Draft Supplemental Environmental Assessment for the Land Exchange between the State of Florida and ARTHUR R. MARSHALL LOXAHATCHEE NATIONAL WILDLIFE REFUGE PALM BEACH COUNTY, FLORIDA

Palm Beach, Broward, and Miami-Dade Counties, Florida

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Southeast Region
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CHAPTER 1. Purpose and Need

1.1 Background

In 2015, the U.S. Fish and Wildlife Service (USFWS) proposed the exchange of a USFWS owned property, termed Compartment D, for a State of Florida owned property, termed Strazzulla Marsh (USFWS 2015). Both parcels are adjacent to Water Conservation Area (WCA) 1, the 141,374-acre northern limit of the greater Everglades ecosystem. WCA 1 is managed by the USFWS as the Arthur R. Marshall Loxahatchee National Wildlife Refuge (Refuge) under a License Agreement with the State of Florida (Figure 1). As the environmental assessment conducted as part of the exchange process described, the exchange benefits both parties (USFWS 2015):

- USFWS gains conservation land (Strazzulla Marsh) that represents an important transition zone from cypress forest to sawgrass marsh and contributes to meeting multiple goals and objectives outlined in the Refuge's Comprehensive Conservation Plan (USFWS 2000).
- State of Florida gains an ideal location (Compartment D) to be managed by the South Florida Water Management District (SFWMD) to implement a portion of its Restoration Strategies initiative.

Appraisals revealed that Compartment D is worth $1.35 million and Strazzulla Marsh is worth $2.62 million, resulting in a $1.27 million difference in value between the two properties. The Environmental Assessment did not address how this difference in values would be settled. Subsequently, the parties developed an exchange agreement that specified that the State of Florida would be credited for the difference in values. That credit could be used to release restrictions on other State-owned properties that were acquired with U.S. Department of Interior grant funding for Everglades restoration purposes. The exchange, which required Congressional review, was rejected by the pertinent Congressional committees because specific grant funded parcels for which the credit would be used were not identified.

The SFWMD has now identified four properties that could be released from applicable restrictions to balance the land exchange. The restrictions which limited the use of the properties to only those in support of Everglades restoration were a condition of the funding provided by the federal government for the purchase of the properties. Appraised values for the tracts are provided in Table 1.

All four parcels were acquired under a federal grant agreement entitled: East Coast Buffer/Water Preserve Area Land Acquisition Grant Number Farm Bill-1.
Table 1. Locations and values of tracts identified for restriction release as part of exchange.

<table>
<thead>
<tr>
<th>Property Name:</th>
<th>Sharon Gardens</th>
<th>Sharon Gardens</th>
<th>Cruz</th>
<th>Dopico</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tract ID:</td>
<td>W9201-129</td>
<td>W9201-105</td>
<td>W9308-241</td>
<td>W9308-248</td>
</tr>
<tr>
<td>County:</td>
<td>Broward</td>
<td>Broward</td>
<td>Miami-Dade</td>
<td>Miami-Dade</td>
</tr>
<tr>
<td>Acreage:</td>
<td>23.41</td>
<td>9.24</td>
<td>10</td>
<td>2.5</td>
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<tr>
<td>Appraised value:</td>
<td>$1,520,000</td>
<td>$650,000</td>
<td>$275,000</td>
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<tr>
<td>Federal share:</td>
<td>$760,000</td>
<td>$325,000</td>
<td>$137,500</td>
<td>$34,500</td>
</tr>
</tbody>
</table>
Figure 1. Land Exchange overview map, showing the Arthur R. Marshall Loxahatchee National Wildlife Refuge, Compartment D, and Strazzulla Marsh.
1.2 Farm Bill-1 / East Coast Buffer

The East Coast Buffer was part of the earliest Everglades restoration planning, which recognized the need for acquiring undeveloped lands east of the protective levees to better manage water in the Everglades without affecting the communities to the east (SFWMD 2013). The Area was planned as a string of impoundments and restored wetlands that act as a buffer between the Everglades and urban areas and would be managed to benefit both. Farm Bill-1 provided federal funds to the SFWMD to match state funds for the acquisition of land within the East Coast Buffer region in Palm Beach, Broward and Miami Dade Counties (Figure 2). This “buffer” is located immediately east of the present Everglades ecosystem (Water Conservation Areas 1, 2 and 3 as well as Everglades National Park) and includes areas that were contemplated to become part of a future authorized U.S. Army Corps of Engineers Everglades restoration projects. The East Coast Buffer is subdivided into multiple units, three that are influenced by the land exchange as proposed (Figure 2). The “Strazzulla Wetlands” unit includes the parcel of land the USFWS would receive (Figures 1, 2). The “Broward County Water Preserve Areas” unit includes the two Sharon Gardens parcels (Figures 2, 3). The “Bird Drive” unit includes the Cruz and Dopico parcels (Figure 2, 4).

Several Everglades restoration projects were planned for the East Coast Buffer. The four properties the SFWMD proposes releasing from grant restrictions are associated with two such projects. The Sharon Gardens parcels were purchased to support the “Broward County Water Preserve Areas” project but ultimately fell outside the footprint of the federally authorized project. The Cruz and Dopico parcels were purchased for the “Bird Drive Recharge Area” project, which was eventually deemed infeasible by a multi-agency project delivery team led by the U.S. Army Corps of Engineers and SFWMD.

Farm Bill-1 recognized that the properties acquired might not be used for an Everglades restoration project. In such circumstances, Farm Bill-1 allowed that the SFWMD may:

1. Retain and use the property for other restoration purposes deemed suitable by the Department of the Interior (Interior).
2. Retain and use the property for purposes other than the restoration of the Everglades ecosystem after compensating Interior for 50% of the fair market value of the property.
3. Dispose of the property after compensating Interior for 50% of the fair market value of the property.

Through this proposed exchange, SFWMD is implementing both options two and three. The SFWMD would therefore compensate Interior for 50% of the fair market value of the properties. The SFWMD proposes that the 50% value would be applied to the Compartment D / Strazzulla Exchange.

Loxahatchee National Wildlife Refuge Land Exchange with SFWMD
Figure 2. East Coast Buffer Area as depicted in the South Florida Water Management District’s Land Assessment Fee-Simple Lands 2013.
Figure 3. Location of Sharon Gardens Tracts within Broward County Water Preserve Area.
Figure 4. Location of Cruz and Dopico Tracts within Bird Drive Recharge Area
1.3 Scope of Analysis

This supplemental environmental assessment evaluates the removal of restrictions that limit the use of the four properties purchased pursuant to federal grant agreement Farm Bill-1 (Table 1). SFWMD proposed to compensate Interior for the removal of these restrictions by applying the proceeds to the exchange of Compartment D for the Strazzulla Marsh to equalize the transaction. The effects of changed ownership at both Compartment D and Strazzulla Marsh are evaluated in the 2015 Environmental Assessment, which is incorporated herein.
CHAPTER 2. Alternatives

2.1 Revised Alternative A: No Action- Current Land Ownership

Under Alternative A, no land exchange would occur, and the current land ownership and management would continue with Compartment D owned by the USFWS and Strazzulla Marsh owned by the State of Florida. Restriction on the Sharon Gardens, Cruz and Dopico parcels would remain, and those properties could only be used for the purpose of Everglades restoration projects.

2.2 Alternative B: Former Proposed Action – Exchange Compartment D for Strazzulla Marsh

The former proposed action is the land exchange between the State of Florida and the Service conveying in fee-title the 1,327-acre Compartment D parcel to the State of Florida to be managed by the SFWMD and receiving in fee-title the 2,586-acre Strazzulla Marsh parcel from SFWMD to be managed by the Refuge. (For full discussion of Alternative B as the proposed alternative see the Final Environmental Assessment; Land Exchange with the State of Florida for Arthur R. Marshall Loxahatchee National Wildlife Refuge, Palm Beach County, Florida, USFWS 2015).


The new proposed action would equalize the values of properties transferred in the land exchange, a need realized subsequent to the original environmental assessment for the exchange (USFWS 2015). The Service would convey in fee-title the 1,327-acre Compartment D parcel to the State of Florida to be managed by the SFWMD, and remove the encumbrance and federal nexus from the Sharon Gardens, Cruz, and Dopico parcels, acquired with Federal Agriculture Improvement and Reform Act of 1996 funds. In exchange, the State of Florida would convey in fee-title the 2,586-acre Strazzulla Marsh parcel to the Service to be managed as part of the Refuge.
CHAPTER 3. Affected Environment

For full descriptions of Compartment D and the Strazzulla Marsh, refer to the Final Environmental Assessment: Land Exchange with the State of Florida for Arthur R. Marshall Loxahatchee National Wildlife Refuge, Palm Beach County, Florida (USFWS 2015). The following sections supplement that work through the descriptions of the Sharon Gardens, Cruz, and Dopico parcels.

3.1 Physical Environment

Sharon Gardens 1 and 2

The SFWMD conducted an Ecological Assessment of the Sharon Gardens tracts in 2014 (SFWMD 2014). In that assessment, a thorough on-site analysis of the habitat, wildlife and hydrology was conducted. Excerpts from that document are provided below and the assessment is incorporated by reference into this Environmental Assessment.

Location

The Sharon Gardens tracts are located in Broward County south of the C-11 canal and east of U.S. Highway 27. Initially intended to be part of the Broward County Water Preserve Area the tracts ultimately were not included in this boundary. The property is undeveloped; however, adjacent uses include roadways, a cemetery, and canals (SFWMD 2014).

Topography

A SFWMD assessment of the site described elevations as “typical of wetlands within this region of Broward County” (SFWMD 2014). Some higher elevation areas were associated with a right-of-way along the C-11 canal. Discreet areas of disturbance within the tracts also created variations in micro-topography.

Hydrology

The SFWMD 2014 assessment of the Sharon Gardens tracts noted that they are historic wetlands that have generally degraded over time. The areas demonstrate effects from modifications in regional hydrology and exhibit hydrologic differences based on distance from the C-11 drainage canal. The assessment, which occurred from January to April, reports the water table to be within a foot of the ground surface. Winter typically being the dry period of the year in this region, it was recognized that areas of saturation and inundation would be expected during a typical rainy season.

Cruz and Dopico

The SFWMD assessed the Cruz and Dopico tracts in July of 2011 (Peekstok 2011). That assessment and a subsequent memo from the SFWMD summarizing the findings are incorporated by reference to this assessment and excerpts from the report are quoted herein.
Location
The two parcels are part of the Bird Drive Natural Resource project area, contained within the Bird Drive Everglades Basin. The Area has a total of 1,058 acres of numerous, disjunct tracts. Both Cruz, referenced in the SFWMD report by code W9308-241, and Dopico, referenced by code W9308-248, are located in the central section of the Bird Drive Natural Resource project area Section 18, Township 54 and Range 39 (Taylor 2017). Cruz tract is 10 acres in size and Dopico is 2.5 acres (Figure 4, Table 1).

Topography
The Bird Drive Everglades Basin (BDEB), a 12.5 square mile stretch of freshwater wetlands in southwestern Miami-Dade County, is characterized by a myriad of uses including agriculture, residential development, and unaltered wetlands. Cruz and Dopico tracts make up part of the unaltered wetlands in the basin (Peekstok 2011).

“Moist soils in the BDEB are highly organic and were formed when long periods of flooding were common. All of the soils in the BDEB are underlain at shallow depths by the calcareous bedrock of the Miami ridge and the shallow trough underlying the Everglades. Soils are deepest in the northwest portion of the BDEB and become shallower towards the south and east.” (Peekstok 2011).

Hydrology
The following statements from the SFWMD assessment characterize the hydrology of the parcels as an element of the larger BDEB.

“The majority of the physically unaltered wetlands support short hydroperiod wetlands which are the most biologically diverse of the Everglades wetland communities.” “Most land in the BDEB floods between one and five months of the year.” “All of the parcels surplus parcels (sic) reviewed are wetlands pursuant to Rule 62-340, Florida Administrative Code.” (Peekstok 2011).

3.2 Biological Environment
Sharon Gardens 1 and 2.

Vegetation
The Sharon Gardens tracts are categorized as Freshwater Forested/Shrub Wetlands according to the U.S. Fish and Wildlife Service National Wetland Inventory (Appendix B, Figure 7). Historically, the area was part of a large freshwater sawgrass marsh community that have been altered through time by canals, roadways, and other types of development and land use. The resulting wetland functions that the two sites provide are now minimal (SFWMD 2014).

Recently, the Sharon Gardens tracts were described by the SFWMD thus,

“The general area was formerly a solid mass of melaleuca that requires periodic intensive retreatments in order to prevent the harmful plants from re-establishing” (SFWMD 2013).
Cruz and Dopico

Vegetation

The BDEB vegetative makeup is primarily muhly grass prairie with tree islands made up of hardwoods and shrubs scattered throughout. Prairie grass species include muhly grass, sawgrass, and wiregrass. Native hardwoods include bay trees and dahoon holly and predominant shrubs are wax myrtle.

The natural features on this site have been significantly degraded due to invasive species infestation and off-road vehicle use (SFWMD 2013). “A considerable portion of the BDEB has been encroached by the exotic melaleuca.” (Peekstok 2011).

Wildlife

Peekstok (2011) did not do an inventory of wildlife species located on the tracts of interest. However, a list of potential species based on wildlife found in the area includes (Threatened and Endangered species indicated by *):
• bobcat (*Lynx rufus*)
• cotton rat (*Sigmodon hispidus*)
• white-tailed deer (*Odocoileus virginianus*)
• raccoon (*Procyon lotor*), marsh rabbit (*Sylvilagus palustris*)
• red-winged blackbird (*Agelaius phoeniceus*)
• killdeer (*Charadrius vociferous*)
• red-tailed hawk (*Buteo jamaicensis*)
• warblers (*Sylvia sp.* and *Scopoli sp.*)
• cricket frog (*Acris gryllus dorsalis*)
• cottonmouth snake (*Agkistrodon piscivorus*)
• southern black racer (*Coluber constrictor Priapus*)
• ring-necked snake (*Diadophis punctatus*)
• yellow rat snake (*Pantherophis alleghaniensis*)
• African rock python (*Python sebae*)
• Southern chorus frog (*Pseudacris nigrita*)
• *Everglade snail kite* (*Rostrhamus sociabilis plumbeus*)
• *wood stork* (*Mycteria Americana*)
• *Florida bonneted bat* (*Eumops floridanus*)
• *Florida panther* (*Puma [=Felis] concolor coryi*)
• *eastern indigo snake* (*Drymarchon corais couperi*)

3.3 Socio-economic Environment

3.3.1 Demographics

A general description of the demographics of south Florida was included in the Final Environmental Assessment (USFWS 2015). Like the Strazzulla Marsh, the four parcels that would be utilized to equalize the proposed land exchange are located between the highly developed portions of Miami-Dade and Broward Counties and the remaining Everglades ecosystem.

3.3.2 Recreation Use

**Sharon Gardens 1 and 2**

The two Sharon Gardens tracts and the Cruz and Dopico tracts have been in State ownership with Federal restrictions as described previously since purchase. No economic activities have been supported on or in association with these properties. There are currently no developed public use facilities on the site (SFWMD 2013).

Griffin Road separates the two Sharon Gardens tracts but no roads enter into either tract. There is residential development adjacent to and east of parcel W9201-129. U.S. Highway 29 runs along the west side of this parcel. Parcel W9201-105 is bordered on the north by the C-11 canal and on the south by Griffin Road.
There are no commercial enterprises based on or dependent on these two parcels.

**Cruz and Dopico**

Hundreds of small parcels characterize the Bird Drive Natural Resource project area. A Comprehensive Everglades Restoration Plan component, it was intended to catch extra seepage coming off the re-hydrated Shark River Slough to the west. Because of the configuration of ownership, there are currently no public use facilities within these two parcels (SFWMD 2013).

### 3.4 Cultural and Historic Resources

The Sharon Garden, Cruz, and Dopico Tracts were once part of the larger Everglades system dominated primarily by sawgrass prairies, sloughs, and scattered tree islands. Beginning in the late 19th century, construction of a network of canals, levees, and roads substantially altered the area’s hydrology leading to a shortened hydroperiod and lowered ground water levels. The introduction of invasive exotic species, such as Melaleuca, Brazilian pepper, and Australian pine has crowded out flora once heavily exploited by prior populations (Richter, Myers, and Fanning 1990).

A review of the Florida Master Site Files did not reveal any recorded historic properties on the four tracts, though a number of archaeological sites, historic structures, and historic landscape features have been identified in the general vicinity. A number of archaeological and historic investigations have occurred in the area; the most relevant ones are listed in Table 2.
Table 2. Archaeological and historic investigations occurring in the East Coast Buffer Area and the Bird Drive Everglades Basin.

<table>
<thead>
<tr>
<th>Author</th>
<th>Date</th>
<th>Title</th>
<th>Pertinent Tract(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Robert S. Carr, Willard S. Steele, and Jorge Zamanillo</td>
<td>1994</td>
<td>A Phase I Archaeological Survey and Assessment of the Florida Wetlandsbank Parcel, Broward County, Florida.</td>
<td>Sharon Gardens 1 &amp; 2</td>
</tr>
<tr>
<td>Robert S. Carr, Willard S. Steele, and Anne McCudden</td>
<td>1996</td>
<td>An Archaeological Survey and Assessment of the Gulfstream Parcel, Broward County, Florida</td>
<td>Sharon Gardens 1 &amp; 2</td>
</tr>
<tr>
<td>Gary N. Beiter</td>
<td>1998</td>
<td>An Archaeological Survey of the Portland Plant Property, Section 24, 25, Township 54S, Range 38E, Dade County, Florida.</td>
<td>Cruz and Dopico</td>
</tr>
<tr>
<td>Gary N. Beiter</td>
<td>2001</td>
<td>Salvage and Excavation of Bamboo Mound (8DA94), Dade County, Florida: A Multi-Component Site</td>
<td>Cruz and Dopico</td>
</tr>
<tr>
<td>Gary N. Beiter</td>
<td>2003</td>
<td>Excavations at Refugee Island (8DA2102), Miami-Dade County, Florida</td>
<td>Cruz and Dopico</td>
</tr>
<tr>
<td>Janus Research, Inc.</td>
<td>2004</td>
<td>Cultural Resource Assessment for the Coral Lakes Development, Miami-Dade County.</td>
<td>Cruz and Dopico</td>
</tr>
<tr>
<td>John G. Beriault, Jeff Ranson, Mark Lance, Alison Elgart-Berry</td>
<td>2002</td>
<td>An Archaeological Assessment of the West Kendall Parcel, Miami-Dade County, Florida</td>
<td>Cruz and Dopico</td>
</tr>
<tr>
<td>Ryan Franklin, Joseph F. Mankowski, and John G. Beriault</td>
<td>2008</td>
<td>A Phase III Cultural Resource Assessment of 8DA1081 within the SW 157 Avenue Right-of-Way, Miami-Dade County, Florida.</td>
<td>Cruz and Dopico</td>
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<tr>
<td>Robert S. Carr, John G. Beriault, Mark Lance, and Jeff Ransom</td>
<td>2001</td>
<td>An Archaeological Survey of the Miami Polo Club Parcel, Miami-Dade County, Florida</td>
<td>Cruz and Dopico</td>
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<tr>
<td>Matthew C. Godfrey and Theodore Catton</td>
<td>2011</td>
<td>River of Interests: Water Management in South Florida and the Everglades, 1948-2010</td>
<td>All</td>
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<tr>
<td>D.D. Laxson</td>
<td>1970</td>
<td>Seven Sawgrass Middens in Dade and Broward Counties, Florida</td>
<td>All</td>
</tr>
<tr>
<td>Patsy West</td>
<td>1989</td>
<td>Seminole Indian Settlements at Pine Island, Broward County, Florida: An Overview</td>
<td>All</td>
</tr>
</tbody>
</table>
Throughout the Everglades, tree islands appeared to possess a moderate to high archaeological potential (Carr 2002; Carr, Steele, Zamaillo, Davis, and Daniels 1985; Schwadron 2009; and Schwadron and Russo 2006). Three types of tree islands occur in the Everglades – fixed, strand, and pop-up or battery. Each of the island types possess slightly different formational processes influenced by the underlying geological formation, thickness and type of peat, hydrological levels and flow patterns, and fire frequency (Brandt 1997; Sklar and Valk 2002; Stone, Gleason, and Chmura 2002).

Strand islands are elongated and tapered at both ends. Such islands lack the north-south zonation characteristic of fixed tree islands and instead have relatively uniform vegetative cover. The central part of strand islands is flooded for short periods during the year. The vegetative cover is dominated by dahoon holly (*Ilex cassine*), red bay (*Persea borbonia*), and ferns, i.e. *Achrostichum danaeifolium*. The margins are covered by a mixture of woody shrubs [primarily wax myrtle] and aquatic plants (Brandt et. al. 2002; Stone et. Al. 2002; Willard 2004; Willard, et. al. 2006).

Fixed tree islands are tear-shaped and develop over topographic highs in the underlying limestone. Semitropical hardwoods, upland plants that cannot tolerate prolonged flooding, and many ferns often cover the island heads. The portion of the island’s tail located just downstream from the head is vegetated with dense ferns, shrubs, aquatic plants, and semitropical hardwoods tolerant of limited flooding. Vegetation on the far end of the tail consists of flood-tolerant ferns, shrubs, sedges, and other marsh plants. A transitional zone of dense shrubs, ferns, and aquatic plants surrounds these islands (Willard 2004). Such islands possess a moderate to high archaeological potential (Carr 2002; Schwadron 2006 and 2009; Schwadron and Russo 2006). On willow bayheads, Schwadron and Russo (2006) identified cultural occupations (Fig. 29). These islands, which are located in the Shark River Slough, are currently inundated. Willow bayheads tend to form in lower, wetter elevations that have been disturbed. These are a good indicator of active alligator holes or a former bayhead that had been completely destroyed by fire, particularly if the fire had burned the peat soil and reduced the island’s elevation (Lodge 2005; Carr 2002). Despite being lower in elevation and inundated, willow bayheads appeared to have retained the teardrop shape characteristic of fixed tree islands.

Carr (2002) noted that Melaleuca does not readily colonize black earth middens even when inundated. Melaleuca, though restricted to southern Florida, thrives in a number of habitat types, including saw grass marshes, pine flatwoods, and cypress swamps, particularly those that have been partially drained. The tree can form dense stands that exclude native plants (Lodge 2005). Melaleuca is not an indicator of archaeological sites. More reliable indicators of black earth middens appear to be species, such as cabbage palm (*Sabal palmetto*), gumbo limbo (*Bursera simaruba* (L) Sw.), and Brazilian pepper (*Schinus terebinthifolius*).

To ascertain whether intact or relict tree islands were present on the four “equalization” tracts, the historic topographic maps and aerial photographs were examined. The General Land Office surveys did not cover any of the tracts, which seem to indicate that these areas were either in the “Everglades” or expanses of sawgrass prairies. Nash’s 1930 map of permanent Seminole
camps did not depict any camps in this part of south Florida. The nearest permanent camps were Willie Jim's located west of the four tracts and deep in the Everglades and Seminole Agency at Dania, which is north and east of the Sharon Gardens Tracts. The General Land Office's 1926 map depicts two "Seminole" or Indian Reservations, one south of the South New River Canal and Dania, the other north of the canal and including Pine Island.

**Sharon Gardens 1 & 2**

The earliest aerial photograph of this area is dated 1947. It shows the tracts as undeveloped, though the northern and western peripheries have been impacted by the New South River Canal [BD4153] and U.S. Highway 27. Tree islands are not present. By 1954, the sawgrass marsh had been ditched for conversion to agricultural fields. The 1980 aerial photograph shows the tracts as abandoned agricultural fields crisscrossed by ATV trails. Menorah Gardens, a cemetery, is located on the tracts’ eastern margin. The current alignment of Griffin Road [BD4432], which separates the two parcels, appears on the 1994 aerial. The topographic sheets, which date to 1963, 1969, 1983, and 2012, reconfirm this sequence. The 2005 aerial photograph and 2012 topographic sheet depict the extent of the development immediately adjacent and east of the Sharon Gardens parcels (Figure 5).

The Sharon Gardens parcels possess a very low archaeological potential due to the lack of tree islands, extensive hydrological and landscape alterations associated with the development of the drainage canal system and conversion of the sawgrass marsh to agricultural lands.
Figure 5. 2005 aerial of the Sharon Gardens Tracts and surrounding landscape.

Cruz and Dopico Tracts

The Cruz and Dopico Tracts are located in the Bird Drive Natural Resource project area. Richter, Myers, and Fanning (1990) mapped these tracts as muhly prairie and/or prairie with Melaleuca. The earliest available map is the 1947 South Miami NW topographic sheet, which show this area as sawgrass marsh. The 1955 topographic sheet, as well as the 1963 aerial photograph, depicts a number of tree islands exhibiting a southwest-northeast orientation. Two nearby archaeological sites – DA1551 and DA1852 – are located on the northeast end of tree islands. No tree islands are present on either the Cruz or Dopico Tracts (Figure 6). The 2016 aerial depicts a very odd landscape pattern for the two tracts reminiscent of degraded depressional wetlands rather than a relict or degraded tree islands (Figure 7).
The Cruz and Dopico Tracts possess a low archaeological potential due to the lack of tree islands, very poorly drained mucky soil, and extensive sawgrass wetlands that once dominated this area. Melaleuca dominates what appear to be dense stands of trees, which as Carr (2002) noted do not readily colonize black earth midden sites.

A more detailed cultural resource assessment is being prepared as part of the National Historic Preservation Act’s Section 106 compliance process for this undertaking. It will be submitted when available to the Florida Division of Historic Resources and the Tribal Historic Preservation Offices of the Seminole Tribe of Florida, the Miccosukee Indian Tribe of Florida, the Seminole Nation of Oklahoma, the Muscogee (Creek) Nation of Oklahoma, and the Poarch Band of Creeks.

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Figure 7. 2016 aerial photograph showing the circular pattern indicating a depressional wetland.
CHAPTER 4. Environmental Consequences

This chapter describes the foreseeable environmental consequences of removing restrictions on two Sharon Gardens land parcels located in the Broward County Water Preserve Area (W9201-129 and W9201-105) and two tracts located in the Bird Drive Natural Resource project area (W9308-248 and W9308-241). These parcels have been included in the land exchange between the USFWS and the SFWMD in order to achieve equitable value in the exchange. Alternative C of this assessment describes the inclusion of the four parcels to Alternative B as described in the initial Environmental Assessment for the land exchange (USFWS 2015).

When detailed information is available, a scientific and analytic comparison between alternatives and their anticipated consequences is presented, which is described as "impacts" or "effects." When detailed information is not available, those comparisons are based on the professional judgment and experience of Refuge staff and USFWS and State biologists.

4.1 Physical Consequences

The restrictions that currently exist on the properties in question require the properties to be used for Everglades restoration. The SFWMD has determined that the parcels are no longer needed for that purpose though future intended uses have not been determined.

The four parcels are ecologically isolated and relatively small in comparison to the Strazzulla Marsh, which would be received in the exchange. The tracts are not adjacent to the Refuge and their value as habitat pursuant to the purposes for which the Refuge was established was not a consideration in acquisition.

Any future changes to the use of the properties by the SFWMD, or any other owner, physical would require separate assessments and reviews as required by law and based on the specific details of the proposed changes. The USFWS, the public, and other entities would provide comment on any specific plans for the parcels at that time.

4.1.1 Impacts to Physical Environment

Removing the restrictions from the Sharon Gardens, Dopico, and Cruz tracts does not inherently cause a change in the physical environment of those properties. Thus, Alternative C would have similar minimal impacts on the physical environment, including hydrology, water quality, and air quality as those anticipated for Alternatives A and B described in the initial Environmental Assessment for the Land Exchange (USFWS 2015).

4.1.2 Impacts to Refuge Facilities

There are no Refuge or federal facilities on the tracts of land proposed for exchange therefore no impacts anticipated.

4.2 Biological Consequences

There are no immediate biological consequences to the Sharon Gardens, Cruz, or Dopico tracts from removing the restrictions currently on them. Possible, future changes to the properties
while in exclusive ownership of the SFWMD, or any other future owner, would require separate analysis at that time and cannot be analyzed as part of this assessment.

4.2.1 Impacts to Vegetation and Habitat

Removing restrictions on Sharon Gardens and Cruz and Dopico tracts does not necessarily cause a change to vegetation within those properties. Removing the restrictions does not necessitate a change in use of the land. Thus, Alternative C would have minimal impacts on localized vegetation, soil, water, or wildlife habitat.

SFWMD assessment of the Sharon Gardens and Cruz and Dopico tracts reveal significant presence of exotic plant species including black olive, Australian pine and Melalueca (SFWMD 2013, Peekstok 2011). The Strazzulla Marsh property has been treated for removal of exotic vegetation beginning in 1997 and covering 433 acres (USFWS 2015). The spread of exotic or nonnative species represents one of the most serious threats to biodiversity nationwide, undermining the ecological integrity of native habitats and pushing rare species to the edge of extinction. Often, introduced species lack predators for control or simply outcompete native species. Once established, many exotic species are virtually impossible to eradicate. They have been implicated in the decline of nearly half of the imperiled species in the United States (Defenders of Wildlife 2006).

Exchanging the Sharon Gardens, Cruz and Dopico tracts for the Strazzulla Marsh will result in better wildlife habitat for USFWS trust species. Reduced presence of exotic vegetative species and greater habitat connectivity through larger, contiguous land will provide greater benefits to wildlife.

4.2.2 Impacts to Wildlife

Removing restrictions to the tracts included in the exchange does not change the potential for wildlife to occur there. The property will continue to be owned by the SFWMD who may choose to change activities or use of the properties in the future. However, the SFWMD has not proposed such a change at this time and therefore removal of restrictions in and of itself will not cause impacts to wildlife on the properties.

Incorporating Strazzulla Marsh into the Refuge in exchange for Compartment D and these four disjunct parcels of land will create a more connected and larger area for wildlife to occupy. Coupled with the advantage of greater control over the proliferation of exotic plant species, acquiring Strazzulla Marsh in exchange for the Sharon Gardens, Cruz and Dopico properties will provide larger and better quality habitat for trust resources.

4.2.3 Impacts to Threatened and Endangered Species

None of the proposed alternatives inherently induce a change to wildlife or habitat in general, or to Threatened and Endangered species in particular. Thus, each alternative would have similar minimal impact on Threatened and Endangered species.

A Section 7 Evaluation was conducted in association with this Environmental Assessment (see Appendix B). It states that “…No impacts to Threatened or Endangered species are expected for several reasons including degraded habitat quality and no land use change inherent in the
proposed action.” It was determined that the proposed alternative was not likely to adversely affect Threatened or Endangered species (including Everglade snail kite, wood stork, Florida panther, eastern indigo snake, or Florida bonneted bat).

The Section 7 Evaluation further states: “In addition, when appropriate, the U.S. Fish and Wildlife Service commits to requiring the use of conservation guidelines for the Everglade snail kite, the wood stork, the Florida panther, the eastern indigo snake, and the Florida bonneted bat in any future consultation under Section 7 of the Endangered Species Act for projects that may be proposed in the Compartment D land parcel after the land exchange is completed.”

4.3 Socioeconomic Consequences

4.3.1 Impacts on Environmental Justice

President Bill Clinton signed Executive Order 12898 “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations” on February 11, 1994, to focus Federal attention on the environmental and human health conditions of minority and low-income populations with the goal of achieving environmental protection for all communities. The Order directed Federal agencies to develop environmental justice strategies to aid in identifying and addressing disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. The Order is also intended to promote nondiscrimination in Federal programs substantially affecting human health and the environment, and to provide minority and low-income communities with access to public information and participation in matters relating to human health or the environment.

This assessment has not identified any adverse or beneficial effects for the removal of restrictions on the Sharon Gardens, Cruz, or Dopico properties unique to minority or low-income populations in the affected area. The removal, like the original alternatives analyzed, will not disproportionately place any adverse environmental economic, social, or health impacts on minority or low-income populations.

4.3.2 Impacts on Public Health and Safety

Removing the restrictions on these properties will not change any activity or infrastructure that serves public health and safety. Therefore, Alternative C is not anticipated to have any impact on human health and safety.

4.3.4 Impacts on Recreation

No recreational opportunities are currently available on any of the properties being considered as part of Alternative C. Removing current restrictions associated with the grant interests will not affect wildlife dependent or any other recreational activity on these properties.

4.4 Cultural Resource Consequences

None of the four parcels included in Alternative C has any known archaeological or historic resources, and removing restrictions from these parcels does not inherently cause disturbance or disruption of the physical conditions of the properties. Both the USFWS and SFWMD are public agencies and are required to protect cultural resources, thus if any cultural resources
were discovered on either property, they would continue to be protected in the public's trust. SFWMD's historic preservation responsibilities are delineated in Chapter 267.061 of the Florida Statutes and the Division of Historical Resources' 2014 *Management Procedures and Guidelines for Archaeological and Historical Sites and Properties on State-owned or Controlled Lands*. In addition, Chapter 872 of the Florida Statutes provides supplementary assurances that sites would be protected.

### 4.5 Cumulative Impacts Analysis

Cumulative impacts on the environment result from incremental effects of a proposed action when these are added to other past, present, and reasonably foreseeable future actions. The USFWS will assess cumulative impacts through a Section 7 Intra-service Biological Evaluation related to this proposal. That decision will be included in the Final EA for this proposed action. While cumulative effects may result from individually minor actions, they may, viewed as a whole, become substantial over time.

As stated in Chapter 2, the new proposed land exchange (Alternative C) would only transfer land ownership. Any future proposed changes to land management of Compartment D, Sharon Gardens, Cruz, Dopico, or Strazzulla Marsh are not included in this action and, thus, are not included in this Environmental Assessment. Any future change in land use would constitute a separate action, for which appropriate assessments and reviews would be required.

In the proposed land exchange (Alternative C), the properties added to the exchange to provide an equitable value to the exchange would retain the physical, biological, socioeconomic, and cultural and historic characteristics of the current environment after the proposed transfer to the State. As such, the cumulative impacts of this action are expected to be minimal.
CHAPTER 5. Consultation and Coordination with Others

The Refuge and the SFWMD have worked together over the past year to identify and assess properties that could be included in a land exchange that would result in an equitable exchange and would provide benefits to the mission and goals of both entities. An exchange of the two initial properties, Compartment D and Strazzulla Marsh, has been discussed for many years starting in 2002. The addition of the four properties identified in this supplemental environmental assessment will serve to make such an exchange equitable and agreeable to both parties. In addition, fellow federal, state, and tribal agencies as well as the affected and interested public will have an opportunity to review and comment on this proposal.

Notification of the opportunity to comment and where to get copies of the Environmental Assessment will be announced to provide the public a chance to review and comment, Similar to the Environmental Assessment of the Land Exchange with the State of Florida for Arthur R. Marshall Loxahatchee National Wildlife Refuge Palm Beach County, Florida.

The USFWS and SFWMD have actively communicated and coordinated regarding the proposed land exchange. Preliminary meetings were held in April and May 2012 to discuss the potential land exchange. A letter from E. Barnett (SFWMD) to S. Pelizza (Refuge) on December 6, 2012 formally initiated the land-exchange process, and ongoing communication and coordination have occurred since that time.

Over the past year, the Refuge has communicated generally about the land exchange at meetings with various stakeholders. Events at which the potential land exchange was mentioned and discussed include the Friends of the A.R.M. Loxahatchee NWR Board meeting, a meeting with Florida Wildlife Commission on hunting operations, and several meetings with select hunters and hunter groups who use the Refuge.
APPENDIX A. REFERENCES


Loxahatchee National Wildlife Refuge Land Exchange with SFWMD


APPENDIX B. INTRA-SERVICE SECTION 7
BIOLOGICAL EVALUATION

REGION 4

INTRA-SERVICE SECTION 7 BIOLOGICAL EVALUATION FORM

Originating Person: Rolf Olson
Telephone Number: (561) 735-6022   Email: Rolf_Olson@fws.gov
Fax Number: (561) 369-7190
Date: October 3, 2017

PROJECT NAME: Exchange of Equalization Parcels between the South Florida Water Management District and the U.S. Fish and Wildlife Service to Supplement the Exchange of the Strazzulla Tract and Compartment D parcels.

I. Service Program:
   ___ Ecological Services
   ___ Federal Aid
       ___Clean Vessel Act
       ___Coastal Wetlands
       ___Endangered Species Section 6
       ___Partners for Fish and Wildlife
       ___Sport Fish Restoration
       ___Wildlife Restoration
   ___Fisheries
   ___X_ Refuges/Wildlife

II. State/Agency: Florida, U.S. Fish and Wildlife Service

III. Station Name: Arthur R. Marshall Loxahatchee National Wildlife Refuge (FF04RFLX00)

Loxahatchee National Wildlife Refuge Land Exchange with SFWMD
IV. Description of Proposed Action:
The purpose of this action is to evaluate the supplementation of a proposed land exchange between the State of Florida and the U.S. Fish and Wildlife Service (USFWS). The original proposal included the exchange of a USFWS owned property, termed Compartment D, for a State of Florida owned property, termed Strazzulla Marsh. Appraisals revealed that Compartment D is worth $1.35 million and Strazzulla Marsh is worth $2.62 million, resulting in a $1.27 million difference in value between the two properties. The parties developed an exchange agreement that specified that the State of Florida would be credited for the difference in values. That credit could be used to release restrictions on other State-owned properties that were acquired with U.S. Department of Interior grant funding for Everglades restoration purposes. The exchange, which required Congressional review, was rejected by the pertinent Congressional committees because specific grant funded parcels for which the credit would be used were not identified.

The new proposed action would equalize the values of properties transferred in the land exchange. The Service would convey in fee-title the 1,327-acre Compartment D parcel to the State of Florida to be managed by the SFWMD, and remove the encumbrance and federal nexus from the Sharon Gardens, Cruz, and Dopico parcels, acquired with Federal Agriculture Improvement and Reform Act of 1996 funds. In exchange, the State of Florida would convey in fee-title the 2,586-acre Strazzulla Marsh parcel to the Service to be managed as part of the Refuge. The Sharon Gardens, Cruz, and Dopico parcels are no longer needed for Everglades restoration.
V. Pertinent Species and Habitat:

A. Location Map

Figure 1. Location of land parcels (Sharon Gardens 1 & 2, Dopico, and Cruz) purchased by the USFWS as part of the East Coast Buffer/Water Preserve Area Land Acquisition Grant for the purpose of Everglades Restoration in relation to the Arthur R. Marshall Loxahatchee National Wildlife Refuge.
Figure 2. Location of Sharon Gardens 1 & 2 parcels.
Figure 3. Location of Dopico and Cruz parcels.
The Sharon Gardens tracts are located just east of Water Conservation Area 3A in Broward County, south of the C-11 canal and east of U.S. Highway 27 (Figure 1 and 2), a heavily trafficked thoroughfare believed to impact the quality of habitat on the sites. Initially intended to be part of the Broward County Water Preserve Area, the tracts ultimately were not included in this boundary. The property is undeveloped; however, the general area was formerly a mass of Melaleuca that requires periodic intensive retreatments in order to prevent harmful plants from reestablishing (SFWMD 2013). Adjacent land uses include roadways, a cemetery, and canals (SFWMD 2014). Soils on the Sharon Gardens tracts are described as Dania muck, a hydric soil, which is characteristic of freshwater marshes that have frequent ponding (SFWMD 2014). These properties are categorized as Freshwater Emergent according to the US Fish and Wildlife Service National Wetland Inventory. Historically, the area was part of large freshwater sawgrass marsh community that has been altered through time by canals, roadways, and other types of development and land use. SFWMD, in a survey conducted on the properties in 2014, documented the presence of raccoon, armadillo, as well as bird species such as cattle egret, northern cardinal, and mourning dove. No federal or state listed wildlife species were located on the property at that time though it was suggested that they could occur on the properties as transients or residents given the available habitat and proximity to nearby wetlands. No nesting, roosting or burrow sites were found, however, wetlands that occur on the properties could serve as foraging sites for wading birds such as herons, ibis, and egrets (SFWMD 2014). However, the resulting wetland functions the two sites provide are now minimal (SFWMD 2014).

The Cruz and Dopico tracts are located south of Tamiami Trail just southeast of Water Conservation Area 3B and east of Everglades National Park (Figure 1 and 3). The SFWMD conducted an assessment of the Cruz and Dopico tracts in July of 2011 (Peekstok 2011). The vegetative community primarily consists of muhly grass prairie with tree islands made up of hardwoods and shrubs scattered throughout. Prairie grass species include muhly grass, sawgrass and wiregrass. Native hardwoods include bay trees and dahoon holly and predominant shrubs are wax myrtle. The natural features on this site have been significantly degraded due to invasive species infestation and off road vehicle use (SFWMD 2013).
B. Complete the following table:

<table>
<thead>
<tr>
<th>SPECIES/CRITICAL HABITAT</th>
<th>STATUS(^1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Everglade Snail Kite (<em>Rostrhamus sociabilis plumbeus</em>)</td>
<td>E/CH</td>
</tr>
<tr>
<td>Wood Stork (<em>Mycteria americana</em>)</td>
<td>E</td>
</tr>
<tr>
<td>Florida Panther (<em>Puma [=Felis] concolor coryi</em>)</td>
<td>E</td>
</tr>
<tr>
<td>Eastern Indigo Snake (<em>Drymarchon corais couperi</em>)</td>
<td>T</td>
</tr>
<tr>
<td>Florida Bonneted Bat (<em>Eumops floridanus</em>)</td>
<td>E</td>
</tr>
</tbody>
</table>

\(^1\)STATUS: E=endangered, T=threatened, PE=proposed endangered, PT=proposed threatened, CH=critical habitat, PCH=proposed critical habitat, C=candidate species.

VI. Location (attach map): See Figures 1, 2, and 3

A. **Ecoregion Number and Name:** All four parcels are close to the shared boundary between Ecoregion 76a – Everglades and 76c - Miami Ridge/Atlantic Coastal Strip. Sharon Gardens 1 & 2 fall within the Miami Ridge/Atlantic Coastal (76c) Ecoregion and the Cruz and Dopico parcels fall within the Everglades Ecoregion (76a).

B. **County and State:** Sharon Gardens 1 & 2 are located within Broward County, FL and the Cruz and Dopico parcels are located within Miami-Dade County, FL.

C. **Section, township, and range (or latitude and longitude):**
Sharon Gardens 1 & 2 are located within Sections 27 and 34, Township T50S R39E (26° 3’37.12”N, 80°25’53.90”W and 26° 3’25.50”N, 80°25’58.40”W). Cruz (25°43’53.11”N, 80°28’6.69”W) and Dopico (25°43’49.54”N, 80°28’13.28”W) parcels are located within Section 18, Township T54S R39E.

D. **Distance (miles) and direction to nearest town:**
Sharon Gardens 1 & 2 are approximately 3.5 miles southwest of Westin, FL. Cruz and Dopico are approximately 2.5 miles from the closest town of Kendall West.
E. **Species/habitat occurrence:**

**Everglade Snail Kite** (*Rostrhamus sociabilis plumbeus*)

Everglade snail kites occur throughout the Everglades footprint and adjacent areas and are typically found in large, freshwater marshes with open water less than 4 feet in depth. Open water without emergent vegetation is required for foraging and nests are usually found 1 – 5 feet above surface water in low trees or shrubs, as well as other vegetation such as cattail or sawgrass. Breeding usually occurs January – August and nest failure can result from drought, structural failure of nests, or predation. This species is highly nomadic and will select nesting sites based on current conditions throughout the region. The proposed project site is located in the Consultation Area, but not in the designated Critical Habitat for this species (USFWS 1999).

**Wood Stork** (*Mycteria americana*)

Historically, before the Everglades ecosystem was modified for water management purposes, wood storks began to nest as early as November. However, wood storks now nest from February to May due to habitat and hydro pattern modifications which have disrupted the natural synchronization between forage availability and energetic requirements of reproductive birds. Wood storks require longer hydroperiod areas for foraging and are extremely susceptible to water level fluctuations. Colonies generally disperse with the onset of summer rains (late May or early June) (USFWS 1990). Wood stork foraging and/or nesting has not been documented in the considered parcels, although they may occur given the habitat and close proximity to adjacent natural area.

**Florida Panther** (*Puma [=Felis] concolor coryi*)

The Florida panther prefers native, upland forests, especially hardwood hammocks and pine flatwoods, over wetlands and disturbed habitats. Historically, the panther occurred throughout the southeastern United States, but today occupies less than 5 percent of its historic range. Habitat loss, degradation, and fragmentation are the most significant threats to the continued survival of the panther throughout its range. In addition, human-related disturbance and mortality (including road kill), disease, genetic problems, intraspecific aggression and contaminants are adversely affecting the panther population. A Panther Focus Area was developed based on the results of panther habitat models south of the Caloosahatchee River (Kautz et al. 2006) and north of the Caloosahatchee River (Thatcher et al. 2006).
The four parcels being considered with the proposed action are at approximately 5 – 10 miles outside (to the east) from the Primary and Secondary Panther Focus Areas and telemetry data have not documented the presence of Florida panthers within the considered parcels.

**Eastern Indigo Snake** (*Drymarchon corais couperi*)

In south Florida, eastern indigo snakes range over large areas and use various habitats throughout the year, with most activity occurring in the summer and fall (Moler 1985a; Smith 1987). Over most of its range, this species frequents habitat types that include tropical hardwood hammocks, edges of freshwater marshes, agricultural fields, and human-altered habitats. Underground refugia used by this species include natural ground holes, hollows at the base of trees or shrubs, ground litter, trash piles, and the crevices of rock-lined ditch walls (Layne and Steiner 1996). Adult males have larger home ranges than adult females and juveniles (Moler 1985a and b). At the Archbold Biological Station located in central Florida, average home range size for males was determined to be 185 acres and females to be 47 acres (Layne and Steiner 1996). The presence of eastern indigo snakes has not been documented in any of the proposed project sites.

**Florida Bonneted Bat** (*Drymarchon corais couperi*)

This species is exceedingly rare and currently occurs in only a few counties within Florida, including Miami-Dade, but not Broward, counties. Relatively little is known about the natural history of Florida bonneted bats and individuals are rarely encountered, although it’s known they primarily prey on insects. Although the habitat associations and natural roost site preferences are not well understood, bats have been documented roosting in native trees such as longleaf pines and cabbage palms, as well as artificial structures like constructed bat houses and under Spanish-style barrel roof tiles. This species is active year round and does not typically hibernate or experience torpor. Florida bonneted bats were detected using acoustical surveys within a few miles of the Cruz and Dopico project sites, but no individuals have been detected within the project footprint (Tim Breen, pers comm.).
**Overall Determination**

The proposed action transfers ownerships of the identified parcels from USFWS/DOI with no change in land use. Therefore, no impacts to threatened or endangered species are expected. Future changes to the properties while in exclusive ownership of the SFWMD, or any other future owner, would require separate analysis at that time and cannot be analyzed as part of this assessment. Additionally, the proposed action will result in the addition of nearly 3,000 acres of wetland habitat to be managed by USFWS for the purpose of supporting Everglades wildlife.

**VII. Determination of Effects:**

A. **Effects of the action on species and critical habitats in item V. B, (attach additional pages as needed):**

<table>
<thead>
<tr>
<th>SPECIES/Critical Habitat</th>
<th>IMPACTS TO SPECIES/Critical Habitat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Everglade Snail Kite (<em>Rostrhamus sociabilis plumbeus</em>)</td>
<td>No effects are anticipated as the result of the proposed change in land ownership. The area in question does not include designated critical habitat for kites, nor does it support large enough densities of apple snails, the sole food of the snail kite, to support snail kite nesting or foraging for extended periods (USFWS 2005). However, a much larger and more intact parcel of land will be managed as a natural area as the result of the proposed action and would be expected to provide enhanced habitat that will be available to benefit Everglade snail kites.</td>
</tr>
<tr>
<td>Wood Stork (<em>Mycteria americana</em>)</td>
<td>No impacts are expected to occur to wood storks as a result of the proposed change in land ownership. While wood storks may occasionally use these areas to forage, no individuals have been documented in these parcels. No land use changes are proposed as part of the proposed action and these areas should remain available to wood storks as current conditions allow. A much larger</td>
</tr>
<tr>
<td>SPECIES/Critical Habitat</td>
<td>Impacts to Species/Critical Habitat</td>
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<tr>
<td>-----------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------</td>
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<tr>
<td>Florida Panther (Puma (=Felis) concolor coryi)</td>
<td>No impacts to panthers are anticipated as a result of the proposed action due to a low probability of panthers occurring in the parcels of interest, the small size of the parcels, and because the current action does not include change in land use patterns. A much larger and more intact parcel of land will be managed as a natural area as the result of the proposed action and would be expected to provide enhanced habitat that will be available with the potential to benefit panthers.</td>
</tr>
<tr>
<td>Eastern Indigo Snake (Drymarchon corais couperi)</td>
<td>No impacts are expected for Eastern indigo snakes as this species prefers upland habitats, has not been observed in the area of the proposed action, and no land use change will result from the proposed change in land ownership. Additionally, a much larger and more intact parcel of land will be managed as a natural area as the result of the proposed action and would be expected to provide enhanced habitat that will be available with the potential to benefit Eastern indigo snakes.</td>
</tr>
<tr>
<td>Florida Bonneted Bat (Eumops floridanus)</td>
<td>No impacts are expected for Florida bonneted bat because this species has not been observed within the project site and no change in land use will result from the proposed action.</td>
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</table>

and more intact parcel of land will be managed as a natural area as the result of the proposed action and would be expected to provide enhanced habitat that will be available with the potential to benefit wood storks.
B. Actions to be implemented to reduce adverse effects:

<table>
<thead>
<tr>
<th>SPECIES/Critical Habitat</th>
<th>Actions to Minimize Adverse Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Everglade Snail Kite <em>(Rostrhamus sociabilis plumbeus)</em></td>
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<tr>
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<td>Florida Bonneted Bat <em>(Eumops floridanus)</em></td>
<td>N/A</td>
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VIII. Effect Determination and Response Requested:

<table>
<thead>
<tr>
<th>SPECIES/Critical Habitat</th>
<th>Determination</th>
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<tbody>
<tr>
<td></td>
<td>NE</td>
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<tr>
<td>Everglade Snail Kite <em>(Rostrhamus sociabilis plumbeus)</em></td>
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</tr>
<tr>
<td>Wood Stork <em>(Mycteria americana)</em></td>
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<td>Florida Panther <em>(Puma [=Felis] concolor coryi)</em></td>
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<td>Florida Bonneted Bat <em>(Eumops floridanus)</em></td>
<td>x</td>
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</tbody>
</table>
DETERMINATION/RESPONSE REQUESTED:

NE = no effect. This determination is appropriate when the proposed action will not directly, indirectly, or cumulatively impact, either positively or negatively, any listed, proposed, candidate species or designated/proposed critical habitat. Response Requested is optional but a "Concurrence" is recommended for a complete Administrative Record.

NA = not likely to adversely affect. This determination is appropriate when the proposed action is not likely to adversely impact any listed, proposed, candidate species or designated/proposed critical habitat or there may be beneficial effects to these resources. Response Requested is a "Concurrence".

AA = likely to adversely affect. This determination is appropriate when the proposed caution is likely to adversely impact any listed, proposed, candidate species or designated/proposed critical habitat. Response Requested for listed species is "Formal Consultation". Response Requested for proposed or candidate species is "Conference".

__________________________  ____________
Signature (originating station)  Date

__________________________
Title
IX. Reviewing Ecological Services Office Evaluation:

A. Concurrence

B. Formal consultation required

C. Conference required

D. Informal conference required

E. Remarks (attach additional pages as needed):

_________________________________________________________________________  ____________
Signature                              Date

_________________________________________________________________________
Title
**X. Literature Cited:**


Moler, P.E. 1985b. Home range and seasonal activity of the eastern indigo snake,


U.S. Fish and Wildlife Service, 2005. Southeast Region Intra-Service Section 7: Grant Agreements FB-1 and LWCF-I Land Exchange of Five Parcels (198.06 Acres) Located within the Lake Belt Mining Zone with Two Parcels (638.9 Acres) Located Within the Biscayne Bay Coastal Wetlands Restoration Project, 11 pages

DRAFT ENVIRONMENTAL ASSESSMENT FOR
the Land Exchange between the State of Florida
And ARTHUR R. MARSHALL LOXAHATCHEE
NATIONAL WILDLIFE REFUGE
PALM BEACH COUNTY, FLORIDA

U.S. Fish and Wildlife Service
Division of Planning and Visitor Services
1875 Century Blvd. NE
Atlanta, GA 30345

PHONE: 404-679-7211

October 2017