

**APPENDIX A**

**THREATENED AND ENDANGERED SPECIES BIOLOGICAL  
ASSESSMENT AND CORRESPONDENCE**

**MODIFICATIONS OF THE C-111 SOUTH DADE NORTH AND SOUTH  
DETENTION AREAS AND ASSOCIATED FEATURES**

**SOUTH DADE, FLORIDA**

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DEPARTMENT OF THE ARMY  
JACKSONVILLE DISTRICT CORPS OF ENGINEERS  
701 San Marco Boulevard  
JACKSONVILLE, FLORIDA 32207-8175

REPLY TO  
ATTENTION OF

Planning and Policy Division  
Environmental Branch

JAN 26 2016

Mr. Larry Williams, Field Supervisor  
U.S. Fish and Wildlife Service  
1339 20<sup>th</sup> Street  
Vero Beach, FL 32960

Dear Mr. Williams,

In accordance with provisions of Section 7 of the Endangered Species Act, as amended, the U.S. Army Corps of Engineers, Jacksonville District (Corps) is hereby initiating consultation with the U.S. Fish and Wildlife Service (FWS) concerning the C-111 South Dade Project. The Corps is preparing an Environmental Assessment (EA) for the Modifications to the C-111 South Dade North and South Detention Areas and Associated Features Project. This project is located in South (Miami) Dade County, Florida.

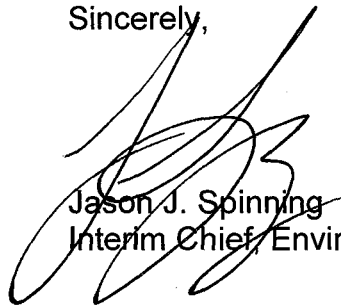
First, we note that the nomenclature covering the proposed action and scope of work have changed since our last correspondence regarding the species list on the project. The Corps previously consulted with the FWS on C-111 South Dade Modifications to the North and South Detention Areas and Associated Features (Contract 8), which was awarded and is now underway. However, the flowway berms located in the North Detention Area (NDA) and South Detention Area (SDA) proposed under that contract and consultation were removed in consideration of concerns discussed during the State of Florida Water Quality Permit Application process. Concerns included maximizing, to the extent practicable, the effectiveness and duration of the hydraulic ridge effect in the Detention Areas, while minimizing adverse effects on residents and farms located east of the NDA and SDA. The current recommended flowway locations in both the NDA and SDA is the westernmost location available. These flowways will be built after the outer levee of the NDA has been constructed.

This project also includes flowways inside the 8.5 Square Mile Area (SMA) Detention Cell, removal of four non-functional structures, completion of L-357 across Richmond Drive, and lowering the high head cell levee S-327 at the S-332D location. All of the project components are discussed further in the Biological Assessment and the EA that will be released for public review beginning January 29, 2016. Actions do not include backfill or plugs in L-31W Borrow Canal, which will be covered under separate environmental and engineering documentation when more detailed survey information is available to guide development of alternatives.

The Corps evaluated three species of listed mammals, six bird species, eight reptile species, one fish species, 7 invertebrate species, 10 listed plant species, and several Candidate plant species. We have made a determination of "May Affect, Not Likely to Adversely Affect" for the Florida Panther, Cape Sable Seaside Sparrow, Eastern Indigo Snake, Deltoid and Garber's Spurge, Small's milkpea and Tiny Polygala. Determinations of "no effect" on other species were based on the very limited scope (size) of the proposed construction, the already-disturbed vegetation inside the Detention Areas, and the temporary nature of the construction. Figure 1 shows a map of the project area and proposed features.

We request your concurrence with our determinations pursuant to the Endangered Species Act. If you have any questions regarding the enclosed Biological Assessment or need additional information, please contact Mrs. Stacie Auvenshine at 904-232-3694 (Stacie.J.Auvenshine@usace.army.mil). Thank you for your continued attention and support to this matter.

Sincerely,



Jason J. Spinning  
Interim Chief, Environmental Branch

Enclosures

Copies Furnished:

Kevin Palmer, U.S. Fish & Wildlife Service, South Florida Ecological Services Office,  
1339 20<sup>th</sup> Street, Vero Beach, Florida 32960-3559

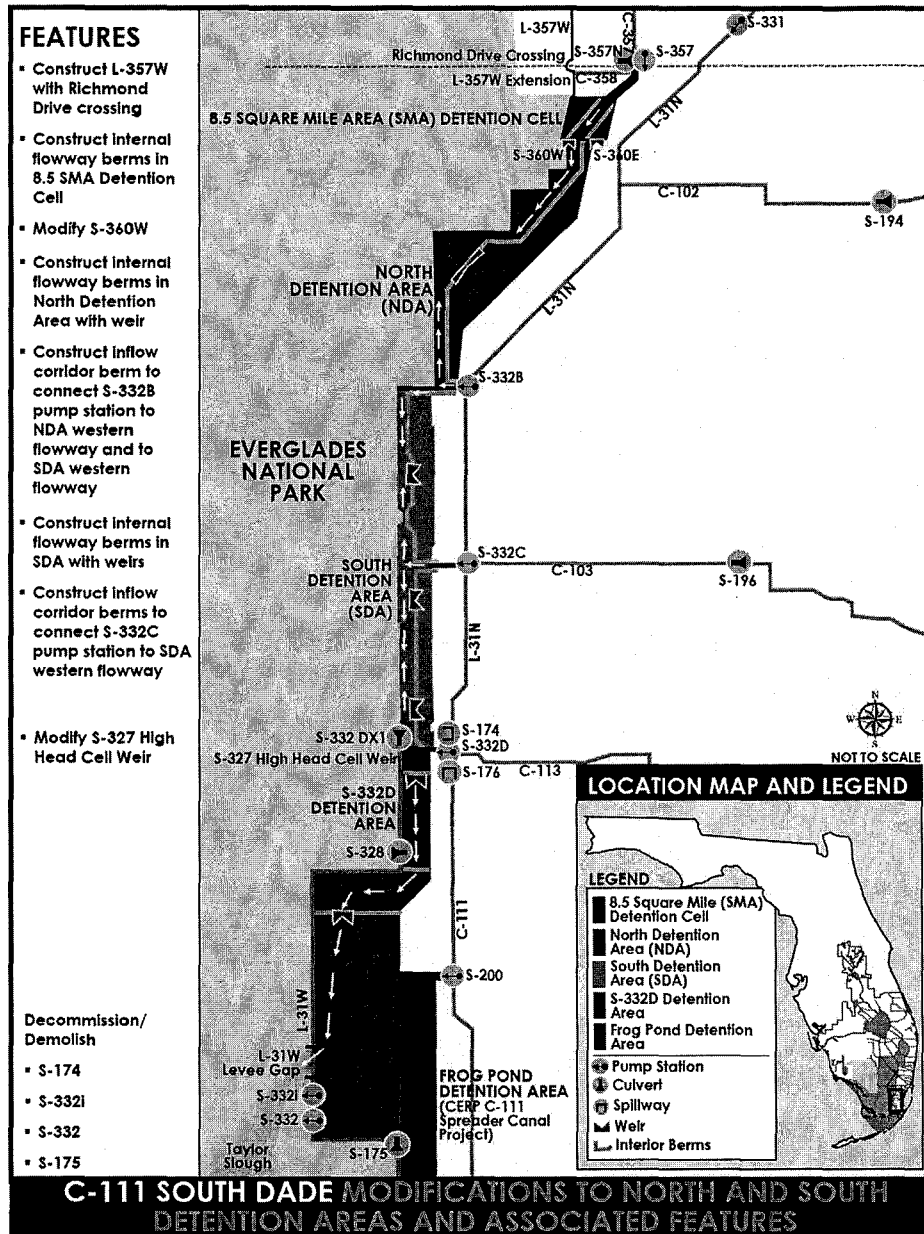


Figure 1. Proposed C-111 South Dade Modifications to the North and South Detention Areas and Associated Features Project.

**PROPOSED MODIFICATIONS TO THE C-111 SOUTH DADE NORTH  
AND SOUTH DETENTION AREAS AND ASSOCIATED FEATURES**

**BIOLOGICAL ASSESSMENT**

**U.S. FISH AND WILDLIFE SERVICE**

## 1 PROJECT AUTHORITY

The C-111 South Dade Project was built as part of the Everglades National Park–South Dade Conveyance Canals Project authorized by the Flood Control Act (FCA) of 1968 (Public Law (PL) 90-483). This Act authorized modifications to the existing Central and Southern Florida (C&SF) Project as previously authorized by the FCAs of 1948 (PL 80-858) and 1962 (PL 87-874). The original purpose of the C-111 Canal project was to reduce or mitigate flooding in the agricultural drainage basin immediately east of ENP, to provide agricultural and other water supply, and to favor habitat restoration in the Park. Further modifications to the C-111 as described in the 1994 GRR were authorized as part of the C&SF Project in the Water Resources Development Act (WRDA) of 1996 (PL 104-303). The 1994 GRR/EIS added a major additional purpose of restoration of the ecosystem of Taylor Slough and eastern ENP, largely in response to the addition of nearly 200,000 acres of former agricultural lands and wetlands to the eastern side of ENP, and recognition that this area was over-drained. The 1989 Everglades National Park Protection and Expansion Act authorized acquisition of the nearly 200,000 acres of ENP from approximately the location of the L-67 Extension Levee/Canal eastward to the current ENP boundary. By the early 1990s it was recognized that it was no longer desirable to drain lands directly adjacent to ENP. Rather, it was desirable to maintain their wetland character, while maintaining flood damage reduction on adjacent agricultural and residential lands in the eastern basin. The 1994 GRR described a conceptual plan for five pump stations and a levee-bounded water retention/detention area (currently referred to as the C-111 South Detention Area, or SDA) to be built west of the L-31N East Coast Protective Levee and the adjacent L-31N Borrow Canal, extending between the current C-111 South Detention Area and the S-332D Detention Area to its south. Water storage within these water retention areas would generate a localized “mound” or “hydrologic ridge” of water and thereby reduce seepage out of ENP, with the inflow pump stations operated to maintain target L-31N Canal stages to maintain the pre-project flood protection to agricultural lands east of the L-31N Canal. The then-proposed configuration of these structural features is described in detail in the 1994 GRR. Modifications to increase pump station capacity and detain additional water were built as described in the 2006 IOP Final Supplemental EIS (Alternative 7R). The plan as proposed in the 1994 GRR included infrastructure to enable direct discharge westward from the retention/detention area to ENP through a series of culverts and an emergency discharge weir. The IOP included operation of expanded detention areas located north (215-acre Partial NDA), east (200-acre Partial Connector) and south (800-acre S-332D Detention Area) of the 1994 GRR SDA (approximately 1300 acres, with operations retained under IOP), with recognition that the full detention area build-out would be completed in phases.

## 2 PROJECT LOCATION

Figure 1 shows the location of MWD 8.5 SMA Detention Cell and the C-111 South Dade Projects located in Miami-Dade County. The 8.5 SMA Detention Cell is just north of the NDA of C-111 South Dade. The Preferred Alternative is bounded within the confines of the colored areas: Richmond Drive, 8.5 SMA Detention Cell, and the C-111 South Dade NDA, South Detention Area (SDA), and S-332D Detention Area (Figure 2).

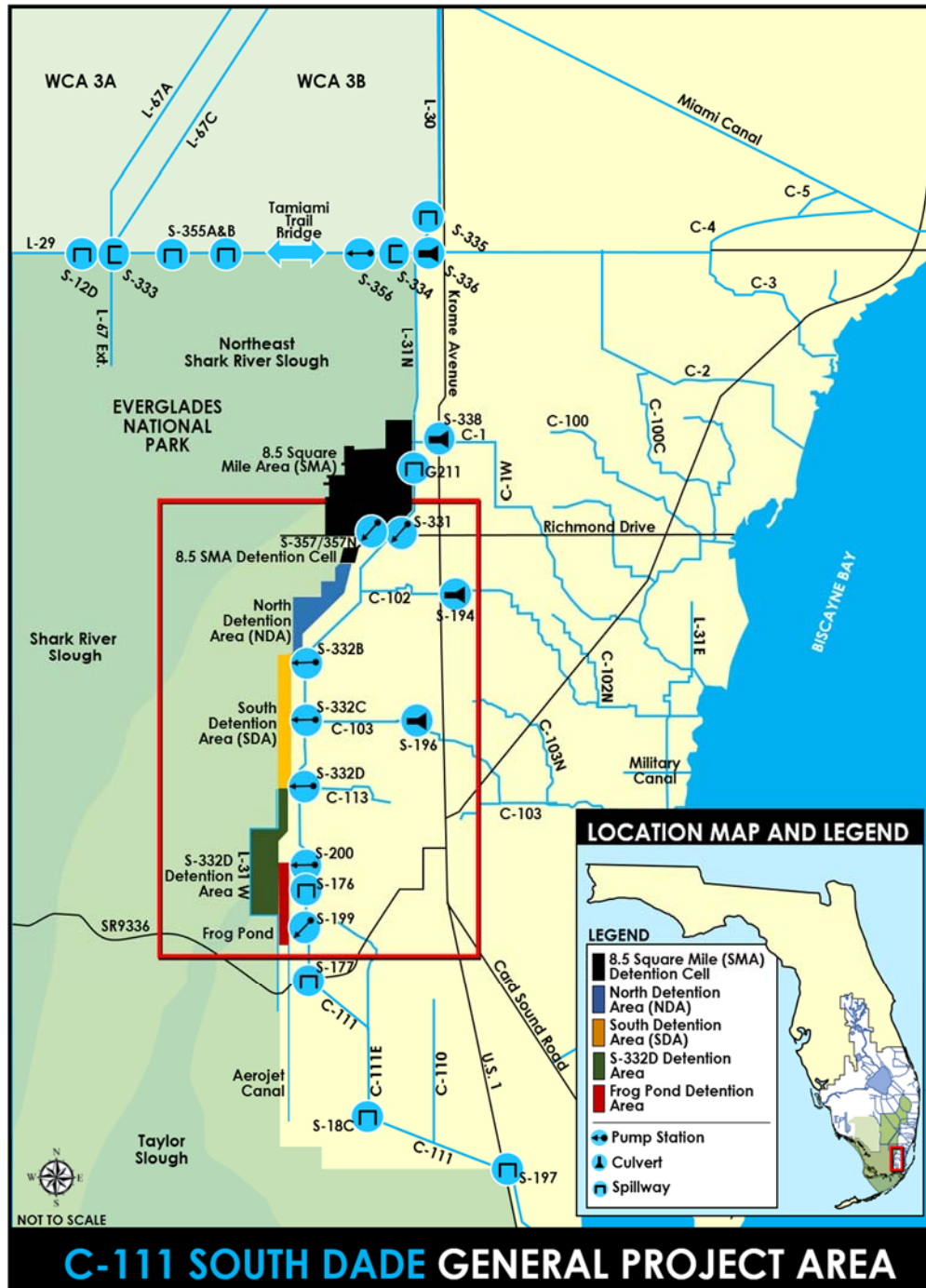


Figure 1. C-111 South Dade Location Map



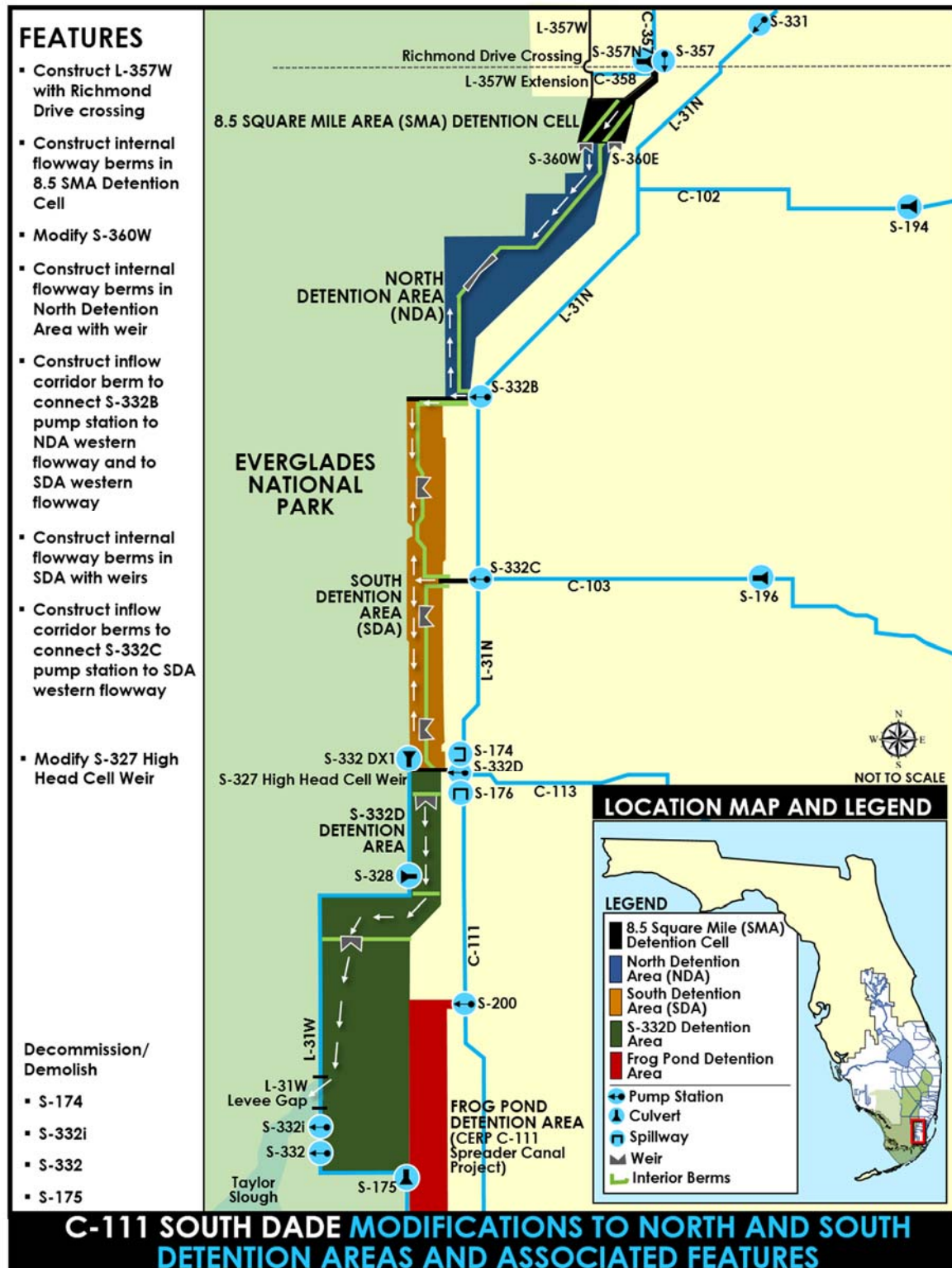


Figure 2. C-111 South Dade Modifications to North and South Detention Areas and Associated Features (Preferred Alternative)

### **3 PROJECT PURPOSE AND NEED**

The purpose of this project is to create a hydrologic connection between the 8.5 Square Mile Area (8.5 SMA) Detention Cell and the C-111 South Dade North Detention Area (NDA) and to create a continuous hydrologic ridge along the eastern boundary of Everglades National Park (ENP) that extends from the 8.5 SMA to Taylor Slough, to provide restoration within ENP while maintaining flood protection for areas east of the L-31N and C-111 Canals.

### **4 PROJECT AND CONSULTATION BACKGROUND**

The U.S. Army Corps of Engineers (Corps) initiated informal consultation with the U.S. Fish and Wildlife Service (FWS) under the Endangered Species Act for C-111 South Dade Contract 9 in May, 2015. At that time, the scope of the project included actions formerly associated with Contract 8, but were postponed to permit more detailed evaluation. Subsequently, the Corps has determined that more information is needed to design and propose the major Contract 9 action (plugging or partially backfilling the L-31W Borrow Canal along the C-111 SD project that was authorized in the 1994 General Reevaluation Report and Environmental Impact Statement). The proposed action now under consultation and described in the Environmental Assessment is construction of modifications to the MWD 8.5 SMA and the C-111 South Dade Project. Work includes an extension of Richmond Drive, SW 168<sup>th</sup> Street, into Everglades National Park (ENP) over an extended L-357 Levee, construction of flow-ways in the 8.5 SMA Detention Cell, NDA, and SDA, and decommissioning or removal of some non-functioning structures in the C-111 South Dade Project. The L-31 W Borrow Canal backfill or plugging will be discussed under a separate consultation once the appropriate NEPA process has begun.

Although several NEPA documents developed for the MWD project have discussed the limited detention capacity of the 8.5 SMA Detention Cell, and the need to provide additional detention area volume, this need has not to date been emphasized in documents developed for the C-111 SD project. For instance, the EA and FONSI “Design Refinement for the 8.5 Square Mile Area (USACE, 2012)” noted that the 8.5 SMA Detention Cell had limited storage capacity. Further development of operational plans for both projects, including Increment I of experimental improvements to the Everglades Restoration Transition Plan (ERTP-I), will allow surface water levels in ENP to rise above 6.8 feet at gauge G-3273, which is located just west of the 8.5 SMA (USACE, January, 2015). Relaxing the limits at this gauge will allow additional water to enter ENP from the L-29 Canal and reach ENP lands west of the 8.5 SMA drainage system, creating an increase in seepage water pumped from S-357 into the 8.5 SMA Detention Cell. The NEPA documentation for C-111SD Contract 8 (USACE, 2012) proposed building flow-ways in the NDA and SDA that would accept outflow from the 8.5 SMA Detention Cell, thereby lengthening the total hydraulic ridge to be built alongside the L-31W Borrow Canal. Public and agency comment during the permitting process for Contract 8 indicated that the proposed location (on the east sides of the NDA and SDA, as documented in the 2012 EA for C-111 Contract 8, possibly would increase the risk of seepage into residential and agricultural areas located east of detention areas. This current project will construct flow-ways in the MWD and C-111 South Dade North and South Detention Areas, and for the first time provide a means of connecting the MWD 8.5 SMA Detention Cell to the North Detention Area of C-111 SD.

## 5 PROPOSED ACTION

This Biological Assessment addresses only construction features, with the assumption of current operations. All features are within the perimeter of the pre-existing 8.5 SMA, the NDA, SDA and S-332D Detention Cells on C-111 South Dade land that will connect the two projects (MWD and C-111 South Dade). The proposed construction features that are included in the Preferred Alternative include (Figure 2):

- Building a ramp to connect Richmond Drive, SW 168<sup>th</sup> St, over the 8.5 SMA western levee into ENP, with a turnaround and a locked gate on the 8.5 SMA side of the levee;
- Connection of the respective detention cells (8.5 SMA and NDA), which will be achieved by lowering the S-360 W weir at the south levee of the 8.5 SMA Detention Cell. Two flow-way berms inside the 8.5 SMA Detention Cell will concentrate flows with the purpose of creating a hydraulic ridge on the western side of this cell and connecting to the flow-way berm on the north end of the C-111 South Dade NDA. Note that construction of the outer levees creating and enclosing the NDA is underway through Contract 8, with action expected to be complete before flow-way construction begins. The effects of the flow-way construction along with completion of NDA features were coordinated with FWS and NMFS in 2012 under the USACE EA for C-111 South Dade NDA construction; however, the location of the flow-ways within the NDA and SDA has changed, with the flow-ways now positioned farther west within the NDA and SDA (see the EA for more detail on rationale of location). The proposed new locations of the flow-way berms would help avoid adverse effects on residents and farmers east of the project and maximize the effectiveness of the hydraulic ridge created by flows inside the flow-way berms. The outfalls of the S-332B and S-332C Pump Stations will be extended to pump directly into the NDA and SDA flow-ways (See Figure 2, a project diagram).
- Lowering the high head cell weir (S-327) at S-332D because it has not functioned as originally anticipated. Lowering a portion of this structure is expected to increase flows into the S-332D Detention Area.
- Decommissioning or demolition of S-174, S-175, S-332 and S-332i. These gates and pump stations are not currently operating and therefore do not need to be part of the project anymore.

## 6 EFFECT DETERMINATIONS ON INDIVIDUAL SPECIES FOR THE PROPOSED PROJECT

The Corps initiated informal consultation under the ESA by requesting written confirmation of a table of federally listed threatened and endangered species that are known to occur or likely to occur within Miami-Dade County from the U.S. Fish and Wildlife Service (USFWS) by letter dated May 12, 2015. Concurrence on the list and notification of State Species of Special Concern was received on June 4, 2015. After 90 days had passed, the Corps requested re-confirmation of the species list, receiving that reconfirmation on October 29, 2015. Table 1 indicates the listed species, including some under primary jurisdiction of the National Marine Fisheries Service (NMFS) which will be subject to a separate determination and coordination. The determinations in Table 1 are based on the limited scope (size) of the project, the degraded quality of the natural

habitat in the NDA, and available information about species' behavior and habitat requirements. Species are discussed individually after the table of determinations.

**Table 1. Federally Threatened and Endangered Species Within The Miami-Dade County Area And Effects Determination Of The Proposed Action**

Common Name	Scientific Name	Status	May Affect, Likely to Adversely Affect	May Affect, Not Likely to Adversely Affect	No Effect
<b>Mammals</b>					
Florida panther	<i>Puma concolor coryi</i>	E		X	
Florida manatee	<i>Trichechus manatus latirostris</i>	E, CH			X
Florida bonneted bat	<i>Eumops floridanus</i>	E			X
<b>Birds</b>					
Cape Sable seaside sparrow	<i>Ammodramus maritimus mirabilis</i>	E, CH		X	
Everglade snail kite	<i>Rostrhamus sociabilis plumbeus</i>	E, CH			X
Piping plover	<i>Charadrius melodus</i>	T			X
Red-cockaded woodpecker	<i>Picoides borealis</i>	E			X
Roseate tern	<i>Sterna dougallii dougallii</i>	T			X
Wood stork	<i>Mycteria americana</i>	T			X
<b>Reptiles</b>					
American Alligator	<i>Alligator mississippiensis</i>	T, SA			X
American crocodile	<i>Crocodylus acutus</i>	T, CH			X
Eastern indigo snake	<i>Drymarchon corais couperi</i>	T		X	
Green sea turtle*	<i>Chelonia mydas*</i>	E			X
Hawksbill sea turtle*	<i>Eretmochelys imbricata*</i>	E			X
Kemp's Ridley sea turtle*	<i>Lepidochelys kempii</i>	E			X
Leatherback sea turtle*	<i>Dermochelys coriacea*</i>	E			X
Loggerhead sea turtle*	<i>Caretta caretta*</i>	E			X
<b>Fish</b>					
Smalltooth sawfish*	<i>Pristis pectinata*</i>	E, CH			X
<b>Invertebrates</b>					
Bartram's hairstreak butterfly	<i>Strymon acis bartrami</i>	E			X
Elkhorn coral	<i>Acropora palmata*</i>	T, CH			X

Florida leafwing butterfly	<i>Anaea troglodyta floridalis</i>	E			X
Miami blue butterfly	<i>Cyclargus thomasi bethunebakeri</i>	E			X
Schaus swallowtail butterfly	<i>Heraclides aristodemus ponceanus</i>	E			X
Staghorn coral*	<i>Acropora cervicornis*</i>	T, CH			X
Stock Island tree snail	<i>Orthalicus reses</i> (not incl. <i>nesodryas</i> )	T			X
<b>Plants</b>					
Crenulate lead plant	<i>Amorpha crenulata</i>	E			X
Deltoid spurge	<i>Chamaesyce deltoidea</i> spp. <i>deltoidea</i>	E		X	
Garber's spurge	<i>Chamaesyce garberi</i>	T		X	
Johnson's seagrass*	<i>Halophila johnsonii</i>	E, CH			X
Okeechobee gourd	<i>Cucurbita okeechobeensis</i> ssp. <i>okeechobeensis</i>	E			X
Small's milkpea	<i>Galactia smallii</i>	E		X	
Tiny polygala	<i>Polygala smallii</i>	E		X	
Big pine partridge pea	<i>Chamaecrista lineata</i> var. <i>keyensis</i>	Pr E			X
Blodgett's silverbush	<i>Argythamnia blodgettii</i>	Pr T			X
Cape Sable thoroughwort	<i>Chromolaena frustrata</i>	E, CH			X
Carter's small-flowered flax	<i>Linum carteri</i> var. <i>carteri</i>	E, Pr CH			X
Everglades bully	<i>Sideroxylon reclinatum</i> spp. <i>austrofloridense</i>	C			X
Florida brickell-bush	<i>Brickellia mosieri</i>	E, Pr CH			X
Florida bristle fern	<i>Trichomanes punctatum</i> spp. <i>floridanum</i>	Pr E			X
Florida pineland crabgrass	<i>Digitaria pauciflora</i>	C			X
Florida prairie-clover	<i>Dalea carthagenensis</i> var. <i>floridana</i>	C			X
Florida semaphore cactus	<i>Consolea corallicola</i>	E			X
Pineland sandmat	<i>Chamaesyce deltoidea</i> ssp. <i>pinetorum</i>	C			X
Sand flax	<i>Linum arenicola</i>	Pr E			X

E=Endangered; T=Threatened; SA=Similarity of Appearance; CH=Critical Habitat; C=Candidate Species, Pr E = Proposed Endangered, Pr CH = Proposed Critical Habitat

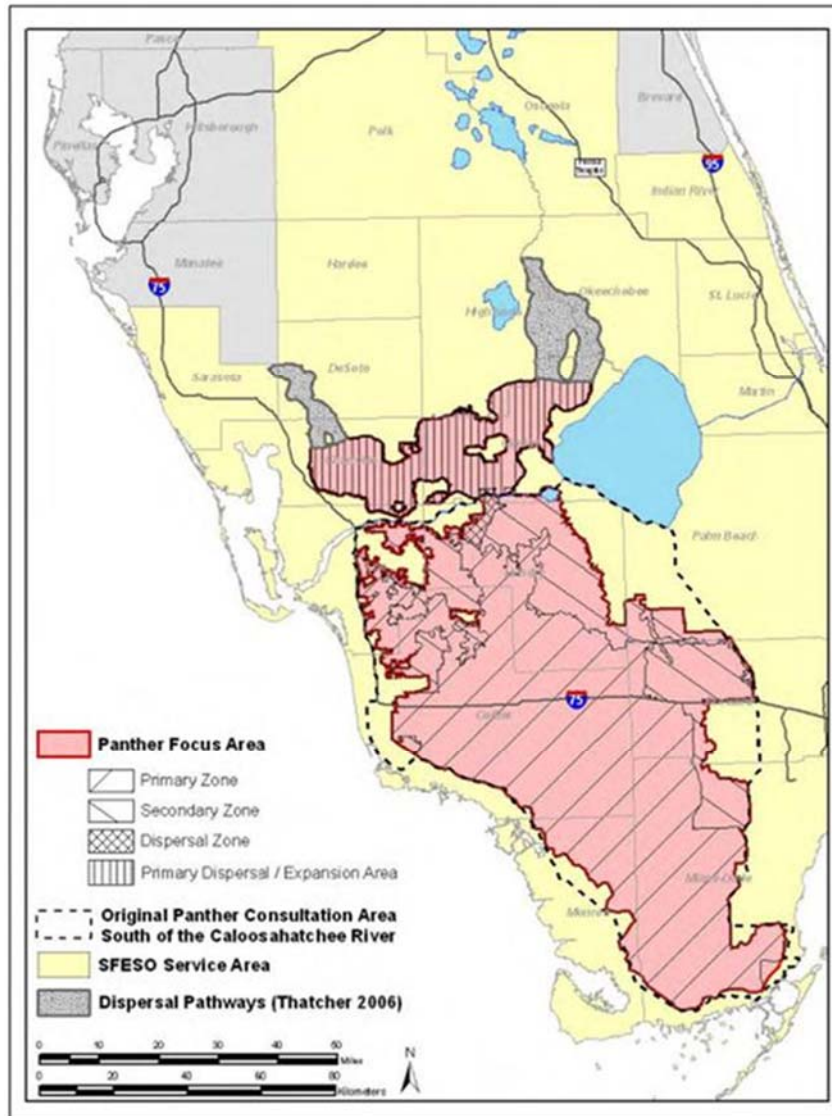
\* Marine species under the purview of the National Marine Fisheries Service (NMFS). The Corps will conduct a separate consultation with NMFS.

**DETAILED SPECIES DETERMINATIONS EXPECTED TO OCCUR WITHIN THE PROJECT AREA:****6.1 Florida Panther, *Puma concolor coryi*. (E) “May Affect, Not Likely to Adversely Affect Determination”**

One of 30 cougar subspecies, the Florida panther is tawny brown on the back and pale gray underneath, with white flecks on the head, neck, and shoulder. Male panthers weigh up to 130 pounds and females reach 70 pounds. Present population estimations range from 80 to 100 individuals. Preferred habitat consists of cypress swamps, pine and hardwood hammock forests. The main diet of the Florida panther consists of white-tailed deer, sometimes wild hog, rabbit, raccoon, armadillo, and birds. Florida panthers are solitary, territorial, and often travel at night. Males have a home range of up to 400 square miles and females about 50 to 100 square miles. Female panthers reach sexual maturity at about three years of age. Mating season is December through February. Gestation lasts about 90 days and females bear two to six kittens. Juvenile panthers stay with their mother for about two years. Survival threats include habitat loss, collision with vehicles, parasites, feline distemper, feline calcivirus and other infectious diseases.

Florida panthers presently inhabit lands in ENP adjacent to the Southern Glades, and radio tracking studies have shown that they venture into the Southern Glades on occasion during post-breeding dispersion.

The Corps determined that proposed project may affect, but is not likely to adversely affect the Florida panther in or near the 8.5 SMA Detention Cell, NDA, SDA, and S-332D Detention Area. Figure 3 shows Florida Panther core habitat and dispersal habitat. The project is not located within the core habitat and does not provide ideal hunting habitat. Panthers, especially dispersing male panthers, may wander into the edges of the Detention Areas, and have been observed in adjacent areas of ENP, but the quality of habitat in the 8.5 SMA, NDA, and SDA (cover and prey species abundance) is poor compared to that available inside ENP. Panthers may avoid the noise and other disturbance in the area caused by heavy construction machinery but this effects due to construction will be temporary in nature.

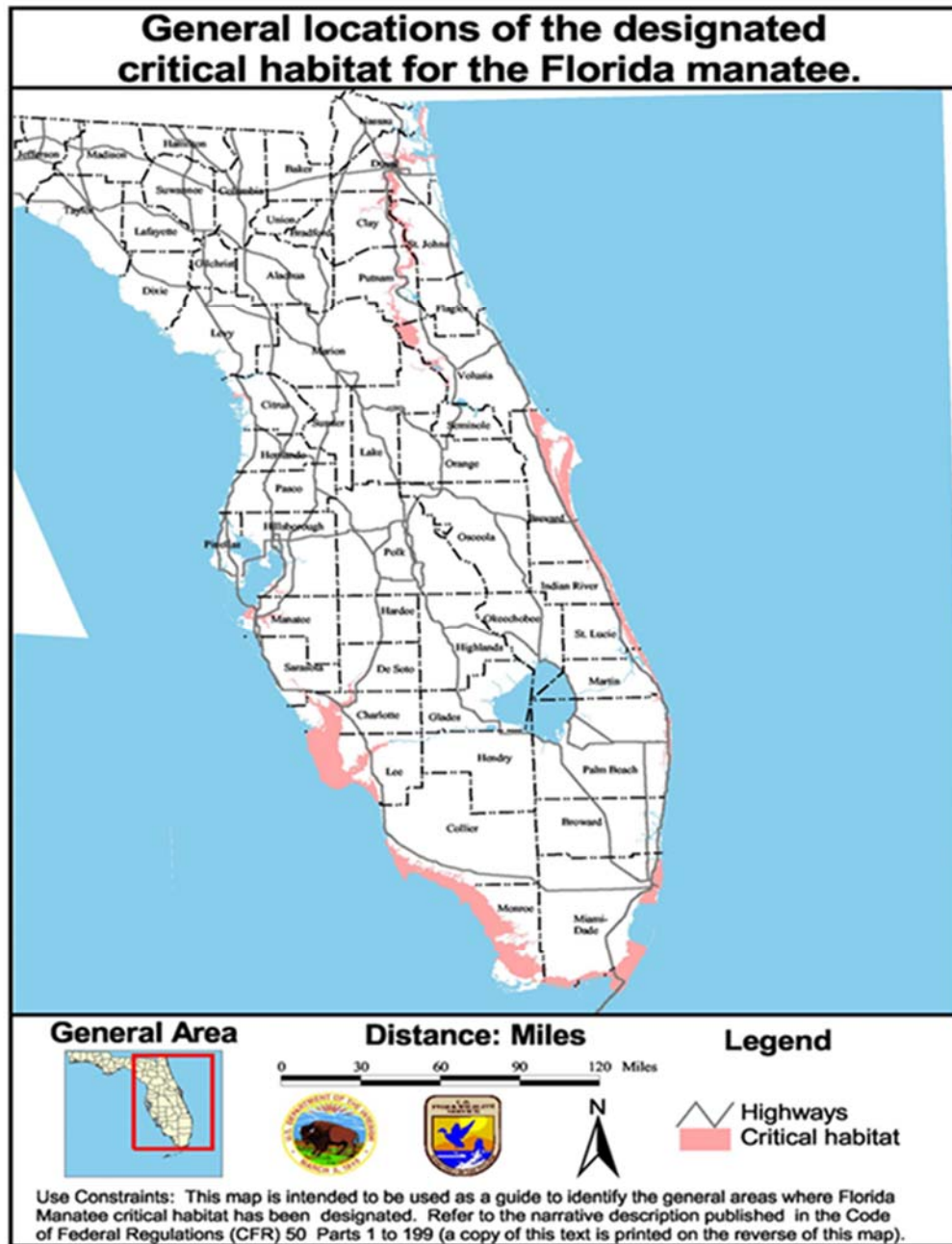


**Figure 3. Florida Panther Consultation Area**

## 6.2 Florida Manatee, *Trichechus manatus latirostris*, (E) “No Effect Determination”

Manatees are large, plant-eating aquatic mammals that transit many South Florida canals, and are also found in Florida Bay and the coastal segment of C-111. Manatees are blocked from the sections of the L-31W canal and C-111 Canal in the project area by gates and plugs. No effect of

the proposed actions for this project is expected on this species. Maximum depths in all detention cells and flow-ways will be too shallow to provide either access or foraging habitat for manatees. Although recent aerial surveys show that certain parts of the C-111 Project canals may be accessible to manatees, designated critical habitat is found only along the most coastal segment of C-111, which is not within the proposed project footprint. The Corps has determined that proposed project would have no effect on manatees nor its designated critical habitat. Figure 4 illustrates Florida manatee critical habitat.

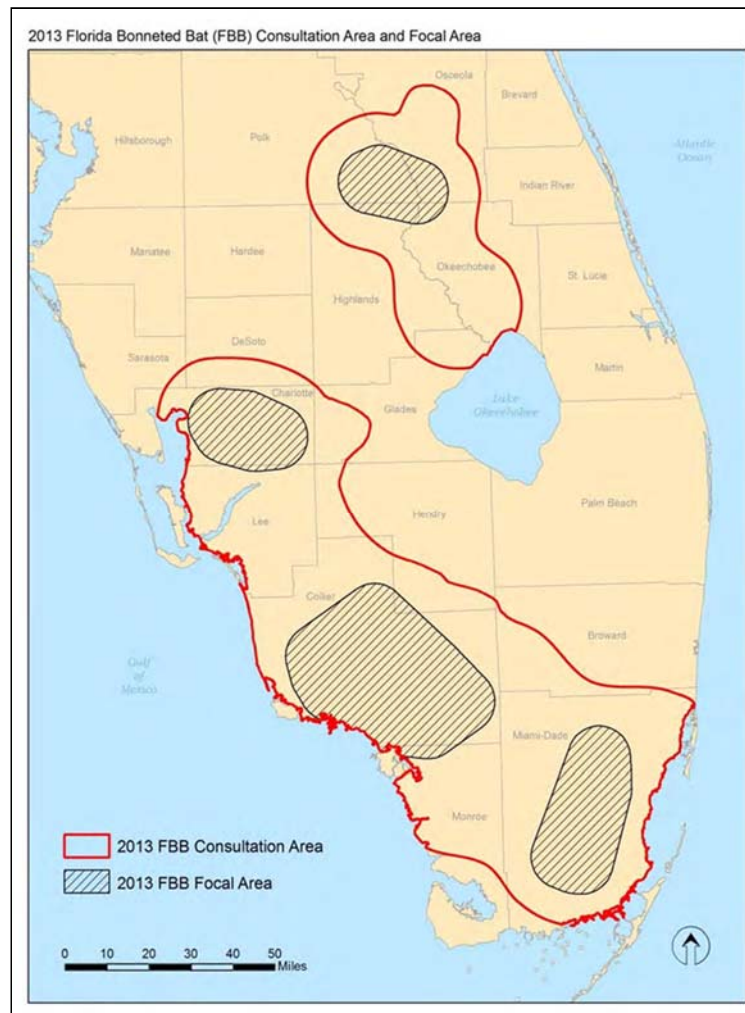


**Figure 4. Florida Manatee Critical Habitat**



### 6.3 Florida Bonneted Bat, *Eumops floridanus*, (E) “No Effect Determination”

Florida’s largest and only endemic bat species, the Florida bonneted bat, appears to inhabit hollows in trees, Spanish tile roofs and bat houses in inhabited areas and limestone cracks and outcroppings. Most known colonies of this insectivorous species were small, and were found in man-made structures (bat houses). The 8.5 SMA and C-111 SD Detention Areas are covered mainly with open wet prairie and disturbed vegetation devoid of potential bat habitat; the NDA is being scraped to caprock under current Contract 8 and is expected to return to more native wetland conditions upon completion of the project. Only the SDA and the S-332D Detention Cell contain some tree islands. The flow-way berm in the SDA has been designed to avoid impacting tree islands. Removal of a part of the S-327 levee in the S-332D cell is unlikely to affect or disturb colonies of this species. Although its habits are not very well known, the Florida bonneted bat has not been observed in this area. Therefore, although the project falls within a consultation area for the bonneted bat, the lack of trees, residences or outcrops has led the Corps to determine that the proposed project will have “no effect” on the species. Figure 5 shows consultation areas and focus areas for this species.

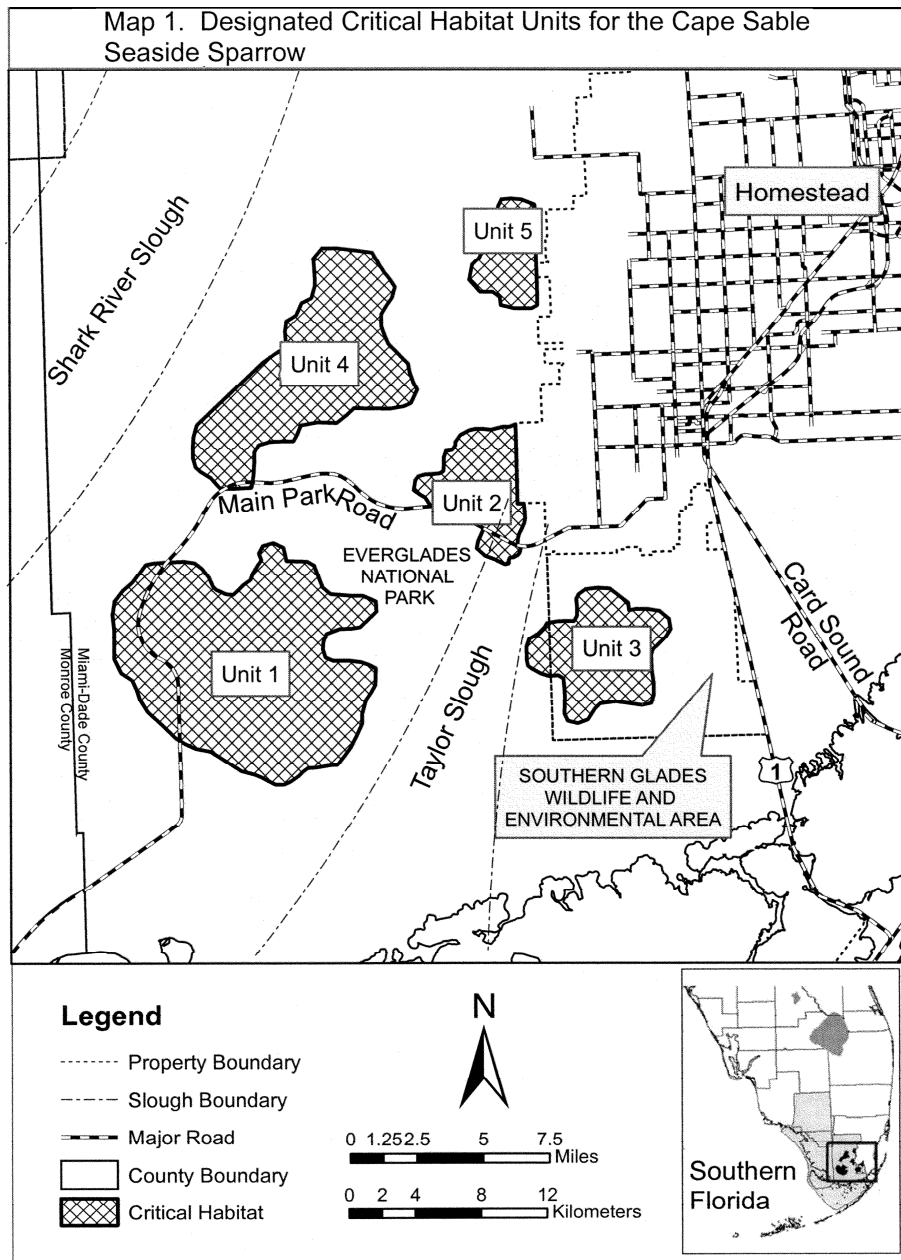


**Figure 5. Florida Bonneted Bat Consultation Area**

#### **6.4 Cape Sable Seaside Sparrow (CSSS), *Ammodramus maritimus mirabilis* (E) “May Affect Not Likely to Adversely Affect Determination”**

The CSSS is one of the most severely endangered bird species in Florida. The CSSS population inhabits short-hydroperiod (*Muhlenbergia* grass) prairies, primarily inside ENP. A small insectivorous bird, it forages on and near the ground and nests in grass only a few inches above the ground surface, initiating reproduction during the dry season. Nests can be flooded and abandoned due to untimely rains during the dry season (more than 20 cm or 6 in. of surface water over more than a short time). In 2007, FWS designated Critical Habitat Units for the CSSS (Figure 6), consisting of only five population clusters, two of which occur in Taylor Slough in close proximity to the 8.5 SMA (Unit 5, Subpopulation F), and the C-111 SD South Detention Areas (Unit 2, Subpopulation C.). Other habitat centers include large Habitat Unit 1 (Subpopulation B), centered west of Taylor Slough along the main ENP road; Unit 3 (Subpopulation D) located to the south of the project, and Unit 4 (Subpopulation E), located farther west and north of Unit 1. The largest habitat unit of the CSSS is located in Subpopulation A, which is northwest of the project footprint, and west of Shark River Slough. Critical Habitat was not designated for subpopulation A. The units close to the project do not support the largest CSSS populations; it is believed that they are too dry to provide optimal nesting habitat quality and durations during most nesting seasons, due in part to the drying effect of groundwater seepage out of ENP to the east.

The combination of proposed project modifications to the C-111SD Project beginning in 1999 and continuing through IOP, ERTTP, Increment I of the MWD Field Test and the construction proposed in this assessment, should further decrease or limit seepage out of the eastern ENP boundary, facilitating the rehydration of Taylor Slough and the recovery of Critical Habitat Units 2 and 5. Other, more remote nesting locations would not be expected to be affected. The Corps has determined the proposed project “may affect, but is not likely to adversely affect” the CSSS or its designated critical habitat.



**Figure 6. Designated CSSS Critical Habitat (From Federal Register Revised CSSS Critical Habitat Designation, p. 62766. Federal Register / Vol. 72, No. 214 / November 6, 2007**

**6.5 Everglade Snail Kite, *Rostrhamnus sociabilis plumbeus*, (E) “No Effect Determination”**

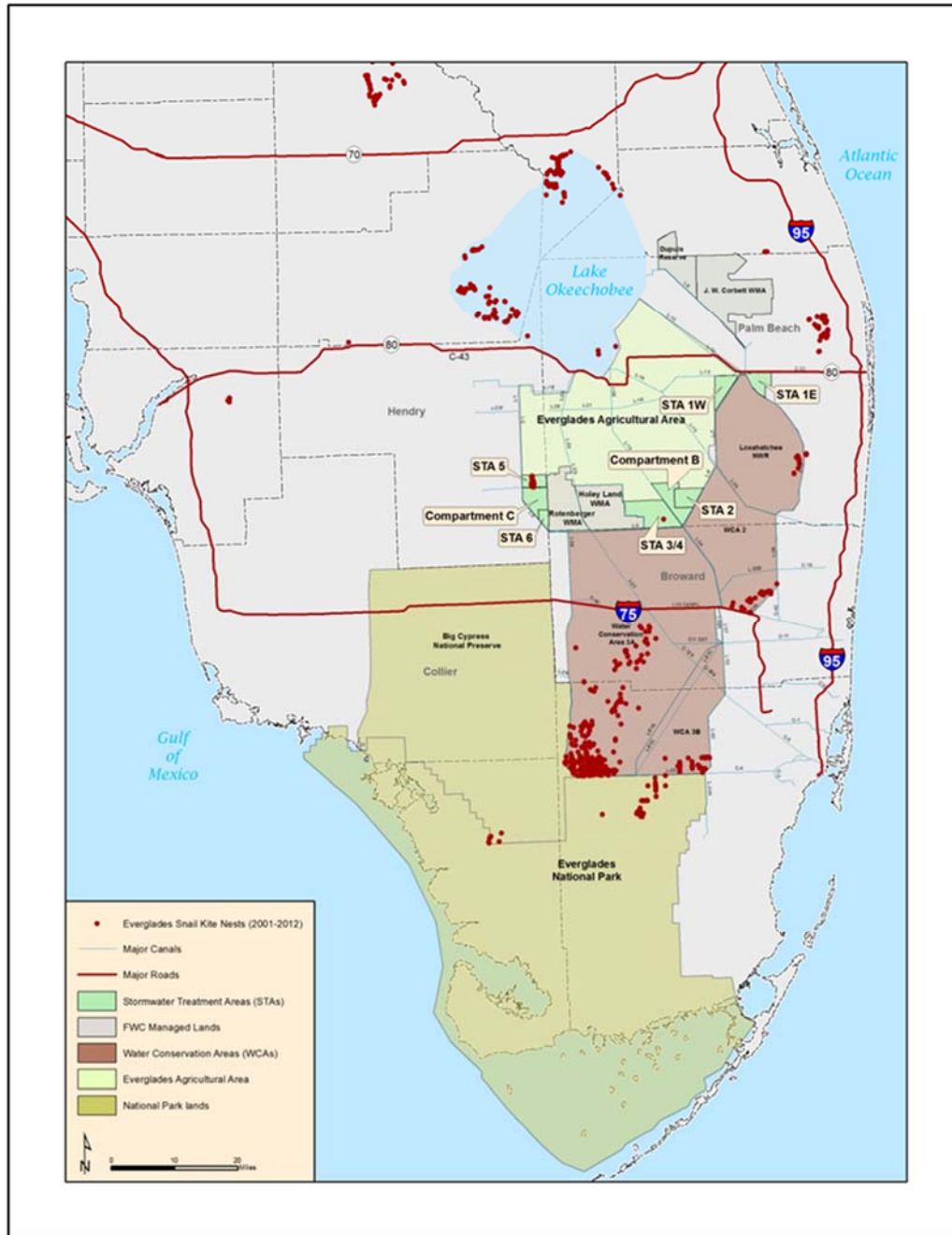
A wide-ranging, New World raptor, the snail kite is found primarily in lowland freshwater marshes in tropical and subtropical America from Florida, Cuba, and Mexico south to Argentina and Peru (USFWS 1999). The Florida and Cuban subspecies of the Everglade snail kite, was initially listed as endangered in 1967 due to its restricted range and highly specific diet (USFWS 1999). Its survival is directly tied to the hydrology, water quality, vegetation composition and structure within the freshwater marshes that it inhabits (Martin et al. 2008, Cattau et al. 2008).

Everglade snail kite habitat consists of freshwater marshes and the shallow vegetated edges of lakes where the apple snail (*Pomacea paludosa*), the Everglade snail kite's main food source, can be found. Snail kite populations in Florida are highly nomadic and mobile; tracking favorable hydrologic conditions and food supplies, and thus avoiding local droughts. Snail kites move widely throughout the primary wetlands of the central and southern portions of Florida. Snail kite nesting locations between 2001 and 2012 within south Florida are depicted in Figure 7.

Nesting substrates include small trees such as willow, cypress (*Taxodium* spp.), and pond apple, and herbaceous vegetation such as sawgrass, cattail, bulrush (*Scirpus validus*), and reed (*Phragmites australis*). Snail kites appear to prefer woody vegetation for nesting when water levels are adequate to inundate the site (USFWS 1999). Nests are more frequently placed in herbaceous vegetation during periods of low water when dry conditions beneath willow stands (which tend to grow to at higher elevations) prevent Everglade snail kites from nesting in woody vegetation (USFWS 1999). Nest collapse is rare in woody vegetation but common in non-woody vegetation, especially on lake margins (USFWS 1999). In order to deter predators, nesting almost always occurs over water (Sykes et al. 1995).

Critical habitat for the Everglade snail kite was designated September 22, 1977 (42 FR 47840 47845) and includes areas of land, water, and airspace within portions of the St. Johns Reservoir, Indian River County; Cloud Lake Reservoir, St. Lucie, County; Strazzulla Reservoir, St. Lucie County; western portions of Lake Okeechobee, Glades and Hendry counties; Loxahatchee National Wildlife Refuge (WCA 1), Palm Beach County; WCA 2A, Palm Beach and Broward counties; WCA 2B, Broward County; WCA 3A, Broward and Miami-Dade counties; and ENP to the Miami-Dade/Monroe County line.

Snail kite nesting habitat is not found within or close to the proposed project area, nor is construction likely to cause an effect on feeding, nesting or fledging of nestlings. All of the detention cells are too shallow, as are the flow-ways, to support snail kite foraging or nesting activities. The Corps has determined the proposed project would have "no effect" on the Everglades snail kite nor its designated critical habitat.



**Figure 7. Everglade Snail Kite Nest Locations (2001-2012).**

### 6.6 Piping Plover, *Charadrius melodus*, (T) and “No Effect Determination”

The piping plover does not breed in Florida; breeding populations occur near the Great Lakes, the Northern Great Plains, and the Atlantic Coast. Piping plovers regularly winter in the south Florida counties of Broward, Collier, Indian River, Lee, Martin, Miami-Dade, Monroe, Palm Beach, St. Lucie, and Sarasota (Haig 1992). Piping plovers nest and feed along coastal sand and gravel beaches throughout North America. Due to lack of preferred wintering habitat within the project area, the Corps has determined that the proposed action would have “no effect” on the piping plover.

### **6.7 Red-cockaded Woodpecker, *Picoides borealis*, (E) and “No Effect Determination”**

The red-cockaded woodpecker is a small woodpecker with a conspicuous white cheek patch, black and white cross-banded back, black cap and nape, white breast and flanks with black spots. The male has a small red spot on each side of the head. They are a social species and live in groups with a breeding pair and up to four helpers. Approximately 200 acres of mature pine forests are necessary to support each group's nesting and foraging habitat needs. Juvenile females will leave the group prior to the breeding season and establish a breeding pair within a solitary male group. There is no breeding or foraging habitat (no pine rockland forest or other pine forest) within the action area of the project; therefore, the Corps has determined that the proposed project would have “no effect” on the red-cockaded woodpecker.

### **6.8 Roseate tern, *Sterna dougallii dougallii*, (T) and “No Effect Determination”**

Roseate tern (*Sterna dougallii*) occurs in South Florida, where it is listed as threatened. Roseate tern nesting habitat is on protected sandy beaches, mostly in the Dry Tortugas of the Florida Keys, remote from the construction area. The Corps has determined that the proposed project would have “no effect” on the roseate tern due to lack of appropriate foraging or nesting habitat in the project area.

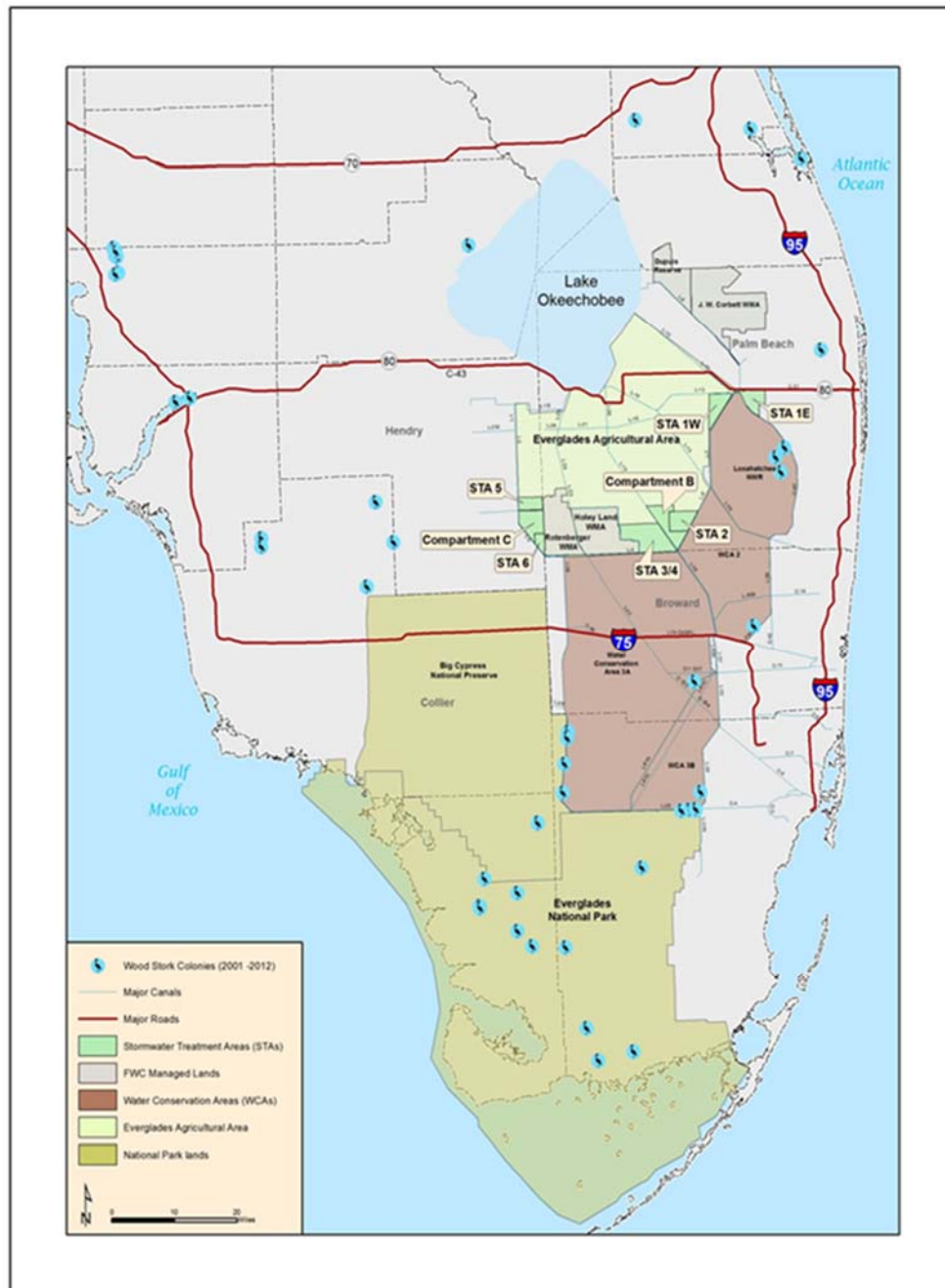
### **6.9 Wood stork, *Mycteria americana*, (T) and “No Effect Determination”**

The wood stork is a large, white, long-legged wading bird with a black, naked head that relies upon shallow, freshwater wetlands for foraging. A tactile feeder, the wood stork is found from northern Argentina, eastern Peru and western Ecuador north to Central America, Mexico, Cuba, Hispaniola, and the southeastern United States (AOU 1983). Only the population segment that breeds in the southeastern United States is listed and on July 20, 2014 was downgraded from endangered to threatened status under the ESA of 1973, as amended. In the United States, wood storks were historically known to nest in all coastal states from Texas to South Carolina (Wayne 1910, Bent 1926, Howell 1932, Oberholser 1938, Cone and Hall 1970, Oberholser 1938). The primary cause of the wood stork population decline in the United States is loss of wetland habitats or loss of wetland function resulting in reduced prey availability. Almost any shallow wetland depression where fish become concentrated, either through local reproduction or receding water levels, may be used as feeding habitat by the wood stork during some portion of the year, but only a small portion of the available wetlands support foraging conditions (high prey density and favorable vegetation structure) that wood storks need to maintain growing nestlings.

Wood storks forage primarily within freshwater marsh and wet prairie vegetation types, but can be found in a wide variety of wetland types, as long as prey are available and the water is shallow and open enough to hunt successfully (Ogden et al. 1978, Coulter 1987, Gawlik and Crozier 2004, Herring and Gawlik 2007). Calm water, about 5 to 25 cm in depth, and free of dense aquatic vegetation is ideal, however, wood storks have been observed foraging in ponds up to 40 centimeters in depth (Coulter and Bryan 1993, Gawlik 2002). Typical foraging sites include freshwater marshes, ponds, hardwood and cypress swamps, narrow tidal creeks or shallow tidal pools, and artificial wetlands such as stock ponds, shallow, seasonally flooded roadside or agricultural ditches, and managed impoundments (Coulter et al. 1999, Coulter and Bryan 1993, Herring and Gawlik 2007). Nesting sites are generally in tall trees. During nesting, foraging areas must also be sufficiently close to the colony to allow wood storks to efficiently deliver prey to nestlings. Outside of the nesting season, wood storks may be observed over much of Florida,

including roadside ditches, stream banks and irrigation canals. Nesting colonies exist along the eastern segment of Tamiami Trail and well south of the action area inside ENP (Figure 8).

Proposed construction in the detention cells/areas will be of short duration and will not be near any known wood stork nesting areas. Foraging wood storks often are observed alongside highways and agricultural machinery in partially flooded fields; therefore even during earth-moving activities they are unlikely to show disturbance due to construction. The Corps has determined that the proposed project would have “no effect” on the wood stork.



**Figure 8. Wood Stork Nesting Locations (2001-2012)**

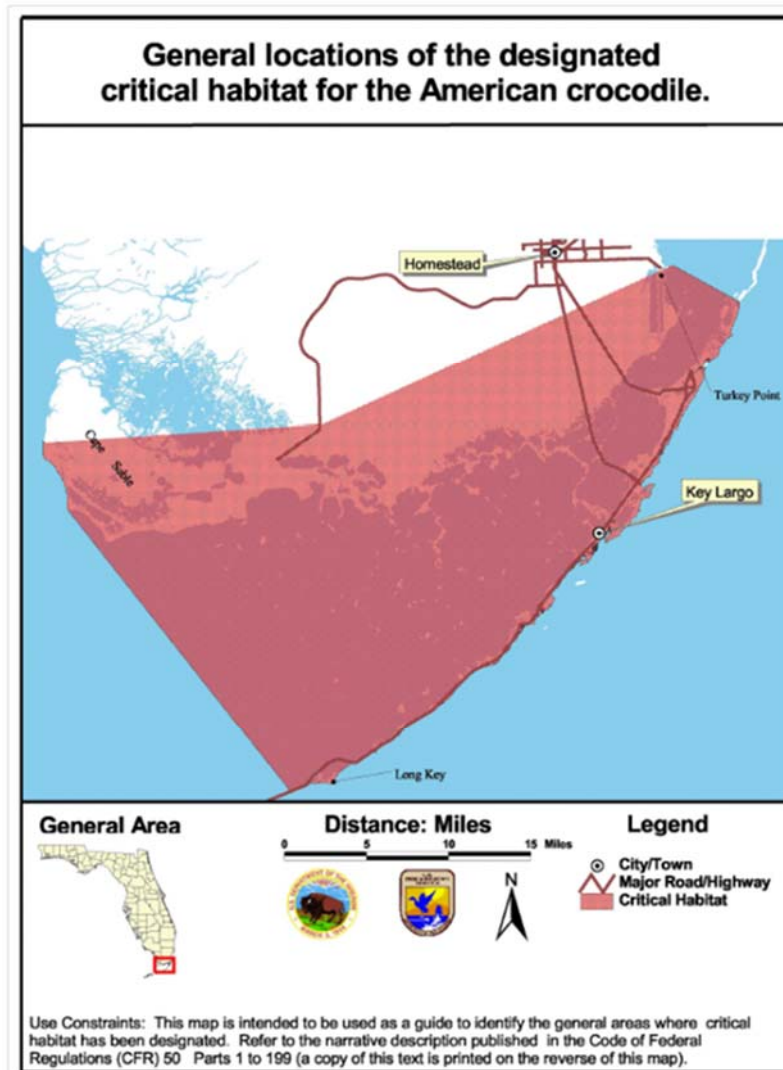
**6.10 American alligator, *Alligator mississippiensis*. (T, SA) “No Effect Determination”**

The American alligator is listed as threatened by the USFWS due to similarity of appearance to the American crocodile, a threatened species. A keystone species within the Everglades ecosystem, the American alligator is dependent on spatial and temporal patterns of water fluctuations that affect courtship and mating, nesting, and habitat use (Brandt and Mazzotti 2000). Historically, American alligators were most abundant in the peripheral Everglades marshes and freshwater mangrove habitats, but are now most abundant in canals and the deeper slough habitats of the central Everglades. Water management practices, including drainage of peripheral wetlands and increasing salinity in mangrove wetlands as a result of decreased freshwater flows has limited occurrence of American alligators in these habitats (Craighead 1968, Mazzotti and Brandt 1994). Increased water deliveries to ENP may beneficially affect American alligator habitat. Elimination or modification of American alligator habitat is not expected under proposed construction. The Corps has determined that the proposed project would have “no effect” on the American alligator.

**6.11 American crocodile, *Crocodylus acutus*, (T, CH) “No Effect Determination”**

American crocodiles inhabit coastal fringes from Miami to the bottom of the peninsula and north to the Naples area. There are no coastal fringes within the project area of the, and no known reports of crocodiles within the project area. Crocodile critical habitat is shown in Figure 9. The Corps has determined that the proposed project would have “no effect” on the American crocodile nor its designated critical habitat.





**Figure 9. American Crocodile Critical Habitat**

### **6.12 Eastern indigo snake, *Drymarchon corais couperi*, (T) “May Affect, Not Likely to Adversely Affect Determination”**

Eastern indigo snakes were listed as threatened in 1978 due primarily to habitat loss due to development. Further, as habitats become fragmented by roads, Eastern indigo snakes become increasingly vulnerable to highway mortality as they travel through their large territories (Schaefer and Junkin 1990). Declines in Eastern indigo snake populations were also due to over-collection by the pet trade and mortality caused by rattlesnake collectors who gas gopher tortoise burrows to collect snakes (USFWS 2013).

The Eastern indigo snake is the largest native non-venomous snake in North America, reaching lengths of up to 8.5 feet (Moler 1992). It is an isolated subspecies occurring in southeastern Georgia and throughout peninsular Florida. The Eastern indigo snake prefers drier habitats, but may be found in a variety of habitats including pine flatwoods, scrubby flatwoods, floodplain

edges, sand ridges, dry glades, tropical hammocks, edges of freshwater marshes, muckland fields, coastal dunes, cabbage palm hammocks, and xeric sandhill communities (Schaefer and Junkin 1990, USFWS 1999). Eastern indigo snakes also use agricultural lands and various types of wetlands.

Although it is not known if there are eastern indigo snakes within the existing project area, this species has been known to search out and hide in earth-moving machinery. During construction of the project features, special indigo snake precautions will be included in project specifications to avoid adverse effects. Based on special indigo snake specifications, the Corps has determined that the proposed project “may affect, but is not likely to adversely affect” the Eastern indigo snake.

### **6.13 Bartram’s Hairstreak Butterfly, *Strymon acis bartrami*, (E) “No Effect Determination”**

Bartram’s hairstreak butterfly is a species of pinelands. Larvae feed exclusively on the pineland croton. The species is known only from pine scrub on Big Pine Key and in ENP. The species population appears to be in decline and may be subject to predation by invasive ant species. No suitable habitat occurs in the project construction area; therefore, the Corps has determined that the proposed project would have “no effect” on the Bartram’s hairstreak butterfly.

### **6.14 Miami Blue Butterfly, *Cyclargus thomasi bethunebakeri*, (E) “No Effect Determination”**

The Miami blue butterfly occurs at the edges of tropical hardwood hammocks, beachside scrub and in rockland pine forests, feeding on nickerbeans, blackbeard and balloon vine leaves as a larva. Neither the plant species nor the cover type are present in the action area; therefore, the Corps has determined that the proposed project would have “no effect” on the Miami blue butterfly.

### **6.15 Florida Leafwing Butterfly, (E) *Anea troglodyta floridalis*, “No Effect Determination”**

The Florida leafwing is a medium-sized butterfly. The upper-wing (or open wing) surface color is red to red-brown, the underside (closed wings) is gray to tan, with a tapered outline, cryptically looking like a dead leaf when the butterfly is at rest. The Florida leafwing exhibits sexual dimorphism, with females being slightly larger and with darker coloring along the wing margins than the males. The Florida leafwing occurs only within pine rocklands that retain its host plant, pineland croton. Pineland croton, a subtropical species of Antillean origin, is the only known host plant for the leafwing. There are no pine rocklands in the project area. Due to the lack of host plants or habitat, the Corps has determined that the proposed project would have “no effect” on the Florida leafwing butterfly.

### **6.16 Schaus swallowtail butterfly, *Heraclides aristodemus ponceanus*, (E) “No Effect Determination”**

The Schaus swallowtail butterfly is a large dark brown and yellow butterfly originally listed as an endangered species because of population declines caused by the destruction of its tropical hardwood hammock habitat, mosquito control practices, and over-harvesting by collectors. Schaus swallowtail butterfly distribution is limited to tropical hardwood hammocks and is concentrated in the insular portions of Miami-Dade and Monroe counties, from Elliott Key in Biscayne National Park and associated smaller Keys to central Key Largo (USFWS 1999). It is estimated that remaining suitable habitat for this species is 43% of the historical suitable habitat in Biscayne National Park and 17 percent for north Key Largo. The decline has been attributed

primarily to habitat destruction (USFWS 1999). Due to the lack of subtropical hardwood hammock habitat in the action area, the Corps has determined that the project would have “no effect” on the Schaus swallowtail butterfly.

**6.17 Stock Island Tree Snail, *Orthalicus reses* (not incl. *nesodryas*), (T) “No Effect Determination”**

The arboreal Stock Island tree snail inhabits hardwood hammocks consisting of tropical trees and shrubs such as gumbo limbo, mahogany, ironwood, poisonwood, marlberry and wild coffee, among others. The historic distribution of the Stock Island tree snail was thought to be limited to hardwood hammocks on Stock Island and Key West and possibly other lower Keys hammocks. Recently, the range of this species has been artificially extended through the actions of collectors who have introduced it to Key Largo and the southernmost reaches of the mainland. At present, this snail occupies six sites outside of its historic range including ENP and Big Cypress National Preserve. Due to the lack of preferred subtropical hardwood hammock habitat in the main action area, the Corps has determined that the proposed project would have “no effect” on the Stock Island tree snail.

**6.18 Crenulate Lead Plant, *Amorpha crenulata*, (E) “No Effect Determination”**

The crenulate lead-plant is endemic to Miami-Dade County. Listed as endangered in 1985, its habitat is pine rockland in eight known locations. It is not known from ENP and the cover types in the construction area do not include pine rocklands. Due to the absence of suitable habitat, the Corps has determined that the proposed project would have “no effect” on the crenulate lead plant.

**6.19 Deltoid Spurge, *Chamaesyce deltoidea* ssp. *Deltoidea*, (E); Pineland sandmat *Chamaesyce deltoidea* ssp. *pinetorum* (E); Garber’s Spurge *Chamaesyce garberi* (T); Small’s Milkpea *Galactea smallii* (E); and Tiny Polygala *Polygala smallii* (E) and “May Affect Not Likely to Adversely Affect Determination”**

These species are found primarily in pine rocklands. This community occurs on areas of relatively high elevation, which has suffered intense development pressure. Pine rocklands are fire-maintained. No pine rockland habitat is known in or near the project construction area. The Corps has determined that the proposed project “may affect, but is not likely to adversely affect” these species.

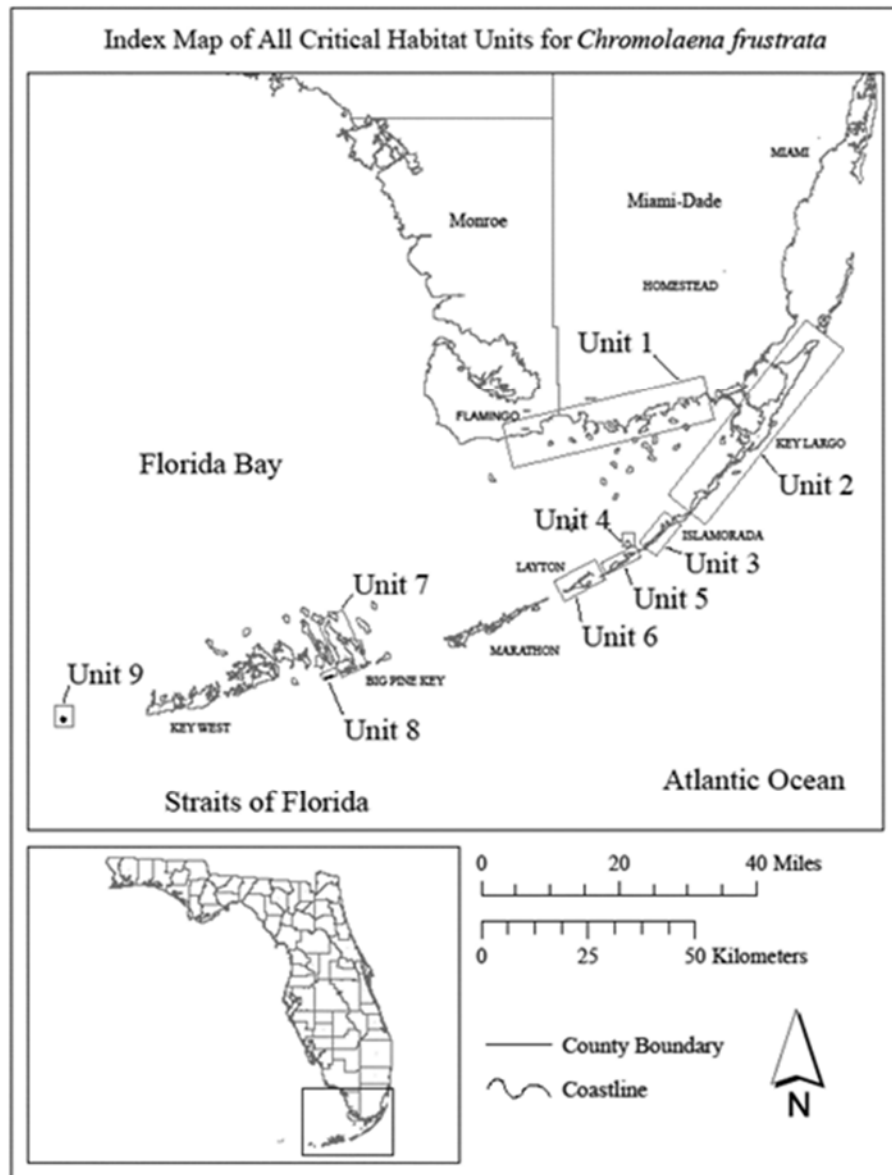
**6.20 Okeechobee Gourd, *Cucurbita okeechobeensis* ssp. *Okeechobeensis*, (E) and “No Effect Determination”**

The Okeechobee gourd is limited currently to two disjunct populations, one along the St. Johns River in Volusia, Seminole and Lake Counties in northern Florida, and a second around the shoreline of Lake Okeechobee. Since this species has not been reported from Miami-Dade County or in the vicinity of the C-111 South Dade or MWD Detention Areas, the Corps has determined that the proposed project would have “no effect” on the Okeechobee gourd.

**6.21 Cape Sable Thoroughwort, *Chromolaena frustrata*, (E, CH) “No Effect Determination”**

The Cape Sable thoroughwort is endemic to south Florida, and is a flowering perennial herb 8-40 inches tall. The Cape Sable thoroughwort was historically known from Monroe County, both on the Florida mainland and the Florida Keys, and in Miami-Dade County along Florida Bay. The current range of the species includes areas in ENP and five islands in the Florida Keys. It occurs

throughout coastal rock barrens and berms and sunny edges of rockland hammock. The decline of the species is primarily the result of habitat loss from commercial and residential development, sea level rise, storms, competition from non-native plants, predation by non-native herbivores, and wildfires. Critical habitat for the species occurs in nine separate units across approximately 10,968 acres of Miami-Dade and Monroe Counties. The nine units are: 1) ENP, 2) Key Largo, 3) Upper Matecumbe Key, 4) Lignumvitae Key, 5) Lower Matecumbe Key, 6) Long Key, 7) Big Pine Key, 8) Big Munson Island, and 9) Boca Grande Key. There are no rockland areas or coastal areas in the Detention Areas of MWD or C-111 South Dade. Critical Habitat is shown in Figure 10. The Corps has determined that the proposed project would have “no effect” on the Cape Sable thoroughwort nor its critical habitat.



**Figure 10. Designated Critical Habitat for the Cape Sable Thoroughwort**

**5.22 Big Pine Partridge Pea, *Chamaecrista lineata* var. *keyensis*, (Pr E); Blodgett’s silverbush, *Argythamnia blodgettii*, (Pr T); and Sand Flax, *Linum arenicola*, (Pr E) “No Effect Determination”** These candidate species were proposed for listing in the Federal Register dated Tuesday, September 29, 2015.

The Big Pine Partridge Pea is found only on Big Pine and Cudjoe Keys in Monroe County. It eventually may be threatened by sea level rise, but the rockland habitat it occupies is not present in the proposed project area; Blodgett’s silverbush is found in Miami-Dade County, but it is largely found in and around pine rocklands, and is not a wetland or prairie species. Sand Flax occurs in dry marl areas and in rocklands in Miami-Dade County but is not reported from the C-111 South Dade area. Of known populations of Sand Flax, about half have been extirpated by development since their discovery. Due to the disjunct distribution of all three species and lack of undisturbed habitat for any of the three within the construction area, the Corps has determined that the proposed project would have “no effect” on these species.

**6.22 Carter’s Small-Flowered Flax, *Linum carteri* var. *carteri*, (E, Pr CH) and Florida Brickell-Bush, *Brickellia mosieri*, (E, Pr CH) “No Effect Determination”**

Carter’s small-flowered flax and Florida brickell-bush are endemic to the pine rocklands of the Miami Rock Ridge in Miami-Dade County. Both species grow exclusively on the Miami Rock Ridge outside the boundaries of ENP (79 FR 52567; September 4, 2014). Carter’s small-flowered flax is an annual or short-lived perennial herb and was first collected between Coconut Grove and Cutler areas of Miami. It is currently found from R. Hardy Matheson Preserve southwest to Naranja/Modello, with a distance of approximately 27.3 km between the farthest locations.

Carter’s small-flowered flax and Florida brickell-bush have experienced substantial destruction, modification, and curtailment of their habitat and range. Specific threats to these plants include habitat loss, fragmentation, and modification caused by development (i.e. conversion to both urban and agricultural land uses) and inadequate fire management. Only small and fragmented occurrences of these two plants remain. The current ranges span a small geographic area – a narrow band no more than 4.0 km in width, and approximately 30.1 km in length, respectively, along the Miami Rock Ridge.

There is no pine rockland habitat within the proposed construction area. The Corps has determined that the proposed project would have “no effect” on the Carter’s small-flowered flax and Florida brickell-bush.

**6.23 Everglades bully, *Sideroxylon reclinatum* ssp. *Austrofloridense*, (C); Florida pineland crabgrass, *Digitaria pauciflora*, (C); Florida Prairie-Clover, *Dalea carthagenensis*, (C) and “No Effect Determination.”**

Everglades bully is restricted to pinelands with tropical understory vegetation on limestone rock (pine rocklands), mostly in the Long Pine Key area of ENP, which is an area of pine Rockland surrounded by wetlands. It is also known from Big Cypress National Preserve.

Florida pineland crabgrass is another rockland species, known only from Long Pine Key in ENP.

Florida prairie-clover is a somewhat shrubby plant 3-6 feet (0.5-2.0 meters [m]) tall. This shrub is also found in pine rocklands, edges of rockland hammocks, coastal uplands, and marl prairie. Fire may help to maintain it. Plants probably do not tolerate shading by hardwoods in the absence of periodic fires. All three of these candidate species are essentially species of rocklands or rockland margins. Proposed construction will occur on lands with no pine forests. The Corps has determined that the proposed project would have “no effect” on these species.

#### **6.24 Florida Bristle Fern, *Trichomanes punctatum ssp floridanum*, (Pr E) “No Effect Determination”**

The Florida bristle fern is a tiny bryophyte. It is mat forming, has no roots, and contains trichomes (hairlike/bristlelike outgrowth) on the tip of the fern. In southeastern North America, *Trichomanes spp.* are considered rare because of their delicate nature and requirements for deeply sheltered habitats with almost continuous high moisture and humidity (Farrar 1993b, Zots and Buche 2000). In Florida, the sub-species is only known to occur in Miami-Dade and Sumter Counties. In Miami-Dade County, the Florida bristle-fern is generally epiphytic (a plant that grows non-parasitically upon another plant) or epipetric (growing on rocks), typically growing in rocky outcrops of rockland hammocks, in oolitic limestone solution holes, and, occasionally, on tree roots in limestone surrounded areas. The four populations in the Miami Dade County metapopulation are located in urban preserves managed by the County’s Environmentally Endangered Lands Program and include Castellow Hammock Park, Hattie Bauer Hammock, Fuchs Hammock Preserve, and Meissner Hammock. Factors affecting the sub-species include habitat modification and destruction caused by human population growth and development.

Within the Miami-Dade area, pine rocklands occur on the Miami Rock Ridge and extend into the Everglades as Long Pine Key. Because no rockland hammocks are included in the project area, the Corps has determined that the proposed project would have “no effect” on the Florida bristle fern.

#### **6.25 Pineland Sandmat, *Chamaesyce deltoidea ssp pinetorum*, (C) “No Effect Determination”**

This candidate subspecies of *Chamaesyce deltoidea* occurs on pine rocklands at the southern end of the Miami Rock Ridge. It is found in ENP on higher areas of Long Pine Key. It may be fire-maintained. It is found under stands of *Pinus elliottii var. densa*. Due to the absence of pineland sandmat habitat in the proposed project area or nearby the Corps has determined that the proposed project would have “no effect” on the pineland sandmat.

#### **6.26 Florida Semaphore Cactus, *Consolea corallicola*, (E) “No Effect Determination”**

The Florida semaphore cactus is a treelike prickly pear cactus endemic to the Florida Keys. Plants can grow to tall form with flattened branches, red flowers, and many long spines. Historically, the Florida semaphore cactus was known from Key Largo and Big Pine Key (Barnhardt 1935), but development has destroyed these populations. The only “wild” population remaining is located in a Nature Conservancy preserve in the middle Keys. Several out plantings by Fairchild Tropical Garden and the University of South Florida were made in the late 1990s. Fairchild Tropical Gardens planted less than 200 cacti on Key Largo and Big Pine Key, the majority of which have died. The University of South Florida planted 240 cacti on Big Pine Key, Upper Sugarloaf Key,

No Name Key, Little Torch Key, Ramrod Key, and Cudjoe Key. At least 3/4 of cacti planted by the University of Florida have been lost to damage from the introduced exotic cactus moth *Cactoblastis cactorum*. Because the semaphore cactus is found only in the Florida Keys the Corps has determined that the proposed project would have “no effect” on the Florida semaphore cactus.

#### **6.27 Species under jurisdiction of the National Marine Fisheries Service on Table 1. “No Effect Determination”**

In separate coordination with the National Marine Fisheries Service, the Corps has considered the following species: Green sea turtle, *Chelonia mydas* (E), Hawksbill sea turtle, *Eretmochelys imbricata* (E), Kemp’s Ridley sea turtle, *Lepidochelys kempii* (E), Leatherback sea turtle, *Dermochelys coriacea* (E), Loggerhead sea turtle, *Caretta caretta* (T), Smalltooth sawfish, *Pristis pectinata* (E, CH), Elkhorn coral, *Acropora palmata* (T, CH), Staghorn coral, *Acropora cervicornis* (T, CH), and Johnson’s seagrass, *Halophila johnsonii*. The Corps has determined that the proposed project would have “no effect” on these species, due to lack of beaches, turtle grass or other marine seagrass flats, and marine habitats in or close to the project area.

### **7 EFFORTS TO ELIMINATE POTENTIAL IMPACTS ON LISTED SPECIES.**

The Corps commits to avoiding, minimizing or mitigating for adverse effects during construction. All practicable means to avoid or minimize environmental effects were incorporated into the proposed action. Special conditions to accompany the proposed action include: requiring a biologist-observer at the construction site during the flow-way berm construction to orient contractor personnel on appearance of indigo snakes and precautionary measures to avoid take, especially around earth-moving machinery. Additionally, the Corps and South Florida Water Management District (SFWMD) will continue existing hydrologic and species monitoring plans to ensure that Incidental Take as defined within the USFWS 2009 C-111 Western Spreader Canal Project BO and the 2010 or 2016 ERTTP BO are not exceeded. Both SFWMD and the Corps are required to provide annual assessments of ERTTP operations. SFWMD summarizes annual results in the South Florida Annual Report. The Corps provides a separate annual assessment of ERTTP operations, including a summary of Periodic Scientist Calls, analysis of incidental take, analysis of ERTTP performance measures, ecological targets and species monitoring. The Corps will maintain ongoing communications with the FWS throughout the duration of proposed construction.

### **8 REFERENCES**

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USACE. Central and South Florida Project: Water Control Plan for Water Conservation Areas, Everglades National Park, and ENP-South Miami-Dade Conveyance System. Jacksonville, Florida, October 2012c.

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USFWS. Designated CSSS Critical Habitat. Revised CSSS Critical Habitat Designation, p. 62766. Federal Register / Vol. 72, No. 214 / Tuesday, November 6, 2007.





DEPARTMENT OF THE ARMY  
JACKSONVILLE DISTRICT CORPS OF ENGINEERS  
701 San Marco Boulevard  
JACKSONVILLE, FLORIDA 32207-8175

REPLY TO  
ATTENTION OF

MAY 12 2015

Planning and Policy Division  
Environmental Branch

Mr. Larry Williams, Field Supervisor  
U.S. Fish and Wildlife Service  
1339 20<sup>th</sup> Street  
Vero Beach, FL 32960

Dear Mr. Williams:

In accordance with provisions of Section 7 of the Endangered Species Act, as amended, the U.S. Army Corps of Engineers (Corps) is hereby initiating consultation with the U.S. Fish and Wildlife Service (USFWS) for proposed construction activities under Contract 9 in the southern part of the C-111 South Dade Canal system. The main construction activities consist of plugging the L-31 West Borrow Canal, south of S-174 and extending southward to south of the S-175 and Frog Pond Detention Area. The purpose of plugging and other actions is to inhibit seepage out of Everglades National Park via the L-31 West Borrow Canal, while maintaining the flood mitigation capability of the C-111 canal system in agricultural lands to the east. Related but separate proposed actions are shown on the attached Figure in relation to proximal CSSS habitat units, and might include:

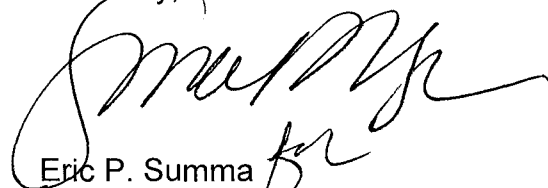
- Degrading 250-500 linear feet of the 1,850 foot-long high head weir in the northern end of the Frog Pond Detention Area. Some of the degraded material will be used to dress the side slopes for the remaining weir; the remainder of fill will be stored for borrow canal backfill;
- Filling an existing 2,000 foot reach of Levee L-31W along the old "Frog Pond" (now part of the Southern Detention Area) that was previously degraded to ground level during the 2002 Cape Sable seaside sparrow emergency deviation and replacing the gap with an overflow weir, allowing better water control;
- Backfilling approximately 950 feet of remnant L-31 W Canal located between S-174 and the East Levee of the Southern Detention Area (SDA);
- Adding a berm about 250-300 linear feet long, along the east-west borrow canal and east of the L-31W Canal terminus;
- Proposed modifications to one or both weirs at the S-360 structure, depending upon expected hydraulic effects;
- Decommissioning and removing or abandoning in place the following structures that are no longer functional due to prior filling of the L-31 Borrow Canal: S-174 Gated Spillway (to be removed and plugged with soil); S-332 Pump Station (equipment salvaged and gap filled with soil); S-175 Gated Spillway (remove and plug the canal for 50 linear feet upstream and downstream of location).

The Corps is preparing an Environmental Assessment (EA) to evaluate construction alternatives. This EA is expected to begin public coordination in July of 2015. The location of the C-111 Canal Northern and Southern Detention areas and related structures is shown on Fig. 1, which also shows the relationship of proposed actions to Cape Sable Seaside Sparrow designated Critical Habitat.

The C-111 South Dade Canal System is part of the larger C&SF Project. The 1994 C-111 General Reevaluation Report shows the C-111 basin boundaries as they were originally defined, with a western basin boundary at the L-67 Extension Levee, eastward along the South side of Tamiami Trail (US 41), and extending in an eastward direction out to the Southeastern Coast of the Florida mainland. The southern end of the basin ends in the Everglades National Park panhandle at Barnes Sound (GRR 1994, Figure1-4). The GRR of 1994 summarized the history of construction and land use changes with expansion of ENP lands under the 1989 Everglades Expansion and Protection Act. After the ENP expansion, former agricultural lands in the Rocky Glades, west of C-111 and now inside the Park, were no longer used for agriculture and did not require drainage for this purpose; in fact, it was desirable to re-hydrate these lands to the extent feasible. However, agricultural and residential areas east of C-111 still depend on C-111 and the Eastern Boundary Levee (L-31) to mitigate seasonal flooding.

Pursuant to the Endangered Species Act, as amended, the Corps is requesting written confirmation of species or their critical habitat either listed or proposed for listing that may be present within the referenced project area within 30 days upon receipt of this letter. The Corps has tentatively determined that the following threatened and endangered species (Table 1) may be present within the project area. If you have any questions concerning the project, please contact Ms. Barbara Cintron by email: [barbara.b.cintron@usace.army.mil](mailto:barbara.b.cintron@usace.army.mil) or by telephone 904-232-1692. Thank you for your assistance in this matter.

Sincerely,



Eric P. Summa  
Chief, Environmental Branch

Enclosure

Copies Furnished:

Kevin Palmer, U.S. Fish & Wildlife Service, South Florida Ecological Services Office,  
1339 20<sup>th</sup> Street, Vero Beach, Florida 32960-3559

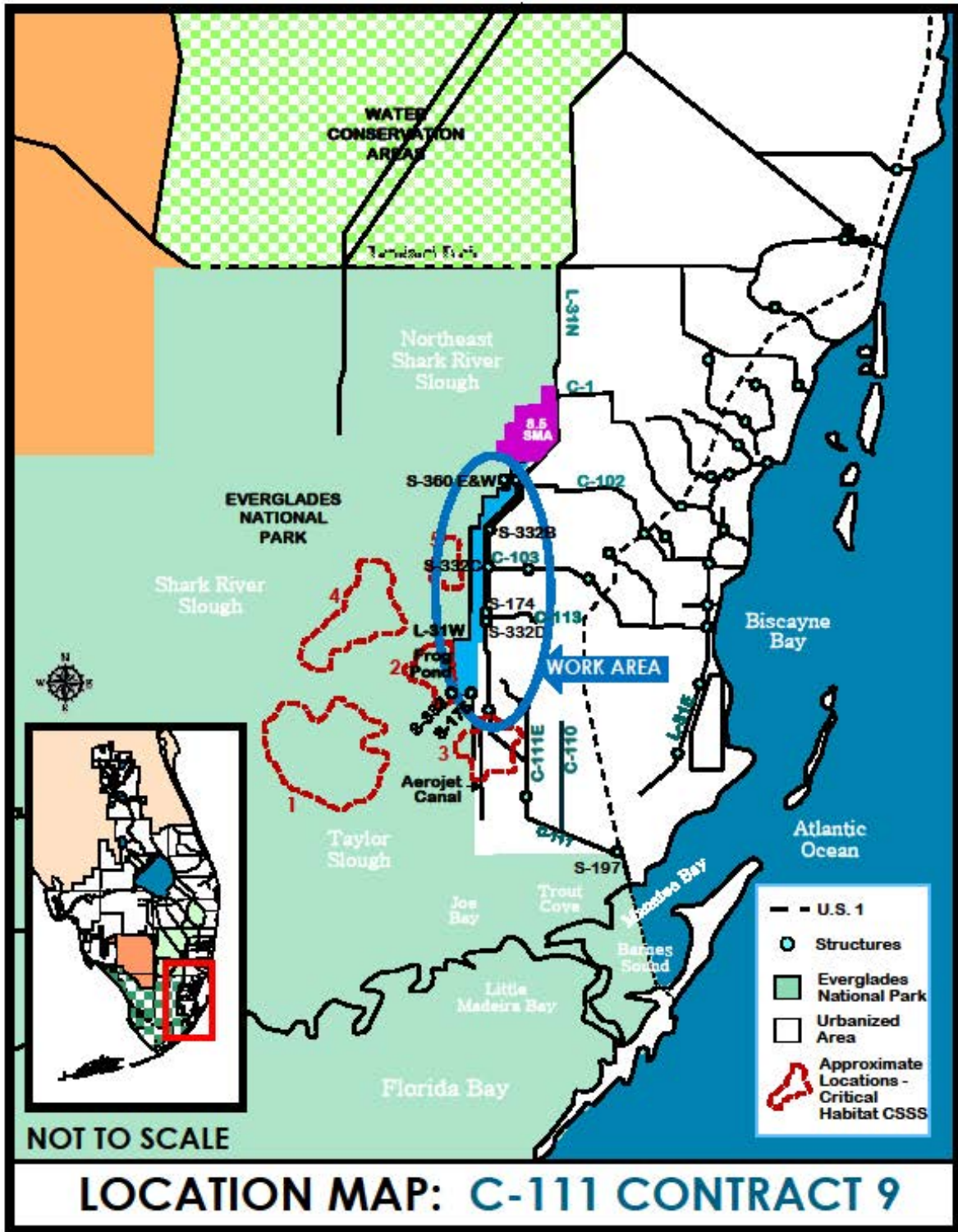
**Table 1. List of Federally Threatened and Endangered Species within the Project Area**

<b>Common Name</b>	<b>Scientific Name</b>	<b>Status</b>
<b>Mammals</b>		
Florida panther	<i>Puma concolor coryi</i>	E
Florida manatee	<i>Trichechus manatus latirostris</i>	E, CH
Florida bonneted bat	<i>Eumops floridanus</i>	E
<b>Birds</b>		
Cape Sable seaside sparrow	<i>Ammodramus maritimus mirabilis</i>	E, CH
Everglade snail kite	<i>Rostrhamus sociabilis plumbeus</i>	E, CH
Piping plover	<i>Charadrius melodus</i>	T
Red-cockaded woodpecker	<i>Picoides borealis</i>	E
Roseate tern	<i>Sterna dougallii dougallii</i>	T
Wood stork	<i>Mycteria americana</i>	T
<b>Reptiles</b>		
American Alligator	<i>Alligator mississippiensis</i>	T, SA
American crocodile	<i>Crocodylus acutus</i>	T, CH
Eastern indigo snake	<i>Drymarchon corais couperi</i>	T
Gopher tortoise	<i>Gopherus polyphemus</i>	C
Green sea turtle*	<i>Chelonia mydas</i>	E
Hawksbill sea turtle*	<i>Eretmochelys imbricata</i>	E
Kemp's Ridley sea turtle*	<i>Lipodochelys kempii</i>	E
Leatherback sea turtle*	<i>Dermochelys coriacea</i>	E
Loggerhead sea turtle*	<i>Caretta caretta</i>	T
<b>Fish</b>		
Smalltooth sawfish*	<i>Pristis pectinata</i>	E
<b>Invertebrates</b>		
Bartram's hairstreak butterfly	<i>Strymon acis bartrami</i>	C
Elkhorn coral	<i>Acropora palmata</i>	T, CH
Florida leafwing butterfly	<i>Anaea troglodyta floralis</i>	C
Miami blue butterfly	<i>Cyclargus thomasi bethunebakeri</i>	E

Schaus swallowtail butterfly	<i>Heraclides aristodemus ponceanus</i>	E
Staghorn coral	<i>Acropora cervicornis</i>	T, CH
Stock Island tree snail	<i>Orthalicus reses</i> (not incl. <i>nesodryas</i> )	T
<b>Plants</b>		
Crenulate lead plant	<i>Amorpha crenulata</i>	E
Deltoid spurge	<i>Chamaesyce deltoidea</i> spp. <i>deltoidea</i>	E
Garber's spurge	<i>Chamaesyce garberi</i>	T
Johnson's seagrass*	<i>Halophila johnsonii</i>	E, CH
Okeechobee gourd	<i>Cucurbita okeechobeensis</i> ssp. <i>okeechobeenis</i>	E
Small's milkpea	<i>Galactia smallii</i>	E
Tiny polygala	<i>Polygala smallii</i>	E
Big pine partridge pea	<i>Chamaecrista lineata</i> var. <i>keyensis</i>	C
Blodgett's silverbush	<i>Argythamnia blodgettii</i>	C
Cape Sable thoroughwort	<i>Chromolaena frustrata</i>	E, CH
Carter's small-flowered flax	<i>Linum carteri</i> var. <i>carteri</i>	E, Pr CH
Everglades bully	<i>Sideroxylon reclinatum</i> spp. <i>austrofloridense</i>	C
Florida brickell-bush	<i>Brickellia mosieri</i>	E, Pr CH
Florida bristle fern	<i>Trichomanes punctatum</i> spp. <i>floridanum</i>	Pr E
Florida pineland crabgrass	<i>Digitaria pauciflora</i>	C
Florida prairie-clover	<i>Dalea carthagenensis</i> var. <i>floridana</i>	C
Florida semaphore cactus	<i>Consolea corallicola</i>	E
Pineland sandmat	<i>Chamaesyce deltoidea</i> ssp. <i>pinetorum</i>	C
Sand flax	<i>Linum arenicola</i>	C

E=Endangered; T=Threatened; SA=Similarity of Appearance; CH=Critical Habitat; Candidate Species, Pr E = Proposed Endangered, Pr CH = Proposed Critical Habitat

\* Marine species under the purview of the National Marine Fisheries Service (NMFS), the Corps will conduct a separate consultation with NMFS.





# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
South Florida Ecological Services Office  
1339 20<sup>th</sup> Street  
Vero Beach, Florida 32960

June 4, 2015

Eric Summa  
Chief, Environmental Branch  
U.S. Army Corps of Engineers  
Post Office Box 4970  
Jacksonville, Florida 32232

Service Federal Activity Code: 41420-2009-FA-0385

Date Received: May 12, 2015

Project: C-111 South Dade; Contract 9  
County: Miami-Dade

Dear Mr. Summa:

The U.S. Fish and Wildlife Service (Service) has reviewed the U.S. Army Corps of Engineers' (Corp) letter dated May 12, 2015, requesting confirmation of federally-listed species or their designated critical habitat and candidate species for listing that may be present within the Contract 9 portion of the C-111 South Dade Canal system project. The 'species list' is a National Environmental Policy Act (42 U.S. Code (USC) § 4321) requirement for the environmental analysis. This species list is also provided in accordance with the Endangered Species Act of 1973, as amended (Act) (87 Stat. 884; 16 U.S.C. 1531 *et seq.*). The project area lies entirely within Miami-Dade County.

## Project Description

This phase of the C-111 South Dade Canal project will mainly consist of construction activities associated with plugging the L-31 West Borrow canal and minor berm removal from S-174 southward to the Frog Pond Detention Area. Although impacts associated with this project may primarily be related to construction only it is possible that manipulation of the water control infrastructure in this area could impact surrounding hydrology. The purpose of plugging and other actions is to inhibit seepage out of Everglades National Park via the L-31 West Borrow canal, while maintaining the flood mitigation capability of the C-111 canal system in agricultural lands to the east. Related but separate proposed actions might include:

- Degrading 250-500 linear feet of the 1,850 foot-long high head weir in the northern end of the Frog Pond Detention Area. Some of the degraded material will be used to dress the side slopes for the remaining weir while the remainder of fill will be stored for borrow canal backfill;
- Filling an existing 2,000 foot reach of L-31 W along the old "Frog Pond" (now part of the Southern Detention Area (SDA)) that was previously degraded to ground level during the 2002 Cape Sable seaside sparrow emergency deviation and replacing the gap with an overflow weir, allowing better water control;

- Backfilling approximately 950 feet of remnant L-31 W canal located between S-174 and the eastern levee of the SDA;
- Constructing a 250-300-foot berm along the east-west borrow canal east of the L-31W canal terminus;
- Modifications to one or both weirs at the S-360 structure, depending upon expected hydrologic effects;
- Removing or abandoning in place the following structures that are no longer functional: S-174 gated spillway, S-332 pump station and S-175 gated spillway.

The Corps is preparing an Environmental Assessment to evaluate the construction alternatives. This EA is expected to begin public coordination in July of 2015.

### Threatened and Endangered Species

The Service has reviewed our Geographic Information System (GIS) database and other information for recorded locations of federally-listed threatened and endangered species and critical habitats on or adjacent to the project site. The GIS database is a compilation of data received from several sources. Contract 9 of the C-111 South Dade project occurs mainly in wetland habitats in the planning area; however, effects of the proposed project could reach into adjacent habitats as well. The Service concurs with the Corps' list of federally-listed species and their critical habitat contained within its May 12<sup>th</sup> letter and provides the following list of State-listed species (Table 1) that should be considered in the planning process for the C-111 South Dade project.

**Table 1.** List of State-listed species, not otherwise federally designated, within the project area (E: Endangered, T: Threatened, SC: Species of Special Concern).

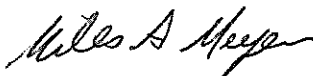
Common Name	Scientific Name	Status
<b>Mammals</b>		
Everglades mink	<i>Neovison vison evergladensis</i>	T
Florida mouse	<i>Podomys floridanus</i>	SC
<b>Birds</b>		
Snowy plover	<i>Charadrius nivosus</i>	T
American oystercatcher	<i>Haematopus palliatus</i>	SC
Brown pelican	<i>Pelecanus occidentalis</i>	SC
Black skimmer	<i>Rynchops niger</i>	SC
Least tern	<i>Sterna antillarum</i>	T
White-crowned pigeon	<i>Patagioenas leucocephala</i>	T
Limpkin	<i>Aramus guarana</i>	SC
Little blue heron	<i>Egretta caerulea</i>	SC
Tricolored heron	<i>Egretta tricolor</i>	SC
Snowy egret	<i>Egretta thula</i>	SC
Reddish egret	<i>Egretta rufescens</i>	SC

White ibis	<i>Eudocimus albus</i>	SC
Roseate spoonbill	<i>Platalea ajaja</i>	T
<b>Fish</b>		
Mangrove gambusia	<i>Gambusia rhizophorae</i>	SC
Mangrove rivulus	<i>Rivulus marmoratus</i>	SC
<b>Invertebrates</b>		
Florida tree snail	<i>Liguus fasciatus</i>	SC
<b>Plants</b>		
Pine-pink orchid	<i>Bletia purpurea</i>	T
Lattace vein fern	<i>Thelypteris reticulata</i>	E
Eatons spikemoss	<i>Selaginella eatonii</i>	E
Wright's flowering fern	<i>Anemia wrightii</i>	E
Tropical fern	<i>Schizaea pennula</i>	E
Mexican vanilla	<i>Vanilla mexicana</i>	E

The complete species list provided in the Corps' correspondence dated May 12<sup>th</sup> and the table of State listed species above concludes the statutory requirements set forth in 50 CFR §402.12(d) of the Act. Please be aware verification of current accuracy of the species list is for a time period not to exceed 90 days as stated in 50 CFR §402.12(e) of the Act. If the Corps does not begin preparation of the biological assessment within 90 days of receipt of (or concurrence with) the species list, then they must verify (formally or informally) with the Service the current accuracy of the species list at the time the preparation of the biological assessment is begun. Further, the Corps shall complete the biological assessment within 180 days after its initiation (receipt of or concurrence with the species list) consistent with 50 CFR §402.12(i) of the Act.

Thank you for your cooperation in the effort to conserve fish and wildlife resources. If you have questions concerning this consultation process, please contact the project biologist Kevin Palmer at 773-469-4280.

Sincerely yours,



for Donald (Bob) Progulske  
Everglades Program Supervisor  
South Florida Ecological Services Office

cc: electronic only  
Corps, Jacksonville, Florida (Barbara Cintron)





DEPARTMENT OF THE ARMY  
JACKSONVILLE DISTRICT CORPS OF ENGINEERS  
701 San Marco Boulevard  
JACKSONVILLE, FLORIDA 32207-8175

REPLY TO  
ATTENTION OF

Planning and Policy Division  
Environmental Branch

Mr. Larry Williams, Field Supervisor  
U.S. Fish and Wildlife Service  
1339 20<sup>th</sup> Street  
Vero Beach, FL 32960

Dear Mr. Williams:

In accordance with provisions of Section 7 of the Endangered Species Act, as amended, the U.S. Army Corps of Engineers (Corps) is hereby re-initiating consultation with the U.S. Fish and Wildlife Service (USFWS) for construction activities under Contract 9 in the southern part of the C-111 South Dade Canal system. The reason for re-initiating is a delay in preparation of design plans for Contract 9. The initial 90 days allowed to complete consultation pursuant to the Service's June 4, 2015 concurrence on species to be evaluated has expired. We expect to provide an updated scope for Contract 9 actions within the next 60 days, and want to verify that the list of Federal and State species remains the same.

The Corps is preparing an Environmental Assessment (EA) to evaluate construction alternatives. This EA is expected to begin public coordination in late 2015. The location of the C-111 Canal Contract 9 actions has not changed, nor have the dual purposes of the C-111 Project (habitat improvement and seepage reduction)

Pursuant to the Endangered Species Act, as amended, the Corps is requesting written confirmation of species or their critical habitat either listed or proposed for listing that may be present within the referenced project area within 30 days upon receipt of this letter. The Corps has tentatively determined, and you have concurred, that the following federally threatened and endangered species and State listed species (Tables 1 and 2) may be present within the project area.

If you have any questions concerning the project, please contact Ms. Barbara Cintron by email [barbara.b.cintron@usace.army.mil](mailto:barbara.b.cintron@usace.army.mil) or by telephone 904-232-1692. Thank you for your assistance in this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "Eric P. Summa", written over a printed name and title.

Eric P. Summa  
Chief, Environmental Branch

Enclosure

Copy Furnished:

Kevin Palmer, U.S. Fish & Wildlife Service, South Florida Ecological Services Office,  
1339 20<sup>th</sup> Street, Vero Beach, Florida 32960-3559

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CESAJ-PD-ES/LoSchiavo   
CESAJ-PD-E/Summa



# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
South Florida Ecological Services Office  
1339 20<sup>th</sup> Street  
Vero Beach, Florida 32960

October 29, 2015

Eric Summa  
Chief, Environmental Branch  
U.S. Army Corps of Engineers  
Post Office Box 4970  
Jacksonville, Florida 32232

Service Federal Activity Code: 41420-2009-FA-0385  
Date Received: September 23, 2015  
Project: C-111 South Dade; Contract 9  
County: Miami-Dade

Dear Mr. Summa:

The U.S. Fish and Wildlife Service (Service) has reviewed the U.S. Army Corps of Engineers' (Corps) letter received on September 23, 2015, requesting reconfirmation of federally-listed species or their designated critical habitat and candidate species for listing that may be present within the Contract 9 portion of the C-111 South Dade Canal system project. The Service previously confirmed the species list was accurate and current by letter dated June 4, 2015; however, there was a delay in preparation of design plans for the project. Several changes have occurred since. The 'species list' is a National Environmental Policy Act (42 U.S. Code (U.S.C) § 4321) requirement for the environmental analysis. This species list is also provided in accordance with the Endangered Species Act of 1973, as amended (Act) (87 Stat. 884; 16 U.S.C. 1531 *et seq.*). The project area lies entirely within Miami-Dade County.

## Project Description

This phase of the C-111 South Dade Canal project will mainly consist of construction activities associated with plugging the L-31 West Borrow Canal (L-31 W) and minor berm removal from S-174 southward to the Frog Pond Detention Area. Although impacts associated with this project may primarily be related to construction only, it is possible manipulation of the water control infrastructure in this area could impact surrounding hydrology. The purpose of plugging and other actions is to inhibit seepage out of Everglades National Park via the L-31 West Borrow Canal, while maintaining the flood mitigation capability of the C-111 canal system in agricultural lands to the east. Related but separate proposed actions might include:

1. Degrading 250 to 500 linear feet of the 1,850-foot long, high head weir in the northern end of the Frog Pond Detention Area. Some of the degraded material will be used to dress the side slopes for the remaining weir while the remainder of fill will be stored for borrow canal backfill;

2. Filling an existing 2,000-foot reach of L-31 W along the old "Frog Pond" (now part of the Southern Detention Area (SDA)) that was previously degraded to ground level during the 2002 Cape Sable seaside sparrow emergency deviation and replacing the gap with an overflow weir, allowing better water control;
3. Backfilling approximately 950 feet of remnant L-31 W located between S-174 and the eastern levee of the SDA;
4. Constructing a 250 to 300-foot berm along the east-west borrow canal, east of the L-31 W canal terminus;
5. Modifications to one or both weirs at the S-360 structure, depending upon expected hydrologic effects; and
6. Removing or abandoning in place the following structures that are no longer functional: S-174 gated spillway, S-332 pump station, and S-175 gated spillway.

The Corps is preparing an Environmental Assessment (EA) to evaluate construction alternatives. This EA is expected to begin public coordination in late 2015. The location of the C-111 Canal Contract 9 actions has not changed, nor have the dual purposes of the C-111 Project stated by the Corps as habitat improvement and seepage reduction.

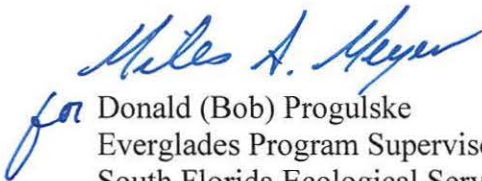
### **Threatened and Endangered Species**

No additional species have been added or removed from the Federal list for this project, however, the status of several species and their critical habitat has changed (Table 1). No changes to the State-listed species table are necessary at this time. Please incorporate the changes in Table 1 into your table featured in your September 2015 letter.

The complete species list provided in the Corps' correspondence dated September 2015, amended with the changes summarized above and the table of State-listed species concludes the statutory requirements set forth in 50 CFR §402.12(d) of the Act. As you are aware, verification of current accuracy of the species list is for a time period not to exceed 90 days as stated in 50 CFR §402.12(e) of the Act. If the Corps does not begin preparation of the biological assessment within 90 days of receipt of (or concurrence with) the species list, then they must verify (formally or informally) with the Service the current accuracy of the species list at the time the preparation of the biological assessment is begun. Further, the Corps shall complete the biological assessment within 180 days after its initiation (receipt of or concurrence with the species list) consistent with 50 CFR §402.12(i) of the Act.

Thank you for your cooperation in the effort to conserve fish and wildlife resources. If you have questions concerning this consultation process, please contact the project biologist Kevin Palmer at 773-469-4280.

Sincerely yours,

  
for Donald (Bob) Progulske  
Everglades Program Supervisor  
South Florida Ecological Services Office

cc: electronic only  
Corps, Jacksonville, Florida (Barbara Cintron)

**Table 1.** Summary table of changes in Status to the Federally Threatened and Endangered Species which may be found within the C-111 South Dade project area. These are changes to species listed in the complete table which can be found in the Corps' correspondence letter from September 2015.

Common Name	Scientific Name	Status
<b>Invertebrates</b>		
Bartram's hairstreak butterfly	<i>Strymon acis bartrami</i>	E
Florida leafwing	<i>Anaea troglodyta</i>	E
<b>Plants</b>		
Big pine partridge pea	<i>Chamaecrista lineata</i> var. <i>keyensis</i>	Pr E
Blodgett's silverbush	<i>Argythamnia blodgettii</i>	Pr T
Carter's small-flowered flax	<i>Linum carteri</i> var. <i>carteri</i>	E, CH
Florida brickell-bush	<i>Brickellia mosieri</i>	E, CH
Florida bristle fern	<i>Trichomanes punctatum</i> spp. <i>floridanum</i>	E
Sand flax	<i>Linum arenicola</i>	Pr E

E=Endangered; T=Threatened; CH=Critical Habitat; Pr E=Proposed Endangered; Pr T=Proposed Threatened