



United States Department of the Interior



FISH AND WILDLIFE SERVICE
South Florida Ecological Services Office
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April 7, 2006

Stuart J. Appelbaum
Chief, Planning Division
U.S. Army Corps of Engineers
Post Office Box 4970
Jacksonville, Florida 32232-0019

Attention: Mike Dupes

Service Log No.: 4-1-06-I-8749
Corps Application No.: SAJ-2005-7528 (IP-TKW)
Date Received: March 9, 2006
Applicant: South Florida Water Management District
County: Broward

Dear Mr. Appelbaum:

This letter responds to your request dated March 6, 2006, for concurrence under section 7 of the Endangered Species Act of 1973, as amended (Act) (87 Stat. 884; 16 U.S.C. 1531 *et seq.*). Your letter cited that excerpts from the draft Project Implementation Report/Environmental Impact Statement (PIR/EIS) prepared by the U.S. Army Corps of Engineers (Corps) for the Broward County Water Preserve Area (BCWPA) Project would constitute the biological assessment (BA) for potential effects to endangered species as a result of the project. In a letter dated March 9, 2006, the Corps' Regulatory Division advised that the draft PIR/EIS, BA, and effects determination letter provided by the Planning Division will also serve as the section 7 initiation package for the BCWPA South Florida Water Management District's (District) Acceler8 project. Thus, this letter serves as a response for concurrence to the Corps' Planning Division, as well as the Regulatory Division providing the features are the same in both the Acceler8 and Corps designs. The Fish and Wildlife Service (Service) has reviewed the information presented.

PROJECT DESCRIPTION

The proposed BCWPA Project is a component of the Comprehensive Everglades Restoration Plan (CERP) and is one of the initially authorized CERP projects identified in legislation that was approved by Congress in the Water Resources Development Act of 2000 (Public Law 106-541). The project includes construction of the C-9 and C-11 Impoundments, and the Water Conservation Area (WCA) 3A/3B Levee Seepage Management Area (SMA) (Figure 1). The primary purpose of the project is to divert and store runoff from the developed area of western Broward County that is currently discharged into WCA 3A through the



S-9 pump station and to retain natural system water that is seeping from the Everglades into the developed area.

The C-9 Impoundment encompasses approximately 1,739 acres, consisting primarily of a 1,650-acre 4-foot deep above-ground impoundment and associated structures. In addition to a perimeter levee, elements of this feature include an inflow pump station, a gated ogee spillway, three gated culverts, one ungated culvert, two fixed weirs, an emergency overflow spillway, and perimeter seepage control canals.

The C-11 Impoundment encompasses approximately 1,695 acres, consisting primarily of a 1,490-acre 4-foot deep above-ground impoundment and associated structures. In addition to a perimeter levee, elements of this feature include an inflow pump station, a gated ogee spillway, three gated culverts, one ungated culvert, two fixed weirs, an emergency overflow spillway, and perimeter seepage control canals. The design for this feature also includes additional levees to protect and manage water levels in two adjacent wetland mitigation areas totaling approximately 205 acres that will be affected by project implementation.

The WCA 3A/3B Levee SMA consists of 4,312 acres of short hydroperiod wetlands that have been invaded with exotic vegetation consisting primarily of melaleuca (*Melaleuca quinquenervia*) and Brazilian pepper (*Schinus terebinthifolius*). The feature includes levees and water control structures located adjacent to WCA 3. The purpose of this feature is to reduce seepage from WCA 3 and improve hydropatterns within WCA 3 by allowing higher water levels in the borrow canals and maintaining longer duration inundation within the marsh areas located between the eastern boundary of WCA 3 and U.S Highway 27.

Existing Site Conditions

Lands within the study area of the BCWPA Project consist of a mosaic of short and long hydroperiod wetlands, agricultural and pasturelands, forested and non-forested uplands, and developed areas. Many project components incorporate historical peripheral Everglades wetlands; however, much of the native vegetation has been altered or eliminated by land conversion, altered hydrology, nutrient inputs, and spread of non-native or invasive species that has resulted from a century of water management.

The C-11 Impoundment contains mixed wetland communities with the majority of the area (52 percent) consisting of “unimproved pasture” or sawgrass (*Cladium jamaicense*) with a melaleuca infestation. Much of the area of unimproved pasture has been impacted by overdrainage and has been invaded by shrub species. Approximately 12 percent of the project area is improved pasture with numerous wetland species such as pickerelweed (*Pontederia cordata*), duck potato (*Sagittaria latifolia*), and arrowhead (*Sagittaria zutifozia*). Approximately 5 percent of the improved pasture is part of an abandoned tree nursery, which consists of 50 to 70 percent undesirable non-wetland grassy species. There are also two active tree nurseries with a ground cover of 70 to 75 percent Bahia grass (*Bahia* spp.).

The C-9 Impoundment contains mixed wetland communities with the majority of the area (68 percent) consisting of improved pasture. Approximately 15 percent is composed of melaleuca and wax myrtle (*Myrica cerifera*) with less than 10 percent sawgrass. Much of the remaining area (12 percent) is a freshwater marsh prairie complex. This vegetative assembly is primarily composed of maidencane (*Panicum hemitomon*), spikerush (*Eleocharis cellulosa*), primrose willow (*Ludwigia peruviana*), saltbush (*Baccharis halimifolia*), dog fennel (*Eupatorium capillifolium*), duck potato, torpedo grass (*Panicum repens*), and broomsedge (*Andropogon virginicus*).

The WCA 3A and 3B Levee SMA contains mixed wetland communities with much of the area (35 percent) consisting of sawgrass marsh community. Species intermixed with sawgrass include melaleuca, Brazilian pepper, ficus (*Ficus* spp.), pond apple seedlings (*Annona glabra*), maidencane, spikerush, primrose willow, beak rush (*Rhynchospora tracyi*), water dropwort (*Oxypolis filiformis*), and mermaid weed (*Proserpinaca palustris*). More than a third of the WCA 3B Levee SMA consists of freshwater marsh prairie complex. Species include sawgrass, maidencane, spikerush, primrose willow, saltbush, dog fennel, swamp fern (*Blechnum serrulatum*), duck potato, torpedo grass, and broomsedge. Other marsh communities are comprised of sawgrass with cattail (*Typha domingensis*), maidencane, primrose willow, beak rush, mermaid weed, arrowhead, and pickerelweed. A direct connection to the C-11 canal has led to dryer conditions in the northern part of the WCA 3B Levee SMA. As a result, a large portion (approximately 30 percent) of the area has a dense coverage (greater than 90 percent) of melaleuca.

WCA 3 encompasses approximately 600,000 acres of the central portion of the remaining Everglades, with approximately 86 percent consisting of freshwater marsh communities. Freshwater marshes are moderate to long hydroperiod wetlands normally dominated by sawgrass. Fourteen plant species have been associated with this community, including spikerush, cattail, and swamp lily (Gunderson and Loftus 1993). Open-water areas called sloughs alternate with sawgrass ridges to form a landscape mosaic that provides a variety of microhabitats that support a diverse group of wildlife species (Ogden 1999).

The central Everglades, which evolved as a nutrient-limiting (oligotrophic) wetland ecosystem, has received excess inputs of nutrients, especially phosphorus, over the last 50 years as a result of water management practices (Davis 1990). Subsequent ecological impacts have been well documented. Excess nutrient supply near input sources has facilitated a shift from a marsh community dominated by sawgrass to one that favors cattails (Davis 1990; Doren et al. 1996). These cattail-dominated communities provide little native habitat value (Kushlan 1990; Wood and Tanner 1990; Gunderson 1994). Backpumping of stormwater and agricultural runoff at S-9 has resulted in cattails replacing sawgrass as the dominant plant species in portions of eastern WCA 3. As distance from the nutrient input source increases, sawgrass again becomes the dominant species. Other common marsh species found in association with sawgrass include spikerush, water hyssop (*Bacopa caroliniana*), mermaid weed, and morning glory (*Ipomoea sagittata*) (Gunderson 1994).

Wildlife species that may use the area include wading birds and waterbirds, including anhinga (*Anhinga anhinga*), limpkin (*Aramus guarana*), great blue heron (*Ardea herodias*), great egret (*Ardea alba*), tricolored heron (*Ardea tricolor*), white ibis (*Eudocimus albus*), and green heron (*Butorides striatus*), as well as other non-wading birds. Amphibians such as green tree frogs (*Hyla cinerea*), squirrel tree frogs (*H. squirella*), pig frogs (*Rana grylio*), southern leopard frogs (*R. utricularia*), legless sirens (*Siren lacertina*), and amphiuma salamanders (*Amphiuma means*) are also likely inhabitants of areas that remain wet for most of the year. Other herpetofauna including the swamp snake (*Seminatrix* spp.), water snake (*Nerodia* spp.), cottonmouth (*Agkistrodon piscivorus*), red bellied turtle (*Pseudemys nelsonii*), and mud turtle (*Kinosternon subrubrum*) may be present.

Small mammals such as raccoons (*Procyon lotor*), opossums (*Didelphis virginianus*), hispid cotton rat (*Sigmodon hispidis*), and old field mouse (*Peromyscus* spp.) may be found on both native and disturbed sites. Other mammal species may be important prey items for listed species or provide recreational opportunities for residents through hunting and wildlife viewing. In addition, species like the white-tailed deer (*Odocoileus virginianus*) are abundant in south Florida and could be found at the project site. River otter (*Lutra canadensis*) may also use the site due to its proximity to WCA 3.

THREATENED AND ENDANGERED SPECIES

The Corps has determined that the proposed project “may affect, but is not likely to adversely affect” the endangered West Indian manatee (*Trichechus manatus*), the endangered Florida panther (*Puma concolor coryi*), endangered Everglade snail kite (*Rostrhamus sociabilis plumbeus*), endangered wood stork (*Mycteria americana*), threatened bald eagle (*Haliaeetus leucocephalus*), and threatened eastern indigo snake (*Drymarchon corais couperi*). The Service has reviewed our Geographic Information System (GIS) database for recorded locations of federally listed threatened and endangered species, and critical habitats on or adjacent to the site specified in Broward County. The GIS database is a compilation of data received from several sources. The Service conducted site inspections but surveys were not performed to verify species occurrence or validate the GIS results.

West Indian manatee

Manatees have been documented within the C-11, C-9, and C-6 canals and have been observed as far west as the L-33 and L-35 levee along the eastern boundary of WCA 3 (Figure 2). The BCWPA Project has structures that could be hazardous to manatees during operations. Manatees are known to reach and be killed or injured at inland water control structures. According to the draft PIR/EIS Section 2.2.2.1.9, barriers will be located in the primary canals listed below, which will restrict manatees from areas where gated structures are to be constructed.

1. Barrier east of new structure S-511 in C-9 Canal
2. Barrier east of new structure S-515 in C-6 Canal

In addition, the Florida Fish and Wildlife Conservation Commission's (FWC) *Standard Manatee Conditions for In-Water Work* (FWC 2005) will be followed in order to reduce potential construction-related effects to the species. Further guidance for structure design and manatee conservation is being developed by a multi-agency team. The Corps has determined that the project "may affect, but is not likely to adversely affect" the West Indian manatee. The Service concurs with this determination.

Florida panther

The proposed project site is located outside the Florida panther consultation area identified in the Service's *Final Interim Standard Local Operating Procedures for Endangered Species for the Florida Panther* (Service 2000) (Figure 3) and the CERP Landscape Level Project Planning Siting Map for Panther Conservation (Service 2004) (Figure 4). The Florida panther is presently only found in Florida and occupies most of the counties in central and south Florida. The survival of the Florida panther is dependent on protection and enhancement of the extant population, associated habitats, and prey resources in south Florida. The Florida panther is known to exist throughout WCA 3, which is within the affected project area of the BCWPA. Although telemetry data have not shown panthers to be using the project footprint area, panthers utilize WCA 3 canals, levees and tree islands. Implementation of the BCWPA Project should improve the quality of tree island habitat within WCA 3, thus, it may benefit habitat used by panthers. The Corps has determined that this project "may affect, but is not likely to adversely affect" the Florida panther. The Service concurs with this determination.

Wood stork

Our records indicate the project occurs within the core foraging areas (CFA) (18.6 miles) of four active nesting colonies (1995 to 2004) of the endangered wood stork (Figure 5). Thus, by altering the hydroperiods of existing wetlands and maintaining water levels above the optimal feeding depth of 15 inches (Coulter and Bryan 1993) for extended periods of time, the project will result in the loss of 2,695 acres (1,189 acres within the C-11 Impoundment and 1,506 acres within the C-9 Impoundment). Project actions within the WCA 3A and 3B Levee SMA would increase wood stork foraging habitat with the removal of 1,043 acres of melaleuca and the recovery of sawgrass in those impacted areas. Actions that would allow for the periodic dry-down of areas within the C-11 and C-9 may limit the effect and subsequent loss of foraging areas available to wood storks. Dry-downs are especially important during peak nesting season (January and July) when reduced travel time between feeding and nesting sites is important to chick survival (Kahl 1964). To maximize the water quality benefits for the project, water will not be drawn down lower than a 1/2-foot depth in both impoundments. This will provide additional foraging opportunities and reduce frequency of dry-outs that may mobilize contaminants. Wood storks may find foraging opportunities along the edges of canals, deepwater fish refugia areas, and around the perimeter of the C-11 and C-9 Impoundments.

To minimize adverse effects to wood storks, the Service's *Habitat Management Guidelines for the Wood Stork in the Southeast Region* (Ogden 1990) would be consulted during project planning design and construction. The Corps has determined that the project "may affect, but is not likely to adversely affect" the wood stork. The Service concurs with this determination.

Everglade snail kite

The proposed BCWPA Project is located adjacent to WCA 3, portions of which are federally designated critical habitat for the Everglade snail kite (Figure 6). No known nesting locations are documented in proximity to the C-9 or C-11 Impoundments. However, snail kites will forage where appropriate perching habitat and apple snails (*Pomacea paludosa*) are found. Apple snails are more common in wet prairies that include emergent vegetation such as *Rhynchospora* spp. and *Eleocharis* spp. than in adjacent sloughs with sparse, floating and submerged vegetation such as *Utricularia* spp. and *Nymphaea* sp. (Darby 2003). Everglade snail kite use of the project footprint is not documented and construction of 4-foot deep impoundments would not likely provide habitat. However, littoral shelves associated with seepage canals may provide habitat for apple snails with recruitment of desirable vegetation. Approximately 30,090 feet (5.7 miles) of littoral shelves will be constructed and experience fluctuating water depths ranging from 0.5 to 2.0 feet. The shelves will be 30-feet wide. In addition, the removal of 1,043 acres of melaleuca trees in the WCA 3 Levee SMA may provide an opportunity for native plant recruitment and the potential to provide habitat suitable for apple snails.

Habitat for the Everglade snail kite in WCA 3 is expected to improve as a result of decreased backpumping of stormwater and retention of natural system water through decreased seepage. A decrease in the rate of expansion of cattails will provide habitat that would be lost in the future without project. The Corps has determined that this project "may affect, but is not likely to adversely affect" the Everglade snail kite and its critical habitat. The Service concurs with this determination.

Bald eagle

No known bald eagle nest locations are present in the vicinity of the proposed project. The closest nest is approximately 25 miles to the west of the proposed project which is beyond the primary (750 to 1,500 feet) and secondary (750 feet to 1 mile) management zones (Service 1987). Eagles are opportunistic feeders, but in southern Florida the bulk of their diet is fish. The construction of the C-11 and C-9 Impoundments may provide new foraging opportunities for eagles. Approximately 1,490 acres of bald eagle foraging habitat, with water levels fluctuating up to a depth of 4-feet, will be provided by the C-11 and 1,800 acres will be provided by the C-9 Impoundments. This habitat will only be available to eagles if water levels are kept at a depth sufficient to sustain populations of large fish and other prey items (e.g., turtles, fish).

Eagles, especially juveniles, perch on power lines and towers, particularly if these structures provide the highest vantage points in the area (Avian Power Line Interaction Committee [APLIC] 1996). If power lines are constructed near open water, the *Suggested Practices for Raptor Protection on Powerlines: The State of the Art in 1996* (APLIC 1996) will be consulted for recommended measures to protect eagles from electrocutions. The guidelines within the *Habitat Management Guidelines for the Bald Eagle in the Southeast Region* (Service 1987) will be implemented to ensure effects of human-related activities on bald eagles are insignificant and discountable. The Corps has determined that this project “may affect, but is not likely to adversely affect” the bald eagle. The Service concurs with this determination.

Eastern indigo snake

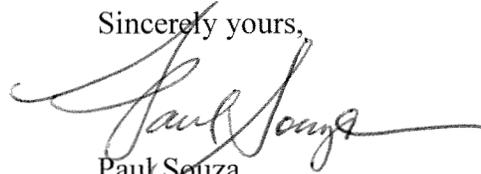
The loss of eastern indigo snake habitat to residential and commercial development is the main threat to the species. Eastern indigo snakes are frequently associated with high, dry, well-drained soils and have been documented using gopher tortoise (*Gopherus polyphemus*) burrows. However, the eastern indigo snake frequents several habitat types, including pine flatwoods, scrubby flatwoods, high pine, dry prairie, tropical hardwood hammocks, edges of freshwater marshes, agricultural fields, coastal dunes, and human-altered habitats (Service 1999). No known surveys exist for the project area; however, based on the snake’s ability to utilize a variety of altered and unaltered habitats, it can be assumed that the snake uses habitat within the project area. The conversion of mixed upland and wetland habitats to 4-foot deep impoundments may result in the loss of approximately 3,622 acres of potential indigo snake habitat (1,772 acres within the C-11 Impoundment and 1,850 acres within the C-9 Impoundment). A total of 79,400 feet (191 acres) of new levees and windbreaks will be constructed for the C-9 and C-11 Impoundments. A total of 72,720 feet (175 acres) of new levees will be constructed in association with the WCA 3 Levee SMA. These newly constructed areas will provide foraging and resting habitat for indigo snakes. In addition, approximately 11 acres of vegetated upland habitat will be created in the C-9 and C-11 Impoundments to mimic tree islands.

To minimize potential adverse effects to the Eastern indigo snake, the Service’s *Draft Standard Protection Measures for the Eastern Indigo Snake* (Service 2002) will be implemented during construction. The Corps has determined that this project “may affect, but is not likely to adversely affect” the eastern indigo snake. The Service concurs with this determination.

This letter fulfills the requirements of section 7 of the Act and no further action is required. If modifications are made to the project, if additional information involving potential effects to listed species becomes available, or if a new species is listed, reinitiation of consultation may be necessary.

The cooperation of your staff and the staff of the local sponsor, the District, is greatly appreciated. Please contact Liberta Scotto at 772-562-3909, extension 312, if you have any questions regarding this letter.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Paul Souza", with a long horizontal flourish extending to the right.

Paul Souza
Acting Field Supervisor
South Florida Ecological Services Office

cc:

Broward County (Environmental Protection Department), Ft. Lauderdale, Florida (Patti Webster,
Dr. Jennifer Jurado, Kent Edwards)
Corps, Jacksonville, Florida (Mike Dupes, Cynthia Irvin, Mike Rogalski)
Corps, West Palm Beach, Florida (Tori White)
District, Acceler8 Office, West Palm Beach, Florida (Millie Radzikhovsky)
District, West Palm Beach, Florida (Jeff Needle, Juan Diaz-Carreras)
DEP, West Palm Beach, Florida (Dianne Crigger)
EPA, West Palm Beach, Florida (Ron Miedema)
FWC, Tallahassee, Florida (MaryAnn Poole)
FWC, Vero Beach, Florida (Joe Walsh)
Service, Jacksonville, Florida (Miles Meyer)
Service, Atlanta, Georgia (Jerry Vits)

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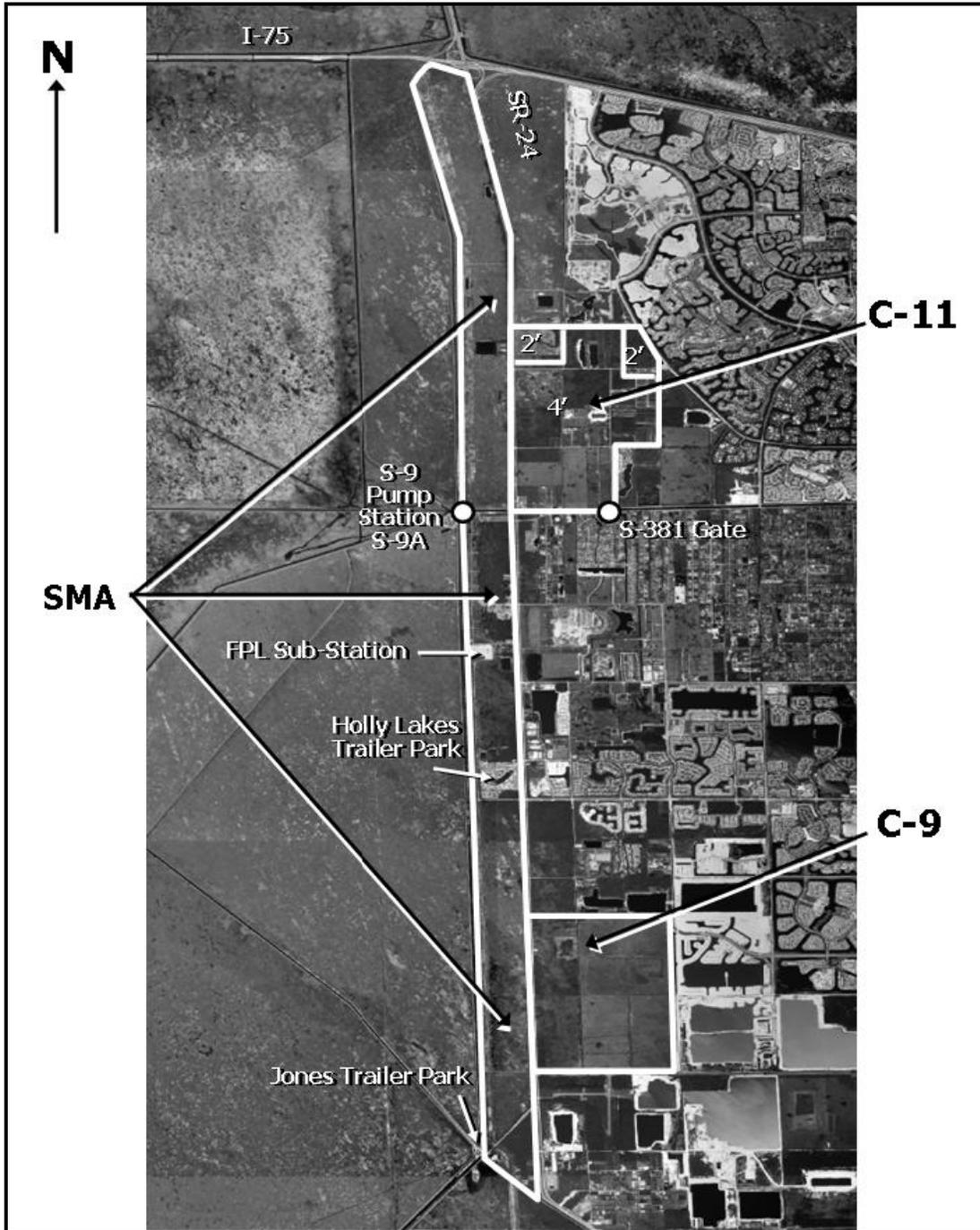


Figure 1. Broward County Water Preserve Area features.

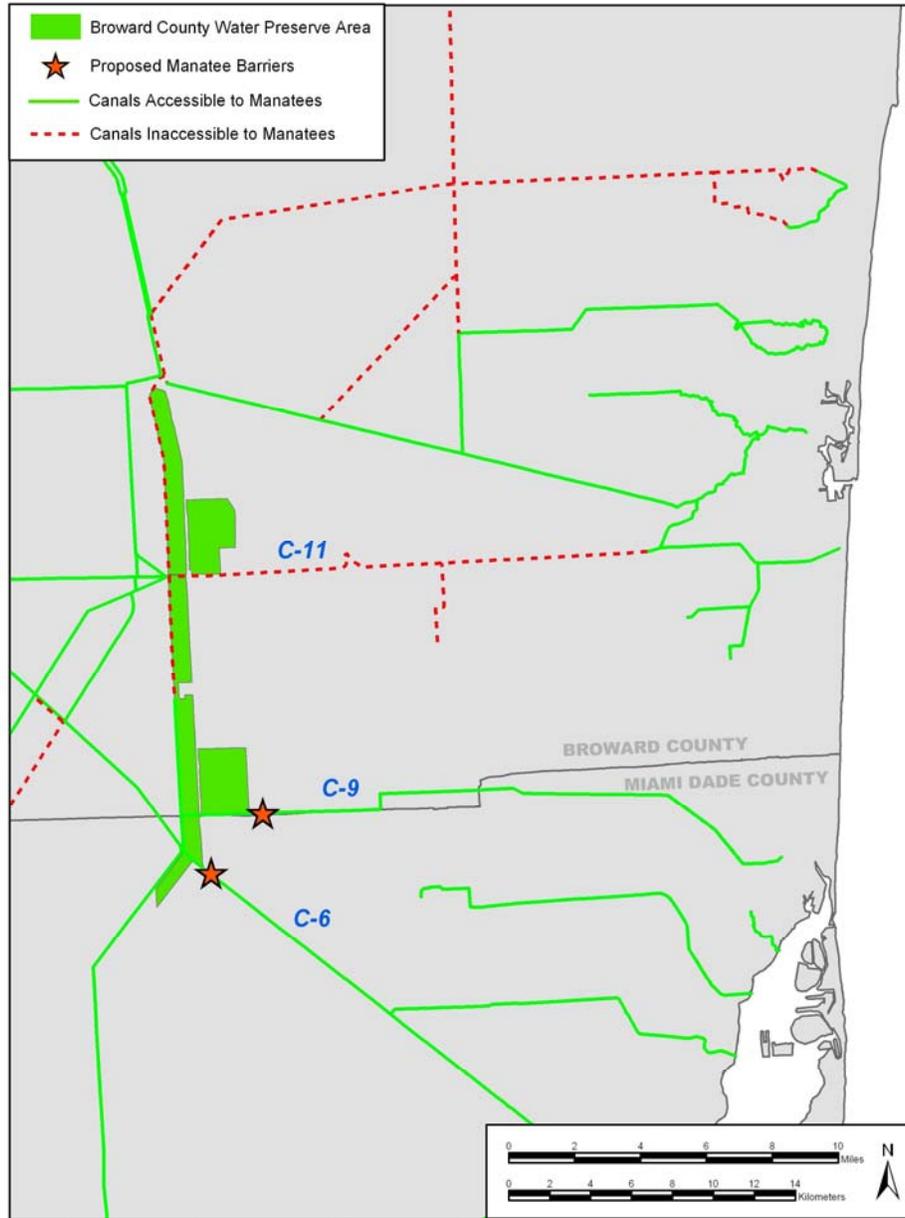


Figure 2. Location of project canals accessible to manatee and proposed manatee barriers.

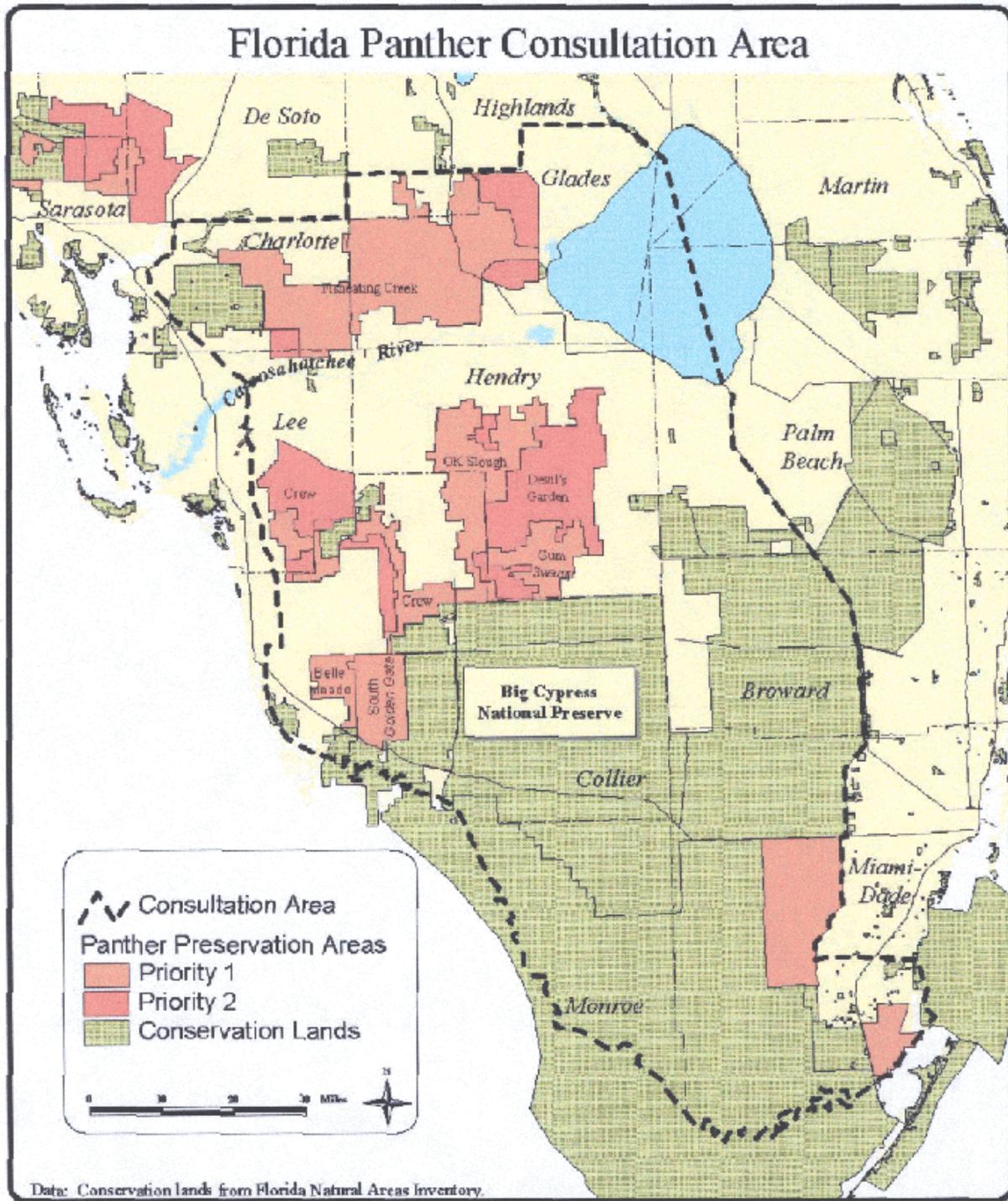


Figure 3. Florida panther consultation area (Service 2000).

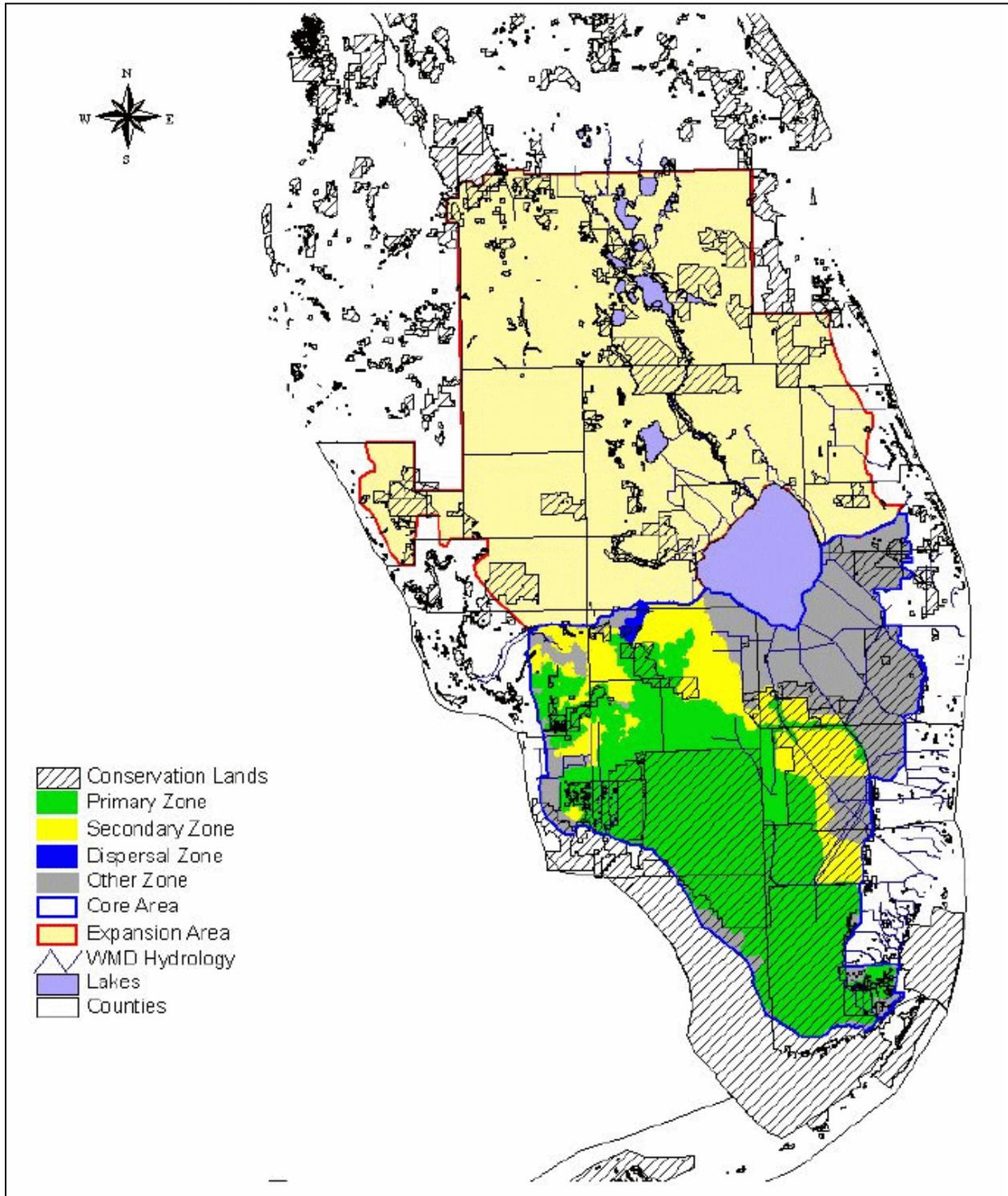


Figure 4. Comprehensive Everglades Restoration Plan Landscape Level Project Planning/Siting Map for Panther Conservation.

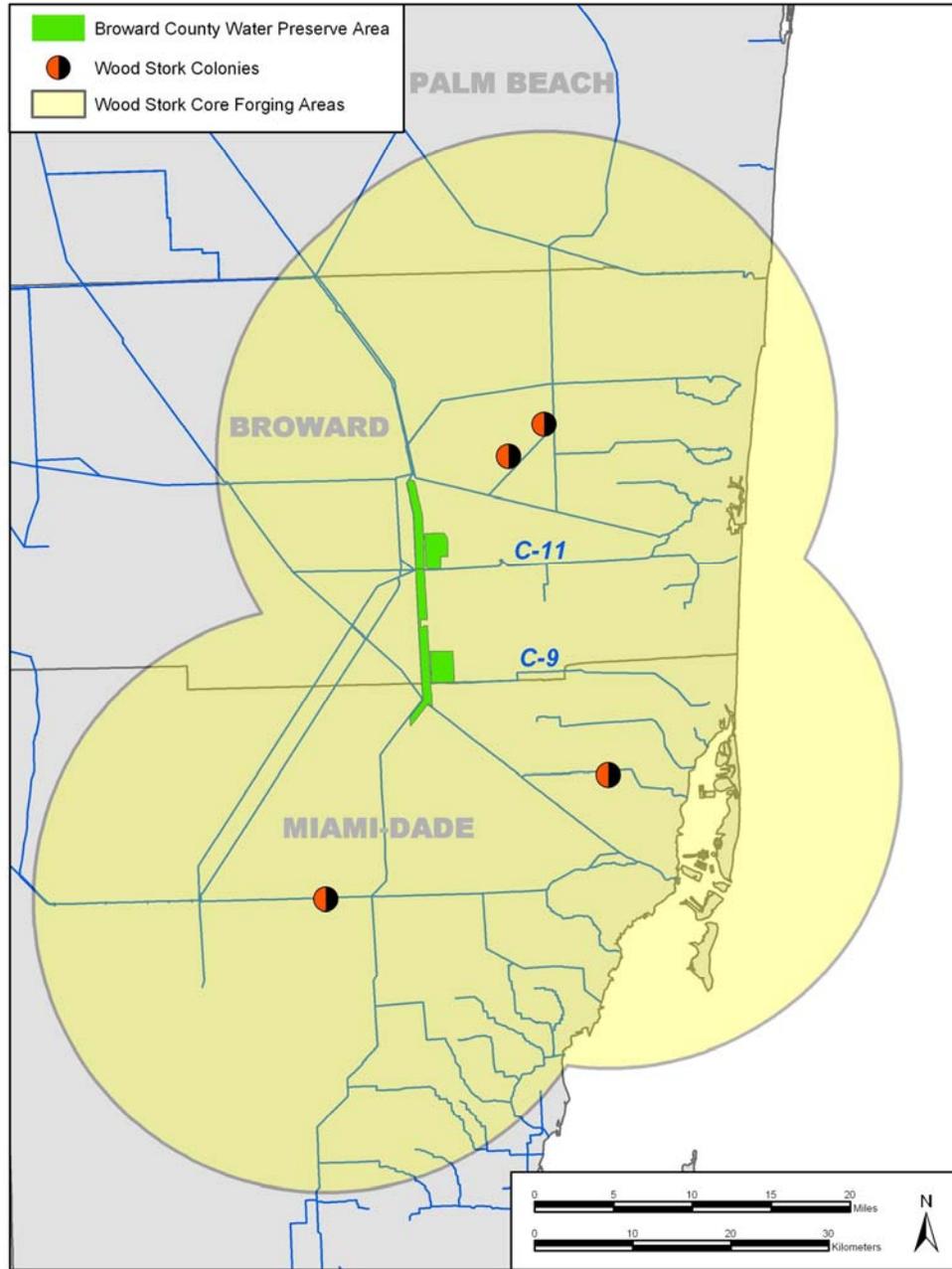


Figure 5. Wood stork CFAs associated with the BCWAP project.

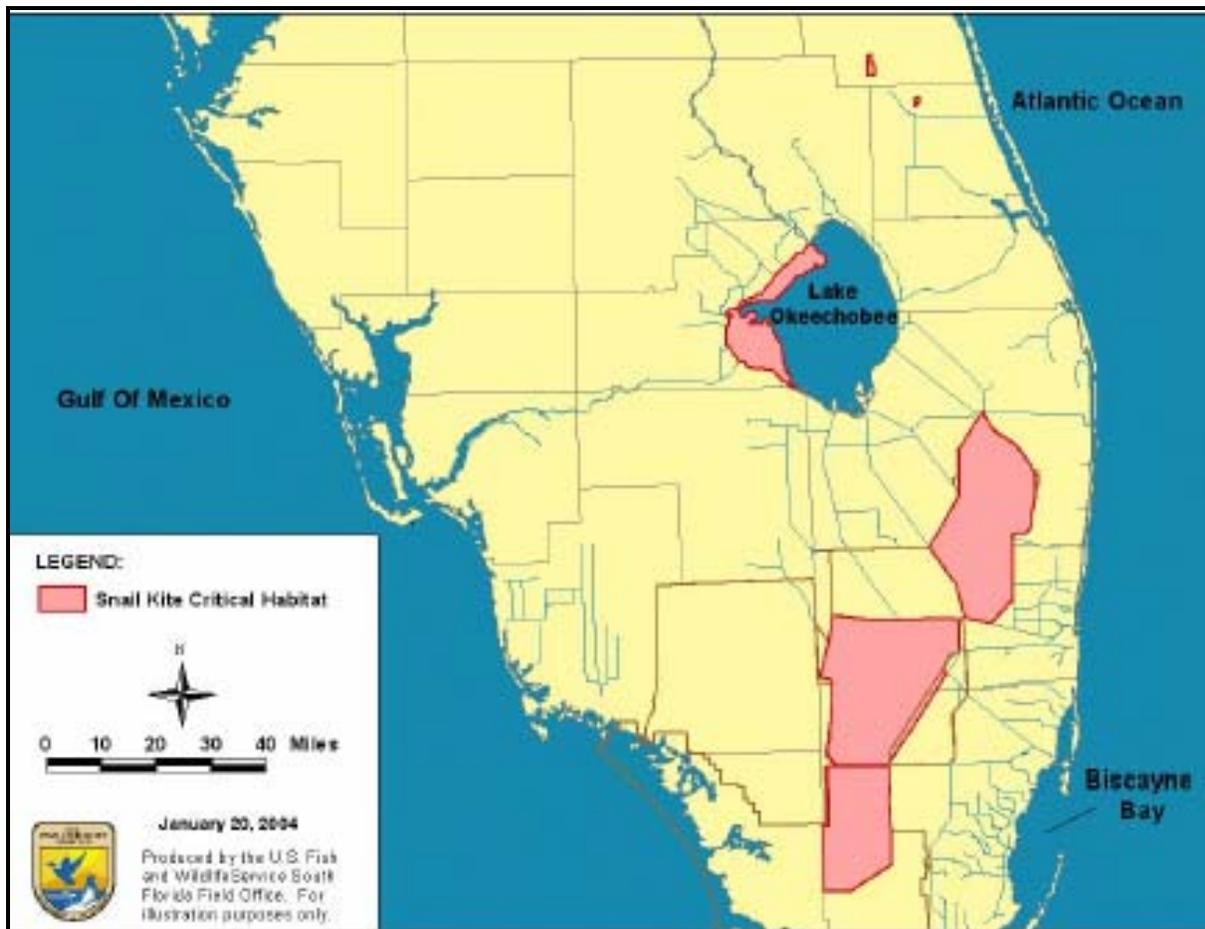


Figure 6. Everglade snail kite designated critical habitat.