receiving marsh as well as reducing the flooding impacts to the road, impacts to wetlands beyond the road footprint may be acceptable, assuming the restored hydrology would help mitigate the impacts.
- The scoping notice states that the roadway work is limited to the existing roadway prism. Some of the cleared roadway sections, along the shoulder of the road bed are located in wetlands or adjacent to wetlands. Any impacts to wetlands or threatened or endangered species should be avoided, minimized, and mitigated as appropriate. If impacts to wetlands along the shoulder will occur, the NPS must provide an assessment of the impact areas and a mitigation plan, if appropriate. If there will be wetland impacts, please consider using the State's Uniform Mitigation Assessment Method (UMAM) to evaluate any impacts.
- If the paved area (under the assumption that it is asphalt) is to be repaved, the materials should be recycled or replaced with pervious materials to reduce runoff and local materials should be used where possible.
- During construction Best Management Practices (BMPs) for erosion and sedimentation control should be used. Efforts should be made to ensure that stockpiling of materials, fuel storage areas, and parking areas for heavy equipment are located to minimize impacts to the area. All heavy equipment and work vehicles should be properly maintained to ensure that they are not leaking any fluids.
- Contractors should be informed about threatened and endangered species and animal/panther crossing areas to avoid road kills.

The Department sincerely appreciates the opportunity to comment. Should you have any questions on the comments provided, please contact Katelyn Lynch at (850) 245-8350.

Electronic copies to:

Stacey Feken

Inger Hansen

Tim Gray

John Outland

Katie Hallas

Annet Forkink

Greg Knecht

Ernest Marks

Stan Ganthier

Dianne Hughes



**Florida Fish
and Wildlife
Conservation
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Office of Planning and
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Nancy Linehan
Director
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MyFWC.com

March 17, 2010

RECEIVED

MAR 22 2010

**DEP Office of
Intergovernmental Programs**

Ms. Lauren Milligan
Department of Environmental Protection
Florida State Clearinghouse
3900 Commonwealth Boulevard, M.S. 47
Tallahassee, FL 32399-3000

Re: National Park Service-Scoping Notice-Rehabilitate and Repair 16.53 miles of
Loop Road in Big Cypress National Preserve-Collier County, Florida,
SAI #FL201003035129C

Dear Ms. Milligan:

The Division of Habitat and Species Conservation, Terrestrial Habitat Conservation and Restoration Section, of the Florida Fish and Wildlife Conservation Commission (FWC) has coordinated an agency review of the scoping notice for the Rehabilitation and Repair to Loop Road of the Big Cypress National Preserve. The following comments and recommendations are being provided in accordance with the National Environmental Policy Act and the Florida Coastal Management Program/Coastal Zone Management Act.

Project Description

Big Cypress National Preserve (the Preserve) proposes to rehabilitate and repair damage along 16.53 miles of Loop Road, the main scenic drive through the Preserve. The proposed project area includes approximately 5 miles of paved and 11.53 miles of gravel road. This road provides access to the Everglades Environmental Education Center and is used by thousands of visitors each year. The road is also the only access route for some Preserve residents.

Loop Road is not currently in a maintainable condition because the necessary repair work is too extensive to be accomplished through routine maintenance. In addition to severe pavement rutting and potholes, most of the existing culverts within the project limits are in very poor condition and will need to be replaced. Continuous drainage problems have plagued the road, and severe damage occurred in 2006 from Hurricane Wilma. Due to inadequate drainage under the existing road, water is impounded on the north side during high water, and road segments are commonly overtopped, resulting in deterioration. On the low sections of the roadway, 3 to 8 feet of standing water have been present for weeks at a time. The road shoulders have been washed out, which creates a safety hazard and undermines the road. The proposed actions for the entire 16.53 miles project would take place within the previously disturbed roadway prism.

Potentially Affected Resources

Wildlife and their habitats: The proposed project would result in minimal impact to wildlife and their habitats. Wetlands along Loop Road maintain a significant amount of water throughout the year as seen by the high percentage of bald cypress (*Taxodium*

distichum), wet prairies, and freshwater marshes that constitute this area (making up over 80% of GIS landcover polygons) (FWC Landcover, 2003). Culvert replacement and road repairs should not negatively impact the surrounding wildlife populations.

Based on the Florida Natural Areas Inventory (FNAI) and FWC Potential Habitat models, wildlife species found in and around the Loop Road area include: the Florida panther (*Puma concolor coryi* - Endangered [E]), the wood stork (*Mycteria americana* - E), the Everglades mink (*Mustela vison evergladensis* - E), the Cape Sable seaside sparrow (*Ammodramus maritimus mirabilis* - E), the red-cockaded woodpecker (*Picoides borealis* - E), the snail kite (*Rostrhamus sociabilis plumbeus* - E), the Florida black bear (*Ursus americanus floridana* - Threatened [T]), the Florida sandhill crane (*Grus canadensis pratensis* - T), and the limpkin (*Aramus guarauna* - Species of Special Concern [SSC]). Evening bats (*Nycticeius humeralis*) and swallow-tailed kites (*Elanoides forficatus*) were observed in the area near the proposed site. The Loop Road area is said to contain one inactive bird rookery (FNAI, 2008).

Hydrology: Hydrologic events in the Loop Road and Stairsteps units are critical to the landscape and maintenance of the water levels in the three named strands/sloughs south of Loop Road (Sweetwater Strand, Gator Hook Strand, and Dayhoff Slough). Changing the pattern of sheetflow and runoff can affect the hydroperiods of these. Culvert replacement/alteration should consider natural hydroperiod lengths and not interrupt sheetflow.

Issues and Recommendations

Impacts to wildlife: In cases where federal or state-listed species would be impacted by construction, the applicants should comply with all federal and state regulations and recommendations concerning each species. The FWC recommends adherence to U.S. Fish and Wildlife Service's guidelines for consultation on the Florida panther, red-cockaded woodpecker, and Cape Sable seaside sparrow consultation zone guidelines. We understand that this coordination would be done through consultation under Section 7 of the Endangered Species Act.

Hydrology: A change in hydrology may affect the patterns of resident wading birds and some waterfowl, but the FWC foresees a negligible impact on overall populations of wading birds. In order to maintain the hydroperiods that support the native fish and wildlife resources in the area, we recommend installation of culverts using designs and elevations that would mimic natural wetland drainage and hydrological patterns.

Summary

In summary, the FWC supports the practical need to decrease roadway overtopping, improve hydrological conveyance, and increase Loop Road access to residents and recreational users alike. This project adheres to Chapter 379 of the Florida Statutes. If your staff has any specific questions regarding our comments, I encourage them to

Ms. Lauren Milligan

Page 3

March 17, 2010

contact Joe Bozzo in our Naples/Big Cypress Field Office at (239) 417-6352 or Joseph.Bozzo@MyFWC.com.

Sincerely,



Mary Ann Poole
Commenting Program Administrator

map/jb

ENV 1-3-2

NPS-Loop Road in Big Cypress_2672_031710

cc: Superintendent Pedro Ramos, Big Cypress National Preserve

References Cited

Florida Fish and Wildlife Conservation Commission. 2003. FWC Landcover - South. Tallahassee, Florida. USA.

Florida Natural Areas Inventory Database. 2008. Environmental Resource Analysis: Resources at Risk Report. Tallahassee, Florida. USA.

The Everglades Coordinating Council

Coordinating the Conservation Efforts of South Florida Sportsmen's Associations

Barbara Jean Powell
Wildlife and Resource Management Liaison
22951 S. W 190 Avenue
Miami, Florida 33170

Telephone/fax: 305-248-9924
Cell phone: 305-323-4337
Email: evcoord@aol.com

April 28, 1010

Mr. Pedro Ramos, Superintendent
Bib Cypress National Preserve
33100 Tamiami Trail East
Ochopee, Florida 34141-1000

Dear Superintendent Ramos:

Re: Environmental Assessment for Rehabilitation and Repair of
Loop Road

The Everglades Coordinating Council supports the goal of rehabilitating Loop Road to repair flood damage that has made portions of the road virtually impassible, and to improve hydrological conveyance in a manner that reduces to the extent possible future damage. In this spirit we offer the following initial comments, reserving the option of contributing additional remarks following the public scoping session:

Water Conveyance

Employ Con/Span culverts (prefabricated concrete arch culverts with natural stream bottom) in high volume flow areas instead of traditional culverts.

Design water conveyance at all points to accommodate sufficient flows during *extraordinary* high water conditions. (Unlike the 11-Mile Road which was apparently designed to accommodate only ordinary flows and contributes to water impoundment in the eastern Corn Dance Unit during extraordinary rain events.)

- Place conveyance to accommodate general (prairie) sheet flow in addition to high volume flow areas such as sloughs.
- Currently the low elevation of Loop Road permits sheet flow over the road during high water events. Placement of rock to elevate these low segments should be done only in conjunction with culvert installation.
- Give special consideration to routing flows around filled areas, such as private properties and NPS facilities (ranger stations, access facilities, etc.)
- Evaluate possible obstructions downstream of Loop Road that may impede the benefits of increased flow volume from Loop Road improvements. Install culverts sufficient for extraordinary flow conveyance as needed.

Enhance Backcountry Public Access

In conjunction with Loop Road improvements, seize the opportunity to enhance interim tow-vehicle parking at ORV backcountry access sites:

- Clear road-side vegetation that now requires constant trimming in order to prevent parked tow vehicles from having to encroach into the traffic lane.
- Stabilize and level road shoulders at access sites to improve tow-vehicle parking.
- Apply fill where needed for tow vehicles to be able to turn around. Elaborate and costly parking facilities are not needed, nor are they desired as they detract from the wild natural character of the area. Some of these filled turn-around areas can possibly serve as construction staging areas during Loop Road repair operations.

“Good Neighbor” Consideration for Private Property Owners

Residents of the Miccosukee housing area and Pinecrest enjoy the privacy and unique rural lifestyle that living on Loop Road provides. Special consideration for accommodating their needs should be given. Direct communication with these residents, either at an informal on-site group meeting, or individually should be offered

Open to Local Traffic

Rehabilitation efforts will necessarily involve some inconveniences to motorists. These should be minimized to the extent possible. Loop Road should remain open to local traffic, including residents and Gladesmen/sportsmen needing to access the backcountry from sites along the road. The courtesy of periodic public notices will be appreciated so that Preserve visitors will know what to expect.

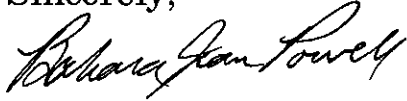
Maintain Historical Character of Loop Road

Improvements to Loop Road are needed in order to provide safe, 24 hour, seven days per week, 365 days per year travel for residents, the general public, and emergency response vehicles.

However, the road should never be “improved” to the extent that its historical and scenic character or traditional uses are ruined by high-speed or congested traffic. It must remain the unique and cherished off-the-beaten-path travel corridor it has always been, compatible with the surrounding habitat and free of signage clutter and other intrusions. Of equal importance, Loop Road must remain a place at which wildlife, from raccoons and otters to deer and panthers can to continue to amble down the middle of the road in relative safety.

The Everglades Coordinating Council thanks you for this opportunity to contribute comments in regards to the Environmental Assessment for Rehabilitation and Repair of Loop Road. As always, we are available and eager to assist you and your staff in any way we can during this project.

Sincerely,

A handwritten signature in cursive script that reads "Barbara Jean Powell".

Barbara Jean Powell

Wildlife and Resource Management Liaison



FLORIDA DEPARTMENT OF STATE

Dawn K. Roberts

Interim Secretary of State

DIVISION OF HISTORICAL RESOURCES

Mr. Pedro Ramos
U.S. Department of the Interior - National Park Service
Big Cypress National Preserve
33100 Tamiami Trail East
Ochopee, Florida 34141-1000

July 28, 2010

RE: DHR Project File Number: 2010-3536
D30(BICY)
NHPA Section 106 Consultation (Assessment of Effects) for the Proposed Big Cypress National Preserve/ Loop Road Rehabilitation
Monroe County

Dear Mr. Ramos:

This office reviewed the referenced project for possible impact to historic properties listed, or eligible for listing, in the *National Register of Historic Places*. The review was conducted in accordance with Section 106 of the *National Historic Preservation Act of 1966*, as amended and *36 CFR Part 800: Protection of Historic Properties*.

This office preliminarily determined that the portions of Loop Road appear to meet the criteria for listing in the *National Register*. Based on the information provided, it is the opinion of this office that the above-referenced undertaking will have no adverse effect on the historic character of Loop Road.

If you have any questions concerning our comments, please contact Scott Edwards, Historic Preservationist, by electronic mail sedwards@dos.state.fl.us, or at 850.245.6333 or 800.847.7278.

Sincerely,

Laura A. Kammerer
Deputy State Historic Preservation Officer
For Review and Compliance

Appendix C

Determination of Impairment

Item 1	Determination of Impairment
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ENVIRONMENTAL ASSESSMENT

LOOP ROAD IMPROVEMENTS, BIG CYPRESS NATIONAL PRESERVE

DETERMINATION OF IMPAIRMENT

Based on the aforementioned guidelines and basis for determining impairment of park resources and values, a determination of impairment is made for each of the resource impact topics carried forward and analyzed in the environmental assessment for the preferred alternative.

WATER QUALITY

The Preserve is a predominantly self-contained, rain-driven watershed that is upgradient of Everglades National Park. The waters of the Preserve are currently designated as an Outstanding Florida Water. This is a state designation delegated by the U.S. Environmental Protection Agency under the Clean Water Act (EPA, 1972) and is intended to protect existing, high quality waters. Water quality in the Preserve is naturally affected by seasonal and long-term changes in rainfall, water levels, and water flows through the Preserve. The low-nutrient, high-quality water in the Preserve is vulnerable to degradation from contaminants, and even small amounts of contaminants could result in relatively large adverse impacts.

Construction activities associated with repairs and improvements to Loop Road under the preferred alternative could result in adverse impacts to water quality in the form of increased turbidity and pollution from construction vehicles during the construction period. These impacts would be mitigated by the use of BMPs during the construction activities. After the construction period, with the additional culverts in place, water quality is expected to improve because of the reestablishment of sheet flow, lessening the potential for stagnation along the road providing a long-term beneficial impact. The preferred alternative would not result in impairment of water quality because the adverse impacts to water quality would be temporary and would be minimized by the use of BMPs, and there would also be long-term beneficial impacts to water quality from the reestablishment of sheet flow.

HYDROLOGY

The elevation of the land areas within Big Cypress varies from sea level to 19 feet above sea level. The hydrologic regime of the Big Cypress physiographic province largely determines the patterns in which vegetative communities and their related wildlife species occur. During the summer and fall wet season, when heavy rains lead to widespread surface inundation, the almost imperceptible slope of the land creates a slowly moving, overland sheet flow, and water generally drains southwest towards the coast (Miller et al., 2004). The Preserve is essentially a self-contained hydrologic unit recharged primarily by local rainfall (Miller et al., 2004).

The Tamiami Trail and subsequent roads obtained road fill via excavation of a parallel canal, resulting in both an elevated obstruction to sheet flow as well as re-routing of water in open canals. Construction of Loop Road also included excavation of a parallel canal to provide road fill. The result of this is seen in both the paved and unpaved sections of the road. During the high water event after Hurricane Wilma, the north side of the unpaved section had pooled water adjacent to the road, overtopping of the road, and resulting in severe road erosion, including washouts. The paved section of the road also experienced overtopping. These events indicate that the sheet flow

hydrology has been interrupted by the presence of Loop Road. The preferred alternative would not result in impairment of hydrology because the installation of additional culverts would improve sheet flow of water in the local area and reduce damage to the existing road during high flow events, resulting in overall long-term beneficial impacts to hydrology.

WETLANDS

Wetlands comprise approximately 88 percent, approximately 635,000 acres, of the Preserve. The vast majority of wetland acreage is palustrine, under the Cowardin (1979) classification system. Most of the remaining wetlands are estuarine, located in the tidally influenced, southwest corner of the Preserve. Freshwater marshes are generally wetlands with an open expanse of grasses, sedges, rushes, and other herbaceous plants and occur where standing water exists most of the year. Where woody plants occur, cypress is the dominant woody vegetation, covering approximately 43 percent of the Preserve. The herbaceous wetlands in the project area are primarily freshwater marshes as described above and by Kushlan (1990). The wetlands with woody vegetation are generally cypress strands and cypress savannas as described above and by Ewel (1990).

During construction some wetlands may be adversely impacted or removed where new culverts would be installed. Wetland soils and vegetation may be disturbed or removed where new culverts are installed or culverts are replaced. It is expected that the construction activities would remove 0.2 of an acre of wetlands, and these wetlands would be mitigated at a site near the Preserve Headquarters. BMPs would also be used to reduce any indirect impacts, such as sedimentation, in adjacent wetlands. The additional culverts would have an overall long-term beneficial impact to wetlands by improving sheet flow and improving wetland hydrology. The preferred alternative would not result in impairment of wetlands because the adverse indirect impacts to wetlands would be mitigated through the use of BMPs, the loss of wetlands would be less than 0.1 acre, the wetland loss would be minimized to the extent possible and mitigated elsewhere, and the overall impact to wetlands would be long-term and beneficial by improving sheet flow and improving wetland hydrology.

WILDLIFE

The Preserve is home to a variety of species of birds, reptiles, fish, invertebrates, and mammals, and most of the species utilize wetlands and swamps of the Preserve to some extent. Woody plants, including dwarf cypress savannas and cypress domes, provide food, cover, nesting sites, and hibernating places for a variety of animals, which spend a portion of the year in the woody vegetation within wetlands and then move to upland areas as water levels fluctuate (Ewel, 1990).

The American alligator (*Alligator mississippiensis*) is a common wildlife species in the Preserve and is considered a keystone species because of the “gator holes” it creates and maintains. A keystone species is a species that plays a critical role in maintaining the structure of an ecological community and whose impact on the community is greater than would be expected based on relative abundance or total biomass. During the dry season, the holes are vigorously defended and are generally where small fish and other animals congregate to survive the dry season (J. Noel, personal observation) and then recolonize the marshes when water levels rise (Kushlan, 1990).

There are 13 wildlife species that are hunted in the Preserve, and the two most important hunted animals are white-tailed deer and feral hogs, both of which are prey for the federally listed endangered Florida panther, discussed under Special Status Species. The 1991 General Management Plan (NPS, 1991) contains a detailed description of wildlife, and several species lists are available at the Preserve’s website, www.nps.gov/bicy.

The construction associated with the preferred alternative would not substantially alter the existing wildlife habitats in the area nor would it be anticipated to affect the home ranges or foraging areas of wildlife species in the area. Construction activities could cause some disturbance to wildlife in causing wildlife to be displaced, but this adverse impact would be short-term and localized to the project area. The preferred alternative would not result in impairment of wildlife because the adverse indirect impacts to wildlife would be localized and temporary and would be mitigated by limiting construction to between 7 a.m. and 6 p.m., providing respite to wildlife from construction noise.

SPECIAL STATUS SPECIES

Special status species are those listed under federal and state statutes and species considered sensitive by the Preserve to provide protection from further loss of the species. The Endangered Species Act (ESA) of 1973, as amended (Public Law 93-205) was developed to provide a means where threatened and endangered species and the ecosystems upon which they depend may be conserved. It is NPS policy (NPS, 2006a) to survey for, protect, and strive to recover all species native to national park system units that are listed under the ESA. The NPS strives to fully meet its obligations under the NPS Organic Act (NPS, 1916) and the ESA to both proactively conserve federally listed species and prevent detrimental impacts on these species. According to the USFWS website: [http://www.fws.gov/verobeach/images/pdflibrary/Monroe County 3.pdf](http://www.fws.gov/verobeach/images/pdflibrary/Monroe%20County%203.pdf), many federally listed species are known to occur in Monroe County. However, suitable habitat for the majority of these listed species does not occur in the proposed project area. Based on preliminary analysis by the U.S. Fish and Wildlife Service, four federally listed species may be present in the project area, including wood stork (*Mycteria americana*), Florida panther (*Puma concolor coryi*), Everglade snail kite (*Rostrhamus sociabilis plumbeus*), and Eastern indigo snake (*Drymarchon corais couperi*). These federally listed species are also state listed and have the following state classifications: wood stork (Endangered), Florida panther (Endangered), Everglade snail kite (Endangered), and Eastern indigo snake (Threatened).

In addition to the federally listed species, there are four state-listed species that may occur in the area. Based on the Florida Natural Areas Inventory (FNAI), state-listed species that may occur in the project area include the Everglades mink (*Mustela vison evergladensis*; Endangered), Florida black bear (*Ursus americanus floridana*; Threatened), Florida sandhill crane (*Grus canadensis pratensis*; Threatened), and limpkin (*Aramus guarauna*; Species of Special Concern).

All native birds present within the Preserve are protected under the Migratory Bird Treaty Act (MBTA). The MBTA made it illegal for people to “take” migratory birds, their eggs, feathers or nests. Take is defined in the MBTA to include by any means or in any manner an attempt at hunting, pursuing, wounding, killing, possessing, or transporting any migratory bird, nest, egg, or part thereof. The MBTA allows for legal hunting of certain species protected under the MBTA and within the hunting regulations established by the Preserve.

The construction associated with the preferred alternative would not substantially alter the existing habitat for special status species in the area or affect the home ranges or foraging areas of special status species in the area. Construction activities may cause special status species to be displaced, but this adverse impact would be short-term and localized to the project area. Several special status species would benefit from the improvement of wetland habitat. The preferred alternative would not result in impairment of special status species because the adverse indirect impacts to special status species would be localized and temporary and would be mitigated by limiting construction to between 7 a.m. and 6 p.m., providing respite to special status species from construction noise.

CULTURAL LANDSCAPES

Loop Road is part of the cultural landscape of the Preserve. Captain James Franklin Jaudon first proposed a road connecting Florida's Gulf and Atlantic coasts to develop his properties in the Everglades. Construction of what was to be called the Tamiami Trail began in 1914. Loop Road was originally constructed to be part of the Tamiami Trail. In 1919 Captain Jaudon offered to build a portion of the Tamiami Trail through Monroe County if Dade and Lee counties agreed to change the original route and re-route the Trail through Monroe County. Captain Jaudon's company, the Chevelier Corporation, began construction in 1921. In 1922, the State of Florida ran out of funds to construct the east-west section, and in the intervening year or so, factions developed regarding the eventual alignment. The Florida State Road Department agreed with the Collier County alignment, but the Dade County Board of County Commissioners backed the Chevelier segment because so much money had already been spent and because only a few miles of road remained to be completed.

Despite the protest, the Florida State Road Department reinstated the original route of the Tamiami Trail, and the already completed portion of roadway in Monroe County was accepted as a "South Loop" of the Tamiami Trail. In 1928, the Tamiami Trail was considered a feat of engineering because it traversed the impenetrable Everglades, although no one considered the damage to the Everglades by the roadway and Tamiami Canal.

The five-mile paved section of Loop Road was first paved prior to the establishment of the Preserve in 1974. In 1990, 30 culverts were replaced or repaired. The road surface has been continually maintained by patching potholes. In 1999, the roadway was officially acquired by the Preserve. In 2005, Hurricane Wilma caused severe damage to the road.

The restoration of Loop Road would maintain the integrity of the resource. The construction associated with the preferred alternative would not alter the alignment, width of the road prism or change the historic character of the existing roadway. The adverse visual impacts to the road from repairs would be short-term. The preferred alternative would not result in impairment of the cultural landscape because the condition of Loop Road would be improved, and the rural, scenic character of the road would be maintained having long-term beneficial impacts to the road. The proposed improvements would not preclude a future evaluation of Loop Road for National Register eligibility and would have no adverse effect on the historic character of Loop Road. On July 28, 2010, the Florida State Historic Preservation Officer concurred with this finding in writing. See Appendix B.

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As the nation's principal conservation agency, the Department of the Interior has the responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historic places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. Administration.

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