

2012

Seminole Tribe of Florida

Environmental Resource Management Department
Seminole Tribe of Florida
6300 Stirling Road
Hollywood, FL 33024



WILDLIFE CONSERVATION PLAN

(TRIBAL COUNCIL APPROVAL DATE: AUGUST 10, 2012)

EXECUTIVE SUMMARY

This wildlife conservation plan reviews all federally recognized threatened and endangered (T&E) species within the Big Cypress, Brighton, and Hollywood Seminole Tribe Reservations. The species listed are the Florida panther, Audubon's northern crested caracara, bald eagle, wood stork, eastern indigo snake and gopher tortoise, everglades snail kite, the red-cockaded woodpecker, and the Florida bonneted bat. This plan has chapters describing the life history of these species and of activities which occur on Tribal lands. Such activities are life sustaining and important for the Seminole Tribal members to succeed as a sovereign nation. Land management activities, such as prescribed burning, mechanical fuel reduction, and invasive removal, are important for these culturally significant species to succeed on Tribal lands.

LIST OF ABBREVIATIONS

ACSC-Area of Critical State Concern
AMP-Advanced Mitigation Plan
BIA-Bureau of Indian Affairs
BCNP-Big Cypress National Preserve
BCSIR-Big Cypress Seminole Indian Reservation
BCWH- Big Cypress Wildlife and Hunts
BRSIR-Brighton Seminole Indian Reservation
BSS-Billie Swamp Safari
CERP- Comprehensive Everglades Restoration Plan
CFA-Core Foraging Area
Dbh- Diameter Breast Height
EPA-United States Environmental Protection Agency
ERMD-Environmental Resource Management Department
ESA-Endangered Species Act
FLEPPC- Florida Exotic Pest Plant Council
FLUCCS-Florida Land Use and Cover Classification System
FRCC-Fire Regime Condition Class
FWC-Florida Fish and Wildlife Conservation Commission
GIS-Geographical Information System
GDOT-Georgia Department of Transportation
GPS-Global Positioning System Unit
HWSIR-Hollywood Seminole Indian Reservation
MBTA-Migratory Bird Treaty Act
NPDES-National Pollution Discharge Elimination System
PHU-Panther Habitat Unit
RGP-Regional General Permit
SAP- Special Protection Area
STOF-Seminole Tribe of Florida
FWMD- South Florida Water Management District
SWFWMD-Southwest Florida Water Management District
T&E-Threatened and Endangered Species
Tribe-Seminole Tribe of Florida
USACE-United State Army Corp of Engineers
USFWS-United States Fish and Wildlife Service
USGS-United States Geological Survey
WCA-Water Conservation Area
WEA-Wetland Enhancement Area

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1.0 INTRODUCTION AND FINDINGS

1.1 The Seminole Tribe and Land Stewardship

1. The Seminole Tribe of Florida (“STOF”) is recognized as a sovereign governmental entity with inherent powers to make and enforce laws, administer justice, and manage and control its natural resources. The STOF is also a major land steward that exercises management responsibility for a system of Tribal reservations that includes the Big Cypress Seminole Indian Reservation (BCSIR) in Hendry and Broward counties (52,780 acres), the Brighton Seminole Indian Reservation (BRSIR) in Glades County (35,565 acres), and Hollywood Seminole Indian Reservation (HWSIR) in Broward County (499 acres). Collectively, these reservations account for nearly 90 percent of the Tribe’s Florida landholdings. Brighton and Big Cypress include residential and cultural resources, as well as economic and natural resource assets that are of great significance to the Tribe. These three reservations are described in sections 1.3, 1.4, and 1.5, below. Environmental resource inventory information is provided in part 7.0 of this Plan.
2. Rural reservation lands are central to the Tribe’s cultural and social heritage and a major source of Tribal livelihood, which is derived, in part, from ongoing commercial agricultural endeavors such as cattle, citrus, and vegetable operations. These lands also contain high quality habitat which sustain significant populations of native wildlife, including numerous state and federally listed imperiled species and game and nongame species of cultural, economic, and recreational significance.
3. In recognition of this cultural, economic, and recreational significance and the Tribe’s ongoing programs for and considerable accomplishments in the areas of wildlife management, water resources management, and habitat enhancement and mitigation, the Seminole Tribe was one of 48 federally recognized tribes awarded grants since 2004 to develop programs or management plans to conserve or manage wildlife on tribal lands (U.S. Federal News 2004).
4. The Seminole Tribe of Florida continues to work in a government-to-government working relationship with the U.S. federal government to achieve the common goal of promoting and protecting the health of natural resources and ecosystems. The elements of this working relationship are specifically enumerated in Secretarial Order No. 3206 (signed by the Secretaries of Interior and Commerce on June 5, 1997), entitled American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act (**Appendix A**).
5. In Secretarial Order No. 3206 the federal government recognized that tribes have sovereignty over their lands and have a strong interest in exercising self-government over tribal trust resources. Because of their unique relationship to their land, often tribes are most impacted by issues related to threatened and endangered species. The Order acknowledges the Federal trust responsibility toward Indian tribes and the government-to-government relationship. “Accordingly,” the Order proclaims, the Departments of Interior and Commerce “will carry out their responsibilities under the [Endangered Species] Act in a manner "that strives to ensure that Indian tribes do not bear a disproportionate burden for the conservation of listed species, so as to avoid or minimize the potential for conflict and confrontation."
6. The Seminole Tribe of Florida also works government-to-government on a project-by-project, basis with the environmental and water management agencies of State of Florida

and the Florida Fish and Wildlife Conservation Commission to promote the health of natural resources and ecosystems on and adjacent to tribal lands.

1.2 Purpose and Objectives of the Wildlife Conservation Plan

1. The Seminole Tribe desires to provide for sustainable use of wildlife and other associated natural resources by the Tribe and its members, balancing wildlife conservation with the Tribe's interests in promoting its cultural and economic interests. Individual Tribal members and families live and work on the reservation, and implementation of a plan to manage wildlife has the potential for beneficially affecting the lives of those Tribal members by sustaining the ecosystem with a plan that recognizes the Tribe and its members are connected to that ecosystem.
2. The primary goal of the Wildlife Conservation Plan is to provide for sustainable use and protection of wildlife and other natural resources for the benefit of the Seminole Tribe of Florida and its members, balancing management objectives so that conformity with the policy of the Endangered Species Act is achieved without the Tribe being faced with a disproportionate burden. As provided in Secretarial Order No. 3206 (Section 5, Principle 3(B)), this Plan is entitled to deference from the U.S. Fish and Wildlife Service.
3. The wildlife conservation plan presented here summarizes relevant scientific knowledge and offers resource management protocols and measures for the Tribe to use when addressing species that are threatened or endangered and/or culturally or otherwise significant. Each protocol will address in some manner the following:
 - Present conditions and practices on the reservations and Tribal land;
 - Alternatives that allow the Tribe to continue growing while still protecting T&E species;
 - Alternatives for mitigation of affects to listed species for the continued growth of the Tribe;
 - Maintenance of the existing level of scientific knowledge regarding the reservation and its wildlife resources.

1.3 Big Cypress Reservation

The Big Cypress Seminole Indian Reservation (BCSIR) includes approximately 52,780 acres located in Hendry and Broward Counties, Florida (**Figure 1**). The southern boundary of the BCSIR is formed by the Hendry-Collier County line and the Big Cypress National Preserve (BCNP), which is managed by the U.S. Department of the Interior, National Park Service. The southeastern boundary of BCSIR is the lands of the Miccosukee Tribe and state managed land. The western and northern boundaries are private lands managed for agriculture and recreation. An extensive drainage canal system operated by the South Florida Water Management District (SFWMD) crosses the Reservation. As can be seen on **Figure 2**, approximately 23 percent of the BCSIR is in some form of agricultural land use (Florida Land Use Cover and Forms Classification System (FLUCCS) classification 200, see Seminole Tribe of Florida FLUCCS 2010). The acreages calculated for each FLUCCS classification are shown in **Table 1**. Improved pastures (FLUCCS classification 211) constitute approximately 14 percent of the Reservation.

Forest communities, including 4,359 acres of upland (FLUCCS classification 400) and 33,778 acres of wetland (FLUCCS classifications 610-643) forested areas comprise of approximately 70 percent of the reservation's surface area. Small islands of forested communities are scattered throughout a portion of the BCSIR. The reservation also includes the Native Area, a 14,000 acre forested area

contiguous to the BCNP, which comprises roughly 25% of the reservation's surface area in its southwestern quadrant. Open water areas consist primarily of canals, and occupy less than 2 percent of the area. Invasive exotics include, but are not likely limited to Brazilian pepper and melaleuca (FLUCCS classifications 422 and 424), and occur on at least 4 percent of the Reservation. Cattle grazing is an important land use on BCSIR. Alex Johns, (Natural Resources Director, personal communication to Pauline Haas STOF 2012) reported that approximately 26 grazing operators run cattle on BCSIR rangelands. Approximately 6 percent of the reservation is under some form of row crop management (FLUCCS classifications 214 and 220). Principal agronomic crops include watermelons, tomatoes, and other small vegetables. Lemons are also grown on the reservation, with approximately 1,744 acres reported under the citrus (Land Use 221).

The Billie Swamp Safari (BSS) is an important land use on approximately 2,200 acres of the BCSIR. BSS offers daily tours of the Reservation's "...wetlands, hardwood hammocks and sloughs..." by airboat and marsh buggy (Seminole Tribe of Florida 2006d). The 2,200 acre Swamp Safari area is enclosed in a high game fence, and includes native wildlife species common to the area, as well as stocked exotic animals. Animals include American bison (*Bison bison*), Asian water buffalo (*Bubalis bubalis*), scrub cattle (*Bos taurus*), axis deer (*Axis axis*), red deer (*Cervus elaphus*), sika deer (*Cervus nippon nippon*), wild hog (*Sus scrofa*), ostrich (*Struthio camelus*), eland (*Taurotragus oryx*), and nilgai antelope (*Boselaphus tragocamelus*). While the swamp safari area includes habitat for and populations of native wildlife, its greatest significance in the context of a wildlife conservation plan for the reservation may lie in the fact that Florida panthers readily utilize stocked ungulates as prey.

The Tribe operates Big Cypress Wildlife and Hunts (BCWH) as a 3,000 acre hunting operation on BCSIR that is only available to Tribal members. BCWH operates on an area of approximately 3,000 acres in the eastern quarter of the reservation's Native Area. Hunting opportunities are available for wild hog, white tailed deer (*Odocoileus virginianus*), and "exotic" deer, as well as the Osceola turkey (*Meleagrus gallopavo osceola*). Most of the hunting opportunity on the BCWH focuses on wild hog and the Osceola turkey. Exotic animals are occasionally relocated from the BSS for certain clients. The Florida panthers also frequently utilize animals within the BCWH for forage, as they do at the BSS.

1.4 Brighton Reservation

The Brighton Seminole Indian Reservation (BRSIR) includes approximately 36,565 acres and is located in Glades County, Florida (**Figure 3**). BRSIR is located northwest of Lake Okeechobee north of State Road 78. Glades County Road 721 runs north-south through BRSIR. The land ownership around BRSIR is private and for the most part these holding are managed as cattle grazing lands. On the southwest, BRSIR abuts the complex of state-managed lands including: the Fisheating Creek/Lykes Brothers Conservation Easement; Fisheating Creek Wildlife Management Areas; Nicodemus Slough; and, the Fisheating Creek/Smoak Groves Conservation Easement. Brighton is two to three miles west of Audubon's Lake Okeechobee Sanctuaries that are adjacent to Lake Okeechobee. BRSIR is four miles southwest of Paradise Run, a state-managed area along the floodplain of the Kissimmee River.

As can be seen on **Figure 4**, approximately 47 percent of the BRSIR is in some form of agricultural land use (FLUCCS classification 200, see Seminole Tribe of Florida FLUCCS 2010); with improved pastures comprising approximately 35 percent of the total land area. The acreages calculated for each FLUCCS classification are shown in **Table 2**. Approximately 29 percent of the Reservation is in forested communities including 9,640 acres of upland (FLUCCS classification 400) and 5,274.47 acres of wetland (FLUCCS classifications 610-643). For the most part, forested communities on the BRSIR appear to occur as small islands of forest or forested wetland classes lying within larger areas of grazing lands (FLUCCS classifications 211-213, and 330, 331, and 340). Open water areas (FLUCCS classification 500) constitute less than 1 percent of the surface area of the Reservation, and

occur primarily as canals and water storage reservoirs. Brazilian pepper (*Schinus teribinthifolius*), an invasive exotic, occurs on the reservation, but occupies less than 1 percent of the surface area.

Cattle-grazing is an important type of land use, with 39 cattle operators (*Alex Johns, Natural Resources Director, personal communication to Pauline Haas STOF ERMD*). Improved pastures appear to be well-maintained and are primarily in bahia, pangola and floralta, which are all domesticated pasture grasses. Sport and subsistence hunting on the BRSIR is reserved exclusively for Tribal members.

The Prairie Hunting Preserve is a commercial hunting preserve located on the BRSIR and is available for hunting for non-Tribal members. The Prairie Hunting Preserve operates on an area of approximately 1,399 acres in the eastern side of the reservation. The majority of the property will remain as native unaltered land that will serve as the hunting grounds for a variety of native and non native hunting species including but not limited to: axis deer (*Cervus axis*), sitka deer (*Odocoileus sp.*), blackbuck antelope (*Antelope cervicapra*), Red Stag (*Cervus elaphus*), fallow deer (*Dama dama*), alligator (*Alligator mississippiensis*), white tailed deer (*Odocoileus virginianus*), wild turkey (*Meleagris gallopavo*), wild hogs (*Sus scrofa*) and water buffalo (*Bubalus bubalis*).

1.5 Hollywood Reservation

The Hollywood Reservation (HWSIR) includes approximately 500 acres and is located in Broward County, Florida (Township 51 South, Range 41 East, Section 01&02) (**Figure 5**). The Hollywood Reservation is located north of Sheridan Street and south of Griffin Road. This Reservation is bisected north-south by the Florida Turnpike and U.S. 441 (State Road 7).

As can be seen on **Figure 6**, approximately 50 percent of the HWSIR is in some form of residential land use (FLUCCS) classification 100, (see SFWMD FLUCCS 2008). The acreages calculated for each FLUCCS classification are shown in **Table 3**. Fixed single family units (FLUCCS classification 110) constitute approximately 50 percent of the Reservation.

1.6 Federal Laws

One of the purposes of this Plan is to empower the STOF to achieve its environmental resource management objectives while also achieving conformity with the policy of the Endangered Species Act (ESA). This section summarizes the ESA as well as several other federal laws that encourage or otherwise provide support for Tribes to actively manage natural resources, including wildlife, on their lands. Relevant Executive and Secretarial orders are also summarized.

Endangered Species Act

The purpose of the ESA (16 United States Code (USC) 1531–1 544) of 1973 is to conserve proposed and listed threatened and endangered (T&E) species and the designated critical habitats that support them. The act prohibits the harm, harassment, trade, or capture of endangered species and provides for the protection of threatened species. The restrictions contained act by prohibiting any person from “taking” a listed species or adversely modifying occupied or otherwise essential habitat has resulted in impediments to Tribal management of their natural resources.

The ESA also requires each federal agency, in consultation with the Secretary of the Interior and/or Commerce, to insure that any agency action (action authorized, funded or carried out by such an agency) is “not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of [critical] habitat.” This requirement is implemented through regulations published in the Code of Federal Regulations at 50 CFR part 402. This requirement applies to many actions carried out by the STOF because such tribal actions frequently involve federal agency action, authorization, or funding.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (Title 16, United States Code [USC], Sects. 703–712) of 1918 implements treaties—signed by the United States and Canada, Japan, Mexico, and the former Soviet Union—for the protection of shared migratory bird resources. The act protects migratory birds by governing the taking, killing, possession, transportation, and importation of such birds; their eggs, parts, and nests; and any product, manufactured or not, from such items. The USFWS has developed a list of migratory birds that are protected under the act. The list can be found at 50 CFR) section 10.13. In addition, the regulations codified at 50 CFR Part 20 are relevant, particularly section 20.110 in that it authorizes FWS to promulgate special migratory game bird hunting regulations on Federal Indian reservations (including off-reservation trust lands) and ceded lands. These regulations were developed in response to tribal requests for FWS recognition of their reserved hunting rights, and for some tribes, recognition of their authority to regulate hunting by both tribal and nontribal members throughout their reservations.

Fish and Wildlife Coordination Act

Under the Fish and Wildlife Coordination Act (FWCA) (16 USC 661–667e) of 1934 as amended (16 U.S.C. 661), the Secretary of the Interior is authorized to provide assistance to, and cooperate with, federal, state, and public or private agencies and organizations in the development, protection, rearing, and stocking of all species of wildlife, resources thereof, and their habitat, in controlling losses of the same from disease or other causes, in minimizing damages from overabundant species, and in providing public shooting and fishing areas, including easements across public lands for access thereto. Tribal Wildlife Grants support the efforts of federally recognized tribal governments to develop or augment the capacity to manage, conserve, or protect fish and wildlife resources. These are Grants to States and Tribes under provisions of the Fish and Wildlife Act of 1956 and the Fish and Wildlife Coordination Act.

Bald Eagle Protection Act

The Bald Eagle Protection Act (16 USC 668–668d) of 1940, allows the Secretary of the Interior to authorize the taking of eagles for “the religious purposes of Indian tribes” pursuant to regulations codified at 50 CFR Part 22. Here, Congress recognizes the Tribes religious values by requiring the Service to consider religious uses when issuing take permits under the law. The regulations establish a system through which members of federally-recognized tribes can obtain permits for taking or possession of eagles or eagle body parts such as feathers.

Fish and Wildlife Conservation Act

The Fish and Wildlife Conservation Act (16 USC 2901–2912) of 1980 is commonly known as the “Nongame Act.” The purpose of the act is to provide financial and technical assistance to states for the development, revision, and implementation of conservation plans and programs for nongame fish and wildlife.

North American Wetlands Conservation Act

This Act [16 USC 4401 – 4412] requires the head of each federal agency responsible for federal lands and waters to cooperate with USFWS to restore, protect, and enhance the wetland ecosystems and other habitats for migratory birds, fish, and wildlife. It requires the Secretary of the Interior to identify conservation measures to assure that nongame migratory bird species do not reach the point

at which measures of the Endangered Species Act of 1973 [16 U.S.C. 1531 et seq.] are required. Tribal representation is provided for development of Wetland Conservation Plans.

Seminole Indian Land Claims Settlement Act of 1987

The Florida Indian (Seminole) Land Claims Settlement Act of 1987 Pub. L. No. 100-228; 25 USC 1772 – 1772g] approved the Settlement Agreement (including the Water Rights Compact) among the State, the South Florida Water Management District (SFWMD), and the Tribe. This statutory approval was made contingent upon subsequent action by the Legislature of the State of Florida, action which was taken. This legislation resolved tribal land claims and settled the lawsuit that had been filed by the Seminole Tribe. The Settlement Agreement included conveyance of land and payment of consideration to the tribe. The Water Rights Compact specifically defined tribal water rights. This Compact was adopted into federal and state law. It includes a series of provisions establishing the Tribe's water rights and creating several "entitlements" to surface water, criteria for managing wetland habitat and natural resources for each of the Tribe's reservations.

Indian Self-Determination and Education Assistance Act

Indian Self-Determination and Education Assistance Act (ISDEAA) [Pub. L. No. 93-638; codified as amended at 25 U.S.C. 450 – 450n, 458aa – 458aaa-18] provides that tribes can enter into contracts or compacts with the Bureau of Indian Affairs (BIA) and Indian Health Service (IHS) to operate governmental programs themselves in lieu of BIA or IHS. Pursuant to self-determination contracts, the STOF operates a number of natural resources management programs with funding from BIA.

National Historic Preservation Act

This Act [16 USC 470 – 470x-6] requires each federal agency to consider the effects of it undertakings, and undertakings that it funds or authorizes, on properties that are listed on or eligible for the National Register of Historic Places and provide the Advisory Council on Historic Preservation (ACHP) an opportunity to comment. As implemented through regulations issued by the ACHP [36 CFR part 800], the federal agency carries out this responsibility in consultation with the State Historic Preservation Officer (SHPO); within any Indian reservation where the Tribe has a Tribal Historic Preservation Officer (THPO), the federal agency must consult with the THPO in lieu of the SHPO. The STOF does have a THPO program. The National Historic Preservation Act is relevant to wildlife conservation because places that hold religious and cultural importance for a tribe may be eligible for the National Register, including places that important for traditions such as harvesting medicinal plants. Such historic properties are sometimes called traditional cultural properties. Their historic significance is found not in buildings or artifacts but, rather, in ongoing tribal traditions.

Secretarial Orders, Executive Orders and Presidential Memoranda

Secretarial Order 3206

This Order issued by the Secretary of the Interior and the Secretary of Commerce pursuant to the Endangered Species Act of 1973, the federal-tribal trust relationship, and other federal law. Specifically, this Order clarifies the responsibilities of the component agencies, bureaus and offices of the Department of the Interior and the Department of Commerce, when action taken under authority of the Act and associated implementing regulations affect, or may affect, Indian lands, tribal trust resources, or the exercise of American Indian tribal rights, as defined by this Order. This Order further acknowledges the trust responsibility and treaty obligations of the United States toward Indian tribes and tribal members and its government-to-government relationship in dealing with the

Tribe. Accordingly, the Departments will carry out their responsibilities under the Act in a manner that harmonizes the Federal trust responsibility to tribes, tribal sovereignty, and statutory missions of the Departments, and that strives to ensure that Indian tribes do not bear a disproportionate burden for the conservation of listed species, so as to avoid or minimize the potential for conflict and confrontation. This Order is included in this Plan as Appendix A.

Executive Order 13175

This Executive Order issued by President Clinton sought to establish regular and meaningful consultation and collaboration by federal officials with tribal officials in the development of Federal policies that have tribal implications, to strengthen the United States government-to-government relationships with Indian tribes, and to reduce the imposition of unfunded mandates upon Indian tribes. The Order acknowledges the right of Indian tribes to self-government and supports tribal sovereignty and self-determination. As domestic dependent nations, Indian tribes exercise inherent sovereign powers over their members and territory. The United States continues to work with Indian tribes on a government-to-government basis to address issues concerning Indian tribal self-government, tribal trust resources, and Indian tribal treaty and other rights.

Ex. Ord. No. 13443. Facilitation of Hunting Heritage and Wildlife Conservation

The purpose of this order is to direct Federal agencies that have programs and activities that have a measurable effect on public land management, outdoor recreation, and wildlife management, including the Department of the Interior and the Department of Agriculture, to facilitate the expansion and enhancement of hunting opportunities and the management of game species and their habitat. Federal agencies must, consistent with agency missions, establish short and long term goals, in cooperation with State and tribal governments, and consistent with agency missions, to foster healthy and productive populations of game species and appropriate opportunities for the public to hunt those species and seek the advice of State and tribal fish and wildlife agencies, and, as appropriate with respect to the foregoing Federal activities.

2.0 SENSITIVE WILDLIFE SPECIES THE OCCUR OR HAVE THE POTENTIAL TO OCCUR WITHIN THE ACTION AREA

2.1 Big Cypress

Eight sensitive wildlife species occur or have the potential to occur within the BCSIR which will be protected by the conservation measures in the Tribal WCP. These species are all listed as threatened or endangered under the ESA. These species constitute those that the Tribe is seeking to have covered by the screening, enabling it to authorize or engage in activities that may result in incidental take of such species (**Table 10**).

2.1.1 Florida Panther

All of the BCSIR is located within the Primary Zone of the Florida panther as identified by Thatcher et al (2006) (**Figure 13**). The panther focus area south of the Caloosahatchee River is divided into Primary, Secondary and Dispersal Zones. The Primary Zone is currently occupied and supports the only known breeding population of Florida panthers in the world. These lands are important to the long term viability and persistence of the panther in the wild.

In January 2005, the Service started using a panther habitat suitability ranking system based on methods in publications by Swainson et al (2005) and Kautz et al (2006). Habitats that were most often selected ranged from 7 to 10; habitats which were used in proportion to availability were ranged from 4 to 6; and habitats which were avoided by the panther were ranged from 0 to 3.

Habitats ranging from 7 to 10 consist of hardwood swamp, hardwood pine, cypress swamp, upland hydric pine forest, and upland hardwood forest. Habitats ranging from 4 to 6 consists of dry prairie, improved pasture, shrub and brush, xeric scrub, marsh/wet prairie, unimproved pasture, barren land, crop land, and orchards/groves. Habitats ranging from 0 to 3 consist of urban areas, water, barren/disturbed land, coastal wetlands, and exotic/nuisance plants.

Florida Fish and Wildlife Conservation Commission (FWC) have been placing telemetry collars on Florida panthers since 1981. From 1981 to 2011, 53 panthers have been reported to be on the BCSIR. Most of the collected data was from panthers within the native area.

Historically, panther dens have been reported within and adjacent to BCSIR. Within BCSIR eight (8) panther dens have been documented from 1990 to 2006 by FWC. All den locations have either been in the BCSIR Native Area or on the boundary between BCSIR and BCNP (**Figure 12**). Of the eight dens on the BCSIR one den was located in wetland forest mix, one in pine flatwoods, two in cypress, one in wet prairie, one in cypress cabbage palm mix, and two in hydric pine. Based on this information, these habitats are within the range of 7 to 10 habitat ranking system.

2.1.2 Northern Crested Caracara

The BCSIR occurs on the outer limits of the USFWS caracara consultation area (**Figure 15**). Primary habitat on the BCSIR has been determined to have low to moderately suitable habitat for this species (**Figure 16, Figure 17, & Figure 18**).

Based on a study conducted by Morris et al. (2007) 4 habitat classes were considered important to the crested caracara. The land use was ranked for importance to crested caracaras in south-central Florida. General preference ranks were assigned subjectively based on field observations of the caracaras in the study region. High general preference rank lands include improved pasture, grassland, freshwater marsh, and mixed upland hardwoods. Land use classes such as citrus, agriculture and shrub swamp had a medium general preference rank and bare soil, shrub & brush land, pinelands, urban, and scrub had a low general preference rank.

The Tribe has been conducting annual caracara surveys since 2000/2001 survey season and continues to conduct these surveys annually. As of the year 2000, the BCSIR has had a total of 14 nests (historic, active, and inactive) from seven (7) different known pairs.

2.1.3 Bald Eagle

Bald eagles use forested habitats for nesting and roosting. Nesting habitat generally consists of densely forested areas with mature trees which are isolated from human disturbance (Buelher, 2000). Within the BRSIR, nests have been documented within large oaks and dead pines. For the purposes of this WCP, these land types will be used to determine eagle habitat within the reservations.

No bald eagle nests have been documented within the BCSIR, though adults and juveniles have been periodically observed on the reservation. Hendry County was surveyed by FWC in the 2010/2011 nesting season and Broward County was surveyed during the 2009/2010 nesting season. Based on FWC, the closets bald eagle nests are located about 2 miles north of BCSIR. Though bald eagles have been observed on the BCSIR, no nests have been observed.

2.1.4 Wood Stork

Wood storks forage in wetlands such as drying marshes or stock ponds, shallow road side and agricultural ditches, narrow tidal creeks, shallow tidal pools, and depressions in cypress heads or swamp sloughs. Nesting colonies within the southeastern United States have been located within woody vegetation over standing water or on islands surrounded by open water. The most dominate

vegetation for these colonies have been cypress, though wood storks will also nest in swamp hardwood and willow (Ogden, 1990).

Two active wood stork colonies are located within 18.6 miles of the BCSIR. The first colony is located 17.45 miles northwest of the BCSIR and the 18.6 mile core foraging area (CFA) of this colony overlaps with the northwestern tip of the reservation. The second colony is located 15.28 miles south west of the reservation and the CFA overlaps the southwestern portion of the reservation over the native area.

2.1.5 Eastern Indigo Snake

The eastern indigo snake frequents several types of habitats which include scrubby flatwoods, pine flatwoods, tropical hardwood hammocks, dry prairie, high pine, agricultural fields, edges of freshwater marshes, and human altered habitats (Service, 1999). However, there is not enough scientific research and evidence that this is the preferred habitat of the eastern indigo snake.

Within all of the BCSIR, only two (2) sightings have been recorded. These sightings occurred during the construction of Basin 1 of the water Conservation Project in 2007 and 2008. During both of these sightings, the snakes were seen in agricultural fields. No additional sightings to date have been recorded.

2.1.6 Everglades Snail Kite

The BCSIR is located within the Everglade's snail kite consultation area (**Figure 28**) and 18 miles west and 11 miles north of the Service designated critical habitat. Everglade's snail kites are primarily found in lowland freshwater marshes and shallow vegetated edges of lakes. Nesting usually occurs over water within small trees including willow, pond apple, bald cypress, pond cypress, melaleuca, dahoon holly, swamp bay, and sweet bay. Shrubs such as Brazilian pepper, wax myrtle, cocoplum, elderberry, and button bush may also be used for nesting (Service, 1999).

The Tribe has been conducting annual Snail kite surveys since 2011/2012 survey season and continues to conduct these surveys annually within the northeastern portion of the reservation by the rock mine. As of the year 2011, no nests have been found on the BCSIR.

2.1.7 Red Cockaded Woodpecker

The Service's consultation area for the redcocked woodpecker is located 8 miles south and 27 miles west of the BCSIR. Red cockaded woodpeckers nest in mature live pine trees maintained by frequent fires. Pine flatwoods are located within the native area in the south portion of the BCSIR. However, due to lack of frequent burning, hardwood encroachment has reduced the size of preferable habitat for this species.

No sightings of the red cockaded woodpeckers have been recorded on the BCSIR.

2.1.8 Florida Bonneted Bat

According to Robson, 1989, the Florida bonneted bat may be found in semitropical hardwood forests, pine flatwoods, and man-made habitats. The bonneted bat has been documented nesting in building attics, and rocks. They will use the nesting cavities of woodpeckers and will also nest within the palm fronds of palm trees. On the BCSIR, this bat may inhabit the pine flatwoods on the southern boundary, the rock mine on the north-eastern boundary or the homes and buildings within the community.

No sightings of the Florida bonneted bat have been recorded on the BCSIR.

2.2 Brighton

Seven sensitive wildlife species occur or have the potential to occur with the BRSIR which will be protected by the conservation measures in the Tribal WCP. These species are all listed as threatened or endangered under the ESA. These species constitute those that the Tribe is seeking to have covered by the screening, enabling it to authorize or engage in activities that may result in incidental take of such species (**Table 11**).

2.2.1 Florida panther

The central portion of the BRSIR is within the Primary Dispersal Zone/ Expansion Area (22,916 acres) of the Florida panther as identified by Thatcher et al (2006) (**Figure 14**). The panther focus area south of the Caloosahatchee River is divided into Primary, Secondary and Dispersal Zones. The Primary Dispersal Zone / Expansion Area is the Fisheating Creek/Babcock-Webb Wildlife Management Area region. These are lands identified by Thacher et al (2006) as potential panther habitat with the shortest habitat connection to the Panther Focus Area in South Florida. Several collared and uncollared male panthers have been documented in this area since 1973, and the last female documented north of the Calosahatchee River was found in the area.

In January 2005, the Service started using a panther habitat suitability ranking system based on methods in publications by Swainson et al (2005) and Kautz et al (2006). Habitats that were most often selected ranged from 7 to 10; habitats which were used in proportion to availability were ranged from 4 to 6; and habitats which were avoided by the panther were ranged from 0 to 3. Habitats ranging from 7 to 10 consist of hardwood swamp, hardwood pine, cypress swamp, upland hydric pine forest, and upland hardwood forest. Habitats ranging from 4 to 6 consist of dry prairie, improved pasture, shrub and brush, xeric scrub, marsh/wet prairie, unimproved pasture, barren land, crop land, and orchards/groves. Habitats ranging from 0 to 3 consist of urban areas, water, barren/disturbed land, coastal wetlands, and exotic/nuisance plants.

Florida Fish and Wildlife Conservation Commission (FWC) have been placing telemetry collars on Florida panthers since 1981. From 1981 to 2011, no collared panthers have been reported to be on the BRSIR.

2.2.2 Northern Crested Caracara

The BRSIR occurs within the USFWS caracara consultation area (**Figure 21**). Preliminary suitability habitat models classify that the BRSIR as having high suitable habitat for the species (Morrison et al. 2007; Root and Barnes 2008).

Based on a study conducted by Morris et al. (2007) 4 habitat classes were considered important to the crested caracara. The land use was ranked for importance to crested caracaras in south-central Florida. General preference ranks were assigned subjectively based on field observations of the caracaras in the study region. High general preference rank lands include improved pasture, grassland, freshwater marsh, and mixed upland hardwoods. Land use classes such as citrus, agriculture and shrub swamp had a medium general preference rank and bare soil, shrub & brush land, pinelands, urban, and scrub had a low general preference rank.

The Tribe has been conducting annual caracara surveys since 2005/2006 survey season and continues to conduct these surveys annually. As of the year 2005, the BRSIR has had a total of 40 nests (historic, active, and inactive) from 19 different known pairs. Based off the 2012/2013 caracara surveys, there are 14 known active nests within the BRSIR.

2.2.3 Bald Eagle

Bald eagles use forested habitats for nesting and roosting. Nesting habitat generally consists of densely forested areas with mature trees which are isolated from human disturbance (Buelher, 2000). Within the BRSIR, nests have been documented within large oaks and dead pines. For the purposes of this WCP, these land types will be used to determine eagle habitat within the reservations.

The Tribe has been conducting annual caracara surveys since 2005/2006 survey season and continues to conduct these surveys annually. As of the year 2005, the BRSIR has had a total of 6 nests (historic, active, and inactive) from 5 different known pairs. Glades County was surveyed by FWC in the 2009/2010 nesting season. Within a 5 mile buffer zone from the BRSIR, 9 active nests were in found 2008, 2 active nests in 2007, and 4 active nests in the 1990's.

2.2.4 Wood Stork

Wood storks forage in wetlands such as drying marshes, stock ponds, shallow road side, agricultural ditches, narrow tidal creeks, shallow tidal pools, and depressions in cypress heads or swamp sloughs. Nesting colonies within the southeastern United States have been located within woody vegetation over standing water or on islands surrounded by open water. The most dominate vegetation for these colonies have been cypress, though wood storks will also nest in swamp hardwood and willow (Ogden, 1990).

One active wood stork colonies is located within 0.56 miles of the BRSIR on the eastern boundary. The entire BRSIR is located within the 18.6 mile core foraging area (CFA).

2.2.5 Eastern Indigo Snake

The eastern indigo snake frequents several types of habitats which include scrubby flatwoods, pine flatwoods, tropical hardwood hammocks, dry prairie, high pine, agricultural fields, edges of freshwater marshes, and human altered habitats (Service, 1999). However, there is not enough scientific research and evidence that this is the preferred habitat of the eastern indigo snake.

No sightings of any eastern indigo snakes have been recorded with in the BRSIR.

2.2.6 Everglades Snail Kite

The BRSIR is located within the Everglade's snail kite consultation area (**Figure 29**) and 1 to 2 miles west of the Service designated critical habitat. Everglade's snail kites are primarily found in lowland freshwater marshes and shallow vegetated edges of lakes. Nesting usually occurs over water within small tree including willow, pond apple, bald cypress, pond cypress, melaleuca, dahoon holly, swamp bay, and sweet bay. Shrubs such as Brazilian pepper, wax myrtle, cocoplum, elderberry, and button bush may also be used for nesting (Service, 1999). The Tribe does not conduct annual surveys for the snail kite. However, snail kites which are likely to nest on the edge of Lake Okeechobee have been observed foraging within the BRSIR.

2.2.7 Florida Bonneted Bat

According to Robson, 1989, the Florida bonneted bat may be found in semitropical hardwood forests, pine flatwoods, and man-made habitats. The bonneted bat has been documented nesting in building attics, and rocks. They will use the nesting cavities of woodpeckers and will also nest within the palm fronds of palm trees. On the BRSIR, this bat may inhabit the pine flatwoods on the eastern boundary or the homes and buildings within the community.

No sightings of the Florida bonneted bat have been recorded on the BRSIR.

2.3 Hollywood

One sensitive wildlife species occurs or has the potential to occur within the HWSIR which will be protected by the conservation measures in the Tribal WCP. These species are all listed as threatened or endangered under the ESA. This species constitutes those that the Tribe is seeking to have covered by the screening, enabling it to authorize or engage in activities that may result in incidental take of such species (**Table 12**).

2.3.1 Wood Stork

Wood storks forage in wetlands such as drying marshes, stock ponds, shallow road side, agricultural ditches, narrow tidal creeks, shallow tidal pools, and depressions in cypress heads or swamp sloughs. Nesting colonies within the southeastern United States have been located within woody vegetation over standing water or on islands surrounded by open water. The most dominate vegetation for these colonies have been cypress, though wood storks will also nest in swamp hardwood and willow (Ogden, 1990).

Two active wood stork colonies are located within 18.6 miles of the HWSIR. The first colony is located 11.00 miles northwest of the HWSIR and the 18.6 mile core foraging area (CFA) of this colony overlaps the entire reservation. The second colony is located 11.11 miles northwest of the reservation and the CFA overlaps the entire reservation.

2.3.2 Florida Bonneted Bat

According to Robson, 1989, the Florida bonneted bat may be found in semitropical hardwood forests, pine flatwoods, palm fronds, and man-made habitats. The bonneted bat has been documented nesting in building attics, and rocks. On the HWSIR, this bat may inhabit the attics of the homes within the community or buildings on the reservation.

No sightings of the Florida bonneted bat have been recorded on the HWSIR.

3.0 LISTED SPECIES INFORMATION

The species listed below have been documented on Tribal land, and therefore will be addressed in this document. Species which have not been documented will be omitted.

3.1 Florida Panther (*Puma concolor coryi*)

Life History

The Florida panther is a subspecies of mountain lion which is endemic to Florida. The panther is one of the most endangered species in the world and is also Florida's state animal and was listed as endangered under the Endangered Species Act (ESA) in 1967. According to the Service, as of 2007, the Service estimated that the panther population consisted of 100 to 120 individuals. Even though this is a large increase from the 12 to 20 individuals estimated in 1970, the panther still faces threats due to increase in human activity and development within panther habitat (USFWS, 2008).

Description

Adult Florida panthers are a rusty reddish-brown color on the back, tawny on its sides, and pale gray underneath. Adult panthers are unspotted while kittens are gray with dark brown spots and five bands around their tails and blue eyes. By the time kittens are six months of age, their spots have faded away and their eyes turn to a light-brown straw color. Adult males weigh an average of 116 pounds and are about seven feet from the tip of their nose to the tip of their tail. Adult males stand at about 24-28 inches at the shoulder. Female panthers weigh an average of 75 pounds and have a length of 6 feet.

Habitat

Since almost all data from radio-collars have been collected during daytime hours (generally 0700 to 1100), and because panthers are most active at night (Maehr et al. 1990), daytime radio locations are insufficient to describe the full range of panther habitat use (Beyer and Haufler 1994; Comiskey et al. 2002; Beier et al. 2003; Dickson et al. 2005; Beier et al. 2006).

Diurnal Habitat Use

Diurnal panther locations appear to be within or closer to forested cover types, particularly cypress swamp, pinelands, hardwood swamp, and upland hardwood forests (Belden 1986; Belden et al. 1991; Maehr et al. 1991; Maehr 1992; Smith and Bass 1994; Kerkhoff et al. 2000). Dense understory vegetation comprised of saw palmetto provides some of the most important resting and denning cover for panthers (Benson et al. 2008). Shindle et al. (2003) showed that 73 percent of panther dens were in palmetto thickets.

Radio-collar data and ground tracking indicate that panthers use the mosaic of habitats available to them as resting and denning sites, hunting grounds, and travel routes. These habitats include cypress swamps, hardwood hammocks, pine flatwoods, seasonally flooded prairies, freshwater marshes, and some agricultural lands. Although radio-collar monitoring indicates that forest is a preferred cover type, panthers also utilize non-forest cover types (Belden et al. 1988, Maehr et al. 1991, Comiskey et al. 2002). Compositional analyses by Kautz et al. (2006) confirmed previous findings that forest patches comprise an important component of panther habitat in south Florida, but that other natural and disturbed cover types are also present in the large landscapes that support panthers (Belden et al. 1988, Maehr et al. 1991, Comiskey et al. 2002). Kautz et al. (2006) found that the smallest class of forest patches (i.e., 9-26 acres [3.6-10.4 ha]) were the highest ranked forest patch sizes within panther home ranges; this indicates that forest patches of all sizes appear to be important components of the landscapes inhabited by panthers, not just the larger forest patches.

Nocturnal Habitat Use

Maehr et al. (1990a) provide the only descriptions of panther nocturnal activities and represent the available radio collar data collected during nighttime hours. However, this paper does not provide analyses of nocturnal habitat use. Dickson et al. (2005) examined the movements of 10 female and seven male puma at 15-minute intervals during 44 nocturnal periods of hunting or traveling in southern California. They found that traveling puma monitored over nocturnal periods used a broader range of habitats than what they appeared to use based on diurnal locations alone. A study by Land et al. (2008) compared the daytime and nocturnal habitat use of 12 panthers using GPS and VHF collars within the northern portion of the panther breeding range. The results of this study supported previous findings that wetland and upland forests are the preferred habitat types (Land et al. 2008).

Prey Habitat Use

Panther habitat selection is related to prey availability and, consequently, prey habitat use (Janis and Clark 2002; Dees et al. 2001). Adequate cover and the size, distribution, and abundance of available prey species are critical factors to the persistence of panthers in south Florida and often determine the extent of panther use of an area.

Hardwood hammocks and other forest cover types are important habitat for white-tailed deer and other panther prey (Harlow and Jones 1965; Belden et al. 1988; Maehr 1990; Maehr et al. 1991; Maehr 1992; Comiskey et al. 1994; Dees et al. 2001). Periodic understory brushfires (Dees et al. 2001) as well as increased amounts of edge (Miller 1993; Fleming et al. 1994) may enhance deer use of hardwood hammocks, pine, and other forest cover types. However, wetland and other vegetation types can support high deer densities. In the Everglades, for example, deer appear to be

adapted to a mosaic of intergrading patches comprised of wet prairie, hardwood tree islands, and peripheral wetland habitat (Fleming et al. 1994, Labisky et al. 2003). High-nutrient deer forage, especially preferred by females, includes hydrophytic marsh plants, white water lily (*Nymphaea odorata*), and swamp lily (*Crinum americana*) (Labisky, et al. 2003). Wetland willow (*Salix spp.*) thickets provide nutritious browse for deer (Loveless 1959), (Labisky et al. 2003).

Marshes, rangeland, and low-intensity agricultural areas support prey populations of deer and hogs. The importance of these habitat types to panthers cannot be dismissed based solely on use or lack of use when daytime telemetry are the only data available (Comiskey et al. 2002, Beier et al. 2003, Comiskey et al. 2004, Beier et al. 2006).

Distribution

The Florida panther once ranged from eastern Texas or western Louisiana and the lower Mississippi River Valley East to the southeastern state and down to south Florida. Though, as of now, the only known breeding population is located with the Big Cypress Swamp/Everglades region of South Florida. The core breeding population is located in Collier, Hendry, and Miami-Dade counties, however, radio collared panthers have been documented in Broward, DeSoto, Glades, Highlands, Lee, Monroe, Osceola, Palm Beach, and Polk Counties (Service, 1999) (**Figure 7**). Although the breeding population occurs in south Florida, panthers have been documented north of the Caloosatchee River, in 11 counties (Service, 2008).

Home Range

Panthers require large areas to meet their needs. Numerous factors influence panther home range size including habitat quality, prey density, and landscape configuration (Belden 1988; Comiskey et al. 2002). The most current estimate of home-range sizes (minimum convex polygon method) for established, non-dispersing, adult, radio-collared panthers averaged 29,056 acres (11,759 ha) for females (n = 11) and 62,528 acres (25,304 ha) for males (n = 11) (Lotz et al. 2005). The average home range was 35,089 acres (14,200 ha) for resident females (n = 6) and 137,143 acres (55,500 ha) (n = 5) for males located at BCNP (Jansen et al. 2005). Home ranges of resident adults tend to be stable unless influenced by the death of other residents; however, several males have shown significant home range shifts that may be related to aging (Service 2009). Home-range overlap is extensive among resident females and limited among resident males (Machr et al 1991).

Activity levels for Florida panthers are greatest at night with peaks around sunrise and after sunset (Machr 1990). The lowest activity levels occur during the middle of the day. Female panthers at natal dens follow a similar pattern with less difference between high and low activity periods.

Telemetry data indicate panthers typically do not return to the same resting site day after day, with the exception of females with dens or panthers remaining near kill sites for several days. The presence of physical evidence such as tracks, scats, and urine markers confirm that panthers move extensively within home ranges, visiting all parts of the range regularly in the course of hunting, breeding, and other activities (Machr 1997; Comiskey et al. 2002). Males travel widely throughout their home ranges to maintain exclusive breeding rights to females. Females without kittens also move extensively within their ranges (Machr 1997). Panthers are capable of moving large distances in short periods of time. Nightly panther movements of 12 mi (20 km) are not uncommon (Machr 1990).

Thatcher et al. (2006) developed a habitat model using Florida panther home ranges in south Florida to identify landscape conditions (land-cover types, habitat patch size and configuration, road density and other human development activities, and other similar metrics) north of the

Caloosahatchee River that were similar to those associated with the current panther breeding population.

The Panther Focus Area, south of the Caloosahatchee River is divided into Primary, Secondary, and Dispersal Zones; and north of the Caloosahatchee River into the Primary Dispersal/Expansion Area (Figure 8).

Primary Zone is currently occupied and supports the only known breeding population of Florida panthers in the world. These lands are important to the long-term viability and persistence of the panther in the wild.

Secondary Zone lands are contiguous with the Primary Zone and although these lands are used to a lesser extent by panthers, they are important to the long-term viability and persistence of the panther in the wild. Panthers use these lands in a much lower density than in the Primary Zone.

Dispersal Zone is a known corridor between the Panther Focus Area south of the Caloosahatchee River to the Panther Focus Area north of the Caloosahatchee River. This Zone is necessary to facilitate the dispersal of panthers and future panther population expansion to areas north of the Caloosahatchee River. Marked panthers have been known to use this zone.

Primary Dispersal/Expansion Area is the Fisheating Creek/Babcock-Webb Wildlife Management Area region. These are lands identified by Thatcher et al. (2006) as potential panther habitat with the shortest habitat connection to the Panther Focus Area in south Florida. Several collared and uncollared male panthers have been documented in this area since 1973, and the last female documented north of the Caloosahatchee River was found in this area.

Diet

Primary panther preys are white-tailed deer (*Odocoileus virginianus*) and feral hog (*Sus scrofa*) (Maehr, et al., 1990; Dalrymple and Bass 1996). Generally, feral hogs constitute the greatest biomass consumed by panthers north of the Alligator Alley section of I-75, while white-tailed deer are the greatest biomass consumed to the south (Maehr, et al., 1990). Secondary prey includes raccoons (*Procyon lotor*), nine-banded armadillos (*Dasyurus novemcinctus*), marsh rabbits (*Sylvilagus palustris*) (Maehr 1990) and alligators (*Alligator mississippiensis*) (Dalrymple and Bass 1996). No seasonal variation in diet has been detected. A resident adult male puma generally consumes one deer-sized prey every 8-11 days; this frequency would be 14-17 days for a resident female; and 3.3 days for a female with three 13-month-old kittens (Ackerman et al. 1986). Maehr (1990) documented domestic livestock infrequently in scats or kills, although cattle were readily available on their study area.

Reproduction

Male Florida panthers are polygamous and maintain large, overlapping home ranges containing several adult females and their dependent offspring. The first sexual encounters for males normally occur at about 3 years based on 26 radio-collared panthers of both sexes (Maehr et al 1991). Based on genetics work, some males may become breeders as early as 17 months (Service 2009). Breeding activity peaks from December to March (Shindle et al. 2003). Litters (n = 82) are produced throughout the year, with 56-60 percent of births occurring between March and June. The greatest number of births occurs in May and June (Jansen et al 2005; Lotz et al. 2005).

Den sites are usually located in dense, understory vegetation, typically saw palmetto (Maehr et al. 1990; Shindle et al. 2003; Land et al. 2008). Den sites are used for up to two months by female

panthers and their litters from birth to weaning. Independence and dispersal of young typically occurs at 18 months, but may occur as early as one year (Maehr 1992).

3.2 Audubon's northern crested caracara (*Polyborus plancus audubonii*)

Life History

Caracaras are resident, diurnal, and non-migratory. Adult caracaras may be found in their territory year-round, although territorial defense is predominant during nesting season. Territories average approximately 3,000 acre (approximately 1,200 ha), corresponding to a radius of 1.2 to 1.5 miles (2.0 to 2.5 kilometers [km]) surrounding the nest site (Morrison and Humphrey 2001). Foraging typically occurs throughout the territory during nesting and non-nesting seasons.

Description

Adult caracaras do not express sexual dimorphism, meaning that males and females do not have visual sexual differences. Adult backs are black and they have crest on their heads, therefore the name crested caracara. There is a white band across the tail and wing tips. The adult facial skin and legs are of a yellowish-orange color and a dark-bluish bill. Adult and sub adult caracara have a grey-blue skin on their face and legs and a dark-bluish bill.

Flight

The caracara has a distinctive flight that can be identified by a trained observer from a distance. In flight their wings are flattened and they exhibit powerful regular wing-beats. Typically you will observe a caracara flying just above the ground to just above the tree level. Due to the white on the head and tail, flight pattern and silhouette, they may be confused in flight at a distance with the bald eagle (*Haliaeetus leucocephalus*), which also has flattened wings and regular wing beats. The caracara is much smaller, however, with white panel in primaries. Although the black vulture (*Coragyps atratus*) also has white panel in primaries, it lacks white on head and tail and has broader wings held in pronounced dihedral; flight is characterized by alternate flapping and soaring. Both bald eagle and black vulture generally fly higher and soar more frequently (Morrison, 1996).

Habitat

The Florida caracara population historically inhabited native dry or wet prairie areas containing scattered cabbage palms, their preferred nesting tree. Scattered saw palmetto, and low-growing oaks (*Quercus minima*, *Q. pumila*), and cypress also occur within these native communities. Over the last century, many of the native prairie vegetation communities in central and south Florida have been converted to agricultural land uses, and frequently replaced by improved and unimproved pasture dominated by short-stature, non-native, sod-forming grasses. Morrison and Humphrey (2001) hypothesize that the vegetation structure of open grasslands (short-stature vegetation, scattered shrub cover, and nest trees) may be preferred by the caracara, due to its tendency to walk on the ground during foraging activities. The short vegetation stature and relatively simple vegetation structure may directly facilitate foraging by caracaras and provide less cover for predators. Consequently, caracaras appear to benefit from management actions such as prescribed burning that maintain habitat in a low stature and structurally simple condition. These activities reduce vegetation cover and may facilitate the observation and capture of prey. Within agricultural lands, regular mowing, burning, and high-density grazing may maintain low vegetative structure, an important habitat characteristic of the caracara's nest stand area (Morrison and Humphrey 2001). It should be noted that regular prescribed burning maintains habitat in a favorable condition for the caracara in the form of native dry prairies. These field observations are consistent with the territory compositional analyses that indicate non-random selection of improved and semi-improved pasture land use.

Distribution

The major threat to this population remains habitat loss. Large areas of native prairie and pasture lands in south-central Florida have been converted to citrus operations, tree farms, other forms of agriculture, and real estate development and this loss has accelerated in the past few decades (Morrison and Humphrey 2001). However, historical conversion of forested habitats to pasture has not been adequately documented as partially offsetting losses to caracara habitat, so a full accounting of historic habitat changes is lacking. The current threat of habitat loss persists as changes in land use continue.

In addition to presumed population declines related to habitat loss, direct human-caused mortality may also be a factor to be considered in the recovery of the species. In the past, large numbers of caracaras were killed in vulture traps (Service 1999). Individuals may also be caught in leg-hold traps used to control mammalian predators (Morrison 1996). Florida's burgeoning human population has also increased the number of motor vehicles and the need for roads. The increase in traffic as well as the caracara's predisposition for feeding on road-killed animals has probably increased the number of caracaras killed or injured as a result of vehicle strikes. Road mortalities are a significant cause of caracara decline. Morrison (2003) identifies highway mortalities as a major cause of juvenile mortalities with young birds especially vulnerable within the first 6 months after fledging. From 1994 to 1995, fifty-five percent of the mortalities of radio-tagged caracaras were from collisions with vehicles (Morrison 1996).

Lack of habitat management is also a potential threat to caracaras in some areas, and can result in habitat degradation to the point where it is no longer suitable for occupancy. In particular, encroachment of woody shrubs and trees into open dry prairies, pastures and similar habitats will result in some reduction in habitat suitability. Complete clearing of large areas that includes removal of cabbage palms and other trees may also reduce the suitability of habitat, but generally only when very large areas are completely cleared.

Home Range

Morrison and Humphrey (2001) characterized caracara distribution, reproductive activity, and land use patterns within a 5,189,213 acre area in south-central Florida. Of this area, only a subset of this habitat is suitable for caracara forage and nest activity. The core caracara habitat lies within the Kissimmee Prairie, located northwest of Lake Okeechobee, and includes less than 250,000 acres of suitable habitat, with only 15% of that protected (Root and Barnes 2007). It is estimated that over 80% of the caracara habitat throughout its range is privately owned (Morrison and Humphrey 2001). Comparisons of caracara territories to randomly selected areas and available habitat within the study area revealed caracara home ranges contained higher proportions of improved pasture and lower proportions of forest, woodland, oak scrub, and marsh. Territory size was inversely related to the proportion of improved pasture within the territory (Morrison 1996; Morrison and Humphrey 2001). In addition, breeding-area occupancy rate, breeding rates, and nesting success were consistently higher on private ranch lands during the study. Although it is unclear exactly which management activities best promote habitat utilization by caracaras, the mowing, burning, and grazing activities associated with improved pastures serve to maintain the short vegetation structure they seem to favor. The scattered cabbage palms that are often present within improved pastures to serve as shade for cattle provide nesting substrate for caracaras (Morrison 1996; Morrison and Humphrey 2001).

Recent studies have suggested that the freshwater marsh and other non-forested wetlands may play a larger role of importance in the caracara home range based on the predominance of aquatic invertebrates in the bird's diet, discussed in the following sections (Morrison, et al., 2008). Additional investigations into habitat suitability for caracara (Morrison and Pias, 2006) indicate that maintaining heterogeneity which includes specific land cover types as well as small (less than 1 ha or 2.47 acre) freshwater wetlands, is critical in maintaining suitable habitat for the crested caracara in Florida. The

proportion of six vegetation and land cover types (i.e., cabbage palm-live oak hammock, grassland, improved pasture, unimproved pasture, hardwood hammocks and forest, and cypress/pine/cabbage palm) and two types of water (i.e., lentic and lotic) were determined to be the most important criteria for predicting habitat suitability for caracara. Most known nest locations (72.9 percent) in the study were present on improved pasture although that habitat type only comprised 12.5 percent of the entire study area. Caracaras appear to be exploiting pastures, ditches, and impounded wetlands that have replaced the historic land cover as shown by the high occurrence of improved and unimproved pastures and lotic waters in caracara home ranges (Morrison and Pias, 2006).

Diet

Caracaras are highly opportunistic in their feeding habits, eating carrion and capturing live prey. Their diets include insects and other invertebrates, fish, snakes, turtles, birds, and mammals (Layne, 1978). Live prey also include rabbits, young opossums (*Didelphis marsupialis*), rats (*Rattus spp.*), mice, squirrels, frogs, lizards, young alligators, crabs, crayfish, fish, young birds, cattle egrets (*Bubulcus ibis*), beetles, grasshoppers, maggots, and worms (Bent 1961; Layne et al. 1978); (Morrison, 2001). Scavenging at urban dumps has also been observed (Morrison 2001). More recent information cited by the Service based on personal communication with Joan Morrison (Service, 2009) indicates that wetland-dependent prey items comprise about 64 percent of the total diet. Mammals make up about 31 percent of the diet, with the majority of this being carrion.

The birds also closely follow mowers in pastures and tractors plowing fields, in order to capitalize on prey that may be exposed. Agricultural drainage ditches, cattle ponds, roadside ditches and other shallow water features also provide good foraging conditions for caracaras (Morrison 2001). Within native habitats, caracaras regularly scavenge in recently burned areas, and forage along the margins of wetlands within dry prairie communities.

These raptors hunt on the wing, from perches, and on the ground (Service 1999). They will also regularly patrol sections of roads in search of carrion (Palmer 1988). They may be seen feeding on road kills with vultures. However, caracaras are dominant over vultures and may occasionally chase the larger vultures from the road kill (Howell 1932).

Reproduction

Details of breeding behavior in the caracara have been documented by Morrison (Morrison 1999) (Morrison et al. 1997). The initiation of breeding is marked by several behavioral changes, including the pair perching together near the nesting site, preening and allopreening, and sharing food. Caracaras are one of the first of Florida's raptors to begin nesting. Although breeding activity can occur from September through June, the primary breeding season is considered to be November through April. Nest initiation and egg-laying peak from December through February.

Caracaras construct new nests each nesting season, often in the same tree as the previous year. Both males and females participate in nest building. Nests are well concealed and most often found in the tops of cabbage palms (Morrison and Humphrey 2001) although nests have been found in live oaks (*Q. virginiana*), cypress (Morrison et al. 1997), Australian pine (*Casuarina spp.*), saw palmetto, and black gum (*Nyssa sylvatica*). Caracaras usually construct their nests 13 to 60 feet above the ground; their nests primarily consist of haphazardly woven vines trampled to form a depression (Bent 1938; Sprunt 1954; Humphrey and Morrison 1997). Caracaras vigorously defend their nesting territory during the breeding season (Morrison 2001).

Clutch size is two or three eggs, but most often two. Incubation lasts for about 31 to 33 days (Morrison 1999) and is shared by both sexes. Ordinarily only one brood is raised in a season, but around 10 percent of the population (annually) may raise a second brood. The young fledge at about 7 to 8 weeks of age, and post-fledgling dependency lasts approximately 8 weeks.

Nest Survey Protocol

This information is based on the caracara survey protocol in Morrison (2001). Success in finding caracara nests during the period January to April are more likely during this time as this is the period in which most birds are feeding the nestlings and become more visible to observers. Surveys should start in January and continue through April to provide adequate data to conclude that a caracara nest does not occur on site. The survey can be concluded once all nests on the site are found. A biologist with caracara experience should conduct the surveys experience as the birds can be hard to find and identify at long distances. The protective area (primary zone) for the caracara is 985 feet around the nest. The area surveyed should include the project area and a 4,290 foot buffer to account for off-site territories that might overlap onto the project area. All areas of suitable habitat within the project area and buffer should be initially surveyed for 1 day. The area may be surveyed for more than 1 day if the area is large or if the view is obstructed. If needed, more than 1 observer may be used to complete the survey.

The observer should position themselves in a location where they have a large, unobstructed view. The survey area should be no more than about 1,235 acres, which is the largest area easily observable from one point. From a stationary position, the observer should search for caracara activity, especially birds moving to the nest tree carrying sticks or food. Nesting caracaras will often chase potential predators away from the nest such as American crows (*Corvus brachyrhynchos*), red-tailed hawks (*Buteo jamaicensis*), and turkey vultures (*Cathartes aura*); thus, revealing their presence. Also circling vultures can indicate the presence of naturally occurring carrion that may attract caracaras. Surveys have a better success rate when conducted from sunrise to 11AM and again 3 hours before sunset. During midday potential nest trees can be examined close up for evidence of nests (Morrison 2001). The area viewed during each survey should be marked on a site map. All caracara activity observed should be recorded by time of day and distinguished between juvenile and adult birds on a survey sheet and on a GPS (Global Positioning System) unit. Information such as flight direction should be noted to identify foraging areas and the nesting tree. All nesting tree locations should be marked on a map and GPS coordinates should be obtained. Weather conditions including temperature, wind speed and direction, cloud cover, visibility, and precipitation, should be recorded at the start and end of each survey period.

Survey should be repeated every 2 weeks until a nest is found or the area has been properly surveyed. If the survey starts after January and no nests are found, the earlier part of the survey should be completed during the next nesting season to insure that early nesting birds are not missed.

The opportunity for caracara observation can be enhanced by baiting an observation area with fresh meat (or road kills). If the birds find the bait, they can be followed back to their nest tree.

Nest Monitoring Protocol

For any monitoring program for crested caracaras in Florida, a qualified biologist should visit the territory on a regular basis (i.e., at least twice per month). A qualified biologist is one who has had previous experience with caracaras, including observations and, preferably, radio tracking.

The best time to monitor a known caracara territory is during January, February, and March, when nesting within the overall population is at its peak and adults are most likely to be feeding nestlings. Caracaras can also be easily observed in the territory after chicks fledge from the nest, which peaks for this population during March and April (Morrison, 2001).

Monitoring is best conducted early in the morning or late in the afternoon. Caracaras are most actively nest building, foraging, and feeding young between sunrise and about 1100 hours and again between about 1600 hours and sunset. Caracaras are rarely active during the heat of midday,

especially during the summer months. They roost in trees and often far from the nest site, thus they are rarely visible.

After the chicks fledge, the family spends less time near the nest site so the observer may have to visit more areas within the home range to find and observe the caracaras. Whereas surveying for new nests is not likely to be as productive in November and December, monitoring during these times may be productive in territories with known nest locations. Pairs are most likely to be building nests during these months (Morrison, 2001).

To find active nests in known territories, all known nest trees should be checked first. If a nest is not immediately found, observers should position themselves where known nest trees can be observed and then remain in the vehicle while watching for caracaras over a wide area of suspected habitat. Observations made in this manner will usually yield information on territorial occupancy and even the nest site after only 3 visits, if the site is active. When a nest is found, nest contents can be checked using an extendible pole with a mirror attached or by direct observation (Morrison, 2001).

Additional monitoring sessions may be needed if the nest is not found during the first monitoring session. Each session should span approximately 2-4 hours and ideally should be conducted at least 2 weeks apart from December through March. During the second visit, the search area for the nest should be broadened to include all potential nest sites within 0.5 km (0.3 mile) of the traditional site (Morrison, 2001).

A third visit should be made, if necessary, within 2 weeks of the second visit. If no adults are seen or no nest is found after 3 visits, with at least 1 visit made in each of 3 consecutive months from November through April, the home range may be considered temporarily unoccupied. However, if both members of a pair die, the site would likely be taken over by another pair if no habitat degradation occurs, so an apparently unoccupied site should be monitored the following breeding season (Morrison, 2001)(Appendix B).

Reporting Protocol

According to Morrison (2001) the purpose of the survey is to provide a complete count of all caracara nesting pairs within the project area and develop an approximate territory or home range map for each nesting pair. The survey report should include the following, as applicable:

A. Field data sheets with:

1. Dates with starting and ending times of all surveys conducted;
2. Weather conditions during all surveys, including average temperature, wind speed and direction, visibility, and precipitation; and
3. Total number of caracara nests found and number of caracaras observed in each location.

B. An aerial photograph or vegetation map depicting:

1. The entire area of interest;
2. Nest locations, primary and secondary zones;
3. Habitat descriptions; and
4. Locations of all caracaras seen or heard while conducting the survey or at any other time, including flight direction.

Reporting protocol may be found in Appendix B.

3.3 Bald Eagle (*Haliaeetus leucocephalus*)

Life History

In August of 2007 the bald eagle was removed from the ESA. Protection of this species however, continues under the Bald and Golden Eagle Protection Act (Eagle Act) and the Migratory Bird Treaty Act (MBTA). Both acts protect bald eagles from a variety of harmful actions and impacts. The Service developed the National Bald Eagle Management Guidelines to assist landowners in determining what actions may constitute an illegal activity through “disturbance” which is defined as interfering with bald eagles ability to forage, nest, roost, and breed or raise young. The guidelines are also intended to help landowners to identify ways to minimize such potential impacts to bald eagles so they may not constitute “disturbance”, which is prohibited by the Eagle Act.

Habitat

Bald eagles are considered a water-dependent species typically found near estuaries, large lakes, reservoirs, major rivers and some seacoast habitats (Service 1999). Their distribution is influenced by the availability of suitable nest and perch sites near large, open water-bodies, typically with a high amount of water-to-land edge.

Nesting habitat includes the nest tree, perch and roost sites, and adjacent high use areas, but does not include foraging areas. The nest, perch, roost sites and use areas around the nest tree comprise the nesting territory. The size and shape of a defended nesting territory varies greatly depending on the terrain, vegetation, food availability, and eagle density in the area. Generally Bald eagle nesting habitat is adjacent to, or near large bodies of water that are used for foraging (Service 1999). Nest sites must also provide good visibility, and a clear flight path to the nest (Montana Bald Eagle Working Group 1991).

In Florida, bald eagles breed and nest during the temperate winter. Habitat utilization does not vary substantially throughout the year. Some adults may remain in and defend their nesting territory outside the breeding season (Palmer 1988).

In Florida, nests are often in the ecotone between forest and marsh or water, and are constructed in dominant or co-dominant living pines or bald cypress (McEwan and Hirth 1979). About 10 percent of eagle nests are located in dead pine trees.

Distribution

The bald eagle was historically found throughout the North American continent from the Aleutian Islands and western Alaska to the Maritime Provinces of Canada and south to the Florida Keys, the Gulf Coast, and Baja California (Curnutt 1996). Today, in Florida, bald eagle nesting is prevalent along the south coast, the Gulf Coast from Pinellas County north to the Suwanee River, the St. Johns/Oklawaha River basins, and the Kissimmee River Valley including Polk and Osceola Counties.

Diet

The bald eagle is an opportunistic feeder. Accordingly, its diet varies tremendously, depending on the time of year and habitat. Most studies indicate that fish are primary component of the eagle’s diet, while birds and mammals account for the bulk of the remaining food (Johnsgard 1999).

Reproduction

In the southeastern United States bald eagles nest once a year, with the mated pair returning to the same breeding/nest area beginning in early September or October, refurbishing their nest during November and December, and egg laying in December or January. Incubation lasts approximately 35 days and clutch size typically consists of one or two eggs, but occasionally three are laid. In Florida, the eaglets will grow to the size of the adult birds within 10 to 12 weeks, at which time they

typically fledge (Wood 1997). Parental care may extend four to six weeks after fledging even though young eaglets are fully developed and may not remain at the nest after fledging.

Monitoring Protocol

According to the Bald Eagle Monitoring Guidelines (2007), continuity of monitoring, data collection and reporting is best maintained if one person conducts all monitoring for a specific project site. Close coordination is essential if more than one monitor is required. Monitoring should be conducted from a location that provides a clear vantage point of the nest and the surroundings yet far enough from the nest to ensure monitoring does not cause disturbance to the eagles. Monitoring should begin no later than October 1 and continue through fledging, if activity is anticipated or planned to occur within 660 feet of the nest tree during the nesting season. Fledging is considered to have occurred at that age when young of the year have achieved the ability to sustain flight. Monitoring should be conducted using both binoculars and a high-powered spotting scope from inside a parked vehicle or from a portable blind.

Initial monitoring should be done to confirm occupancy of the nesting territory: bald eagles are considered to have returned to the territory when one or both members of the pair appears, flies, perches, roosts, exhibits courtship, carries nest material, begins repair of the existing nest and/or begins construction of a new nest on the territory. The regulated protection zone is considered to be the area within a 660-foot radius of the nest tree; although, some pairs may construct a new, alternate nest at farther distances. If there is an alternate nest, it should be monitored until such time as the eagles have been observed incubating in one of the nests on the territory. Monitoring can then cease for the alternate nests in which nesting does not occur. However, if the nest in which nesting begins is lost prior to February 1, monitoring of all alternate nests should be re-initiated to determine if re-nesting occurs on the territory.

Initial monitoring of eagles to determine territory occupancy shall be conducted a minimum of one day per week and consist of in sequence:

- 1) Nest tree observations for a minimum of two hours starting ½ hour before sunrise, followed by
- 2) Nest tree inspection for indirect evidence of eagle use if no adults are observed. Never approach a nest tree if adult eagles are observed on the territory on that day.

The following shall constitute positive indirect evidence that bald eagles have returned to the nesting territory:

- 1) Fresh moss or green tree branches placed or interwoven into the nest top, or
- 2) Fresh droppings "whitewash" on vegetation or the ground beneath the nest tree.

Direct or indirect evidence of territory occupancy by adult eagles triggers the requirement for more intensive monitoring. The results of both direct bald eagle observations and nest tree inspections must be recorded each week on the data sheet. A confirmation of nest territory occupancy report which will include a specific schedule of dates planned for monitoring within the next month and describing the basis for the determination shall be submitted to the Service and the FWC within one week of finding positive evidence of bald eagle nest territory occupancy. Each subsequent monthly report submitted to the Service and FWC shall contain a schedule of monitoring dates for the upcoming month, and that any scheduling changes shall be reported to the agencies by email as soon as possible.

Monitoring during early phases of the nesting cycle: Once a territory is determined to be occupied, it should be considered active, and nesting eagles should, at that time, be monitored a minimum of three days each week and from ½ before sunrise for up to four hours from onset of nesting behavior

through the fourth week post-hatching and care of eaglets. Monitoring is not required on days when no infrastructure development, exterior building construction, or other human activities occurs within 660 feet of the nest tree. Monitoring should be scheduled to occur on the days that are representative of all major phases of these activities at times when they will occur.

Monitoring During Last Phase of the Nesting Cycle: Monitoring frequency for activities may be reduced to one day each week from half an hour before sunrise for up to four hours beginning five weeks post-hatching and continue until fledging occurs or May 15, whichever occurs first. However, this once a week monitoring event should occur on days that are representative of all major phases of these activities at times when they will occur.

Special Circumstances: Additional monitoring may be appropriate should special circumstances arise. The monitoring and construction plans for any nesting territory may be re-evaluated for modifications during the year. Weekly nest territory monitoring may cease after February 1 of that nesting season if:

- 1) No adult bald eagles are observed on the territory or
- 2) If an eagle was observed on the territory, but nesting was not attempted, or a nest attempt was documented to have failed and re-nesting was not attempted.

Additionally, monitoring may cease if great horned owls (*Bubo virginianus*) are documented to have occupied the nest and there are no alternate nest sites available to the eagles within 660 feet of the project, and no evidence of eagles constructing a new nest within 660 feet of the project.

General Comments: Residential and commercial development is the most common form of human activity that requires monitoring. Single-family homes typically may require a minimum of 5 months for completion of construction, and all major stages of construction, except truss placement, occur over multiple days. Monitoring should be timed to include truss placement. In all cases, the Monitor should use a site plan of the project to prepare weekly maps on which to document the specific construction activities that are occurring within 660 feet of the nest tree. Recorded construction activities should include, but not be limited to, the stage of construction of each home (i.e., fill placement, slab pouring, sidewall construction, truss placement, roofing, external finish work, internal finish work and landscaping). All observations of construction and eagle behavior must be recorded using the attached data sheet (Appendix C).

The following nest cycle activities must be documented and monitored for comparison with normal nesting behavior and for detecting and evaluating behavior that may be indicative of disturbance and/or pending risk:

1. Temporal patterns of nest attendance by the adults.
2. Observations of courtship, mating and nest building/maintenance.
3. Incubation and brooding behavior.
4. Feeding, growth and care of the eaglet(s).
5. Flight patterns to and from the nest tree.
6. Fledging of the eaglet(s).

All behavioral data and construction activities should be recorded within 15 minute intervals to facilitate analysis as a basis for detecting and evaluating behavior which may indicate pending risk. Please note that egg laying typically occurs during mid-December in Florida, but may vary by year, pair and latitude, and can extend from October through April, with most late nesters likely representing second breeding attempts (Buehler 2000). Nesting behavior which may be interpreted as abnormal, a response to construction activities and/or indicative of pending risk may include, but not be limited to:

- 1) Adults raising or standing up over the nest,
- 2) Increased time spent away from the nest by the adults that is not associated with normal nesting phenology,
- 3) Changes in flight patterns or perch tree use,
- 4) Distress calls,
- 5) Flushing behavior from the nest tree or perch trees,
- 6) Changes in the feeding schedule of the eaglet(s) and
- 7) Premature fledging of the eaglet(s).

Descriptions of specific behaviors that would warrant concern and may be indicative of pending risk are described below. Such behaviors occasionally result from factors other than human disturbance, such as death of an adult, sterility or immaturity (i.e., one member of the pair not in definitive plumage), entrance of a foreign adult eagle or great horned owls into the territory, inadequate food supply for the number of eaglets present, etc. Therefore, it is very important that observations of any abnormal behavior be reported immediately to assure proper interpretation and appropriate courses of action (Appendix C).

Reporting Protocol

According to the Bald Eagle Monitoring Guidelines (2007) the purpose of monitoring bald eagles and eaglets at their nests is to minimize any occurrence of disturbance leading to nest abandonment and/or death of eggs or eaglets, as well as to avoid potential violations of the Eagle Act. As such, monitoring is a serious obligation. All monitoring sheets need to be signed by the monitor and their supervisor beneath the statement, which reads: "I have read and understand the Bald Eagle Monitoring Guidelines. This report represents a true, accurate and representative description of the site conditions and eagle behavior at the time of monitoring".

If the monitor has not detected any, irregularities or abnormalities as described above, then only a summary report of monitoring results should be mailed via hardcopy or email to the appropriate Service Field Office and FWC (Endangered Species Coordinator, Tallahassee) on a monthly basis. Monitoring Data Sheets should be retained on file by the Monitor for a minimum of 3 years for reference, should such need occur. A final report that summarizes monitoring results and the fate of any reproductive effort must be sent to the reviewing agencies within one month of the conclusion of monitoring.

If any abnormal behavior occur due to construction activities, the monitor is responsible to report to the Responsible Party and the Service and FWC, and subsequently send the individual Bald Eagle Monitoring Data Sheets describing all relevant activities to all parties. The Service and FWC will coordinate a review within a week of the reported behavior and circumstances associated with any suspension of work activities. A verbal determination followed by a written recommendation will be issued in a timely manner as to whether construction should resume or be modified, or if monitoring frequency should be increased (Appendix C).

3.4 Wood Stork (*Mycteria americana*)

Life History

Wood storks are a large wading bird which inhabits wetland habitats within Florida. This bird was listed and endangered under the Endangered Species Act in 1984.

Habitat

Wood stork nesting habitat consists of mangroves as low as 3 ft, cypress as tall as 100 ft, and various other live or dead shrubs or trees located in standing water (swamps) or on islands surrounded by relatively broad expanses of open water (Palmer 1962; Rodgers et al. 1987; Ogden 1991; Coulter et al. 1999). Wood storks nest colonially, often in conjunction with other wading bird species, and generally occupy the large-diameter trees at a colony site (Rodgers et al. 1996). The same colony site will be used for many years as long as the colony is undisturbed and sufficient feeding habitat remains in surrounding wetlands. However, not all storks nesting in a colony will return to the same site in subsequent years (Kushland and Frohring 1986). Natural wetland nesting sites may be abandoned if surface water is removed from beneath the trees during the nesting season (Rodgers et al. 1996). In response to this type of change to nest site hydrology, wood storks may abandon that site and establish a breeding colony in managed or impounded wetlands (Ogden 1991). Wood storks that abandon a colony early in the nesting season due to unsuitable hydrological conditions may re-nest in other nearby areas (Borkhataria et al. 2004; Crozier and Cook 2004). Between breeding seasons or while foraging wood storks may roost in trees over dry ground, on levees, or on large patches of open ground. Wood storks may also roost within wetlands while foraging far from nest sites and outside of the breeding season (Gawlik 2002).

Distribution

In southern Florida, both adult and juvenile storks consistently disperse northward following fledging in what has been described as a mass exodus (Kahl 1964). Storks in central Florida also appear to move northward following the completion of breeding, but generally do not move as far (Coulter et al. 1999). Many of the juvenile storks from southern Florida move far beyond Florida into Georgia, Alabama, Mississippi, and South Carolina (Coulter et al. 1999; Borkhataria et al. 2004; Borkhataria et al. 2006). Some flocks of juvenile storks have also been reported to move well beyond the breeding range of storks in the months following fledging (Kahl 1964). This post-breeding northward movement appears consistent across years.

Adult and juvenile storks return southward in the late fall and early winter months. In a study employing satellite telemetry, Borkhataria et al. (2006) reported nearly all storks that had been tagged in the southeastern U.S. moved into Florida near the beginning of the dry season, including all subadult storks that fledged from Florida and Georgia colonies. Adult storks that breed in Georgia remained in Florida until March, and then moved back to northern breeding colonies (Borkhataria et al. 2006). Overall, about 75 percent of all locations of radio-tagged wood storks occurred within Florida (Borkhataria, et al., 2006). Range-wide occurrence of wood storks in December, recorded during the 1995 to 2008 Audubon Society Christmas Bird Counts for the Southeast U.S. (Audubon 2008) suggests that the vast majority of the southeastern United States wood stork population occurs in central and southern Florida. Relative abundance of storks in this region was 10 to 100 times higher than in northern Florida and Georgia (Service, 2007). As a result of these general population-level movement patterns during the earlier period of the stork breeding season in southern Florida, the wetlands upon which nesting storks depend are also being heavily used by a significant portion of the southeastern United States wood stork population, including storks that breed in Georgia and the Carolinas, and subadult storks from throughout the stork's range. In addition, these same wetlands support a wide variety of other wading bird species (Gawlik 2002).

Home Range

Historically, storks nested in all coastal states from Texas to South Carolina (Bent 1926, Cone and Hall 1970, Dusi and Dusi 1968, Howell 1932, Oberholser 1938, Oberholser and Kincaid 1974, Wayne 1910), although colonies which were outside of Florida formed irregularly and contained few birds. Now, nesting is been restricted to Florida, Georgia, and South Carolina, however it is believed that they may have formerly bred in most of the southeastern United States and Texas. There is a second distinct, non-endangered population of wood storks which breeds from Mexico to northern Argentina. The wood storks from both populations migrate northward after breeding. The storks

from the southeastern United States population will move as far north as North Carolina on the Atlantic coast and into Alabama and eastern Mississippi along the Gulf coast. The storks from Mexico will move up into Texas and Louisiana and as far north as Arkansas and Tennessee along the Mississippi River Valley (Service, 2007).

Diet

Wood storks forage in a wide variety of wetland types, where prey are available to storks and the water is shallow and open enough to hunt successfully (Ogden et al. 1978; Browder 1984; Coulter 1987). Calm water, about 2 to 16 inches in depth, and free of dense aquatic vegetation is ideal (Coulter and Bryan 1993). 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 and Bryan 1993, Coulter et al. 1999).

Several factors affect the suitability of potential foraging habitat for wood storks. Suitable foraging habitats must provide both a sufficient density and biomass of forage fish and other prey, and have vegetation characteristics that allow storks to locate and capture prey. During nesting, these areas must also be sufficiently close to the colony to allow storks to efficiently deliver prey to nestlings. Hydrologic and environmental characteristics have strong effects on fish density, and these factors may be some of the most significant in determining foraging habitat suitability, particularly in southern Florida.

During the period when a nesting colony is active, storks are dependent on consistent foraging opportunities in wetlands within about 12 to 18 miles of the nest site (Kahl 1964 and Coulter and Bryan, 1993) with the greatest energy demands occurring during the middle of the nestling period, when nestlings are 23 to 45 days old (Kahl, 1964).

Within the wetland systems of southern Florida, the annual hydrologic pattern is very consistent, with water levels rising over 3 feet during the wet season (June-November), and then receding gradually during the dry season (December-May). Storks nest during the dry season and rely on the drying wetlands to concentrate prey items in the ever-narrowing wetlands (Kahl, 1964). Because of the continual change in water levels during the stork nesting period, any one site may only be suitable for stork foraging for a narrow window of time when wetlands have sufficiently dried to begin concentrating prey and making water depths suitable for storks to access the wetlands. Once the wetland has dried to where water levels are near the ground surface, the area is no longer suitable for stork foraging and will not be suitable until water levels rise and the area is again repopulated with fish. Consequently, there is a general progression in the suitability of wetlands for foraging based on their hydroperiods, with the short hydroperiod wetlands being used early in the season, the mid-range hydroperiod sites being used during the middle of the nesting season, and the longest hydroperiod areas being used later in the season (Kahl, 1964; Gawlik, 2002).

In addition to the concentration of fish due to normal drying, several other factors affect fish abundance in potential foraging habitats. Longer hydroperiod areas generally support more fish and larger fish (Loftus and Eklund 1994; Jordan et al 1997; Jordan et al. 1998; Turner et al 1999; Trexler et al 2002). In addition, nutrient enrichment (primarily phosphorus) within the oligotrophic Everglades wetlands generally results in increased density and biomass of fish in potential stork foraging sites (Rehage et al. 2006). Distances from dry-season refugia, such as canals, alligator holes, and similar long hydroperiod sites, also affect fish density and biomass in southern Florida.

Reproduction

Breeding wood storks are believed to form new pair bonds every season. First age of breeding has been documented in 3- to 4-year old birds, but the average first age of breeding is unknown. Eggs are laid as early as October in south Florida and as late as June in north Florida (Rodgers 1990). A

single clutch of two to five (average three) eggs is laid per breeding season, but a second clutch may be laid if a nest failure occurs early in the breeding season (Coulter et al. 1999). There is variation among years in the clutch sizes, and clutch size does not appear to be related to longitude, nest data, nesting density, or nesting numbers, and may be related to habitat conditions at the time of laying. Egg laying is staggered and incubation, which lasts about 30 days, begins after the first egg is laid. Therefore, the eggs hatch at different times and the nestlings vary in size (Coulter et al. 1999). The younger birds are first to die during times of scarce food.

The young fledge in about 8 weeks, but will stay at the nest for 3 to 4 more weeks to be fed. Adults feed the young by regurgitating whole fish into the bottom of the nest about 3 to 10 times per day. Feedings are more frequent when the birds are young (Coulter et al. 1999). Feedings are less frequent when wood storks are forced to fly great distances to locate food (Bryan et al. 1995). The total nesting period, from courtship and nest building through independence of young, lasts about 100 to 120 days (Coulter et al. 1999). Within a colony, nest initiation may be asynchronous and, consequently, a colony may contain active breeding wood storks for a period significantly longer than the 120 days required for a pair to raise young to independence. Adults and independent young may continue to forage around the colony site for a relatively short period following the completion of breeding.

3.5 Eastern Indigo Snake (*Drymarchon corais couperi*) and Gopher Tortoise (*Gopherus polyphemus*)

Life History

The eastern indigo snake was listed as endangered by the Service under the Endangered Species Act in 1979. The eastern indigo snake is the largest nonpoisonous snake native to the United States. Since its listing, habitat loss and fragmentation by residential and commercial expansion have become much more significant threats to the eastern indigo snake (Service 1999).

The gopher tortoise is as threatened under FWC in the state of Florida. Recently, the Service has added the gopher tortoise as a candidate species for the ESA. Gopher tortoises use their forelimbs to excavate burrows which help protect them from temperature extremes (heat and cold), moisture loss, and predators, serve as refuges for 350-400 other species, including listed commensal species such as the Florida pine snake (*Pituophis melanoleucus mugitus*), gopher frog (*Rana capito*), Florida mouse (*Peromyscus floridanus*), and especially the eastern indigo snake (*Drymarchon couperi*), (Cox et al. 1987, Jackson and Milstrey 1989, Witz et al. 1991, Kent et al. 1997). The gopher tortoise is included herein because of its reported symbiotic relationship with the eastern indigo snake and due to the potential to be a listed species.

Habitat

Eastern indigo snakes use a mosaic of habitats. A study in southern Georgia found that interspersions of tortoise-inhabited sandhills and wetlands improve habitat quality for the eastern indigo snake (Landers and Speake 1980). The gopher tortoise typically inhabits uplands, especially those with relatively well drained, sandy soil, such as, longleaf pine (*Pinus palustris*) and xeric oak (*Quercus spp.*) sandhills. Gopher tortoises may also occur in scrub, xeric hammock, pine flatwoods, dry prairie, coastal grasslands and dunes, mixed hardwood-pine communities, and a variety of disturbed habitats (Auffenberg and Franz 1982; Kushlan and Mazzotti 1984; Diemer 1986, 1987, 1992b; Breining et al. 1994). It has been reported that eastern Indigo snakes shelter in gopher tortoise burrows, hollowed root channels, hollow logs, or the burrows of rodents, armadillos, or land crabs (Lawler 1977; Moler 1985a; Layne and Steiner 1996).

In the milder climates of central and southern Florida, eastern indigo snakes exist in a more stable thermal environment, where availability of thermal refugia may not be as critical to snake survival. Over most of its range in Florida, the Eastern Indigo snake frequents diverse habitats such as pine flatwoods, scrubby flatwoods, floodplain edges, sand ridges, dry glades, tropical hammocks, edges of freshwater marshes, muckland fields, coastal dunes, and xeric sandhill communities (Service 1999). Eastern Indigo snakes also use agricultural lands and various types of wetlands, with higher population concentrations occurring in the sandhill and pineland regions of northern and central Florida. Observations over the last 50 years made by maintenance workers in citrus groves in east-central Florida indicate that eastern indigo snakes are occasionally observed on the ground in the tree rows and more frequently near the canals, roads, and wet ditches (Zeigler 2006). In the sugar cane fields at the A-1 Reservoir Project site in the EAA, Eastern indigo snakes have been observed (including one mortality) during earthmoving and other construction-related activities. In extreme south Florida (i.e., the Everglades and Florida Keys), Eastern indigo snakes are found in tropical hardwood hammocks, pine rocklands, freshwater marshes, abandoned agricultural land, coastal prairie, mangrove swamps, and human-altered habitats (Steiner et al. 1983). It is speculated that they prefer hammocks and pine forests since most observations occur there and use of these areas is disproportionate compared to the relatively small total area of these habitats (Steiner et al. 1983). Even though thermal stress may not be a limiting factor throughout the year in South Florida, Eastern Indigo snakes still seek and use underground refugia in the region (Layne and Steiner 1996).

Distribution

Historically the eastern indigo snake was found from South Carolina to Georgia and from Florida down to the Keys and in west to southern Alabama to Mississippi (Moler, 1985). However, in recent years the eastern indigo snake occurs almost exclusively in Florida and the Coastal Plain of Southern Georgia (Hallam et al, 1998). The gopher tortoise can be found within the southeastern Coastal Plain from southeastern South Carolina to extreme southeastern Louisiana (Auffenberg and Franz 1982). The gopher tortoise is endemic to the United States, and Florida represents the largest portion of the total global range for this species. Though gopher tortoises remain widely distributed in Florida, occurring in parts of all 67 counties; their current range in south Florida is limited because of the increase in urbanization and unsuitable habitat (Diemer 1987, Mushinsky et al. 2006). Tortoise populations can be found as far south as Cape Sable and on islands off Florida's east and west coasts (Auffenberg and Franz 1982, Kushlan and Mazzotti 1984).

Home Range

Eastern indigo snakes range over large areas and use various habitats throughout the year, with most activity occurring in the summer and fall (Smith 1987; Moler 1985a). Adult males have larger home ranges than adult females and juveniles; their ranges average 554 acres, decreasing to 390 acres in the summer (Moler 1985b). In contrast, a gravid female may use from 3.5 to 106 acres (Smith 1987). In Florida, home ranges for females and males range from 5 to 371 acres and 4 to 805 acres, respectively (Smith 2003). At the Archbold Biological Station (ABS), average home range size for females was determined to be 47 acres and overlapping male home ranges to be 185 acres (Layne and Steiner 1996).

Home range size of the gopher tortoise varies with season, habitat type, and sex of the tortoise; moreover, considerable individual variation has been found (Diemer 1992b). Reported annual average home ranges for a male have varied from 1.2 to 4.7 acres, while females generally have smaller home ranges, with reported averages ranging from 0.2 to 1.6 acres (McRae et al. 1981, Diemer 1992b, Smith et al. 1997; see summary in Pike 2006). One tortoise will typically use several burrows (McRae et al. 1981, Auffenberg and Franz 1982, Diemer 1992b), which complicates estimates of population density (McCoy and Mushinsky 1992b).

Diet

Eastern indigo snakes are active and spend a great deal of time foraging and searching for mates. They are one of the few snake species that are active during the day and rest at night. The eastern indigo snake is a generalized predator and will eat any vertebrate small enough to be overpowered. They swallow their prey alive. Food items include fish, frogs, toads, snakes (venomous, as well as non-venomous), lizards, turtles, turtle eggs, small alligators, birds, and small mammals (Keegan 1944; Babis 1949; Kochman 1978; Steiner et al. 1983).

Gopher tortoises typically forage on broadleaf grasses, wiregrass, grass-like asters, legumes, and fruits (Garner and Landers 1981, Macdonald and Mushinsky 1988), but have been observed eating >300 species of plants (Ashton and Ashton 2004). Herbaceous ground cover can affect the density of gopher tortoises and their movements (Auffenberg and Iverson 1979). Generally, feeding activity is confined to within 164 foot of the burrow (Auffenberg and Franz 1982), but a tortoise may travel 328 feet from its burrow for specific forage requirements (Ashton and Ashton in press).

Reproduction

In south-central Florida, limited information on the reproductive cycle suggests that eastern Indigo snake breeding extends from June to January, egg laying occurs from April to July, and hatching occurs from mid-summer to early fall (Layne and Steiner 1996). Young hatch approximately 3 months after egg-laying and there is no evidence of parental care. Eastern indigo snakes in captivity take 3 to 4 years to reach sexual maturity (Speake et al. 1987). Female eastern indigo snakes can store sperm and delay fertilization of eggs. There is a single record of a captive eastern indigo snake laying five eggs (at least one of which was fertile) after being isolated for more than 4 years (Carson 1945). However, there have been several recent reports of parthenogenetic reproduction by virginal snakes. Hence, sperm storage may not have been involved in Carson's (1945) example (Moler 1998). There is no information on the eastern indigo snake lifespan in the wild, although one captive individual lived 25 years, 11 months (Shaw 1959).

The gopher tortoise is slow to reach sexual maturity, females reach sexual maturity at 9-21 years of age, depending on local resource abundance and latitude; males mature at a slightly younger age (Landers et al. 1980, Diemer and Moore 1994, Mushinsky et al. 1994, Aresco and Guyer 1999). The breeding season for gopher tortoises is generally from March to October (Johnson et al. 2007). Nests are excavated (often in the apron of the burrow) from mid-May to mid-June, and only 1 clutch is produced annually (Landers et al. 1980). Clutch sizes range from 5 to 9 eggs, with an average of 6 eggs (Diemer and Moore 1994, Butler and Hull 1996; see summary in Ashton et al. 2007). The eggs incubate for approximately 80-100 days, depending on latitude (Iverson 1980, Landers et al. 1980).

Burrow Survey Protocols

Potential eastern indigo snake and gopher tortoise habitat needs to be determined before field work is conducted by use of GIS and the creation of a map to be used in the field. Belt transects should be placed every 18 feet or the length of the three surveyors arms stretched fingertip to fingertip. Person B should be the center point to be mark on the GPS unit so that a straight line can be navigated. All three surveyors will line up fingertip to fingertip at the beginning of the transect. Person A will be on the edge of potential habitat and person C will be towards the interior of the potential habitat. Person C will flag their position at the starting point with transect marking flag and continue to flag every 50 feet along the transect. All surveyors will move forward in a slow methodical manner looking both ways with every stride. Surveyors will use a stick or a PVC pipe to look under debris or to lift palm fronds to look for burrows, but be they should not use their hands, as poisonous snakes make rest under this debris. Once burrow is found surveyors must mark their current location on the GPS unit and flag the burrow. Person B will stand directly over the burrow to GPS its location. Person B will read the GPS units to Person A so that they may be recorded on the survey sheet. Location and activity (Active, Potentially Occupied, or abandoned) will be recorded at each burrow. Person C will tie a flag to a visible location above the burrow and place a pin flag directly behind the burrow opening, both should be labeled with burrow number, activity, and date. Once all

information is recorded each person will return to their location marker and survey may continue. Once surveyors have reached the end of the transect, they will be able to start the next transect. To do this line up with an arm's length from the transect-marking flag that Person C had placed every 50 feet on the previous transect.

Survey Protocol

According to the Service (2011) the survey protocol below is the latest survey methodology for the eastern indigo snake. Three different types of surveys can be conducted to determine the presence/absence of the eastern indigo snake. One method is a visual survey, another is to survey above ground refugia, and the third is to survey underground refugia. The visual encounter surveys are intended to locate eastern indigo snakes above ground and to identify refugia for subsequent inspection of the impact area. The impact area is defined as the project footprint or that part of the parcel to be built out that will no longer constitute eastern indigo snake habitat after the construction of the project. Underground refugia is commonly used by this species and includes active or inactive burrows excavated by gopher tortoises or other species, ground holes, hollows at the base of trees and other similar formations. Above ground refugia includes thick shrub formations, stumps, the base of thick palmetto (*Serenoa repens* or *Sabal etonia*) ground litter, brush piles, trash piles, and abandoned structures, and crevices of rock-lined ditch walls and other similar refugia.

Survey Period

Timing for transect surveys and inspection of refugia should coincide with the increased likelihood of finding eastern indigo snakes in or near refugia, and while the snakes home range is reduced in winter months. In Florida, eastern indigo snakes will generally concentrate their activities near refugia during the cooler months; however we also recognize the differences in temperature regimes within the State. Therefore, we recommend conducting surveys for eastern indigo snakes from October 1 through April 30. If cold weather prevails outside of the recommended survey period, please contact the NFESFO for the potential to work outside of the designated time window.

Methodology

The Protocol's methodology consists of three steps:

1. Transect surveys (visual encounter surveys to locate snakes and identify above-ground and underground refugia in the impact area).
2. Inspection of above-ground refugia.
3. Inspection of underground refugia.

The surveyor should always carry a camera to first photo-document any snake sightings, and use a Global Positioning System (GPS) unit to document the location using the latitude/ longitude coordinate system and record and submit the beginning and end points for transects. If a GPS unit is not available, the location should be marked with rebar, wooden stake or flagging tape so that relocation with a GPS unit to record the location at a later date is possible. In addition, a notebook entry with location and site characteristics should be utilized. Locating eastern indigo snakes involves walking along transects previously established on a map or graphic representation to scale of the project parcel. These transects should be appropriately spaced to ensure that all areas inside of the impact area are inspected as described below.

Transect Surveys

Transect surveys are to be conducted along established transects when the prevailing weather conditions allow for effective surveys. A minimum of five (5) survey days with a minimum of two (2) "high quality" weather days is most effective. A high quality weather day is a warm day preceded by several cool or cold days. A high quality weather day increases the likelihood of encountering an eastern indigo snake above ground. Survey dates do not have to be conducted on consecutive days and can be conducted by one or multiple surveyors depending on the size of the impact area. The

optimal temperature range for conducting pedestrian surveys is 60° F – 70° F (Georgia Department of Transportation, 2004). Within this range of temperatures eastern indigo snakes will most likely be thermo regulating above ground. Please note: A survey day is the amount of time required to review the entire impact area once. Therefore, the entire impact area needs to be reviewed a minimum of 5 times which may actually result in more than 5 survey days for larger impact areas. Should any eastern indigo snakes be located after the completion of at least one survey day; then the surveyor may discontinue the survey for the remaining days of the recommended five (5) days since presence has been established.

Surveys are to be conducted during the part of the day when the snakes are likely to emerge from their refugia. On sunny days this can be from 0900–1600 hours, with the optimal search period being from 1030–1500. (Georgia Department of Transportation, 2004). This time period allows for sufficient time for the warming of air and surface temperatures that may induce activity in the snakes. Overcast days may require longer periods to achieve acceptable temperatures.

When weather conditions are appropriate, surveyors should walk the previously established transects through the project's impact area. The recommended approach is to systematically search the entire impact zone by traveling parallel transects spaced appropriately for the habitat conditions (i.e., the length may be consistent or vary with the shape of the site, but the width should allow a reasonable level of detection of burrows or other eastern indigo snake refugia). The search can be conducted by one or more observers. Transect edges should be marked with flagging to ensure complete coverage.

In open habitat such as mowed pasture or natural sandhill, transects should be spaced no more than 33 feet apart. In thicker habitat, such as flatwoods and scrub, transects should be spaced as close as 16 feet apart. Patches of extremely thick habitat, such as saw palmetto or blackberry patches, should be searched more intensely, with spacing at approximately three feet or less. Surveyors should look for eastern indigo snakes moving or resting on the surface, noting any signs of tracks, scat, or shed skin, and provide photographs to assist with identification, along with the coordinates of the location where these signs were discovered, date, time, habitat conditions, and nearest known potential refugia included with the Final Survey Report. Surveyors should closely investigate the ground around saw palmetto clumps, downed trees, and other types of cover for shed skins. Eastern indigo snakes shed their skins every 30-45 days (Moler 1992), and these shed skins may persist for many weeks.

All potential eastern indigo snake refugia should be flagged and numbered, using GPS to record the location of eastern indigo snake refugia in the surveyed area. The refugium shall be identified as to type, e.g. gopher tortoise burrow, armadillo burrow, and stump hole. This will assist field work during the period of inspection of the refugia. Survey results should be submitted to NFESFO at the end of the visual encounter surveys even if no eastern indigo snake refugia are identified.

Inspection of Above Ground Refugia

Caution should be applied when placing hands, heads, or feet on the ground near the entrance to gopher tortoise burrows as eastern diamondback rattlesnakes (*Crotalus adamanteus*) are frequent commensals in the burrows and may be provoked by excavation or inspection disturbances. Pigmy rattlesnakes (*Sistrurus miliarius*), fire ants (*Solenopsis invicta*) and black widow spiders (*Latrodectus mactans*) may also be present and pose a threat to the unwary surveyor (GDOT 2004). Previously identified above ground refugia on the project impact area of the parcel should be inspected in a non-destructive manner. Above ground refugia include shrubs, ground litter, brush piles, trash piles, abandoned structures, rock piles, stumps, and other similar formations likely to serve as eastern indigo snake refugia. Inspection of above ground refugia includes inspecting ground litter, trash piles, and around ground cover such as plywood boards or sheet metal to locate eastern indigo snakes in hiding. After inspections, refugia should be restored to a condition similar to as found. Note: if a snake is observed do NOT place objects on top of snake.

Inspection of Underground Refugia

For this protocol, the inspection of underground refugia involves the visual inspection of gopher tortoise burrows, burrows excavated by other species, and other holes in the ground. Scoping a burrow or refugia with a camera may be beneficial, but camera scoping does not always detect eastern indigo snakes. In addition, the scoping of gopher tortoise burrows requires authorization from the state of Florida.

At each potential refugium, intensive searches will be conducted within a 33 feet radius. Any animal sign, e.g. tracks, scat, or shed skin, in the immediate area of a 33 feet radius of the refugium should be noted. Surveyors should closely investigate the ground around saw palmetto clumps, downed trees, and other types of cover for shed skins. The entrance to the gopher tortoise burrow should be examined for snake tracks. A flashlight, or a small mirror to direct sunlight, may be employed to examine the first few feet of the burrow where a snake may be resting (GDOT 2004; Service, 2011).

Burrow Excavation & Relocation Protocol

According to FWC, 2009, insert a PVC pipe into the entrance of the burrow until it will not go any further. Move the pipe around inside the burrow and listen closely for the sound of a rattlesnake. This will either drive the snake out or further down into the burrow. Survey for eggs by gently poking a pin flag into the sandy area (apron) in front of and around the burrow and also in any sandy/sunny areas near the burrow. Listen closely for a soft ping (similar to tapping china). If a ping is heard excavate that area gently, looking for eggs, usually not more than 8 inches down.

If eggs are found

1. Place an "X" on the top of each of the eggs prior to moving them using a non-toxic pencil or marking pen.
2. Prepare a bucket with several inches of vermiculite in the bottom.
3. Remove eggs gently from the nest placing them in the same position into the vermiculite. (Do NOT jar the eggs because the embryos can easily detach from the shell and suffocate)
4. If no eggs are found proceed to section "iv"
5. Place a 5 gallon bucket as close to burrow entrance as possible and twist bucket to outline the outer edge of the area that will be excavated. Use shovel to excavate a hole the size of the bucket. If necessary, use clippers to remove any troublesome roots. Place all dirt behind the burrow in one pile out of the line of sight of the tortoise; the dirt will be used to fill up hole when trap is removed. Place the bucket in the hole with a very slight angle down towards the opening of the burrow and handle placed level to the ground away from burrow entrance (bucket lip should be not more than one inch below the bottom of the burrow)
6. Grade the slope leading away from burrow entrance so that it appears level to the tortoise.
7. Place packing paper over opening of the bucket and secure by filling dirt in around the edge of the bucket. Sprinkle a light layer of dirt over packing paper to camouflage.

If burrow and bucket trap are in full sunlight the trap must be shaded. Use clippers to remove several palm fronds or other vegetation and place on top of the burrow angled to shade the bucket from all sides. Vegetation should not be obstructing the tortoise's movement in any way. Place bucket lid in dirt pile to use when you are not able to check the bucket at least 2X a day (lid should be placed securely over bucket when the trap can't be checked a minimum of twice per day). Place pin flag with burrow number and date trap was set behind burrow entrance.

Reporting Protocol for Eastern Indigo Snake

The surveyor(s) and their supervisor should sign and date the completed Final Survey Report and data sheets and submit it to the Service with the following statement included: "I have read and understand the survey protocol for the eastern indigo snake. This report represents a true, accurate and representative description of the results obtained after following this Protocol." The Service will

consider the results of the survey protocol to be valid for two (2) years from the date of completion, unless the habitat has been significantly modified.

After reviewing the Final Survey Report with attached data sheets and other relevant information, the Service will determine if incidental take is likely to occur, and may recommend commensurate conservation measures through informal or formal consultation, or Section 10 permit coordination procedures as appropriate. The Service will provide the action agency or applicant with a letter or biological opinion concluding the consultation.

Monitoring Report

A monitoring report should contain the following information: location, dates, and times for any sightings of eastern indigo snakes. Also include the results any of tortoise burrow searches. If a snake is encountered during a tortoise burrow search then a description of the outcome for the snake is needed. Was the snake left in an intact burrow? Was the burrow excavated? If so, did the snake leave and where did it go? A site map with sighting locations marked would be helpful. If no snakes are encountered, a report should be submitted indicating that fact. The report should be sent to the USFWS South Florida Ecological Services Office, 1339 20th Street, Vero Beach, Florida, 32960 (attention: Eastern Indigo Snake Lead Biologist) within 60 days of the conclusion of the project (Service, 2004c).

Dead, injured, or sick animals

If a dead, injured, or sick eastern indigo snake is found on site, notification should be made to the nearest Fish and Wildlife Service Law Enforcement Office. Secondary notification should be made to the Florida Fish and Wildlife Conservation Commission; South Region; 3900 Drane Field Road; Lakeland, FL 33811; Wildlife Alert Number 1-800-404-3922.

A dead specimen should be thoroughly soaked in water, and then frozen. In conjunction with the care of sick or injured eastern indigo snakes or preservation of biological material from a dead animal, the finder also has the responsibility to carry out instructions provided by the Fish and Wildlife Service Law Enforcement officer to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed (Service, 2004c).

3.6 Everglades Snail Kite (*Rostrhamus sociabilis plumbeus*)

Life History

A subspecies of the everglades snail kite (*Rostrhamus sociabilis plumbeus*) was listed as endangered pursuant to the Endangered Species Act in 1967. Critical habitat for the Everglade snail kite was designated in 1977 (Service, 1977), and includes the water conservation areas (WCA). This subspecies resides in Cuba and Florida, and not in any other regions. The everglade snail kite is a raptor which is usually found in low lying freshwater marshes in subtropical and tropical America, ranging from Florida, Cuba and Mexico all the way south to Argentina and Peru. Everglade snail kites are nomadic throughout south Florida, seeking wetlands with suitable foraging and nesting habitat (Service 1999).

Habitat

Snail kite habitat consists of freshwater marshes and the shallow vegetated edges of lakes (natural and manmade) where apple snails can be found. These habitats occur in humid, tropical ecoregions of peninsular Florida (Bailey 1978) and are characterized as palustrine-emergent, long-hydroperiod wetlands (Cowardin et al. 1979) often on an organic peat substrate overlying oolitic limestone or sand or directly on limestone or marl (Davis 1946).

Kite nesting usually occurs over water, which deters predation (Sykes 1987a). An important feature for snail kite nesting habitat is the proximity of suitable nesting sites to favorable foraging areas.

Extensive stands of contiguous woody vegetation are generally unsuitable for nesting. Suitable nest sites consist of single trees or shrubs, or small clumps of trees and shrubs within or adjacent to an extensive area of suitable foraging habitat. Trees usually less than 32 feet tall are used for nesting, and include willow (*Salix spp.*), bald cypress (*Taxodium distichum*), pond cypress (*Taxodium ascendens*), Melaleuca quinquenervia, sweetbay (*Magnolia virginiana*), swamp bay (*Persea borbonia*), pond apple (*Annona glabra*), and dahoon holly (*Ilex cassine*). Shrubs used for nesting include wax myrtle (*Myrica cerifera*), cocoplum (*Chrysobalanus icaco*), buttonbush (*Cephalanthus occidentalis*), Sesbania sp., elderberry (*Sambucus simpsonii*), and Brazilian pepper (*Schinus terebinthifolius*). Nesting also can occur in herbaceous vegetation, such as sawgrass, cattail, bulrush (*Scirpus spp.*), and reed (*Phragmites australis*) (Sykes et al. 1995). Nests have been observed in herbaceous vegetation most often around Lake Kissimmee and Lake Okeechobee during periods of low water when dry conditions beneath the willow stands (which tend to grow to the landward side of the cattails, bulrushes, and reeds) prevent snail kites from nesting in woody vegetation. Nests constructed in herbaceous vegetation are more vulnerable to collapse due to the weight of the nests, wind, waves, and boat wakes and are more exposed to disturbance by humans (Chandler and Anderson 1974; Sykes and Chandler 1974; Sykes 1987a; Beissinger 1986, 1988; Snyder et al. 1989).

While kites are capable of foraging successfully under a variety of habitat conditions, the preferred foraging habitat is typically a combination of relatively short-stature (less than 6.5 ft tall), sparse graminoid marsh vegetation. The apple snail requires emergent aquatic plants to provide substrate that allows them to reach the water surface to breathe. However, for kites to feed, the emergents must be sparse enough that they are capable of locating and capturing snails (Kitchens et al. 2002). Marshes and lake littoral zones composed of interdigitated areas of open water 0.6 to 4.3 ft deep that is relatively clear and calm, and patches of herbaceous emergent wetland plants generally provide the appropriate balance of emergent vegetation and open water (Sykes et al. 1995; Kitchens et al. 2002). Marsh species that commonly occur within favorable kite foraging habitat include spikerush (*Eleocharis cellulosa*), maidencane (*Panicum hemitomon*), sawgrass (*Cladium jamaicense*), bulrush (*Scirpus spp.*), and/or cattails (*Typha spp.*). Shallow open-water areas may also contain sparse cover of species such as white water lily, arrowhead (*Sagittaria lancifolia*), pickerel weed (*Pontederia lanceolata*), and floating heart (*Nymphoides aquatica*). Giant bulrush (*Scirpus validus*) is common at the deep-water edge of marshes in the lakes. Low trees and shrubs also are often interspersed with the marsh and open water. These often include willow, dahoon holly, pond apple, bald cypress, pond cypress, wax myrtle, buttonbush, and melaleuca, an invasive exotic species.

Periphyton growth on the submerged substrate provides food source for apple snails, and submergent aquatic plants such as bladderworts (*Utricularia spp.*) and eel grass (*Vallisneria spp.*) may contribute to favorable conditions for apple snails while not preventing kites from detecting snails (Sykes et al. 1995). Foraging habitat conditions that differ substantially from those described above will result in either reduced apple snail density or reduced ability of snail kites to locate and capture snails. Vegetation cover that is either too dense or too sparse can result in reduction in the quality of the area as foraging habitat.

Snail kites require foraging areas relatively clear and open in order to visually search for apple snails. Therefore, dense growth of herbaceous or woody vegetation is not conducive to efficient snail kite foraging or for apple snails. The interspersed emergent vegetation enables apple snails to climb near the surface to feed, breathe, and lay eggs. Nearly continuous flooding of wetlands for greater than 1 year is needed to support apple snail populations that in turn sustain foraging by the snail kite (Sykes 1979; Beissinger 1988). Cultural eutrophication of water bodies in Florida is occurring through disposal of domestic sewage and runoff of nutrient-laden water from agricultural lands. This degradation of water quality promotes dense growth of exotic and invasive native plants, particularly cattail, water lettuce (*Pistia stratiotes*), water hyacinth (*Eichhornia crassipes*), and hydrilla (*Hydrilla verticillata*).

Roosting sites are also usually located over water. On average, in Florida, 91.6 percent are located in willows, 5.6 percent in melaleuca, and 2.8 percent in pond cypress. Roost sites are in the taller vegetation among low-profile marshes. Snail kites tend to roost around small openings in willow stands at a height of 6 to 20 feet, in stand sizes of 0.04 to 12 acres. Roosting also has been observed in melaleuca or pond cypress in stands with tree heights of 13 to 40 feet (Sykes 1985).

Distribution

The current and historic distribution of the snail kite in Florida is limited to central and southern portions of the State (**Figure 9**). Six large freshwater systems are located within the current range of the snail kite: Upper St. Johns drainage, Kissimmee Valley, Lake Okeechobee, Loxahatchee Slough, the Everglades, and the Big Cypress basin (Beissinger and Takekawa 1983; Sykes 1984; Rodgers et al. 1988; Rumbold et al. 1994; Sykes et al. 1995). Habitats in the Upper St. Johns drainage include the East Orlando Wilderness Park, the Blue Cypress Water Management Area, the St. Johns Reservoir, and the Cloud Lake, Strazzulla, and Indrio impoundments. In the Kissimmee Chain of Lakes, snail kites are found at Lake Pierce, Lake Tohopekaliga, East Lake Tohopekaliga, Cypress Lake, Lake Hatchineha, Lake Marion, Lake Marian, Lake Kissimmee, Tiger Lake, Lake Arbuckle, and Lake Istokpoga. Lake Okeechobee and surrounding wetlands represent significant snail kite nesting and foraging habitats, particularly the large marsh in the southwestern portion of the lake and the area southwest of the inflow of the Kissimmee River. In the Loxahatchee Slough region of Palm Beach County, snail kites are found at the West Palm Beach Water Catchment Area, the Pal-Mar Water Conservation District, and borrow lakes on property belonging to the Solid Waste Authority of Palm Beach County and the City of West Palm Beach. Wetlands in the Everglades region supporting the snail kite are the Loxahatchee NWR, WCAs 2 and 3, Shark River Slough, Taylor Slough in ENP, and the C-111 basin west of U.S. Highway 1. In the Big Cypress basin, snail kites use the Lostman's and Okaloacoochee Sloughs, Hinson Marsh, and the East Loop and Corn Dance units of Big Cypress National Preserve. The Savannahs State Preserve in St. Lucie County, the Hancock impoundment in Hendry County, and Lehigh Acres in Lee County are among the smaller more isolated wetlands used by snail kites (Sykes et al. 1995). Although the above list generally describes the current range of the species, radio tracking of snail kites has revealed that the network of habitats used by the species includes many other smaller widely dispersed wetlands within this overall range (Bennetts and Kitchens 1997).

Home Range

Snail kites are restricted to south and central Florida. Though snail kites do not migrate, they are nomadic in response to water depths, hydroperiods, food availability and other habitat changes (Service, 1999; Sykes 1978, 1983a; Beissinger and Takekawa 1983; Bennetts et al. 1994).

Diet

The snail kite feeds almost exclusively on apple snails in Florida. Kites possess several unique adaptations that allow them to efficiently capture, extract, and consume *Pomacea* snails (e.g., the slender, deeply hooked sharp-tipped bill that allows kites to efficiently extract snails from their shells, long slender toes that allow kites to grasp large snails) (Sykes et al. 1995; Beissinger 1990). The snail kite uses two visual foraging methods: (1) course hunting, while flying 5 to 32 feet above the water surface, or (2) still hunting, from a perch. While course hunting, the flight is characterized by slow-wing beats, alternating with gliding; the flight path is usually into the wind, with the head oriented downward to search for prey. Snails are captured with the feet at or below the surface, to a maximum reach of approximately 6 inches below the surface. Snail kites do not plunge into the water to capture snails and never use the bill to capture prey. Individuals may concentrate hunting in a particular foraging site, returning to the same area as long as foraging conditions are favorable (Cary, 1985). Capture rates are higher in summer than in winter (Cary, 1985), with no captures observed at a temperature less than 50°F. Snail kites frequently transfer snails from the feet to the bill while in flight to a perch. Feeding perches include living and dead woody-stemmed plants, blades of sawgrass and cattails, and fence posts.

Several species of non-native snails have become established in Florida. The snail kite is known to feed on the introduced snail *Pomacea bridgesi* (Takekawa and Beissinger 1983). On rare occasions, snail kites in Florida prey on small turtles (Sykes and Chandler 1974; Beissinger 1988; Bennetts et al. 1988). Snail kites have also been observed feeding upon crayfish (*Procambarus spp.*) and speckled perch (*Pomoxis nigromaculatus*) (Bennetts et al. 1994). Despite the use of these other species for foraging, all available evidence suggests that snail kites are still primarily dependent on Florida apple snails. The specializations that allow the snail kite to so efficiently capture and extract apple snails make it difficult for them to capture and eat other alternative prey items (Beissinger 1990).

Reproduction

The breeding season in Florida varies widely from year to year in relation to rainfall and water levels. Ninety-eight percent of the nesting attempts are initiated from December through July (Sykes 1987a; Beissinger 1988; Snyder et al. 1989). Snail kites often re-nest following failed attempts as well as after successful attempts (Beissinger 1986; Snyder et al. 1989), but the actual number of clutches per breeding season is not well documented (Sykes et al. 1995).

Pair bonds are established prior to egg-laying and are relatively short, typically lasting from nest initiation through most of the nestling stage (Beissinger 1986; Sykes et al. 1995). Male kites select nest sites and conduct most nest-building (Sykes 1987b; Sykes et al. 1995). Unlike most raptors, snail kites do not defend large territories and frequently nest in loose colonies or in association with wading bird nesting colonies. Copulation can occur from early stages of nest construction, through egg laying, and during early incubation if the clutch is not complete. Egg laying begins soon after completion of the nest or is delayed a week or more. On average, a 2-day interval between laying each egg results in the laying of a three-egg clutch in about 6 days. The clutch size is one to five eggs, with a mode of three (Sykes 1987a; Beissinger 1988; Snyder et al. 1989). Incubation may begin after the first egg is laid, but generally after the second egg (Sykes 1987a). In Florida, the incubation period lasts 24 to 30 days (Sykes 1987a). Incubation is shared by both sexes, but the sharing of incubation time between sexes varies among nests (Beissinger 1987).

Hatching success is variable from year to year and between areas. In nests where at least one egg was hatched, hatching success averaged 2.3 chicks/nest. The most successful months for hatching are February (19 percent), March (31 percent), and April (23 percent) (Sykes 1987a).

It is difficult to identify any long-term trend in reproductive success, because of the considerable variability in nest success among years, locations, and local nest environments (Sykes 1979, 1987b; Beissinger 1986; Bennetts et al. 1988; Snyder et al. 1989), but several researchers have attributed the variability to water levels. As noted above, part of this effect, particularly in the lakes, attributes to differences in nest site selection (more herbaceous substrates in low-water years, versus a higher proportion of woody substrates in high-water years). The basis of comparison is between high-water years versus low-water years, rather than within-year differences between water depths at nest sites. Drought may affect nesting success by depressing apple snail populations (Kushlan 1975; Takekawa and Beissinger 1983) and through increased access by terrestrial predators (Beissinger 1986).

Collapse of nests constructed in herbaceous vegetation is also cited as a cause of increased nest failure during low-water years. This is because the water table is usually below the ground surface at willow heads and other stands of woody vegetation during drought, causing snail kites to nest in herbaceous vegetation, where the nests are more vulnerable to collapse. This effect is more prevalent in lake environments than in the Everglades. Weather also can result in the variability of nesting success. Windstorms can cause toppling of nests, particularly on Lake Okeechobee and Lake Kissimmee due to the long wind fetch across these large lakes. Cold weather can also produce nest failure, either through decreased availability of apple snails or mortality of young due to exposure. Abandonment of nests before egg laying is common, particularly during drought or following passage of a cold front. The overall fledging success to a nestling age of 6 weeks in the 1980 to 1993

period was 0.83 fledgling/nest or 0.29 fledgling/egg ($n = 776$ nests) (Sykes et al. 1995). Although considerable variability (due to natural and man-caused variation in water levels) should be expected in future years of monitoring, this success rate may serve as a baseline for evaluating the relative productivity of the snail kite population.

3.7 Red Cockaded Woodpecker (*Picoides borealis*)

Life History

The red cockaded woodpecker was listed as a federally endangered species in 1970, and is listed in the state of Florida as threatened (Service, 1999). Land clearing activities such as destruction or degradation of its habitat due to timbering is the primary threat to this species (Service, 1999).

Description

An adult woodpecker is about 7 to 8.6 inches in length and has a wing span which ranges from 13 to 15 inches (Service, 1999). Males and females are nearly indistinguishable, however, males are slightly larger than females and have a few red feathers slightly above and behind each eye. These red feathers are hard to see in the field as they are usually covered by black feathers, except when the male is displaying them (Service, 1999). Red cockaded woodpeckers have a large conspicuous white cheek patch, a black cap and neck, and black and white barred back and wings (Jackson, 1994). The breast and belly of this woodpecker is white to grayish in color with distinctive black spots along the sides of the breast which change into barring on the flanks. Their bills are black and their legs are gray to black (Service, 2003).

Juveniles have a duller plumage than the adults with white flecks often present just above the bill on the forehead. Juveniles also have diffuse black shading in the white patch on the cheek (Service, 2003).

Habitat

Red cockaded woodpeckers inhabit pine strands or pine-dominated pine/hardwood strands, with very little understory. This species nest and roost cavities are usually in old-age living long leaf pines (Service, 1999). Cavities can also be constructed in other types with the exception of sand pine (*P. calusa*) and spruce pine (*P. glabra*) (Service, 1999). Many of the pines which are chosen as cavity trees are infected with a fungus (*Phellinus pini*) which decays the heartwood and facilitates the excavation of a cavity (Jackson 1977, Conner and Locke 1982, Conner *et al.* 1994). Cavities are usually excavated about 32 to 42 feet from the ground, just under the lowest branch, on the west to southwest side of a living mature pine (Service, 1999).

Distribution

The red cockaded woodpeckers distribution in south Florida is uncertain, especially in the Highlands, Glades, Hendry, St. Lucie, Martin, and Sarasota counties due to the inability to access private lands and survey habitats that may support this species (Service, 1999). This species is still widely distributed throughout the state, but most of the population proves to be within the panhandle. The populations outside of this area are small and disjunct (Service, 1999).

Home Range

The territory size in Florida for a red cockaded woodpecker has been reported to be as large as 740 to 990 acres within the Big Cypress National Preserve (BCNP) since the pinelands are not contiguous (D. Jansen, Big Cypress National Preserve, personal communication 1996, Service, 1999). Within Avon Park in central Florida, the largest home range reported was 890 acres and the average being 395 acres (Paul Ebersbach, Avon Park AFR, personal communication 1996, Service, 1999).

Diet

Red cockaded woodpeckers diet consist of 75 percent of insects such as ant, roaches, beetles, spiders, centipedes, true bugs, crickets, and moths, (Beal et al. 1941, Baker 1971a, Harlow and Lennartz 1977, Hanula and Franzreb 1995, Hess and James 1998, Hanula and Engstrom 2000, Hanula et al. 2000b) though ants are the most common in the adult diet compromising of over half their stomach content for the adults in the Apalachicola National Forest in Florida (Hess and James 1998). Fruits and seeds make up a small portion of the remaining of diet. They eat seeds and fruits of pines, poison ivy, magnolia, myrtle, wild grape, wild cherry, blueberry, and black gum. Fruits compromise about 14 percent of the contents in the stomach of an adult woodpecker collected throughout the year in the Gulf Coastal Plain (Beal *et al.*, 1941).

Reproduction

This species reaches sexual maturity at 1 year of age; however, their reproductive success is improved as they mature (Walter, 1990). Nesting season starts in late April and ends in early June in Florida (Service, 1999). The red cockaded woodpecker is a monogamous species with has a single brood, though there have been rare instances of a double brood which have been recorded (Jackson 1994, Schillaci and Smith 1994). A male will usually roost in a cavity which will become the nesting cavity (Ligon 1970, Lennartz *et al.* 1987). A normal clutch consists of two to four eggs which incubate for 10 to 11 days (Ligon, 1970). One to three young will fledge between 26 to 29 days after hatching (Ligon, 1970), but they will still depend on their parents help for two to five months after this (Jackson, 1994).

Red cockaded woodpeckers live in groups which share territories which they defend throughout the year. This group living is a characteristic of their cooperative breeding behavior (Service, 2003).

Survey Protocol

Surveys need to be completed when a project calls for the removal of pine tree which are 30 years or older; typically 10 inches dbh or larger or in the case of land acquisitions by state or federal agencies in which the presence or absence of red-cockaded woodpeckers is to be assessed (Service 2003).

Identifying suitable foraging habitat

Suitable foraging habitat consist of a pine or pine/hardwood stand of forest, woodland, or savannah in which 50 percent or more of the dominant trees are pines and the dominant trees are usually 60 years or older. The identification of this land use can be made using cover maps, aerial photography, or surveying by an experienced forester or biologist. Pines which are 30 years or older are generally 10 inches dbh or larger. If no suitable foraging habitat is present a “no effect” determination is appropriate.

Foraging area survey

These surveys need to be conducted during the breeding season (April 15 to June 15) and during the non-breeding season (October 15 to December 15). Surveys should be conducted during the morning hours, 1 hour prior to sunrise to 4 hours past sunrise and during calm, clear days. These surveys should be conducted for 14 days over the season.

If there are active woodpecker cavities on the property, then the territory is considered to be within a radius of 0.5 miles around the cluster. These surveys start when the woodpecker leaves its roost. The survey needs to document the number of birds and to track the bird as they forage. Data needs to be collected in half hour intervals, recorded on a map, and with a GPS unit.

If there are no active woodpecker cavities, then a meandering pedestrian transect should be conducted through the suitable habitat. The observed should stop every 3 to 5 minutes to look and listen to woodpecker activity. Since these birds are very territorial, play 30 seconds of continuous red cockaded woodpecker vocal calls at each stop.

Identifying suitable nesting habitat

Suitable nesting habitat consists of pine, pine/hardwood, and hardwood/pine stands that contain pines which are 60 years or older (6in dbh) and within 0.5 miles of the suitable foraging habitat to be impacted. These older pines may be scattered or clumped with younger pines. All stands which meet the above description must be surveyed for cavities.

Surveying for red cockaded woodpecker cavity trees

Once suitable habitat is identified, the trees must be surveyed for cavities by experienced personnel. Potential nesting habitat is surveyed by running line transects through the strands and visually inspecting medium and large sized pine trees for evidence of excavation by the woodpecker. Transects, depending on habitat and season, will be spaced between transects by a maximum of 300 feet, very open pine stands, to 150 feet or less for areas with a dense mid-story. Transects will need to be run north to south since most cavity entrances are oriented in a westerly direction.

When a cavity tree is found, it will need to be recorded by hand and by use of a GPS. Activity status, cavity stage (start, advance start, or completed cavity), and any entrance enlargements are assessed and recorded. A more intense survey, within 1500 feet of each cavity tree, will need to be conducted to locate all cavity trees within the area (Service, 2003) (Appendix D).

Reporting Protocol

A final report should include a field data sheet with start and end times of survey, weather conditions, and a total number of woodpeckers observed. Any cavity tree or evidence of a red cockaded wood pecker activity is to be report to the Fish and Wildlife Service, at either the local office at South Florida Ecological Services Office, 1339 20th Street, Vero Beach, FL, 32960 (Service, 2003) (Appendix D).

3.8 Florida Bonneted Bat (*Eumops floridanus*)

Life History

The Florida bonneted bat, formally known as the Florida Mastiff Bat, is protected and is listed as a Candidate species by the U.S. Fish and Wildlife Service for protection by the Federal Endangered Species Act. Until recently bonneted bats in Florida were considered to be a subspecies of *E. glaucinus* known as *E. g. floridanus*. However, *E. floridanus* is distinguished from *E. glaucinus* by having a slightly larger body size as well as morphological features in the face, mouth and ears (Timm and Genoways 2004). Other common names for the Florida bonneted bat have included Florida mastiff bat, mastiff bat, and Wagner's mastiff bat (Belwood 1981, 1992; US Fish and Wildlife Service 2001)

Description

The Florida bonneted bat, formerly known as the mastiff bat, is the largest species of bat found within Florida (Belwood 1992). These bats can reach a length of 6.5 inches with a wingspan of 20 inches. The coloration of hair on the bonneted bat varies from black to brown, to grayish or cinnamon brown (Belwood 1992; Best 1997; Timm and Genoways 2004; J. Gore pers comm. 2011). Individual hairs are bicolored and lighter at the base. Ears are large and broad and slant forward over the eyes, and, unlike in some similar species found in Florida, the bases of the ears are joined at the midline of the head (FWC 2013). Both males and females are similar in size and weigh 34 to 47 grams (Timm and Genoway 2004). The Florida bonneted bat is among a family of bats often known as free tail bats because, unlike most bats, their tails extend well free of the tail membrane that stretches between their legs (FWC 2013).

Habitat

Florida bonneted bats are extremely rare and only a handful of nursery roosts have been documented. None of these roosts were in natural habitat, but instead, in bat houses. However, bonneted bats have been documented foraging in native habitat such as semi tropical forests with tropical hardwood, pineland, and mangrove habitats, as well as manmade areas including golf courses, chimneys, limestone outcroppings, tree cavities, under tiles of Spanish-style roofs, and neighborhoods (Robson 1989; Best 1997; Timm and Genoways 2004; Marks and Marks 2008; US Fish and Wildlife Service 2008). Roosts provide bats with a resting place protected from the predators and the elements (Marks and Marks 2006). Roosts also provide shelter for bats to socialize, mate, and rear their young (Kunz and Lumsden 2003). Bats may occupy a roost for only a short period of time or they may establish a permanent colony within a roost (Marks and Marks 2006).

Distribution

The Florida bonneted bat may have the smallest range of any bat species in the new world (Timm and Genoways 2004). Trends in population or range in southwest Florida cannot be identified due to the lack of surveys in previous years. The size and status of the colonies at each of the bats documented location are unknown except for locations in Lee County where a colony occupying two bat houses contains approximately 20 to 24 individuals (Belwood 1992; Marks and Marks 2008; US Fish and Wildlife Service 2008).

Home Range

The Florida bonneted bat has only been documented within the Florida counties of Lee, Collier, Charlotte, Miami-Dade, Okeechobee, and Monroe to date (Timm and Genoway 2004, Marks and Marks 2012). The area occupied within these counties is unknown, but likely is much smaller than the total area encompassed by county boundaries (USFWS 2011, 2012; Marks and Marks 2012). Historical evidence suggests the range historically included Brevard, Broward, and Indian Rive Counties (Belwood 1992, Timm and Genoways 2004; USFWS 2011) in addition to previously listed counties that are included in the current range.

Diet

The diet of the bonneted bats consists primarily of flying insects and use echolocation to detect and capture their prey. They usually forage for these insects in open, uncluttered areas and often fly over 33 feet off the ground (Belwood 1992; Best 1997). They forage at night, typically returning to the roost periodically during the night (Marks and Mark 2008). Fecal droppings from the roost in a longleaf pine tree in Punta Gorda primarily contained beetles, flies and mosquitos, and true bugs (Belwood 1981;1992).

Reproduction

The Florida bonneted bats have a low reproductive capacity, giving birth to only one offspring at a time. However, the female is capable of going into heat multiple times a year making them polyestrous. The bat has two breeding season per year which have been documented in the summer and also in January and February (Best 1997; Timm and Genoways 2004).The bonneted bat is thought to have unusual roosting habits, as one male will roost with several different females at one time (Belwood 1981; Belwood 1992; Best 1997). Mating behaviors, gestation periods, age at weaning, and other reproductive behaviors are poorly understood (Florida Fish and Wildlife Conservation Commission [FWC] 2013).

Survey Protocol

No survey protocol or methodology has yet to be developed. The University of Florida is currently working on this effort. The Tribe will adopt USFWS standards as they are developed.

Reporting Protocol

No reporting protocol or methodology has yet to be developed. The University of Florida is currently working on this effort. The Tribe will adopt USFWS standards as they are developed.

4.0 NATURAL RESOURCES OF THE ACTION AREA

4.1 Big Cypress

4.1.1 Urban and Built up (Land Use Code 100)

Urban and built up land consist of areas which are mainly occupied by man-made structures. Within the BCSIR, this consist of residential (110), commercial and services (140), recreational vehicle park (1453), retail sales and services (141), cultural and entertainment (144), cemeteries (148), sand and gravel pits (162), educational facilities (171), religious (172), governmental (175), race tracks (183), community recreational facilities (186), other recreation (189), and undeveloped land within urban areas (191). This type of land use amounts to 2.03% of the BCSIR.

4.1.2 Agriculture (Land Use Code 200)

Agricultural lands can be defined as lands which have the ability to produce food crops and sustain livestock. Within the BCSIR, this consists of improved pasture (211), unimproved pasture (212), row crops (214), citrus groves (221), horse farms (251), and fallow crop land (261). This type of land use amounts to 20.30% of the BCSIR.

4.1.3 Rangeland (Land Use Code 300)

Rangeland is defined as land in which that potential natural vegetation consist mainly of grasses, grass-like plants, forbs or shrubs and is capable of being grazed. Within the BCSIR, this consists of herbaceous dry prairie (310), shrub and brushland (320), palmetto prairies (321), and mixed rangeland (330). This type of land use amounts to 0.48% of the BCSIR.

4.1.4 Upland Forest (Land Use Code 400)

Lands are considered upland forest for areas which support a tree canopy closure of 10% or more. This land use incorporates both xeric (dry) and mesic (moderately moist) sites. Within the BCSIR, this consists of pine flatwoods (411), Brazilian pepper (422), melaleuca (424), temperate hardwood (oak and cabbage palm) (425), oak with saw palmetto (live and laurel) (427), cabbage palm (428), hardwood conifer mix (oak, pine and cabbage palm) (434), and Australian pine (437). This type of land use amounts to 8.26% of the BCSIR.

4.1.5 Water (Land Use Code 500)

Water bodies are considered to be areas within a land mass that are predominantly or persistently water covered. Within the BCSIR, this consists of streams and waterways (510) and reservoirs less than 10 acres (534). Streams and water ways are considered to be linear water bodies such as rivers, creeks, and canals where the water course is interrupted by a control structure. Reservoirs are artificially impoundments of water used for irrigation, flood control, water supplies, recreation and such. This type of land use amounts to 1.42% of the BCSIR.

4.1.6 Wetlands (Land Use Code 600)

Wetlands are areas in which the water table is at, near or above the land surface for most of the year or at least a significant portion of it. The hydrologic regime is such that hydrophytic and aquatic vegetation is established. These areas are usually associated with topographic low lying areas. Within the BCSIR, this consists of wetland hardwood forest mix (maple, willow, Brazilian pepper, wax myrtle) (610), inland ponds and sloughs (pop ash, pond apple, cypress, willow) (616), mixed wetland hardwood (maple, oak, pop ash, pond apple) (617), willow (618), Brazilian pepper (619B), melaleuca (619M), cypress (621), cypress with graminoid understory (6212), cypress-pine-cabbage palm mix

(624), hydric pine (625), hydric cabbage palm (628), wetland forested mix (cypress, oak, cabbage palm) (630), oak-cabbage palm-Brazilian pepper-hydric (6301), oak-shrub-prairie mix (6308), wetland shrub (wax myrtle) (631), freshwater marsh (641), freshwater marsh-sawgrass (6411), cattail marsh (6412), wet prairie (643), and wet prairie- disturbed (fallow fields) (6439). This type of land use amounts to 64.02% of the BCSIR.

4.1.7 Barren land (Land Use Code 700)

Barren land has very little to no vegetation and limited potential to support vegetative communities. Usually, these areas are bare soil or rock and when vegetation is present, it is sparse and scrubby. Within the BCSIR, this consists of disturbed land (740), borrow areas (742), and spoil areas (743). This type of land use amounts to 0.49% of the BCSIR.

4.1.8 Transportation, Communication, & Utilities (Land Use Code 800)

Transportation facilities are used for the movement of goods and people and are major influences on land. Structures associated with airwave communications, radar and television antennas are also included in this category along with power generating facilities and water treatment plants. Within the BCSIR, this consists of airports (811), roads-trails-right of ways (814), communication facilities (822), utilities (830), pump stations (8335), and sewage and treatment facilities (834). This type of land use amounts to 2.27% of the BCSIR.

4.2 Brighton

4.2.1 Urban and Built up (Land Use Code 100)

Urban and built up land consist of areas which are mainly occupied by man-made structures. Within the BRSIR, this consist of residential low density (110), residential high density (130), mobile home units (132), commercial and services (140), extractive (160), religious (172), educational facilities (171), religious (172), medical and health care (174), governmental (175), other institutional (177), commercial child care (178), recreational (180), and undeveloped land within urban areas (191). This type of land use amounts to 2.45% of the BRSIR.

4.2.2 Agriculture (Land Use Code 200)

Agricultural lands can be defined as lands which have the ability to produce food crops and sustain livestock. Within the BRSIR, this consists of improved pasture (211), unimproved pasture (212), woodland pastures (213), row crops (214), citrus groves (221), swine feeding operations (233), open land rural (260), and fallow crop land (261). This type of land use amounts to 44.69% of the BRSIR.

4.2.3 Rangeland (Land Use Code 300)

Rangeland is defined as land in which that potential natural vegetation consist mainly of grasses, grass-like plants, forbs or shrubs and is capable of being grazed. Within the BRSIR, this consists of herbaceous dry prairie (310), shrub and brushland (320), palmetto prairies (321), other shrub and brush (329), and mixed rangeland (330). This type of land use amounts to 5.23% of the BRSIR.

4.2.4 Upland Forest (Land Use Code 400)

Lands are considered upland forest for areas which support a tree canopy closure of 10% or more. This land use incorporates both xeric (dry) and mesic (moderately moist) sites. Within the BRSIR, this consists of pine flatwoods (411), Brazilian pepper (422), melaleuca (424), temperate hardwood (oak and cabbage palm) (425), live oak (427), cabbage palm (428), hardwood conifer mix (oak, pine and cabbage palm) (434), dead trees (435), upland scrub pine hardwood (436) and Australian pine (437). This type of land use amounts to 26.37% of the BRSIR.

4.2.5 Water (Land Use Code 500)

Water bodies are considered to be areas within a land mass that are predominantly or persistently water covered. Within the BRSIR, this consists of streams and waterways (510), reservoirs (530),

reservoirs larger than 10 acres (533), and reservoirs less than 10 acres (534). Streams and water ways are considered to be linear water bodies such as rivers, creeks, and canals where the water course is interrupted by a control structure. Reservoirs are artificially impoundments of water used for irrigation, flood control, water supplies, recreation and such. This type of land use amounts to 3.47% of the BRSIR.

4.2.6 Wetlands (Land Use Code 600)

Wetlands are areas in which the water table is at, near or above the land surface for most of the year or at least a significant portion of it. The hydrologic regime is such that hydrophytic and aquatic vegetation is established. These areas are usually associated with topographic low lying areas. Within the BRSIR, this consists of inland ponds and sloughs (pop ash, pond apple, cypress, willow) (616), mixed wetland hardwood (maple, oak, pop ash, pond apple) (617), willow (618), Brazilian pepper (619B), melaleuca (619M), cypress (621), hydric pine (625), hydric pine savanna (626), wetland shrub (wax myrtle) (631), freshwater marsh (641), and wet prairie (643). This type of land use amounts to 14.43% of the BRSIR.

4.2.7 Barren land (Land Use Code 700)

Barren land has very little to no vegetation and limited potential to support vegetative communities. Usually, these areas are bare soil or rock and when vegetation is present, it is sparse and scrubby. Within the BRSIR, this consists of disturbed land (740), borrow areas (742), spoil areas (743), and berm/ditch combination (743/510). This type of land use amounts to 1.76% of the BRSIR.

4.2.8 Transportation, Communication, and Utilities (Land Use Code 800)

Transportation facilities are used for the movement of goods and people and are major influences on land. Structures associated with airwave communications, radar and television antennas are also included in this category along with power generating facilities and water treatment plants. Within the BRSIR, this consists of private airport (8113), road way (814), utilities (830), water tank s(8333), well fields (8334), waste water treatment plant (8341), aeration fields (8343) and solid waste disposal (835). This type of land use amounts to 1.61% of the BRSIR.

4.3 Hollywood

4.3.1 Urban and Built up (Land Use Code 100)

Urban and built up land consist of areas which are mainly occupied by man-made structures. Within the HWSIR, this consist of rural residential low density (118), fixed single family units (2-5 dwellings per acre) (121), mobile home units (6 or more dwellings per acre) (132), multiple dwelling units (low rise 2 stories or less) (133), commercial and services (140), commercial and services under construction (149), institutional (170), parks and zoos (185), open land (190). This type of land use amounts to 23.55% of the HWSIR.

4.3.2 Agriculture (Land Use Code 200)

Agricultural lands can be defined as lands which have the ability to produce food crops and sustain livestock. Within the HWSIR, this consists of row crops (214). This type of land use amounts to 0.13% of the HWSIR.

4.3.3 Upland Forest (Land Use Code 400)

Lands are considered upland forest for areas which support a tree canopy closure of 10% or more. This land use incorporates both xeric (dry) and mesic (moderately moist) sites. Within the HWSIR, this consists of upland hardwood forest (420) and Brazilian pepper (422). This type of land use amounts to 1.27% of the HWSIR.

4.3.4 Water (Land Use Code 500)

Water bodies are considered to be areas within a land mass that are predominantly or persistently water covered. Within the HWSIR, this consists of reservoirs (530). Reservoirs are artificially impoundments of water used for irrigation, flood control, water supplies, recreation and such. This type of land use amounts to 0.55% of the HWSIR.

4.3.5 Transportation, Communication, and Utilities (Land Use Code 800)

Transportation facilities are used for the movement of goods and people and are major influences on land. Structures associated with airwave communications, radar and television antennas are also included in this category along with power generating facilities and water treatment plants. Within the HWSIR, this consists of roads and highways (814), electrical power transmission lines (832), and sewage treatment (834). This type of land use amounts to 74.49% of the HWSIR.

5.0 GENERAL CONSERVATION MEASURES & MANAGEMENT

Conservation and protection measures are applicable for all species and associated habitat. These measures include:

- a. Pre-project wildlife surveys by qualified biologist
- b. Standard Wildlife Education Measures (video and literature) (**Appendix E**)
- c. Tracking and Reporting including a wildlife/game species survey to be conducted annually within BCSIR and BRSIR.
- d. Enhancement, restoration and protection under the Advanced Mitigation Program
- e. Brighton Panther Preserve
- f. Fire management
- g. Forest/Land management including invasive removal
- h. Standard erosion and pollution control measures which include approval by the Seminole Water Commission, NPDES permits and Storm Water Pollution Prevention Plans
- i. Standard Water Commission, NPDES permits and Storm Water Pollution Prevention Plans

1. *Pre-project wildlife survey.* For all projects, including prescribed burning, invasive removal, construction of home sites, businesses and tribal facilities, under the wildlife conservation plan, a qualified biologist will survey the proposed project footprint and produce a wildlife review with specific conservation measures and guidelines prior to project initiation. In addition, species specific conservation measures will be required for all projects subject to wildlife conservation plan. ERMD staff will be monitoring on-going activities within Tribal lands to assure continued compliance with all environmental special conditions and best management practices.

2. *Standard Wildlife Education Measures (video and literature).* The ERMD staff has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all project personnel on tribal lands. All project personnel are required to be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the project area, personnel must notify a qualified observer, and allow the species to move away from the site and harm's way. Activity on the project is not to be resumed if the species is in danger of being harmed by construction activities or flames. Additionally, personnel must report all listed species sightings to ERMD. The objective is to reduce potential risk for the harassment of federally protected species by the activities.

3. *Advanced Mitigation Program.* The Tribe provides mitigation for adverse impacts to jurisdictional wetlands and endangered species, which are incidental to the otherwise lawful activities, including

activities proposed in the Regional general Permit (RGP). The RGP is divided into three (3) parts, the “included”, “GP with Consultation”, and the “exclude” areas. These three delineations were established due to sensitivity, contiguous high quality wetland/upland systems, and relative habitat value (based on Wetland Rapid Assessment Procedures) of the area. Each of the boundaries were reviewed and agreed upon by the U.S. Army Corps of Engineers, the USFWS, South Florida Water Management District and the Tribe. The Advance Mitigation Program (AMP) was submitted to and permitted by the U.S. Army Corps of Engineers (USACE) in conjunction with the RGP. The AMP involves the enhancement of existing wetlands within 6 compartments or Wetland Enhancement Areas (WEA) totaling 4,144 acres within the boundaries of the BCSIR Native Area (**Figure 10**). The BCSIR Native Area is a 14,724 acre natural area within the boundaries of the BCSIR and is located adjacent to the Big Cypress National Preserve (BCNP) (**Figure 11**). The BCSIR Native Area is a part of the historic Big Cypress wetland system. The mosaic of wetlands in this area can be described as freshwater marsh, cypress swamp, mixed wetland hardwoods, wet shrub, sawgrass marsh, and wet prairie with patches of hydric pine flatwoods. The wetland vegetation consists of bald cypress, red maple, Carolina willow, sweet bay, popash, pond apple, duck potato, pickerelweed, fire flag, panic grasses, and sawgrass (among many others). The wetlands have been degraded by hydrologic alterations, principally caused by the construction of the North and West Feeder Canals as part of the Central and South Florida Flood Control Project. These projects disrupted sheet flow to the region and contributed to the spread of invasive exotic plant species such as Brazilian pepper, melaleuca, and Old World Climbing Fern.

The AMP management plan and best management practices were prepared in cooperation with the USACE, the Service, the U.S. Environmental Protection Agency (EPA) and the South Florida Water Management District (SFWMD). Compensatory wetland mitigation will occur through:

1. ENHANCEMENT of wetland areas in the BCSIR Native Area through the removal of exotic vegetation and natural land management;
 2. RESTORATION of wetland areas on the BCSIR Native Area by restoring a more natural hydrological regime;
 3. CREATION of wetlands on the BCSIR Native Area through the establishment of a suitable hydrological regime and planting of native vegetation; and
 4. PROTECTION of resource significant wetland areas and upland buffers located in the BCSIR Native Area.
4. *Brighton Panther Preserve.* In 2011, a panther preserve on the Brighton Reservation was established and approved by the U.S. Fish & Wildlife Service (Consultation Code: 41420-2011-TA-0174) to provide a total of 2,464 panther habitat units (PHU) for the purpose of construction activities on the Reservation. The preserve is located across 3 pastures on the southern portion of the Reservation. Additional PHUs may be gained from restoration and enhancement activities such as removal and control of exotic nuisance plants and restoration of agricultural lands to native habitats. Any future restoration or enhancement activities and subsequent revision of the PHU calculations for the preserve will require further review by the Service.
5. *Fire management and Forest/Land management.* In January of 2010 the Tribe contracted the Forestry and Wildland Fire program from the BIA under the approved P.L. 93-638 contract of services. Forest management, fire management, prescribed burn, and exotic plant treatment plans are in revision, but will contribute to the conservation of the species listed in this plan.
6. *Invasive Removal.* Invasive plants are defined as non-native species that compete vigorously with native species for space and resources, and consequently spread rapidly and take over habitat. Non-natives are also called “exotic”, “alien”, “non-indigenous”, or “introduced”. These species are plants which are not naturally occurring in a particular ecosystem. Florida’s unique ecosystems allow for

many non-native plants to thrive. Florida is made of wetlands, upland hardwood forests, upland scrub, pine flatwoods, marshes, lakes, crop land, range land, and many more.

Invasive species removal promotes regeneration and reclamation of native flora and fauna important to Tribal members within Tribal lands. Invasive plant species displace native plants and associated wildlife, limit species diversity, and can alter natural processes such as fire regimes and hydrology within Florida's ecosystems.

The Florida Exotic Pest Plant Council (FLEPPC) have compiled a list of invasive plant species and organized it into two categories (**Table 4**). Category I species are invasive exotics that are altering native plant communities by displacing native species, changing community structures or ecological functions, or hybridizing with natives. Category II species are invasive exotics that have increased in abundance or frequency but have not yet altered Florida plant communities to the extent shown by Category I species.

Removal of such species is important to keep a balanced and healthy ecosystem. The Tribe will remove invasive species in three ways: a) prescribed burning; b) mechanical treatment and; c) chemical treatment.

a. Prescribed Burning

Burning will improve native vegetation for wildlife, remove invasive species, and reduce hazardous fuels. Objectives for a grassland prescribed burns include improvement of hazardous fuel reduction, understory maintenance, and native area forage for wildlife species through 70 – 100 percent consumption of fine dead fuels and 1 hour fuels found in the upper duff layers and top kill of 70 percent of woody shrubs less than two feet tall.

The current state of the native (natural) area is approximately 75 percent Fire Regime II Condition Class 3 and 25 percent Fire Regime II Conditions Class 2. A Fire Regime 1 Condition Class 1 (**Table 5**) will be achieved through implementation of the plans and long-term maintenance. Associated wildfire risks will decrease as a result of this maintenance. The primary purpose of the grassland and the native burns are described in the **Table 9**.

A natural fire regime is a general classification of the role fire would play across a landscape in the absence of modern human mechanical intervention but including the possible influence of aboriginal fire use. The five natural fire regimes are based on the average number of years between fires (fire frequency or mean fire interval combined with characteristic fire severity reflecting percent replacement of dominant overstory vegetation) (**Table 6**). Fire Regime Condition Class (FRCC) is a classification of the variance of conditions at a given time period (such as current or future) from ecological reference conditions. Pre-settlement ecosystems are commonly used as a benchmark for reference conditions and include possible Native American influence in the natural fire regime. Ecosystem components include attributes such as species composition, structural stage, stand age, canopy closure, and fuel loadings. One or more of the following activities may have caused departures: fire suppression, timber harvesting, livestock grazing, introduction and establishment of exotic plant species, introduced insects or diseases, or other management activities. The FRCC system uses three condition classes to signify low, moderate, or high departure from the natural fire regimes and associated vegetation (**Table 5**).

b. Mechanical Treatment

Mechanical removal of invasive species involves the use of heavy construction or forestry machinery utilizing ground disturbing methods to remove plants from their existing location, piling or hauling,

and pile burning or mulching to reduce biomass. Forestry and construction equipment may be used to remove exotic plant when the density is high. This is best used when native species are absent and impacts to other natural or cultural plants are minimal. This technique should be used before plants or grasses are seeding. Therefore, this is not the best way to control invasive species, since timing is very essential.

Mechanical treatment includes utilizing forestry or construction machinery to reduce vegetation height and promote understory regeneration, silviculture release, reduce wildland fire fuel height and escape potential, increase safety of wildland firefighters conducting prescribed burning. Utilization of this method is highly target vegetation specific due to the low acreage production per man-hour and high cost of equipment maintenance. Roller chopping, mulching, and mowing are the current methods of treatment, but newer biomass technology methods are in development to accomplish the same tasks with better economic returns.

c. Chemical Treatment

Chemical removal is one of the easiest ways to remove exotics. FLEPPC standards for Florida exotic plant treatment should be followed along with the recommended chemicals best to use for the exotic plant which is being treated. The cut stump method should be used on plants which have thicker trunks. This can be done by making a series of downward cuts though the bark around the entire circumference of the tree with an axe or hatchet and applying herbicide to the cuts. The frill and girdle method can also be used on plants with thick trunks. To use this method, make a single girdle through the bark around the circumference of the tree using an axe or hatchet at a convenient height and then spray the cut surface with the diluted or undiluted pesticide. For both of these methods, the herbicide should be immediately applied to the cuts so that the herbicide can be absorbed by the plants vascular tissue. Both of these methods can be used on plants such as melaleuca (*Melaleuca quinquenervia*) and Brazilian pepper (*Schinus terebinthifolius*). When making tree injection or girdle applications, additional cuts and/or increased herbicide rates are usually required for trees 10 inches and larger in diameter or for damaged trees. Another method is the poodle cut method which is most often used on vines. The poodle cut method involves cutting a tick patch of vines at about waist height, cutting enough so that there is a 10 to 12 inch gap between and upper and lower portion. Spray both portions of the vines with herbicide. This method may be used on vines such as old world climbing fern (*Lygodium microphyllum*), Cogongrass (*Imperata cylindrica*), Burma reed (*Neyraudia reynaudiana*), Paragrass (*Urochloa mutica*), Torpedo grass (*Panicum repens*), and West Indian Marsh grass (*Hymenachne amplexicaulis*), and air potato (*Dioscorea bulbifera*).

6.0 CONSERVATION PROGRAM

6.1 Covered Activities

6.1.1 Home Sites and Access Roads

Tribe projections for the annual Tribal population growth rate are 2.9% with 51% of the total population continuing to be under the age of 18. Currently 600 Tribal members, including adults and children, reside on the Brighton Reservation in some 150 households, 700 Tribal members, including adults and children, reside on the Big Cypress Reservation in some 175 households, and 810 Tribal members, including adults and children, reside on the Hollywood Reservation in some 200 households. Based on the projected growth rate and because many young tribal members will be starting new households, housing represents both a current and ongoing critical need for each of the Tribe's reservations. Based off the past four (4) years, an average of 31 home sites for the BCSIR and 35 home sites for the BRSIR have been requested per year. Land is also needed for replacement housing. The large number of repair and maintenance requests received within the past years is

attributed to the fact that much of the current housing is older with outdated inefficient designs. Homes built today are designed to be more energy efficient, as well as to provide greater ease of maintenance. New construction is also subject to updated building codes and standards that ensure these structures are better able to withstand storms and hurricanes.

Home site leases are typically 1.5 acres. However, some leases which have been grandfathered in may be up to 2.5 acres in size. A typical home construction consists of one-story single family residences ranging in size from approximately 2,500 to 5,000 square feet, and will generally be constructed of cinder block with a stucco finish. Landscaping surrounding the homes typically consist of sod and a variety of palm, shrub, and perennials.

Each home site lease tract will be sloped and graded to ensure proper drainage, which includes backfilling of the home site footprint to raise the existing elevation anywhere from 1 to 5-feet. . In addition, houses are now equipped with a propane tank, which supplies fuel for heating and cooking, and an emergency backup generator. Home sites have access roads which are approximately 220 feet long and 60 feet wide from the main right of way to the house. As leases are approved, additional unimproved access roads or driveways may be cleared by Tribal members.

6.1.2 Planned Communities

Considering the Tribal projections listed in section 6.1.1.” Home Sites and Access Roads”, the Tribe proposes to develop large communities consisting of apartments, multiple family homes, single family homes, roads, and possibly parks. These proposed communities will be constructed and ready to be rented or purchased by Tribal members who become adults and need living accommodations or Tribal members seeking a second home. These communities will greatly benefit the Tribe in which a large lot can be cleared with a single NEPA permit for several living facilities.

6.1.3 Tribal Facilities

As the Tribe continues to expand, the demands on Tribal facilities are growing. These facilities will include but not limited to recreational, governmental, health, educational, and public safety construction projects. Projects such as gymnasiums, elderly activity centers, community centers would be considered under recreational activities. Government buildings would include any construction which would benefit the Tribe to improve a self-sustaining government. Health buildings would include such activities as the construction of clinics, dental offices, rehabilitation centers and other related construction. Schools and all other education facilities would be covered under this activity as well as the demands on additional public safety including fire, wildland fire, and police departments.

6.1.4 Land Management Activities

Grassland Burns

Each plan will be approved for four (4) years. During this time, it is anticipated that two rotations will be completed. No more than 50 percent of an individual pasture will be burned during one rotation so that cattle may continue to forage in the remaining 50 percent. The other half will be burned during the following rotation. The proposed grassland burns will authorize the prescribe burn of non-forested habitat only.

The Tribe has determined the action area for the proposed burns will encompass the six (6) prescribed burn units within the Big Cypress (Figure 34) and six (6) units within the Brighton Reservation (Figure 35). The action area for the Big Cypress Reservation encompasses a total of 26,611 acres and the Brighton Reservation encompasses a total of 25,075 acres of grassland. Approved burn prescriptions are eligible to burn up to 2,000 acres annually, per prescription.

Achievable acreage will depend upon weather factors, grazing pressure, and pasture operators requests. Grassland prescribed burns will primarily be conducted during the dormant season unless burning becomes partially restricted due to nesting activity of listed species; in this case vegetation within excluded areas will be addressed post fledging via prescribed burn or mechanical removal to promote understory shrub removal, grass regeneration, and insect abundance, while protecting the roost/nest trees. Targeted months to burn are primarily in the dormant season, January through early March, for improved pastures.

Native Burns

Each plan will be approved for four (4) years with a maximum of 2,000 acres burned per year per reservation. During this time, it is anticipated that one rotation will be completed. The proposed native area burn plans will authorize the prescribe burn of forested habitats and wetland habitats found within the forested areas. Utilization of various water levels, seasons of burns, and firing techniques will allow for selective burning of high priority habitats while limiting acreage burned. Achievable acreage will depend upon weather factors, exotic plant treatments, mechanical fuel reduction, and rotation of sub-units. Prescribed burns will primarily be conducted during the both the growing and dormant seasons due to recruitment activity of listed species; in this case vegetation within excluded areas will be addressed post fledging via prescribed burn or mechanical removal to promote understory shrub removal, grass regeneration, and insect abundance, while protecting the roost/nest trees. Targeted months to burn are primarily in the dormant season, January through early March, for fuel reduction; and during the growing season, May through September for ecosystem management, and native plant reproduction based on habitat suitability for some species.

The Tribe has determined the action area for the proposed plans will encompass the five (5) prescribed burn units within the Big Cypress Reservation (Figure 36) and two (2) within the Brighton Reservation (Figure 37). The action area for the Big Cypress Reservation encompasses a total of 38,416.6 acres and the action area for the Brighton Reservation encompasses a total of 14,684 acres of native habitat vegetation.

Invasive Removal

Treatment of Category I and II exotic species is required within many areas of the Big Cypress and Brighton Reservations. Category I (Table 4) species of focus include *Melaleuca* (*Melaleuca quiquenervia*), Brazilian pepper (*Schinus terebinthifolius*), Old World climbing fern (*Lygodium microphyllum*), and Air potato (*Dioscorea bulbifera*). Category II (Table 4) species that are known to occur within these reservations include Caesar's Weed (*Urena lobata*). Removal of invasive species is needed for the Tribe to be in compliance with U.S. Army Corps of Engineers projects, permits, and also for the reduction of fuel load within residential areas and firelines. The projects mentioned below all require invasive removal for safety of the community and the compliance of mitigation sites.

Water Resources Area in Big Cypress

The U.S. Army Corps of Engineers issued a permit to the Seminole Tribe of Florida authorizing the construction of a system of dikes, berms, and canals for the Implementation of the Big Cypress Seminole Indian Reservation Water Conservation Plan Critical Everglades Restoration Project in February of 2008 (Permit No. SAJ-2004-3931). This project has been designated a Critical Project because it is designed to improve water quality by removing phosphorus from water discharged from the Reservation that ultimately flows southward into the Big Cypress Preserve. To comply with the permit, the Tribe must conduct monitoring events and exotic species removal.

Wetland Enhancement Areas in Big Cypress

The southwestern portion of the Reservation, known as the "Native Area", consists of approximately 14,000 acres of wetland mosaic habitat, including cypress domes and sloughs, pine flatwoods, hardwood swamps, wet prairies, and hardwood hammocks. Six (6) parcels known as Wetland

Enhancement Areas (WEA) are located within the Native Area. These 6 Wetland Enhancement Areas make up the Big Cypress Advanced Mitigation Program. As per the United States Army Corps of Engineers Regional General and Programmatic General permit conditions, these WEAs require enhancement through the removal of exotic species of vegetation.

WUI Treatments in Big Cypress and Brighton

The Wildland Urban Interface (WUI) is the location where human structures and forests or wildlands meet or intermingle. The site for this project is 782 acres on the Big Cypress Reservation and 8,826 acres on the Brighton Reservation. The removal of exotics is needed for hazardous fuel reduction projects for wildland fire suppression and habitat management goals.

Prescribed Burn Fireline Treatment in Big Cypress and Brighton

Removal of exotic vegetation along primary firelines within select portions of the native area in Big Cypress and Brighton to enhance management of prescribed burns and wildfire containment. Treatment of firelines shall consist of treatment of exotic vegetation from the centerline of the fireline outwards 50 feet, and clearing the fireline of any felled debris.

6.1.5 Businesses

The Tribe is encouraging Tribal members to open their own businesses in order to support and promote local Tribal economy and jobs within the community. Tribal business include, but are not limited to feed stores, restaurants, gift shops, smoke shops, wildlife education and shows, recreational activities, car washes, gas stations, and beauty stores. Business leases are obtained through the BIA for the Big Cypress, Brighton, and Hollywood Reservations.

6.1.6 Infrastructure and Roads

The Tribal Public Works Department manages many of the Tribal infrastructure activities within the reservation. Water service, sewer, and electrical connections are all conducted by Public works. However, these do not cause permanent change as a trench is dug up and once the lines are laid out, the trench is backfilled. Access to home sites in Big Cypress and Brighton consist of improved roads maintained by the BIA and/or the Florida Department of Transportation, and unimproved roads maintained by the Tribe and/or Tribal members.

6.1.7 Maintenance Activities

Maintenance activities include any activity in which an existing structure is maintained to original design. Such activities may include the removal of vegetation, mechanical maintenance, and replacement of equipment. The table below describes many of the maintenance activities conducted on the reservations, but is not limited to these.

Maintenance Activities	
<i>Clearing of vegetation</i>	<ul style="list-style-type: none"> • Ditches and canals • Mowing right of way • Firelines • Fence lines • Agricultural facilities
<i>Right of way</i>	<ul style="list-style-type: none"> • Re-grading • Replacing and fixing culverts • Mowing

Maintenance Activities	
<i>Mechanical Maintenance</i>	<ul style="list-style-type: none"> • Wells • Livestock watering facilities • Water control structures

7.0 FINDINGS REGARDING LISTED SPECIES AND STANDARD MEASURES AND PROTOCOLS OF MANAGEMENT

The sections below set forth the protocols to be followed and measures to be taken by the Tribe to ensure the protection of T&E species within the Reservations and Tribal lands when engaged in projects. The sections are presented in order by species, Reservation/Tribal land, and activity.

7.1 Florida Panther

See attached Screening (Appendix F) for species determination.

7.1.1 Big Cypress

The entire BCSIR is located in the primary zone of the Florida panther as identified by Thatcher et al (2006).

7.1.1.a Prescribed Burns

Grasslands

1. Prescribed Burn Findings in the Grasslands

Grasslands are not used as primary habitat for the Florida panther. However, burning will benefit panther prey species by enhancing native grasses for prey species and reducing fuel loads which could potentially cause high intensity uncontrolled wildfires.

2. Prescribed Burn Conservation Measures in the Grasslands

The ERMD staff has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all burn personnel on tribal lands. Burn personnel are required to attend the mandatory wildlife workshop. Burn personnel shall be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the unit, pre-burn directions are to hold firing activity, notify a qualified observer, and allow the species to move away from the site and harm's way. Firing is not resumed if the species is in danger of being harmed by flames. Additionally, burn personnel must report all listed species sightings to ERMD. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities.

Grassland burn units will be monitored pre- and post-burn for wildlife usage, vegetative regeneration during the first 3 months post fire, open bare ground coverage, post-burn weather factors, and understory shrub removal percentage. Units will also be monitored randomly for usage by threatened and endangered species. Species within burn units will be monitored pre- and post-fire to document species response to the activities. At minimum, attempts will be made to observe and record changes in presence, absence, abundances, habitat, food supply, injury or mortality of all applicable listed species.

The Tribe has contractual obligations to report all prescribed fire and wildfire activity to the BIA. A summary of this information will be provided to the Service, including monitoring results and recorded observations regarding the effects of the action to listed species and their habitats within the burned areas, as requested.

As a precaution, the Tribe's ERMD staff will coordinate with the FWC and the U.S. Fish and Wildlife Service (USFWS) in the event the fire escapes a grasslands unit into a native area that has historically supported or has the appropriate vegetative cover to support denning activity. The Tribe also developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all burn personnel on tribal lands.

Native Area

1. Prescribed Burn Findings in the Native Area

Improvement of Travel Corridors. Growing season burns have been documented to decrease the stem density of understory shrubs therefore improving the mobility of mammalian species within forested habitats. Panther usage of recently burned sites increases due to ease of mobility through shrub layers, improved access to forage opportunities, decrease on energy usage traveling between habitat types, improved visibility of prey species. Dees et al. (2001) concluded that 1 year after a burn occurred panthers likely increased the use of this habitat due to the higher number of deer and other prey species.

Improvement of Panther Prey Forage. Dormant season burns have been documented to increase the availability of browse for panther prey species. Few studies have examined the response of panthers to various land/habitat management activities. Dees et al. (2001) investigated panther habitat use in response to prescribed fire and found that panther use of pine habitats was greatest for the first year after the area had been burned and declined thereafter. This temporal response is likely to be the result of an increase in prey species (e.g., deer and hogs) which were attracted to rapid regrowth of vegetation following a burn (Dees et al. 2001).

Many studies have reported an increase in plant nutrients following fire, most notably potassium, phosphorus, calcium, and potash. Crude fiber and protein also tend to increase, as well as water and fat content (Dills 1970; Hallisey and Wood 1976; Halls 1978; Halls 1984). These nutrient increases tend to be temporary, only lasting a few years before returning to pre-burn levels. The primary objective of the proposed burn plans is to increase the quantity and quality of forage for wildlife, through variations on fire intensity, timing, and juxtaposition within burn rotations. Based on this information, the proposed burn plans would effectively meet the objective which would result in an increased quantity and quality of forage for panther prey species. It has been observed that white-tailed deer will seek out preferred forage, such as legumes and forbes, both pre- and post-fire.

Activity levels for Florida panthers are greatest at night with peaks around sunrise and after sunset (Maehr et al. 1990). The lowest activity levels occur during the middle of the day. Female panthers at natal dens follow a similar pattern with less difference between high and low activity periods. Males travel widely throughout their home ranges to maintain exclusive breeding rights to females. Females without kittens also move extensively within their ranges (Maehr 1997). Panthers are capable of moving large distances in short periods of time. Nightly panther movements of 12 mi are not uncommon (Maehr et al. 1990).

While it is typically acknowledged that panthers can actively avoid fire, prescribed burns may pose a potential threat to panther kittens which could become entrapped in their dens by fire.

Panther breeding activity peaks from December to March (Shindle et al. 2003). Litters (n = 82) are produced throughout the year, with 56-60 percent of births occurring between March and June (Jansen et al. 2005, Lotz et al. 2005). The greatest number of births occurs in May and June (Jansen et al. 2005, Lotz et al. 2005). Dense understory vegetation comprised of saw palmetto provides some of the most important resting and denning cover for panthers (Maehr 1990 and Benson et al. 2008). Shindle et al. (2003) show that 73 percent of panther dens were in palmetto thickets.

Historically, panther dens have been reported within and adjacent to BCSIR. Within BCSIR eight (8) panther dens have been documented from 1990 to 2006 by FWC. All den locations have either been in the BCSIR Native Area or on the boundary between BCSIR and BCNP (**Figure 12**).

Prescribed burns and wildfires can reduce the short term availability of suitable denning habitat through the removal of dense vegetative understory, such as mature palmetto stands. Potential denning sites may be affected by prescribed burns in the native area during the year following the prescribed burn only.

Panther and Prey Disturbance (Panther/Human Interactions). There is a potential for increases in disturbance to the Florida panther and panther prey from human utilization of refreshed and new firelines. The refreshing of firelines will not result in an increased accessibility to areas within the burn units for both panther prey species and humans.

2. Prescribed Burn Conservation Measures in the Native Area

To the extent possible, prescribed burns will be conducted with consideration of the life cycle of the panthers to reduce the impact of preferred natal den habitats such as saw palmetto. Prescribed burns in preferred panther denning habitat will take place outside of the peak denning months, except when vegetation land management goals require denning season burns. Burns conducted within the peak denning season in denning habitat will be preceded by a survey of the burn unit by a Service-approved panther tracker to confirm the lack of dens. The survey shall be conducted no earlier than one week prior to the proposed burn. If denning activities are present on the tract, then no burn will occur until the kittens have left the den.

The ERMD staff has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all burn personnel on tribal lands. Burn personnel are required to attend the mandatory wildlife workshop. Burn personnel shall be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the unit, pre-burn directions are to hold firing activity, notify a qualified observer, and allow the species to move away from the site and harm's way. Firing is not resumed if the species is in danger of being harmed by flames. Additionally, burn personnel must report all listed species sightings to ERMD. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities (Consultation Code: 41420-2010-CPA-0075).

7.1.1.b Forestry (Mechanical & Chemical Removal, Fire Line Maintenance)

Please refer to "4.1.1.a Prescribed Burns--- Native Area".

According to the Service (1999) panther habitat can be managed by use of chemical, biological, and mechanical control of invasive exotic plants. These methods help maintain and perpetuate preferred panther habitat types.

7.1.1.c Home Sites and Access Roads

1. Home Site and Access Road Construction Findings

The general location in which home sites and access roads (Home Site Plan Consultation code: 41420-2010-F-1035) will be constructed lies within the Florida panther Primary Zone (**Figure 13**). The findings listed below are potential impacts on the Florida panther:

1. Loss or fragmentation of suitable prey stalking and dispersal habitat for panthers;
2. Loss or fragmentation of suitable foraging and dispersal habitat for panther prey species;
3. Adverse effects associated with intraspecific aggression from habitat changes; and
4. Adverse effects associated with increases in traffic related to changes in intensity of land use.

2. Home Site and Access Road Construction Conservation Measures

To compensate for the loss of habitat, the Tribe will provide habitat compensation to offset possible impacts of any construction project to the panther from the Wetland Enhancement Area (WEA) located in the Native area on the southern portion of the Reservation.

The ERMD staff has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all construction personnel on tribal lands. Construction personnel are required to be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the project boundary, notify a qualified observer, and allow the species to move away from the site and harm's way. Construction is not resumed if the species is in danger of being harmed by construction. Additionally, construction personnel must report all listed species sightings to ERMD. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities.

7.1.1.d Businesses

1. Businesses Construction Findings

The general location in which businesses will be constructed lies within the Florida panther Primary Zone (Figure 13). The findings listed below are potential impacts on the Florida panther:

1. Loss or fragmentation of suitable prey stalking and dispersal habitat for panthers;
2. Loss or fragmentation of suitable foraging and dispersal habitat for panther prey species;
3. Adverse effects associated with intraspecific aggression from habitat changes; and
4. Adverse effects associated with increases in traffic related to changes in intensity of land use.

2 Businesses Construction Conservation Measures

To compensate for the loss of habitat, the Tribe will provide habitat compensation to offset possible impacts of the project to the panther from the Wetland Enhancement Area (WEA) located in the Native area on the southern portion of the Reservation.

The ERMD staff has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all construction personnel on tribal lands. Construction personnel are required

to be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the project boundary, notify a qualified observer, and allow the species to move away from the site and harm's way. Construction is not resumed if the species is in danger of being harmed by construction. Additionally, construction personnel must report all listed species sightings to ERMD. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities.

7.1.1.e Tribal Facilities

1. Tribal Facilities Construction Findings

The general location in which Tribal facilities will be constructed lies within the Florida panther Primary Zone (**Figure 13**). The findings listed below are potential impacts on the Florida panther:

1. Loss or fragmentation of suitable prey stalking and dispersal habitat for panthers;
2. Loss or fragmentation of suitable foraging and dispersal habitat for panther prey species;
3. Adverse effects associated with intraspecific aggression from habitat changes; and
4. Adverse effects associated with increases in traffic related to changes in intensity of land use.

2. Tribal Facilities Conservation Construction Measures

To compensate for the loss of habitat, the Tribe proposes to provide habitat compensation to offset possible impacts of the project to the panther from the Wetland Enhancement Area (WEA) located in the Native area on the southern portion of the Reservation.

The ERMD staff has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all construction personnel on tribal lands. Construction personnel are required to be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the project boundary, notify a qualified observer, and allow the species to move away from the site and harm's way. Construction is not resumed if the species is in danger of being harmed by construction. Additionally, construction personnel must report all listed species sightings to ERMD. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities.

7.1.1.f Planned Communities

1. Planned Communities Construction Findings

The general location in which planned communities will be constructed lies within the Florida panther Primary Zone (**Figure 13**). The findings listed below are potential impacts on the Florida panther:

1. Loss or fragmentation of suitable prey stalking and dispersal habitat for panthers;
2. Loss or fragmentation of suitable foraging and dispersal habitat for panther prey species;
3. Adverse effects associated with intraspecific aggression from habitat changes; and
4. Adverse effects associated with increases in traffic related to changes in intensity of land use.

2. Planned Communities Conservation Construction Measures

To compensate for the loss of habitat, the Tribe proposes to provide habitat compensation to offset possible impacts of the project to the panther from the Wetland Enhancement Area (WEA) located in the Native area on the southern portion of the Reservation. The Tribe will measure the increase in traffic from the proposed project and submit this information to the Service.

The ERMD staff has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all construction personnel on tribal lands. Construction personnel are required to be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the project boundary, notify a qualified observer, and allow the species to move away from the site and harm's way. Construction is not resumed if the species is in danger of being harmed by construction. Additionally, construction personnel must report all listed species sightings to ERMD. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities.

7.1.1.g Roads and Infrastructure

1. Roads and Infrastructure Construction Findings

The general location in which roads and infrastructure will be installed lies within the Florida panther Primary Zone (**Figure 13**). The findings listed below are potential impacts on the Florida panther:

1. Loss or fragmentation of suitable prey stalking and dispersal habitat for panthers;
2. Loss or fragmentation of suitable foraging and dispersal habitat for panther prey species;
3. Adverse effects associated with intraspecific aggression from habitat changes; and
4. Adverse effects associated with increases in traffic related to the construction of roads

2. Roads and Infrastructure Conservation Construction measures

To compensate for the road construction, the Tribe proposes to provide habitat compensation to offset possible impacts of the project to the panther from the Wetland Enhancement Area (WEA) located in the Native area on the southern portion of the Reservation.

The ERMD staff has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all construction personnel on tribal lands. Construction personnel are required to be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the project boundary, notify a qualified observer, and allow the species to move away from the site and harm's way. Construction is not resumed if the species is in danger of being harmed by construction. Additionally, construction personnel must report all listed species sightings to ERMD. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities.

7.1.2 Brighton

The entire Brighton Reservation is located within the north zone (22,916 acres), as defined by Thatcher et al (2006), as well as within the Service's Panther Focus Area (25,521 acres).

7.1.2.a Prescribed Burns

Grasslands

1. Prescribed Burn Findings in the Grasslands

Grasslands are not used as primary habitat for the Florida panther. However, burning will benefit panther prey species by enhancing native grasses for prey species and reducing fuel loads which could potentially cause high intensity uncontrolled wildfires.

2. Prescribed Burn Conservation Measures in the Grasslands

The ERMD staff has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all burn personnel on tribal lands. Burn personnel are required to attend the mandatory wildlife workshop. Burn personnel shall be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the unit, pre-burn directions are to hold firing activity, notify a qualified observer, and allow the species to move away from the site and harm's way. Firing is not resumed if the species is in danger of being harmed by flames. Additionally, burn personnel must report all listed species sightings to ERMD. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities (Consultation Code: 41420-2010-CPA-0075).

Grassland burn units will be monitored pre- and post-burn for wildlife usage, vegetative regeneration during the first 3 months post fire, open bare ground coverage, post-burn weather factors, and understory shrub removal percentage. Units will also be monitored randomly for usage by threatened and endangered species. Species within burn units will be monitored pre- and post-fire to document species response to the activities. At minimum, attempts will be made to observe and record changes in presence, absence, abundances, habitat, food supply, injury or mortality of all applicable listed species.

The Tribe has contractual obligations to report all prescribed fire and wildfire activity to the BIA. A summary of this information will be provided to the Service, including monitoring results and recorded observations regarding the effects of the action to listed species and their habitats within the burned areas, as requested.

As a precaution the Tribe's ERMD staff will coordinate with the FWC and the Service in the event the fire escapes a grasslands unit into a native area that has historically supported or has the appropriate vegetative cover to support denning activity.

Native Area

1. Prescribed Burn Findings in the Native Area

Improvement of Travel Corridors. Growing season burns have been documented to decrease the stem density of understory shrubs therefore improving the mobility of mammalian species within forested habitats. Panther usage of recently burned sites increases due to ease of mobility through shrub layers, improved access to forage opportunities, decrease on energy usage traveling between habitat types, improved visibility of prey species. Dees et al. (2001) concluded that 1 year after a burn occurred panthers likely increased the use of this habitat due to the higher number of deer and other prey species.

Improvement of Panther Prey Forage. Dormant season burns have been documented to increase the availability of browse for panther prey species. Few studies have examined the response of panthers

to various land/habitat management activities. Dees et al. (2001) investigated panther habitat use in response to prescribed fire and found that panther use of pine habitats was greatest for the first year after the area had been burned and declined thereafter. This temporal response is likely to be the result of an increase in prey species (e.g., deer and hogs) which were attracted to rapid regrowth of vegetation following a burn (Dees et al. 2001).

Many studies have reported an increase in plant nutrients following fire, most notably potassium, phosphorus, calcium, and potash. Crude fiber and protein also tend to increase, as well as water and fat content (Dills 1970; Hallisey and Wood 1976; Halls 1978; Halls 1984). These nutrient increases tend to be temporary, only lasting a few years before returning to pre-burn levels. The primary objective of the proposed burn plans is to increase the quantity and quality of forage for wildlife, through variations on fire intensity, timing, and juxtaposition within burn rotations. Based on this information, the proposed burn plans would effectively meet the objective which would result in an increased quantity and quality of forage for panther prey species. It has been observed that white-tailed deer will seek out preferred forage, such as legumes and forbes, both pre- and post-fire.

Panther and Prey Disturbance (Panther/Human Interactions). There is a potential for increases in disturbance to the Florida panther and panther prey from human utilization of refreshed and new firelines. The refreshing of firelines will not result in an increased accessibility to areas within the burn units for both panther prey species and humans.

Activity levels for Florida panthers are greatest at night with peaks around sunrise and after sunset (Maehr et al. 1990). The lowest activity levels occur during the middle of the day. Panthers are capable of moving large distances in short periods of time. Nightly panther movements of 12 mi are not uncommon (Maehr et al. 1990).

2. Prescribed Burn Conservation Measure in the Native Area

The ERMD staff has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all burn personnel on tribal lands. Burn personnel are required to attend the mandatory wildlife workshop. Burn personnel are required to be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the unit, pre-burn directions are to hold firing activity, notify a qualified observer, and allow the species to move away from the site and harm's way. Firing is not resumed if the species is in danger of being harmed by flames. Additionally, burn personnel must report all listed species sightings to ERMD. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities.

7.1.2.b Forestry

Please refer to "4.1.2.a Prescribed Burns--- Native Area".

7.1.2.c Home Sites and Access Roads

1. Home Site and Access Road Construction Findings

The general location in which home sites and access roads will be constructed lies within the Florida Primary Dispersal/Expansion Area ("Other" zone) (**Figure 14**) as outlined by Kautz et al. (2006) and Thatcher et al. (2006). Panthers are a wide-ranging species, and on an individual basis, the development of home sites and the associated increase in traffic will not have a measurable effect on panthers.

2. Home Site and Access Roads Construction Conservation Measures

To compensate for the loss of habitat, the Tribe will provide habitat compensation to offset possible impacts of any construction project to the panther from the panther preserve located in the southwestern portion of the Reservation.

The ERMD staff has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all construction personnel on tribal lands. Construction personnel are required to be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the project boundary, notify a qualified observer, and allow the species to move away from the site and harm's way. Construction is not resumed if the species is in danger of being harmed by construction. Additionally, construction personnel must report all listed species sightings to ERMD. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities.

7.1.2.d Businesses

1. Business Construction Findings

The general location in which businesses will be constructed lies within the Florida Primary Dispersal/Expansion Area ("Other" zone) (**Figure 14**) as outlined by Kautz et al. (2006) and Thatcher et al. (2006). Panthers are a wide-ranging species, and on an individual basis, the development of businesses and the associated increase in traffic will not have a measurable effect on panthers.

2. Business Construction Conservation Measures

To compensate for the loss of habitat, the Tribe proposes to provide habitat compensation to offset possible impacts of the project to the panther from the panther preserve located in the southwestern portion of the Reservation.

The ERMD staff has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all construction personnel on tribal lands. Construction personnel are required to be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the project boundary, notify a qualified observer, and allow the species to move away from the site and harm's way. Construction is not resumed if the species is in danger of being harmed by construction. Additionally, construction personnel must report all listed species sightings to ERMD. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities.

7.1.2.e Tribal Facilities

1. Tribal Facilities Construction Findings

The general location in which Tribal Facilities will be constructed lies within the Florida Primary Dispersal/Expansion Area ("Other" zone) (**Figure 14**) as outlined by Kautz et al. (2006) and Thatcher et al. (2006). Panthers are a wide-ranging species, and on an individual basis, the development of Tribal facilities and the associated increase in traffic will not have a measurable effect on panthers.

2. Tribal Facilities Construction Conservation Measures

To compensate for the loss of habitat, the Tribe will provide habitat compensation to offset possible impacts of the project to the panther from the panther preserve located in the southwestern portion of the Reservation.

The ERMD staff has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all construction personnel on tribal lands. Construction personnel are required to be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the project boundary, notify a qualified observer, and allow the species to move away from the site and harm's way. Construction is not resumed if the species is in danger of being harmed by construction. Additionally, construction personnel must report all listed species sightings to ERMD. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities

7.1.2.f Planned Communities

1. Planned Communities Construction Findings

The general location in which planned communities will be constructed lies within the Florida Panther Primary Dispersal/Expansion Area ("Other" zone) (**Figure 14**) as outlined by Kautz et al. (2006) and Thatcher et al. (2006). The findings listed below are potential impacts on the Florida panther:

1. Loss or fragmentation of suitable prey stalking and dispersal habitat for panthers;
2. Loss or fragmentation of suitable foraging and dispersal habitat for panther prey species;
3. Adverse effects associated with intraspecific aggression from habitat changes; and
4. Adverse effects associated with increases in traffic related to changes in intensity of land use.

2. Planned Communities Conservation Construction Measures

To compensate for the loss of habitat, the Tribe proposes to provide habitat compensation to offset possible impacts of the project to the panther from the panther preserve located in the southwestern portion of the Reservation. The Tribe will measure the increase in traffic from the proposed project and submit this information to the Service.

The ERMD staff has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all construction personnel on tribal lands. Construction personnel are required to be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the project boundary, notify a qualified observer, and allow the species to move away from the site and harm's way. Construction is not resumed if the species is in danger of being harmed by construction. Additionally, construction personnel must report all listed species sightings to ERMD. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities.

7.1.2.g Roads and Infrastructure

1. Roads and Infrastructure Construction Findings

The general location in which roads and infrastructure will be constructed lies within the Florida Panther Primary Dispersal/Expansion Area (“Other” zone) (**Figure 14**) as outlined by Kautz et al. (2006) and Thatcher et al. (2006). The findings listed below are potential impacts on the Florida panther:

1. Loss or fragmentation of suitable prey stalking and dispersal habitat for panthers;
2. Loss or fragmentation of suitable foraging and dispersal habitat for panther prey species;
3. Adverse effects associated with intraspecific aggression from habitat changes; and
4. Adverse effects associated with increases in traffic related to the construction of roads

2. Roads and Infrastructure Conservation Construction measures

To compensate for the loss of habitat, the Tribe proposes to provide habitat compensation to offset possible impacts of the project to the panther from the panther preserve located in the southwestern portion of the Reservation.

The ERMD staff has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all construction personnel on tribal lands. Construction personnel are required to be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the project boundary, notify a qualified observer, and allow the species to move away from the site and harm’s way. Construction is not resumed if the species is in danger of being harmed by construction. Additionally, construction personnel must report all listed species sightings to ERMD. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities.

7.1.3 Hollywood

The Hollywood Reservation is located outside of the Service’s Panther Focus Area and no suitable habitat is available on this Reservation. Based on the Service’s “Florida Panther Effect Determination Key” dated February 19th, 2007, the ERMD staff must recommend a “*no effect*” finding for the Florida panther.

7.1.3.a Prescribed Burns

Prescribed burns are not conducted on this Reservation.

7.1.3.b Forestry

Mechanical and chemical removal of exotics species are not performed on this Reservation and there are no existing nor will any fire lines be established on this Reservation.

7.1.3.c Home Sites and Access Roads

Please refer to “7.1.3 Hollywood”.

7.1.3.d Businesses

Please refer to “7.1.3 Hollywood”.

7.1.3.e Tribal Facilities

Please refer to “7.1.3 Hollywood”.

7.1.3.f Planned Communities

Please refer to “7.1.3 Hollywood”.

7.1.3.g Roads and Infrastructure

Please refer to “7.1.3 Hollywood”.

7.2 Audubon’s Northern Crested Caracara (*Polyborus plancus audubonii*)

See attached Screening (Appendix F) for species determination.

7.2.1 Big Cypress

The BCSIR occurs on the outer limits of the USFWS caracara consultation area (**Figure 15**). Preliminary habitat suitability models classify the BCSIR as having low to moderately suitable habitat for the species (**Figure 16, Figure 17 and Figure 18**) (Morrison et al. 2007; Root and Barnes 2007). Based on this information, it is expected that resident caracaras within BCSIR will typically have a larger territory due to decreased habitat suitability. The action area for the caracara includes, in part, all areas identified as “included” or “conditional”¹ in the RGP (**Figure 19**). To identify any additional areas caracaras may utilize and, therefore, be affected by a project, we estimate that based on habitat suitability the average caracara in BCSIR would have a 4,000 acre territory. This equates to a buffer with a distance of 7,450 feet from any potential caracara nest tree. Therefore, to provide that any potential nest tree will only be negligibly affected by the project, any project site needs to be at least 7,450 feet from the nest tree.

7.2.1.a Prescribed Burns

Grasslands

1. Prescribed Burn Findings in the Grasslands

Prescribed burns rarely result in the permanent loss of nest tree availability, but may result in temporary consumption of fronds, which can temporarily degrade the suitability of potential nesting trees. Cabbage palms (*Sabal palmetto*) are a fire adapted species that evolved through centuries of fast moving prairie fires in central and south Florida. Fires result in increased fruiting, reproduction, and stimulated frond production within one year following wildfires. Fuel loads are kept low due to cattle grazing, regular burning (2-year rotation), and being conducted primarily during the dormant season. Therefore, fire intensity, based on fuels, is expected to be low. Furthermore, any temporary consumption of fronds may help to improve the quality of cabbage palm crowns through the

¹ Personal communication with Mary Peterson. May 4, 2009. U.S. Fish and Wildlife Service, South Florida Ecological Services Office. Vero Beach, Florida.

removal of dead fronds which will ultimately enhance the quality and availability of potential nesting trees.

Caracaras are known to be attracted to sites with earthwork and recent fire activity due to increased prey availability. Prey is widely available, being displaced by these activities. These activities could result in increased human species interactions; however, it is unlikely that increased interaction would result in harassment since caracaras have adapted to and benefited from land management activities such as prescribed fire. Although adult caracaras are highly mobile and capable of avoiding fires, fire may pose a threat to juvenile caracaras, which are unable to leave a nest.

2. Prescribed Burn Conservation Measures in the Grasslands

To avoid any potential impact, the Tribe has committed to several protection measures. These protection measures include: (1) annual nesting season surveys to monitor known nesting activity and identify any unknown nests within the burn units; (2) supplemental wildlife reviews which will be provided prior to the burn to identify any changes or developments in nest location and activity; (3) restricting burn activities within 985 feet of an active nest; and (4) minimizing the risk of smoke dispersing in the direction of an active nest.

The ERMD staff has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all burn personnel on tribal lands. Burn personnel are required to attend the mandatory wildlife workshop. Burn personnel shall be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the unit, pre-burn directions are to hold firing activity, notify a qualified observer, and allow the species to move away from the site and harm's way. Firing is not resumed if the species is in danger of being harmed by flames. Additionally, burn personnel must report all listed species sightings to ERMD. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities.

Native Area

1. Prescribed Burn Findings in the Native Area

According to Morrison, 2007, Northern crested caracara's nest support structures are usually isolated and the tallest structure in the immediate area and the area surrounding the nesting tree is usually open such as a pasture or prairie. Because of the nature of the flora of the Native area, it is unlikely that prescribed burns will be affecting this species and/or nest sites.

2. Prescribed Burn Measures in the Native Area

The ERMD staff has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all burn personnel on tribal lands. Burn personnel are required to attend the mandatory wildlife workshop. Burn personnel shall be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the unit, pre-burn directions are to hold firing activity, notify a qualified observer, and allow the species to move away from the site and harm's way. Firing is not resumed if the species is in danger of being harmed by flames. Additionally, burn personnel must report all listed species sightings to ERMD. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities.

7.2.1.b Forestry

Please refer to "7.2.1.a Prescribed Burns--- Native Area".

7.2.1.c Home Sites and Access Roads

1. Home Site and Access Road Construction Findings

The crested caracara is a resident, diurnal, and non-migratory bird in Florida. Adult caracaras may be found in their territory year-round and will aggressively defend their territory during nesting season (November to May). Territory size ranges from 1,000 to 5,000 ac depending on habitat suitability, with an average territory size of approximately 3,000 ac, corresponding to a radius of 1.2 to 1.5 miles (mi) surrounding the nest site (Morrison and Humphrey 2001).

The BCSIR occurs within the southern portion of the caracara consultation area (**Figure 15**). Preliminary habitat suitability models classify the BCSIR as having low to moderately suitable habitat for the species (Morrison et al. 2006; Root and Barnes 2007). Based on this information, it is expected that resident caracaras within BCSIR will typically have larger territories due to decreased habitat suitability. The action area for the caracara includes, in part, all areas identified as “included” or “conditional”² in the RGP (**Figure 19**). To identify additional areas caracaras may utilize and therefore, be affected by the project, the Tribe estimated that, based on habitat suitability, the average caracara territory on the BCSIR would have be 4,000 ac. This equates to a radius distance of 7,450 feet (ft). Therefore, to provide that any potential nest tree will only be negligibly affected by the project, any project site needs to be at least 7,450 feet from the nest tree.

Within the BCSIR from 2000 to 2012, the Tribe has documented 12 caracara nest sites from presumably six separate pairs (**Figure 20**).

2 Home Site and Access Road Construction Conservation Measures

The Tribe will conduct annual caracara surveys on the reservation using the Service’s “Species Conservation Guidelines for the Northern Crested Caracara” 2004. Construction work will be conducted during the non-nesting season to avoid disturbance to nesting caracaras if the project is within a primary or secondary zone. Suitable trees for nesting, such as cabbage palms, and other large trees for perching and roosting will be not be removed during or after construction. The Tribe will also minimize risk to caracaras with habitat enhancement, muffling of equipment, less intrusive construction methods, and other project-specific recommendations that may benefit caracaras if the project is within the primary or secondary zone. These conservation measures will be planned prior to construction, and included in the project designs. If construction must occur in the secondary zone during the nesting season, the Tribe will monitor the nest tree during construction activities. If the nesting caracaras appear disturbed by the construction, construction will cease and the Tribe will contact the Service to develop actions that minimize adverse effects and reduce the likelihood of incidental take.

If the Tribe plans to develop a site within a primary zone, they will need to begin early consultation to identify issues and options available to reduce the project’s impact on the caracara. If construction is expected to occur in the primary zone, the Tribe will develop a site-specific caracara conservation plan that will include conducting construction work during the non-nesting season to avoid disturbance to nesting caracaras. The Tribe will also retain suitable trees for nesting, such as cabbage palms, and other large trees for perching and roosting; and maintain natural ground cover that can be used by fledglings as cover. The Tribe will also minimize harmful effects through habitat

² Personal communication with USFWS staff. May 4, 2009. U.S. Fish and Wildlife Service, South Florida Ecological Services Office. Vero Beach, Florida.

enhancement, muffling of equipment, less intrusive construction methods, and other project specific recommendations.

The ERMD staff has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all construction personnel on tribal lands. Construction personnel are required to be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the project boundary, notify a qualified observer, and allow the species to move away from the site and harm's way. Construction is not resumed if the species is in danger of being harmed by construction. Additionally, construction personnel must report all listed species sightings to ERMD. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities.

7.2.1.d Businesses

Please refer to "7.2.1.c Home Sites".

7.2.1.e Tribal Facilities

Please refer to "7.2.1.c Home Sites".

7.2.1.f Planned Communities

Please refer to "7.2.1.c Home Sites".

7.2.1.g Roads and Infrastructure

Please refer to "7.2.1.c Home Sites".

7.2.2 Brighton

The BRSIR occurs within the caracara consultation area (**Figure 21**). Preliminary habitat suitability models classify the BRSIR as having high suitable habitat for the species (Morrison et al. 2007; Root and Barnes 2008). Based on this information, it is expected that resident caracaras within BRSIR will typically have a smaller territory due to increased habitat suitability. We estimated that based on habitat suitability the average caracara in BRSIR would have a territory of approximately 1,000 acres. This acreage equates to a radius of 3,750 feet from a caracara nest.

7.2.2.a Prescribed Burns

Grassland Burn

1. Prescribed Burn Findings in the Grasslands

Prescribed burns rarely result in the permanent loss of nest tree availability, but may result in temporary consumption of fronds, which can temporarily degrade the suitability of potential nesting trees. Cabbage palms (*Sabal palmetto*) are a fire adapted species that evolved through centuries of fast moving prairie fires in central and south Florida. Fires result in increased fruiting, reproduction, and stimulated frond production within one year following wildfires. Fuel loads are kept low due to cattle grazing, regular burning (2-year rotation), and being conducted primarily during the dormant season. Therefore, fire intensity, based on fuels, is expected to be low. Furthermore, any temporary consumption of fronds may help to improve the quality of cabbage palm crowns through the removal of dead fronds which will ultimately enhance the quality and availability of potential nesting trees.

Caracaras are known to be attracted to sites with earthwork and recent fire activity due to increased prey availability. Prey is widely available, being displaced by these activities. These activities could result in increased human species interactions; however, it is unlikely that increased interaction would result in harassment since caracaras have adapted to and benefited from land management activities such as prescribed fire. Although adult caracaras are highly mobile and capable of avoiding fires, fire may pose a threat to juvenile caracaras, which are unable to leave a nest.

2. Prescribed Burn Conservation Measures in the Grasslands

To avoid this potential impact, the Tribe has committed to several protection measures. These protection measures include: (1) annual nesting season surveys to monitor known nesting activity and identify any unknown nests within the burn units; (2) supplemental wildlife reviews which will be provided prior to the burn to identify any changes or developments in nest location and activity; (3) restricting burn activities within 985 feet of an active nest; and (4) minimizing the risk of smoke dispersing in the direction of an active nest.

The ERMD staff has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all burn personnel on tribal lands. Burn personnel are required to attend the mandatory wildlife workshop. Burn personnel shall be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the unit, pre-burn directions are to hold firing activity, notify a qualified observer, and allow the species to move away from the site and harm's way. Firing is not resumed if the species is in danger of being harmed by flames. Additionally, burn personnel must report all listed species sightings to ERMD. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities.

Native Area

1. Prescribed Burn Findings in the Native Area

According to Morrison, 2007, Northern crested caracara's nest support structures are usually isolated and the tallest structure in the immediate area and the area surrounding the nesting tree is usually open such as a pasture or prairie. The Native area is characterized by dense hardwood forest and pine flatwoods and is not indicative of habitat that would support nesting. Because of the nature of the flora of the Native area, it is unlikely that prescribed burns will affect this species and/or nest sites.

2. Prescribed Burn Conservation Measures in the Native Area

Burn personnel must have the most up-to-date caracara survey data on hand to minimize impacts to potential nests within native areas. Although unlikely, if a nest is found within a native area, burn personnel should restricting burn activities within 985 feet of an active nest and minimizing the risk of smoke dispersing in the direction of an active nest.

The ERMD staff has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all burn personnel on tribal lands. Burn personnel are required to attend the mandatory wildlife workshop. Burn personnel shall be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the unit, pre-burn directions are to hold firing activity, notify a qualified observer, and allow the species to move away from the site and harm's way. Firing is not resumed if the species is in danger of being harmed by flames. Additionally, burn personnel must report all listed species sightings to ERMD. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities.

7.2.2.b Forestry

Please refer to “7.2.2.a Prescribed Burns--- Native Area”.

7.2.2.c Home Sites and Access Roads

1. Home Site and Access Road Construction Findings

The crested caracara is a resident, diurnal, and non-migratory bird in Florida. Adult caracaras may be found in their territory year-round and will aggressively defend their territory during nesting season (November to May). Territory size ranges from 1,000 to 5,000 ac depending on habitat suitability, with an average territory size of approximately 3,000 ac, corresponding to a radius of 1.2 to 1.5 miles (mi) surrounding the nest site (Morrison and Humphrey 2001).

The BRSIR occurs within the caracara consultation area (**Figure 21**). Annual surveys are conducted on the BRSIR and the 2011-2012 surveys confirmed 14 active nests within the reservation. The BRSIR has 25,268 acres of suitable caracara foraging and nesting habitat, calculated using the 2010 FLUCCS. Based on this information, it is expected that resident caracaras within BCSIR will typically have smaller territories due to increased habitat suitability. To identify additional areas caracaras may utilize and therefore, be affected by the project, the Tribe estimated that, based on habitat suitability, the average caracara territory on the BCSIR would have be 4,000 ac. This equates to a radius distance of 7,450 feet. Therefore, the project site would need to be at least 7,450 feet from any potential caracara nest tree to not impact the caracara.

2. Home Site and Access Road Construction Conservation Measures

The Tribe will conduct annual caracara surveys on the reservation using the Service’s “Species Conservation Guidelines for the Northern Crested Caracara” 2004. Construction work will be conducted during the non-nesting season to avoid disturbance to nesting caracaras. Suitable trees for nesting, such as cabbage palms, and other large trees for perching and roosting will be not be removed during or after construction. The Tribe will also minimize risk to caracaras with habitat enhancement, muffling of equipment, less intrusive construction methods, and other project-specific recommendations that may benefit caracaras. These conservation measures will be planned prior to construction, and included in the project designs. If construction must occur in the secondary zone during the nesting season, the Tribe will monitor the nest tree during construction activities. If the nesting caracaras appear disturbed by the construction, construction will cease and the Tribe will contact the Service to develop actions that minimize adverse effects and reduce the likelihood of incidental take.

If the Tribe plans to develop a site within a primary zone, they will need to begin early consultation to identify issues and options available to reduce the project’s impact on the caracara. If construction is expected to occur in the primary zone, the Tribe will develop a site-specific caracara conservation plan that will include conducting construction work during the non-nesting season to avoid disturbance to nesting caracaras. The Tribe will also retain suitable trees for nesting, such as cabbage palms, and other large trees for perching and roosting; and maintain natural ground cover that can be used by fledglings as cover. The Tribe will also minimize harmful effects through habitat enhancement, muffling of equipment, less intrusive construction methods, and other project specific recommendations.

The ERMD staff has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all construction personnel on tribal lands. Construction personnel are required to be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the project boundary, notify a qualified observer, and allow the species to

move away from the site and harm's way. Construction is not resumed if the species is in danger of being harmed by construction. Additionally, construction personnel must report all listed species sightings to ERMD. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities.

7.2.2.d Businesses

Please refer to 7.2.2.c "Home Site".

7.2.2.e Tribal Facilities

Please refer to 7.2.2.c "Home Site".

7.2.2.f Planned Communities

Please refer to 7.2.2.c "Home Site".

7.2.2.g Roads and Infrastructure

Please refer to 7.2.2.c "Home Site".

7.2.3 Hollywood

The Hollywood Reservation is located outside of the Service's consultation area for the caracara and not suitable habitat is available on this Reservation.

7.2.3.a Prescribed Burns

Prescribed burns are not conducted on this Reservation.

7.2.3.b Forestry

Mechanical and chemical removal of exotics species are not performed on this Reservation and there are no existing nor will any fire lines be established on this Reservation.

7.2.3.c Home Sites and Access Roads

Please refer to "7.2.3 Hollywood"

7.2.3.d Businesses

Please refer to "7.2.3 Hollywood"

7.2.3.e Tribal Facilities

Please refer to "7.2.3 Hollywood"

7.2.3.f Planned Communities

Please refer to "7.2.3 Hollywood"

7.2.3.g Roads and Infrastructure

Please refer to "7.2.3 Hollywood"

7.3 Bald Eagle (*Haliaeetus leucocephalus*)

See attached Screening (Appendix F) for species determination.

7.3.1 Big Cypress

No bald eagle nests have been documented within the BCSIR, though adults and juveniles have been periodically observed on the reservation. The nearest known nest is about 2 miles north of BCSIR.

7.3.1.a Prescribed Burns

Grassland Burn

1. Prescribed Burn Findings in the Grasslands

No nests have been found in the Big Cypress reservation. However, a bald eagle has been seen within the reservation and there is a possibility that a bald eagle could nest in Big Cypress.

2. Prescribed Burn Conservation Measures in the Grasslands

The ERMD staff has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all burn personnel on tribal lands. Burn personnel are required to attend the mandatory wildlife workshop. Burn personnel are required to be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the unit, pre-burn directions are to hold firing activity, notify a qualified observer, and allow the species to move away from the site and harm's way. Firing is not resumed if the species is in danger of being harmed by flames. Additionally, burn personnel must report all listed species sightings to ERMD and if a nest is found a 660 foot buffer must be created around the nest. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities. If a bald eagle nest is observed, personnel will notify.

Native Area

Please refer to "7.3.1.a Prescribed Burns--- Grasslands"

7.3.1.b Forestry

Please refer to "7.3.1.a Prescribed Burns--- Grasslands"

7.3.1.c Home Sites and Access Roads

Please refer to "7.3.1 Big Cypress"

7.3.1.d Businesses

Please refer to "7.3.1 Big Cypress"

7.3.1.e Tribal Facilities

Please refer to "7.3.1 Big Cypress"

7.3.1.f Planned Communities

Please refer to “7.3.1 Big Cypress”

7.3.1.g Roads and Infrastructure

Please refer to “7.3.1 Big Cypress”

7.3.2 Brighton

On July 9, 2007, the Service published the final rule in the Federal Register announcing the removal of the bald eagle from the Federal list of threatened and endangered species. The rule became effective on August 8, 2007. After the official delisting, the permitting of the incidental take under the Act is no longer necessary. However, the bald eagle is still protected by the Bald and Golden Eagle Protection Act (Eagle Act) and the Migratory Bird Treaty Act (MBTA). Both the Eagle Act and MBTA protect the species from a variety of harmful actions and impacts.

The tribe has been surveying bald eagles since 2008 and as of 2012, three (3) bald eagle nest were confirmed.

7.3.2.a Prescribed Burns

1. Prescribed Burn Findings in the Grasslands

According to the information from current and past surveys, six (6) bald eagle nests have been documented within the BRSIR, three (3) of which are active.

2. Prescribed Burn Conservation Measures in the Grasslands

The Tribe has proposed the following conservation measures to minimize any potential impacts to the bald eagle:

1. Burning will not occur within 660 feet of an active bald eagle nest.
2. If necessary, control lines will be established around identified bald eagle nest trees to ensure nest trees are not damaged or killed by fire.
3. No new firelines will be established within 660 feet of know nest trees.
4. Vegetation within 660 feet of active nest trees may be burns or mechanically removed during the non-nesting season or after juveniles have fledged.
5. To the greatest extent possible, burn crews will avoid heavy smoke dispersal in the direction of an active nest.

The ERMD staff has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all burn personnel on tribal lands. Burn personnel are required to attend the mandatory wildlife workshop. Burn personnel are required to be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the unit, pre-burn directions are to hold firing activity, notify a qualified observer, and allow the species to move away from the site and harm's way. Firing is not resumed if the species is in danger of being harmed by flames. Additionally, burn personnel must report all listed species sightings to ERMD and if a nest is found a 660 foot buffer must be created around the nest. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities. If a bald eagle nest is observed, personnel will notify.

Native Area

Please refer to “7.3.2.a Prescribed Burns--- Grasslands”.

7.3.2.b Forestry

Please refer to “7.3.2.a Prescribed Burns--- Grasslands”.

7.3.2.c Home Sites and Access Roads

1. Home Site and Access Road Construction Findings

According to the information from current and past surveys, six (6) bald eagle nests have been documented within the BRSIR, three (3) of which are active.

2. Home Site and Access Road Construction Conservation Measures

The Tribe has proposed the following conservation measures to minimize any potential impacts to the bald eagle:

1. Burning will not occur within 660 feet of an active bald eagle nest.
2. If necessary, control lines will be established around identified bald eagle nest trees to ensure nest trees are not damaged or killed by fire.
3. No new firelines will be established within 660 feet of know nest trees.
4. Vegetation within 660 feet of active nest trees may be burns or mechanically removed during the non-nesting season or after juveniles have fledged.
5. To the greatest extent possible, burn crews will avoid heavy smoke dispersal in the direction of an active nest.

The Tribe has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all construction personnel on tribal lands. Construction personnel are required to be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the project boundary, notify a qualified observer, and allow the species to move away from the site and harm’s way. Construction is not resumed if the species is in danger of being harmed. Additionally, construction personnel must report all listed species sightings to ERMD and if a nest is found a 660 foot buffer must be created around the nest. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities. If a bald eagle nest is observed, personnel will notify.

7.3.2.d Businesses

Please refer to “7.3.2.c Home Sites”.

7.3.2.e Tribal Facilities

Please refer to “7.3.2.c Home Sites”.

7.3.2.f Planned Communities

Please refer to “7.3.2.c Home Sites”.

7.3.2.g Roads and Infrastructure

Please refer to “7.3.2.c Home Sites”.

7.3.3 Hollywood

There is no consultation area for the bald eagle since it has been removed from the Endangered Species Act. However, the bald eagle is still protected under the Bald and Golden Eagle Act and under the Migratory Bird Treaty Act. No eagles have been observed on the reservation or in any property near the Reservation. The closest nest is located 13 miles west of the Reservation (**Figure 22**).

7.3.3.a Prescribed Burns

Prescribed burns are not conducted on this Reservation.

7.3.3.b Forestry

Mechanical and chemical removal of exotics species are not performed on this Reservation and there are no existing nor will any fire lines be established on this Reservation.

7.3.3.c Home Sites and Access Roads

Please refer to “4.3.3 Hollywood”

7.3.3.d Businesses

Please refer to “7.3.3 Hollywood”

7.3.3.e Tribal Facilities

Please refer to “7.3.3 Hollywood”

7.3.3.f Planned Communities

Please refer to “7.3.3 Hollywood”

7.3.3.g Roads and Infrastructure

Please refer to “7.3.3 Hollywood”

7.4 Wood Stork (*Mycteria americana*)

See attached Screening (Appendix F) for species determination.

7.4.1 Big Cypress

Wood storks are regularly observed foraging within ditches and wetlands within the BCSIR. The Service’s standard action area for the wood stork is based on the average foraging dispersal distance from an active wood stork colony. Coulter and Bryan (1987) found that 85 percent of wood stork

foraging occurs within 12.5 miles of the nesting colony. Furthermore, the Commission considers the area within 18.6 miles of a nesting colony as the Core Foraging Area (CFA) for wood storks (Cox et al. 1994). The Service recognizes an 18.6-mile core foraging area (CFA) around all known wood stork colonies. Information in the Service's GIS database indicates the presence of two (2) wood stork colonies within 18.6 miles of the project area (**Figure 25**). Based on the South Florida Water Management District (District) 2004 land use mapping, approximately 13,876 ac are suitable for wood stork foraging and 13,979 acres are considered moderately suitable habitat (**Table 4 and Figure 24**).

7.4.1.a Prescribed Burns

Grasslands

1. Prescribed Burn Findings in the Grasslands

Based on the Service's data, no wood storks are known to nest within the BCSIR.

The Service has identified a core foraging area of 18.6 miles (mi) around known wood stork rookeries. The grassland units are within 18.6 miles of three wood stork rookeries, though one has been inactive since 2000 and the other two were last documented as active in 2006. Typical foraging sites for the wood stork include freshwater marshes, stock ponds, shallow, and seasonally flooded roadside or agricultural ditches, narrow tidal creeks, shallow tidal pools, managed impoundments, and depressions in cypress (*Taxodium distichum*) heads, swamps, and sloughs. . Although wood storks are regularly observed foraging in wetlands and ditches found within the grassland units, the Service has concluded that any individuals found in a burn units would be able to fly away to avoid the fires.

The prescribed fires will reduce plant biomass within wetlands and open up wetland communities for wood stork foraging; however, administration of the proposed burn plans will not convert wetland habitats or result in loss of habitat important to wood stork foraging.

Temporary Loss of Foraging Opportunity

Wood storks are regularly observed foraging within wetlands found within the grasslands. Impacts to foraging habitat as the result of prescribed burning will be temporary and are not likely to result in long term loss of foraging opportunities for the species. Based on the Service's data no wood storks are known to have nested within the grasslands. The Tribe's wildlife database documents the occurrence of one wading bird rookery within the BCSIR (**Figure 23**), however species nesting within this area consist primarily of little blue herons (*Egretta caerulea*) and cattle egrets; no wood storks have been observed or documented to nest within this area.

Harassment by Burn Activities

Harassment to wood stork may result in a temporary alteration in wood stork utilization of land within the units. Potential increased human activity within and adjacent to suitable wood stork habitat as the result of the utilization of firelines which have been installed and refreshed within burn units.

Increase in Human Activity

Firelines for these burn plans will primarily occur along pre-existing roads which are mostly accessible to the community currently. While these lines are used by off-road recreational vehicles, trail riding and hunting typically occurs within remote native areas of BCSIR.

2. Prescribed Burn Conservation Measures in the Grasslands

The ERMD staff has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all burn personnel on tribal lands. Burn personnel are required to attend the mandatory wildlife workshop. Burn personnel shall be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the unit, pre-burn directions are to hold firing activity, notify a qualified observer, and allow the species to move away from the site and harm's way. Firing is not resumed if the species is in danger of being harmed by flames. Additionally, burn personnel must report all listed species sightings to ERMD. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities.

Grassland burn units will be monitored pre- and post-burn for wildlife usage, vegetative regeneration during the first 3 months post fire, open bare ground coverage, post-burn weather factors, and understory shrub removal percentage. Units will also be monitored randomly for usage by threatened and endangered species. Species within burn units will be monitored pre- and post-fire to document species response to the activities. At minimum, attempts will be made to observe and record changes in presence, absence, abundances, habitat, food supply, injury or mortality of all applicable listed species.

The Tribe has contractual obligations to report all prescribed fire and wildfire activity to the BIA. A summary of this information will be provided to the Service, including monitoring results and recorded observations regarding the effects of the action to listed species and their habitats within the burned areas, as requested.

Native Area

Please refer to "7.4.1a Prescribed Burn--- Grassland Burns".

7.4.1.b Forestry

Please refer to "7.4.1.a Prescribed Burns--- Grassland Burns".

7.4.1.c Home Sites and Access Roads

1. Home Site and Access Road Construction Findings

The Service has identified a core foraging area of 18.6 miles (mi) around known wood stork rookeries. The BRSIR is within 18.6 miles of two (2) wood stork rookeries, though one has been inactive since 2000 and the other was last documented as active in 2006 (**Figure 26**).

Although wood storks are regularly observed foraging in wetlands and ditches found within the reservation, they are not likely to be in areas which are developed.

Based on the Service's data, no wood storks are known to nest within the BRSIR.

2. Home Site and Access Road Construction Conservation Measures

Typical foraging sites for the wood stork include freshwater marshes, stock ponds, shallow and seasonally flooded roadside or agricultural ditches, narrow tidal creeks, shallow tidal pools, managed impoundments, and depressions in cypress (*Taxodium distichum*) heads, swamps, and sloughs. The Tribe will avoid constructing home sites in these types of habitats. However, if this does happen the Tribe will follow avoidance and minimization guidelines and a Clean Water Act 404 Permit will be obtained through the USACE to reduce impacts to the wood stork and/or wood stork habitat.

The ERMD staff has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all construction personnel on tribal lands. Construction personnel shall be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the project boundary, notify a qualified observer, and allow the species to move away from the site and harm's way. Construction is not resumed if the species is in danger of being harmed. Additionally, Construction personnel must report all listed species sightings to ERMD. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities.

7.4.1.d Businesses

Please refer to "7.4.1.c Home Sites".

7.4.1.e Tribal facilities

Please refer to "7.4.1.c Home Sites".

7.4.1.f Planned Communities

Please refer to "7.4.1.c Home Sites".

7.4.1.g Roads and Infrastructure

Please refer to "7.4.1.c Home Sites".

7.4.2 Brighton

The entire Brighton Reservation is located within the 18.6 mile "Core Foraging Area" (CFA) of an active wood stork colony (**Figure 26**).

7.4.2.a Prescribed Burns

Grasslands

1. Prescribed Burn Findings in the Grasslands

The Service has identified a core foraging area of 18.6 miles (mi) around known wood stork rookeries. The six burn units are within 18.6 miles of a wood stork colony, which was last documented as active in 2007 (**Figure 26**). Typical foraging sites for the wood stork include freshwater marshes, stock ponds, shallow, and seasonally flooded roadside or agricultural ditches, narrow tidal creeks, shallow tidal pools, managed impoundments, and depressions in cypress (*Taxodium distichum*) heads, swamps, and sloughs. The prescribed fires will reduce plant biomass within wetlands and open up wetland communities for wood stork foraging; however, administration of the proposed burn plans will not convert wetland habitats or result in loss of habitat important to wood stork foraging.

Although wood storks are regularly observed foraging in wetlands and ditches found within the proposed burn units, the Service believes that any individuals found in the burn units would be able to fly away to avoid the fires.

Based on the Service's data, no wood storks are known to nest within the BRSIR.

Temporary Loss of Foraging Opportunity

Wood storks are regularly observed foraging within wetlands found within the proposed burn units. Impacts to foraging habitat as the result of the proposed activities in the plans will be temporary and are not likely to result in long term loss of foraging opportunities for the species. Based on the Service's data no wood storks are known to have nested within the six burn units.

Harassment by Burn Activities

Harassment to wood stork may result in a temporary alteration in wood stork utilization of land within the units. Potential increased human activity within and adjacent to suitable wood stork habitat as the result of the utilization of firelines which have been installed and refreshed within burn units.

Increase in Human Activity

Firelines for these burn plans will primarily occur along pre-existing roads which are mostly accessible to the community currently. While these lines are used by off-road recreational vehicles, trail riding and hunting typically occurs within remote native areas of BRSIR.

2. Prescribed Burn Conservation Measures in the Grasslands

The ERMD staff has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all burn personnel on tribal lands. Burn personnel are required to attend the mandatory wildlife workshop. Burn personnel shall be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the unit, pre-burn directions are to hold firing activity, notify a qualified observer, and allow the species to move away from the site and harm's way. Firing is not resumed if the species is in danger of being harmed by flames. Additionally, burn personnel must report all listed species sightings to ERMD. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities.

Grassland burn units will be monitored pre- and post-burn for wildlife usage, vegetative regeneration during the first 3 months post fire, open bare ground coverage, post-burn weather factors, and understory shrub removal percentage. Units will also be monitored randomly for usage by threatened and endangered species. Species within burn units will be monitored pre- and post-fire to document species response to the activities. At minimum, attempts will be made to observe and record changes in presence, absence, abundances, habitat, food supply, injury or mortality of all applicable listed species.

The Tribe has contractual obligations to report all prescribed fire and wildfire activity to the BIA. A summary of this information will be provided to the Service, including monitoring results and recorded observations regarding the effects of the action to listed species and their habitats within the burned areas, as requested.

Native Area

Please refer to "7.4.2a Prescribed Burn--- Grassland Burns".

7.4.2.b Forestry

Please refer to "7.4.2.a Prescribed Burns--- Grassland Burns".

7.4.2.c Home Sites and Access Roads

1. Home Site and Access Road Construction Findings

The Service has identified a core foraging area of 18.6 miles (mi) around known wood stork rookeries. The BCSIR is within 18.6 miles of one (1) wood stork colony, which was last documented as active in 2007 (**Figure 26**). Typical foraging sites for the wood stork include freshwater marshes, stock ponds, shallow and seasonally flooded roadside or agricultural ditches, narrow tidal creeks, shallow tidal pools, managed impoundments, and depressions in cypress (*Taxodium distichum*) heads, swamps, and sloughs. The Tribe will avoid constructing home sites in these types of habitats. However, if this does happen the Tribe will follow avoidance and minimization guidelines and a Clean Water Act 404 Permit will be obtained through the USACE to reduce impacts to the wood stork and/or wood stork habitat.

Although wood storks are regularly observed foraging in wetlands and ditches found within the Reservation, wood storks would be able to avoid any construction happening on the Reservation.

Based on the Service's data, no wood storks are known to nest within the BRSIR.

2. Home Site and Access Road Construction Conservation Measures

The ERMD staff has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all construction personnel on tribal lands. Construction personnel are required to attend a mandatory wildlife workshop. Construction personnel shall be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the project boundary, notify a qualified observer, and allow the species to move away from the site and harm's way. Construction is not resumed if the species is in danger of being harmed. Additionally, Construction personnel must report all listed species sightings to ERMD. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities.

7.4.2.d Businesses

Please refer to "7.4.2.c Home Sites".

7.4.2.e Tribal Facilities

Please refer to "7.4.2.c Home Sites".

7.4.2.f Planned Communities

Please refer to "7.4.2.c Home Sites".

7.4.2.g Roads and Infrastructure

Please refer to "7.4.2.c Home Sites".

7.4.3 Hollywood

The property occurs within the 18.6 mile “Core Foraging Area” (CFA) of two (2) wood stork colonies (**Figure 27**).

7.4.3.a Prescribed Burns

Prescribed burns are not conducted on this Reservation.

7.4.3.b Forestry

Mechanical and chemical removal of exotics species are not performed on this Reservation and there are no existing nor will any fire lines be established on this Reservation.

7.4.3.c Home Sites and Access Roads

1. Home Site and Access Road Construction Findings

The Hollywood Reservation consists mainly on fixed residential units, commercial services, and mobile home units. The Hollywood Reservation has 24 acres, approximately 2 percent, of reservoirs (land use 530) of suitable foraging habitat for the wood stork. Based on this information, the Tribe does not foresee home site construction significantly impacting the wood stork. However, since the HWSIR is within a 18.6 mile CFA, the Tribe cannot rule out that there will never be a wood stork on site.

2. Home Site and Access Road Construction Conservation Measures

The ERMD staff has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all construction personnel on tribal lands. Construction personnel are required to attend a mandatory wildlife workshop. Construction personnel shall be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the project boundary, notify a qualified observer, and allow the species to move away from the site and harm’s way. Construction is not resumed if the species is in danger of being harmed. Additionally, Construction personnel must report all listed species sightings to ERMD. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities.

7.4.3.d Businesses

Please refer to “7.4.3.c Home Site”.

7.4.3.e Tribal Facilities

Please refer to “7.4.3.c Home Site”.

7.4.3.f Planned Communities

Please refer to “7.4.3.c Home Site”.

7.4.3.g Roads and Infrastructure

Please refer to “7.4.3.c Home Site”.

7.5 Eastern Indigo Snake (*Drymarchon corais couperi*) and Gopher Tortoise

See attached Screening (Appendix F) for species determination.

7.5.1 Big Cypress

Suitable habitat for the eastern indigo snake (*Drymarchon corais couperi*) exists on the BCSIR. However, little is still known about the life cycle, distribution, home range, and habitat of this species. We currently do not have a reliable method to survey for indigo snakes and information on the status of the eastern indigo snake on the reservation is generally lacking. Most information has resulted from incidental observations. The eastern indigo snake is most commonly observed in hardwood hammocks and pinelands where they can easily find sheltered retreat. However, indigo snakes also use dry prairie, edges of freshwater marshes, agricultural fields, coastal dunes, and human-altered habitats. Habitat loss and fragmentation, or at least a lessening of the quality of the habitat due to conversion of wet prairies to pasture, has likely reduced the availability of both refugia and prey for the indigo snake.

The indigo precautionary area snake includes, in part, all areas identified as “included” or “conditional”³ (**Figure 19**) in the RGP and a 6,000 foot buffer to consider potential effects to indigo snakes that may breed feed, or shelter within the project area. The 6,000 foot buffer zone is based on an 805-acre indigo snake home range, the largest reported in Florida (Barkaszi et al. 1995). Therefore, for the purposes of this document, the action area for the eastern indigo snake encompasses a total of 90,520 acres.

7.5.1.a Prescribed Burns

Grasslands

1. Prescribed Burn Findings in the Grasslands

There is limited best available science for the eastern indigo snake. ERMD staff assumes that the eastern indigo snake will take refuge underground within a burrow in the event of a fire. Based on experience with prescribed burns, ERMD staff assumes that in the event of a fire, the eastern indigo snake will take refuge underground within a burrow.

2. Prescribed Burn Conservation Measures in the Grasslands

The Tribe has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all burn personnel on tribal lands. Burn personnel are required to be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the unit, pre-burn directions are to hold firing activity, notify a qualified observer, and allow the species to move away from the site and harm's way. Firing is not resumed if the species is in danger of being harmed by flames. Potential snakes in the debris piles of the project area are presumed to be most at risk for injury or mortality. To reduce the potential for direct mortality, burn personnel will visually inspect all vegetation piles to the greatest extent possible for the presence of any snakes. Firing techniques for these debris piles will include a single ignition source so that wildlife may exit the piles opposite the source of fire. While conducting broadcast prescribed fires, personnel will avoid the use of ring fires which are known to trap and kill wildlife. Burn activities will partially overlap, in late spring, with the indigo snake nesting season. Burning will not occur during the

³ Personal communication with Mary Peterson. May 4, 2009. U.S. Fish and Wildlife Service, South Florida Ecological Services Office. Vero Beach, Florida.

months when hatchlings will be leaving their nests and would be exposed and susceptible to the effects of fire. Additionally, burn personnel must report all listed species sightings to ERMD staff. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities.

Native Area

Please refer to “7.5.1a Prescribed Burn--- Grassland Burns”.

7.5.1.b Forestry

Please refer to “7.5.1.a Prescribed Burns---Grassland Burns”.

7.5.1.c Home Sites and Access Roads

1. Home Site and Access Road Construction Findings

Please refer to “7.5.1 Big Cypress”.

2. Home Site and Access Road Construction Conservation Measures

The ERMD staff has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all construction personnel on tribal lands. Construction personnel are required to attend a mandatory wildlife workshop. Construction personnel shall be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the project boundary, notify a qualified observer, and allow the species to move away from the site and harm’s way. Construction is not resumed if the species is in danger of being harmed. Additionally, Construction personnel must report all listed species sightings to ERMD. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities.

7.5.1.d Businesses

Please refer to “7.5.1.c Home Sites”.

7.5.1.e Tribal Facilities

Please refer to “7.5.1.c Home Sites”.

7.5.1.f Planned Communities

Please refer to “7.5.1.c Home Sites”.

7.5.1.g Roads and Infrastructure

Please refer to “7.5.1.c Home Sites”.

7.5.2 Brighton

Suitable habitat for the federally threatened eastern indigo snake (*Drymarchon corais couperi*) exists on the BRSIR. We currently do not have a reliable method to survey for indigo snakes and information on the status of the eastern indigo snake on the reservation is generally lacking. Most information has

resulted from incidental observations. The eastern indigo snake is most commonly observed in hardwood hammocks and pinelands where they can easily find sheltered retreat. However, indigo snakes also use dry prairie, edges of freshwater marshes, agricultural fields, coastal dunes, and human-altered habitats. Habitat loss and fragmentation, or at least a lessening of the quality of the habitat due to conversion of wet prairies to pasture, has likely reduced the availability of both refugia and prey for the indigo snake.

7.5.2.a Prescribed Burns

Grasslands

1. Prescribed Burn Findings in the Grasslands

There is limited best available science for the eastern indigo snake. Eastern indigo snakes are known to reside within the BRSIR. However, little is still now about the life cycle, distribution, home range, and habitat of this species. Furthermore, we currently do not have a reliable method to survey for indigo snakes and information on the status of the eastern indigo snake on the reservation is generally lacking. ERMD staff assumes that the eastern indigo snake will take refuge underground within a burrow in the event of a fire. Based on this information, no significant impacts are expected for the eastern indigo snake.

2. Prescribed Burn Conservation Measures in the Grasslands

The Tribe has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all burn personnel on tribal lands. Burn personnel are required to be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the unit, pre-burn directions are to hold firing activity, notify a qualified observer, and allow the species to move away from the site and harm's way. Firing is not resumed if the species is in danger of being harmed by flames. Potential snakes in the debris piles of the project area are presumed to be most at risk for injury or mortality. To reduce the potential for direct mortality, burn personnel will visually inspect all vegetation piles to the greatest extent possible for the presence of any snakes. Firing techniques for these debris piles will include a single ignition source so that wildlife may exit the piles opposite the source of fire. While conducting broadcast prescribed fires, personnel will avoid the use of ring fires which are known to trap and kill wildlife. Burn activities will partially overlap, in late spring, with the indigo snake nesting season. Burning will not occur during the months when hatchlings will be leaving their nests and would be exposed and susceptible to the effects of fire. Additionally, burn personnel must report all listed species sightings to ERMD staff. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities.

Native Area

Please refer to "7.5.1a Prescribed Burn--- Grassland Burns".

7.5.2.b Forestry

Please refer to "7.5.2.a Prescribed Burns".

7.5.2.c Home Sites and Access Roads

1. Home Site and Access Road Construction Findings

Please refer to “7.5.2 Brighton”.

2. Home Site and Access Road Construction Conservation Measures

The ERMD staff has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all construction personnel on tribal lands. Construction personnel are required to attend a mandatory wildlife workshop. Construction personnel shall be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the project boundary, notify a qualified observer, and allow the species to move away from the site and harm’s way. Construction is not resumed if the species is in danger of being harmed. Additionally, Construction personnel must report all listed species sightings to ERMD. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities.

7.5.2.d Businesses

Please refer to “7.5.2.c Home Sites”.

7.5.2.e Tribal Facilities

Please refer to “7.5.2.c Home Sites”.

7.5.2.f Planned Communities

Please refer to “7.5.2.c Home Sites”.

7.5.2.g Roads and Infrastructure

Please refer to “7.5.2.c Home Sites”.

7.5.3 Hollywood

The HWSIR has been completely clear and developed with the exception of some disturbed uplands and wetlands with limited habitat value. Based on this information, ERMD staff assumes that no eastern indigo snakes occur on this property.

7.5.3.a Prescribed Burns

Prescribed burns are not conducted on this Reservation.

7.5.3.b Forestry

Mechanical and chemical removal of exotics species are not performed on this Reservation and there are no existing nor will any fire lines be established on this Reservation.

7.5.3.c Home Sites and Access Roads

Please refer to “7.5.3 Hollywood”.

7.5.3.d Businesses

Please refer to “7.5.3 Hollywood”.

7.5.3.e Tribal Facilities

Please refer to “7.5.3 Hollywood”.

7.5.3.f Planned Communities

Please refer to “7.5.3 Hollywood”.

7.5.3.g Roads and Infrastructure

Please refer to “7.5.3 Hollywood”.

7.6 Everglades Snail Kite (*Rostrhamus sociabilis plumbeus*)

See attached Screening (Appendix F) for species determination.

7.6.1 Big Cypress

The BCSIR occurs within the southern extent of the USFWS consultation area as well as the historic range for the Everglade Snail Kite (**Figure 28**). The ERMD wildlife staff has conducted 4 surveys in 2012 for this species within the northeast portion of the Reservation. The surveys were conducted in accordance with the Service’s 2004 Draft Snail Kite Survey Protocol and personal communication with FFWCC. During these surveys the ERMD staff regularly documented the occurrence of male, female and juvenile snail kites, though the only recorded occurrences are on the east side of the Reservation, but no nest was located. Snail kites were not seen carrying snails or twigs, but only seen roosting and soaring. Additionally, snail kites have been occasionally observed while driving along the Snake Road near the southern boundary of BCSIR. On November 20, 2009 two snail kites were observed displaying mutual soaring behavior, a behavior which is common during courtship. Based on the surveys, snail kites appear to be using the Reservation for foraging purposes only. No critical habitat occurs within the BCSIR. The BCSIR has designated critical habitat occurring to the north, east and south of the Reservation. The closest occurrence of critical habitat is approximately six (6) miles south of the BCSIR.

7.6.1.a Prescribed Burns

Grasslands

1. Prescribed Burn Findings in the Grasslands

Although snail kites have been regularly, any individuals found in the burn units would be able to fly away to avoid the fires. On November 20, 2009, ERMD staff observed two snail kites displaying mutual soaring behavior, a behavior which is common during courtship. Due to the lack of formal

nesting surveys, the extent of snail kite utilization of the habitat within the BCSIR is unknown. There is no snail kite designated critical habitat on the BCSIR.

The Service has no records of snail kites nesting within the BCSIR. The nearest known snail kite nest was documented 7 miles north of the BCSIR in Stormwater Treatment Area (STA) 5, west of Rotenberger Wildlife Management Area (WMA). The nest was documented in 2010, but failed to successfully fledge any chicks.

Within the grasslands areas of the BCSIR, 8,605 acres (ac) of potential foraging and/or nesting habitat exists. Of this potential habitat, approximately 85 percent, or 7,344 ac, occurs within the northeast and southeast grasslands areas of the BCSIR. Currently, the snail kite habitat within these units is sub-optimal as a result of a suppressed fire regime and hydrological alterations that have facilitated the succession from a sawgrass-dominated ecosystem to a wetland shrub ecosystem with a high degree of exotic and invasive vegetation.

Permanent Loss of Nesting or Roosting Habitat

Currently the snail kite habitat within the grasslands is poor as a result of suppressed fire regime and hydrological alterations which has resulted to wetland shrubs and wetland hardwood forest with a high degree of exotic and invasive vegetation. As previously discussed snail kites actively select nest and roost trees which have standing water beneath them. This preference not only deters predators from accessing the trees but will also serve to protect the trees from the likelihood of fire carrying through and resulting in the loss of preferred trees. Due to hydrological alterations and suppressed fire regime, suitable nesting or roosting habitat for the snail kite is not present therefore there will not be a permanent loss of this habitat.

Enhancement of Foraging Habitat

Although snail kites have been regularly documented in within BCSIR, the species occurrence within BCSIR is likely the result of loss of habitat range-wide and not an indication of habitat suitability. The snail kite habitat within BCSIR is poor due to fire suppression and hydrologic alterations. The application of fire while the site is retaining some hydrology will promote a mosaic burn pattern with patches of open water, reduced dead herbaceous coverage, thick unburned patches providing temporary perches. This will reduce excessive shrubby vegetation allowing snail kites to forage with greater ease while maintaining trees which would be naturally selected for nesting and roosting due to surrounding hydrology.

Increased Human Activity

Fire lines for the proposed burn plans will primarily occur along natural wet lines and pre-existing roads which are currently accessible to the community. While these lines are used by off-road recreational vehicles, trail riding and hunting typically occurs within remote native areas of BCSIR, and less frequently within the proposed pasture burn unit. Off road recreational vehicle usage of existing fire lines is low and refreshing existing lines is not anticipated to increase tribal members' preference for usage.

Although snail kites have been regularly documented within BCSIR, the species occurrence within BCSIR is likely the result of loss of habitat range-wide and not an indication of habitat suitability. As previously stated, the snail kite habitat within BCSIR is sub-optimal due to fire suppression and hydrologic alterations. The application of fire while the site is retaining some hydrology will promote a mosaic burn pattern with patches of open water, reduced dead herbaceous coverage, and thick unburned patches providing temporary perches. This will reduce excessive shrubby vegetation allowing snail kites to forage with greater ease, while maintaining trees that would typically be selected for nesting and roosting due to surrounding hydrology.

2. Prescribed Burn Conservation Measures in the Grasslands

The Tribe has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all burn personnel on tribal lands. Burn personnel are required to be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the unit, pre-burn directions are to hold firing activity, notify a qualified observer, and allow the species to move away from the site and harm's way. Firing is not resumed if the species is in danger of being harmed by flames. Additionally, burn personnel must report all listed species sightings to ERMD staff. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities.

Snail kites actively select nest and roost trees which have standing water beneath them. This preference assures for selection of trees that deter predators from accessing them, and also assures selection of trees that are not as likely to be killed by fire. As an added protection measure, to the greatest extent possible, the Tribe will conduct burns within potential snail kite habitat between August 1 and November 30 when snail kites are less likely to be nesting and water levels will prevent complete loss of potential nesting and roosting trees. Additionally, the Tribe will conduct snail kite nest surveys within potential habitat prior to burning, and will implement the restriction zones in the Service's conservation guidelines.

Native Area

1. Prescribed Burn Findings in the Native area

Within the native area, 3,708 acres of potential foraging and/or nesting habitat exists. The habitat within these units is considered to be suboptimal snail kite habitat due to frequent and rapid alterations in hydrology as a result of canals within and adjacent to the units. Additionally, much of the habitat has become infested with exotic and native invasive vegetation including melaleuca, Brazilian pepper, and wax myrtle.

2. Prescribed Burn Conservation Measures in the Native Area

The Tribe has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all burn personnel on tribal lands. Burn personnel are required to be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the unit, pre-burn directions are to hold firing activity, notify a qualified observer, and allow the species to move away from the site and harm's way. Firing is not resumed if the species is in danger of being harmed by flames. Additionally, burn personnel must report all listed species sightings to ERMD staff. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities.

7.6.1.b Forestry

Please refer to "7.6.1.a Prescribed Burns---Native Area"

7.6.1.c Home Sites and Access Roads

1. Home Site and Access Road Construction Findings

After review of the proposed activities, environmental baseline, species natural history, analysis of effects, and protection measures the Tribe believes that the construction of home sites and access roads will not impact the everglades snail kite. Snail kites have only been observed on the eastern side

of the reservation within the grasslands. Home sites will not be constructed in areas where the snail kites haven been seen.

2. Home Site and Access Road Construction Conservation Measures

The Tribe has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all construction personnel on tribal lands. Construction personnel are required to be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the project boundary, notify a qualified observer, and allow the species to move away from the site and harm's way. Construction is not resumed if the species is in danger of being harmed. Additionally, construction personnel must report all listed species sightings to ERMD staff. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities.

7.6.1.d Businesses

Please refer to "7.6.1.c Home Sites".

7.6.1.e Tribal Facilities

Please refer to "7.6.1.c Home Sites".

7.6.1.f Planned Communities

Please refer to "7.6.1.c Home Sites".

7.6.1.g Roads and Infrastructure

Please refer to "7.6.1.c Home Sites".

7.6.2 Brighton

The BRSIR occurs within the central portion of the Service's consultation area as well as the historic range for the Everglade Snail Kite (**Figure 29**). The ERMD wildlife staff has not conducted any surveys for this species on this Reservation. Snail kites have been observed foraging in the developed portion of the Reservation along the ditches, but it should be noted that they were not seen carrying snails or twigs, but only seen roosting and soaring. Additionally, snail kites have been occasionally observed along the Harney Canal.

Critical habitat was designated for the snail kite in 1977 and includes the Arthur R. Marshall Loxahatchee NWR, WCA 2, and portions of the WCA 3, portions of the Everglades NP, western portions of Lake Okeechobee, the Strazzulla and Cloud Lake reservoirs and portions of the St. Johns Marsh in Indian River County. No critical habitat occurs within the BRSIR. The closest occurrence of critical habitat is approximately 0.5 miles southeast of the BRSIR.

7.6.2.a Prescribed Burns

Grasslands

1. Prescribed Burn Findings in Grasslands

Permanent Loss of Nesting or Roosting Habitat

Prescribed fires result in a reduction of woody vegetation the proposed activities which could result in a loss of nesting and roosting trees for the Everglade Snail Kite.

Currently the snail kite habitat within these units is sub-optimal as a result of suppressed fire regime and hydrological alterations which has resulted in the succession of a sawgrass dominant ecosystem to wetland shrubs with a high degree of exotic and invasive vegetation.

Harassment by Proposed Activities

The proposed activities may result in the disruption of normal behaviors such as foraging, nesting and care of young. The Tribe will implement several protection measures to reduce the potential of harassment as a result of the proposed activities. These measures include; timing the proposed activities within potential habitat so that they will not coincide with sensitive periods in the snail kite life cycle, restriction zones around roost trees and wildlife education for all wildland personnel. These measures are expected to reduce the potential for harassment to an insignificant level.

Direct Mortality

While mortality of adult Everglade Snail Kites is unlikely to occur as a direct result of fire, the proposed activities could potentially result in the direct mortality of juveniles unable to flee nesting sites. To date the ERMD has not documented a snail kite nest within the BRSIR.

Enhancement of Foraging Habitat

Although snail kites have been documented in within BRSIR, the species occurrence within BRSIR is likely the result of loss of habitat range-wide and not an indication of habitat suitability. As previously state, the snail kite habitat within BRSIR is sub-optimal due to fire suppression and hydrologic alterations. The application of fire while the site is retaining some hydrology will promote a mosaic burn pattern with patches of open water, reduced dead herbaceous coverage, thick unburned patches providing temporary perches. This will reduce excessive shrubby vegetation allowing snail kites to forage with greater ease while maintaining trees which would be naturally selected for nesting and roosting due to surrounding hydrology.

Increased Human Activity

Firelines for the proposed burn plans will primarily occur along natural wet lines and pre-existing roads which are currently accessible to the community. While these lines are used by off-road recreational vehicles, trail riding and hunting typically occurs within remote native areas of BRSIR, and less frequently within the proposed pasture burn unit. ORV usage of existing firelines is low and refreshing existing lines is not anticipated to increase tribal members' preference for usage.

2. Prescribed Burn Conservation Measures in Grasslands

The Tribe has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all burn personnel on tribal lands. Burn personnel are required to be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the unit, pre-burn directions are to hold firing activity, notify a qualified observer, and allow the species to move away from the site and harm's way. Firing is not resumed if the species is in danger of being harmed by flames. Additionally, burn personnel must report all listed species sightings to ERMD staff. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities.

The Tribe will implement several protection measures to reduce the potential of direct mortality as a result of the proposed activities. The Tribe will conduct snail kite surveys in accordance with Service protocol and implement all restriction zones around roost and nest trees. Additionally, proposed activities occurring within potential habitat will not coincide with sensitive periods in the snail kite life cycle and wildlife education will be required for all wildland personnel.

As previously discussed snail kites actively select nest and roost trees which have standing water beneath them. This preference not only deters predators from accessing the trees but will also serve to protect the trees from the likelihood of fire carrying through and resulting in the loss of preferred trees. As an added protection measure, to the greatest extent possible, the Tribe will conduct burns within potential snail kite habitat between August 1 and November 30 when snail kites are less likely to be nesting and water levels will prevent complete loss of potential nesting and roosting trees. Additionally, the Tribe will conduct snail kite nest surveys within potential habitat prior to burning, and will implement the restriction zones in the Service's conservation guidelines.

Native Area

1. Prescribed Burn Findings in the Native area

Within the native lands burn units, 3,708 acres of potential foraging and/or nesting habitat exists. The habitat within these units is considered to be suboptimal snail kite habitat due to frequent and rapid alterations in hydrology as a result of canals within and adjacent to the units. Additionally, much of the habitat has become infested with exotic and native invasive vegetation including melaleuca, Brazilian pepper, and wax myrtle.

2. Prescribed Burn Conservation Measures in the Native Area

The Tribe has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all burn personnel on tribal lands. Burn personnel are required to be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the unit, pre-burn directions are to hold firing activity, notify a qualified observer, and allow the species to move away from the site and harm's way. Firing is not resumed if the species is in danger of being harmed by flames. Additionally, burn personnel must report all listed species sightings to ERMD staff. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities.

7.6.2.b Forestry

Please refer to "7.6.2.a Prescribed Burns---Native Area".

7.6.2.c Home Sites and Access Roads

1. Home Site and Access Road Construction Findings

After review of the proposed activities, environmental baseline, species natural history, analysis of effects, and protection measures the Tribe believes that the construction of home sites and access roads will not impact the everglades snail kite. Snail kites have been observed on the reservation, however, they have not been seen carrying nesting materials. Additionally, there are 6305 acres of potential foraging and/or nesting habitat exists. The habitat within these units is considered to be suboptimal snail kite habitat due to frequent and rapid alterations in hydrology as a result of canals within and adjacent to the units. Additionally, much of the habitat has become infested with exotic and native invasive vegetation including melaleuca, Brazilian pepper and wax myrtle. Based on this information, ERMD assumes that no snail kite nests occur on the BRSIR.

2. Home Site Construction Conservation Measures

The Tribe has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all construction personnel on tribal lands. Construction personnel are required to be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the project boundary, notify a qualified observer, and allow the species to move away from the site and harm's way. Construction is not resumed if the species is in danger of being harmed. Additionally, construction personnel must report all listed species sightings to ERMD staff. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities.

7.6.2.d Businesses

Please refer to "7.6.2.c Home Sites".

7.6.2.e Public Safety and Administrative Buildings

Please refer to "7.6.2.c Home Sites".

7.6.2.f Planned Communities

Please refer to "7.6.2.c Home Sites".

7.6.2.g Roads and Infrastructure

Please refer to "7.6.2.c Home Sites".

7.6.3 Hollywood

1. Findings

The HWSIR occurs within the southeastern portion of the Service's consultation area as well as the historic range for the Everglade Snail Kite (**Figure 30**). The ERMD wildlife staff has not conducted any surveys for this species on this Reservation and snail kites have never been observed in this Reservation or within the surrounding area. There is no suitable habitat within this Reservation. Based on this information the Tribe assumes that not everglades snail kites occur on the HWSIR.

2. Conservation Measures

Since no impacts are expected, no conservation measures have been placed for the HWSIR.

7.6.3.a Prescribed Burns

Prescribed burns are not conducted on this Reservation.

7.6.3.b Forestry

Mechanical and chemical removal of exotics species are not performed on this Reservation and there are no existing nor will any fire lines be established on this Reservation.

7.6.3.c Home Sites and Access Roads

Please refer to “7.6.3 Hollywood”.

7.6.3.d Businesses

Please refer to “7.6.3 Hollywood”.

7.6.3.e Tribal Facilities

Please refer to “7.6.3 Hollywood”.

7.6.3.f Planned Communities

Please refer to “7.6.3 Hollywood”.

7.6.3.g Roads and Infrastructure

Please refer to “7.6.3 Hollywood”.

7.7 Red Cockaded Woodpecker (*Picoides borealis*)

See attached Screening (Appendix F) for species determination.

7.7.1 Big Cypress

The USFWS red-cockaded woodpecker consultation area is 27 miles west and 8 miles to the south of the Reservation, and the closest documented species occurrence approximately 14 miles south of the property within the Big Cypress National Preserve (BCNP) (**Figure 31**). Though the BCSIR contains 1,699 acres of pine flatwoods, located mainly within the southwest Reservation in the native area, it is unlikely that this flatwood area is suitable due to fire suppression in the area. This species, or signs of the species, have not been observed during wildlife surveys. A survey in accordance with the Service’s guidelines has not been conducted for this species within the 1,699 acres of suitable habitat. Though it is likely that this area could support the nesting or foraging needs of the species, this portion of the Reservation is not used for construction, but burns will be conducted in this area. Based on this information and the Service’s “Florida Red-cockaded Woodpecker Conservation Guidelines”⁴ the ERMD must recommend a “*likely to adversely affect*” determination for the species under the ESA.

7.7.1.a Prescribed Burns

Grasslands

1. Prescribed Burn Findings in the Grasslands

Grassland burns will not be conducted in areas which support suitable nesting or foraging habitat for the red-cockaded woodpecker.

⁴ U.S. Fish and Wildlife Service. 2004 (Draft). Red-cockaded Woodpecker Species Conservation Guidelines. Fish and Wildlife Service, South Florida Ecological Services Office; Vero Beach, Florida.

2. Prescribed Burn Conservation Measures in the Grasslands

Since no impacts are expected, no conservation measures have been placed for the BCSIR.

Native Area

1. Prescribed Burn Findings in the Native area

The native area contains 1,699 acres of pine flatwood which is preferred habitat for the red cockaded woodpecker. These birds can't tolerate hardwood encroachment close to their nest which is a result of fire suppression. However, due to fire suppression, it is unlikely that this species would nest within these trees. Therefore, there has been a loss of breeding groups within these habitats. Prescribed burning is the best way to address this issue by burning the understory. Based on this information, prescribed burning of the native area would be highly beneficial for this species (Service, 2003).

2. Prescribed Burn Conservation Measures in the Native Area

Though no habitat exists within the native burn areas, all burn personnel shall follow the Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all burn personnel on tribal lands. Burn personnel are required to be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the unit, pre-burn directions are to hold firing activity, notify a qualified observer, and allow the species to move away from the site and harm's way. Firing is not resumed if the species is in danger of being harmed by flames. Additionally, burn personnel must report all listed species sightings to ERMD staff. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities.

7.7.1.b Forestry

Please refer to "7.9.1.a Prescribed Burns---Native Area".

7.7.1.c Home Sites and Access Roads

1. Home Site and Access Road Construction Findings

No home sites are to be constructed in the Native Area. Trails used by Tribal members are already established within the native area.

2. Home Site and Access Road Construction Conservation Measures

Since no impacts are expected, no conservation measures have been placed for the BCSIR. However, if a site is to be built within the native area, a 100% site survey will be conducted prior to construction for a presence/absence for the red-cockaded woodpecker.

7.7.1.d Businesses

Please refer to "7.7.1.c Home Sites".

7.7.1.e Tribal Facilities

Please refer to "7.7.1.c Home Sites".

7.7.1.f Planned Communities

Please refer to “7.7.1.c Home Sites”.

7.7.1.g Roads and Infrastructure

Please refer to “7.7.1.c Home Sites”.

7.7.2 Brighton

The BRSIR occurs outside of the Service’s red-cockaded woodpecker consultation area, being 3.5 miles west and 37 miles to the east of the Reservation, and the closest documented species occurrence approximately 8.6 miles from the property (**Figure 32**).

7.7.2.a Prescribed Burns

Grasslands

1. Prescribed Burn Findings in the Grasslands

Grassland burns will not be conducted in areas which support suitable nesting or foraging habitat for the red-cockaded woodpecker.

2. Prescribed Burn Conservation Measures in the Grasslands

Since no impacts are expected, no conservation measures have been placed for the BRSIR.

Native Area

1. Prescribed Burn Findings in the Native area

The BRSIR contains a small portion of suitable habitat 517 acres of pine flatwoods- in the central portion of the Reservation. This species, or signs of the species, have not observed during wildlife surveys. It is unlikely that this area could support the nesting or foraging needs of the species since the 517 acres are split up into 23 separate locations and lack of suitable cluster trees

2. Prescribed Burn Conservation Measures in the Native Area

Though no habitat exists within the native burn areas, all burn personnel shall follow the Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all burn personnel on tribal lands. Burn personnel are required to be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the unit, pre-burn directions are to hold firing activity, notify a qualified observer, and allow the species to move away from the site and harm’s way. Firing is not resumed if the species is in danger of being harmed by flames. Additionally, burn personnel must report all listed species sightings to ERMD staff. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities.

7.7.2.b Forestry

Please refer to “7.7.2.a Prescribed Burns--- Native Area”.

7.7.2.c Home Sites and Access Roads

1. Home Site and Access Road Construction Findings

No home sites or access roads are to be constructed in areas which support the Red cockaded woodpecker.

2. Home Site and Access Road Construction Conservation Measures

Since no impacts are expected, no conservation measures have been placed for the BRSIR. However, if a site is to be built within Red cockaded woodpecker habitat, a 100% site survey will be conducted prior to construction for a presence/absence for the red-cockaded woodpecker.

7.7.2.d Businesses

Please refer to “7.7.2.c Home Sites”.

7.7.2.e Tribal Facilities

Please refer to “7.7.2.c Home Sites”.

7.7.2.f Planned Communities

Please refer to “7.7.2.c Home Sites”.

7.7.2.g Roads and Infrastructure

Please refer to “7.7.2.c Home Sites”.

7.7.3 Hollywood

1. Findings

The Hollywood Reservation is outside of the Service’s Red-cockaded woodpecker consultation area (**Figure 33**) and has no suitable habitat on site.

2. Conservation Measures

Since no impacts are expected, no conservation measures have been placed for the HWSIR.

7.7.3.a Prescribed Burns

Prescribed burns are not conducted on this Reservation.

7.7.3.b Forestry

Mechanical and chemical removal of exotics species are not performed on this Reservation and there are no existing nor will any fire lines be established on this Reservation.

7.7.3.c Home Sites and Access Roads

Please refer to “7.7.3 Hollywood”.

7.7.3.d Businesses

Please refer to “7.7.3 Hollywood”.

7.7.3.e Tribal Facilities

Please refer to “7.7.3 Hollywood”.

7.7.3.f Planned Communities

Please refer to “7.7.3 Hollywood”.

7.7.3.g Roads and Infrastructure

Please refer to “7.7.3 Hollywood”.

7.8 Florida Bonneted Bat (*Eumops floridanus*)

See attached Screening (Appendix F) for species determination.

7.8.1 Big Cypress

The USFWS has not designated any critical habitat for the Florida bonneted bat. However, the bonneted bat is known to or believed to occur in Charlotte, Collier, Lee, Miami-Dade, Okeechobee, and Polk Counties. The BCSIR lies within Broward and Hendry County, but may have suitable foraging and nest habitat. Very little information is available on the range and distribution of the bonneted bat, therefore, the Tribe proposes the following conservation measures.

7.8.1.a Prescribed Burns

Grasslands

1. Prescribed Burn Findings in the Grasslands

Grassland burns may be conducted in areas which support suitable nesting or foraging habitat for the Florida bonneted bat.

2. Prescribed Burn Conservation Measures in the Grasslands

Where bonneted bats are known to occur, protect old trees and snags with hollows or cavities from fire. Rake and/or clear vegetation around the base of known or suspected roost sites to remove fuel

load before conducting prescribed burns (use similar guidance as provided for protection of RCW cavity trees in the RCW Recovery Plan). Potential roost sites may be located based on one or more of the following: bonneted bats are observed emerging from a tree cavity, bat vocalizations (chattering) are heard from a tree/snag cavity, large bats (> 5 inches in length) have been seen flying or bats have been heard vocalizing in the vicinity, echolocation calls have been recorded in the vicinity using acoustical recording devices, the tree/snag exudes an “ammonia”-like smell, or bat guano has been seen around the base of a tree/snag.

In known or suspected occupied areas, conduct prescribed burns carefully, especially during the Florida bonneted bat breeding season (Jan-Mar; June-Oct). Where prescribed fire is to be used near known active or suspected roosts, consider avoiding if there are high fuel loads, to reduce the risk of losing roosts during intense fires.

All burn personnel shall follow the Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all burn personnel on tribal lands. Burn personnel are required to be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the unit, pre-burn directions are to hold firing activity, notify a qualified observer, and allow the species to move away from the site and harm’s way. Firing is not resumed if the species is in danger of being harmed by flames. Additionally, burn personnel must report all listed species sightings to ERMD staff. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities

Native Area

Please refer to “7.8.1.a Prescribed Burns--- Grasslands”.

7.8.1.b Forestry

Please refer to “7.8.1.a Prescribed Burns--- Grasslands”.

7.8.1.c Home Sites and Access Roads

1. Home Site and Access Road Construction Findings

Bonneted bats have been detected foraging in native habitat including semitropical forests with tropical hardwood, pineland, and mangrove habitats, as well as man-made areas such as golf-courses or neighborhoods (Robson, 1989).

2. Home Site and Access Road Construction Conservation Measures

In areas where Florida bonneted bats are known to occur, retain old trees and snags with hollows or cavities. If dead or old trees must be removed, examine them first to make sure they are not being used by roosting bats before removal.

Mark and avoid any known or suspected Florida bonneted bat roosts. No natural roost sites are currently known for this species. However, potential roost sites may be located based on one or more of the following: bonneted bats are observed emerging from a tree cavity, bat vocalizations (chattering) are heard from a tree/snag cavity, large bats (> 5 inches in length) have been seen flying or bats have been heard vocalizing in the vicinity, echolocation calls have been recorded in the vicinity using acoustical recording devices, the tree/snag exudes an “ammonia”-like smell, or bat guano has been seen around the base of a tree/snag. Where one or more of these conditions exist, protect the tree or snag from damage.

The Tribe has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all construction personnel on tribal lands. Construction personnel are required to be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the project boundary, notify a qualified observer, and allow the species to move away from the site and harm's way. Construction is not resumed if the species is in danger of being harmed. Additionally, construction personnel must report all listed species sightings to ERMD staff. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities.

7.8.1.d Businesses

Please refer to "7.8.1.c Home Sites".

7.8.1.e Tribal Facilities

Please refer to "7.8.1.c Home Sites".

7.8.1.f Planned Communities

Please refer to "7.8.1.c Home Sites".

7.8.1.g Roads and Infrastructure

Please refer to "7.8.1.c Home Sites".

7.8.2 Brighton

The USFWS has not designated any critical habitat for the Florida bonneted bat. However, the bonneted bat is known to or believed to occur in Charlotte, Collier, Lee, Miami-Dade, Okeechobee, and Polk Counties. The BRSIR lies within Glades County, but may have suitable foraging and nest habitat. Very little information is available on the range and distribution of the bonneted bat, therefore, the Tribe proposes the following conservation measures.

7.8.2.a Prescribed Burns

Grasslands

1. Prescribed Burn Findings in the Grasslands

Grassland burns may be conducted in areas which support suitable nesting or foraging habitat for the Florida bonneted bat.

2. Prescribed Burn Conservation Measures in the Grasslands

Where bonneted bats are known to occur, protect old trees and snags with hollows or cavities from fire. Rake and/or clear vegetation around the base of known or suspected roost sites to remove fuel load before conducting prescribed burns (use similar guidance as provided for protection of RCW cavity trees in the RCW Recovery Plan). Potential roost sites may be located based on one or more of the following: bonneted bats are observed emerging from a tree cavity, bat vocalizations (chattering) are heard from a tree/snag cavity, large bats (> 5 inches in length) have been seen flying or bats have been heard vocalizing in the vicinity, echolocation calls have been recorded in the

vicinity using acoustical recording devices, the tree/snag exudes an “ammonia”-like smell, or bat guano has been seen around the base of a tree/snag.

In known or suspected occupied areas, conduct prescribed burns carefully, especially during the Florida bonneted bat breeding season (Jan-Mar; June-Oct). Where prescribed fire is to be used near known active or suspected roosts, consider avoiding if there are high fuel loads, to reduce the risk of losing roosts during intense fires.

All burn personnel shall follow the Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all burn personnel on tribal lands. Burn personnel are required to be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the unit, pre-burn directions are to hold firing activity, notify a qualified observer, and allow the species to move away from the site and harm’s way. Firing is not resumed if the species is in danger of being harmed by flames. Additionally, burn personnel must report all listed species sightings to ERMD staff. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities

Native Area

Please refer to “7.8.2.a Prescribed Burns--- Grasslands”.

7.8.2.b Forestry

Please refer to “7.8.2.a Prescribed Burns--- Grasslands”.

7.8.2.c Home Sites and Access Roads

1. Home Site and Access Road Construction Findings

Bonneted bats have been detected foraging in native habitat including semitropical forests with tropical hardwood, pineland, and mangrove habitats, as well as man-made areas such as golf-courses or neighborhoods (Robson, 1989).

2. Home Site and Access Road Construction Conservation Measures

In areas where Florida bonneted bats are known to occur, retain old trees and snags with hollows or cavities. If dead or old trees must be removed, examine them first to make sure they are not being used by roosting bats before removal.

Mark and avoid any known or suspected Florida bonneted bat roosts. No natural roost sites are currently known for this species. However, potential roost sites may be located based on one or more of the following: bonneted bats are observed emerging from a tree cavity, bat vocalizations (chattering) are heard from a tree/snag cavity, large bats (> 5 inches in length) have been seen flying or bats have been heard vocalizing in the vicinity, echolocation calls have been recorded in the vicinity using acoustical recording devices, the tree/snag exudes an “ammonia”-like smell, or bat guano has been seen around the base of a tree/snag. Where one or more of these conditions exist, protect the tree or snag from damage.

The Tribe has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all construction personnel on tribal lands. Construction personnel are required to be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the project boundary, notify a qualified observer, and allow the species to move away from the site and harm’s way. Construction is not resumed if the species is in danger of being

harmful. Additionally, construction personnel must report all listed species sightings to ERMD staff. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities.

7.8.2.d Businesses

Please refer to “7.8.2.c Home Sites”.

7.8.2.e Tribal Facilities

Please refer to “7.8.2.c Home Sites”.

7.8.2.f Planned Communities

Please refer to “7.8.2.c Home Sites”.

7.8.2.g Roads and Infrastructure

Please refer to “7.8.2.c Home Sites”.

7.8.3 Hollywood

The USFWS has not designated any critical habitat for the Florida bonneted bat. However, the bonneted bat is known to or believed to occur in Charlotte, Collier, Lee, Miami-Dade, Okeechobee, and Polk Counties. The HWSIR lies within Broward County, but may have suitable foraging and nest habitat. The bonneted bat has been known to roost in man-made structures which are prominent on this reservation. Very little information is available on the range and distribution of the bonneted bat, therefore, the Tribe proposes the following conservation measures.

7.8.3.a Prescribed Burns

Prescribed burns are not conducted on this Reservation.

7.8.3.b Forestry

Mechanical and chemical removal of exotic species are not performed on this Reservation and there are no existing nor will any fire lines be established on this Reservation.

7.8.3.c Home Sites and Access Roads

1. Home Site and Access Road Construction Findings

Bonneted bats have been detected foraging in native habitat including semitropical forests with tropical hardwood, pineland, and mangrove habitats, as well as man-made areas such as golf-courses or neighborhoods (Robson, 1989).

2. Home Site and Access Road Construction Conservation Measures

In areas where Florida bonneted bats are known to occur, retain old trees and snags with hollows or cavities. If dead or old trees must be removed, examine them first to make sure they are not being used by roosting bats before removal. This bat has also been found within roofs of existing homes.

Mark and avoid any known or suspected Florida bonneted bat roosts. No natural roost sites are currently known for this species. However, potential roost sites may be located based on one or more of the following: bonneted bats are observed emerging from a tree cavity, bat vocalizations (chattering) are heard from a tree/snag cavity, large bats (> 5 inches in length) have been seen flying or bats have been heard vocalizing in the vicinity, echolocation calls have been recorded in the vicinity using acoustical recording devices, the tree/snag exudes an “ammonia”-like smell, or bat guano has been seen around the base of a tree/snag. Where one or more of these conditions exist, protect the tree or snag from damage.

The Tribe has developed Standard Wildlife Education Measures, which include a mandatory wildlife workshop for all construction personnel on tribal lands. Construction personnel are required to be able to identify all federally listed wildlife that may occur within a project area. If any listed wildlife is observed within the project boundary, notify a qualified observer, and allow the species to move away from the site and harm’s way. Construction is not resumed if the species is in danger of being harmed. Additionally, construction personnel must report all listed species sightings to ERMD staff. The objective is to reduce potential risk for the harassment of federally protected species by the proposed activities.

7.8.3.d Businesses

Please refer to “7.8.3.c Home Sites”.

7.8.3.e Tribal Facilities

Please refer to “7.8.3.c Home Sites”.

7.8.3.f Planned Communities

3. Planned Communities Construction Findings

Please refer to “7.8.3.c Home Sites”.

7.8.3.g Roads and Infrastructure

Please refer to “7.8.3.c Home Sites”.

8.0 EVALUATION OF WILDLIFE CONSERVATION PLAN PERFORMANCE INDICATORS

The Tribe will conduct an annual evaluation on the performance of the plan along with periodic updates to the plan. The annual evaluation is designed to:

- Detect changes in the condition of wildlife and habitats
- Monitor population trends for selected threatened and endangered species
- Measure direct effects of management
- Monitor habitat responses to management
- Report on the condition of wildlife health by habitat

At the beginning of each calendar year, the Tribe's ERMD Department will complete a report assessing wildlife-specific performance indicators and trends that will be used to complete an annual plan update. The performance indicators or measures have been developed to meet the intended objectives of the plan which is "to provide for sustainable use and protection of wildlife and other natural resources for the benefit of the Seminole Tribe of Florida and its members, balancing management objectives so that conformity with the policy of the Endangered Species Act are achieved without the Tribe being faced with a disproportionate burden."

To meet that end, the following species were selected for performance indicators due to their significant influence on the community structure and overall health of the ecosystem and due to their Federal importance as listed species. The general performance indicators also shown below are designed to reflect the ongoing condition of suitable habitat for all species using accepted land management measures.

Big Cypress Reservation Indicators

Big Cypress	
Species	Performance Indicator
<i>Birds</i>	
Birds of Prey	
Bald Eagle	Survey- # of nesting pairs
Everglades Snail Kite	Survey- # of nesting pairs
	% suitable habitat
Opportunistic Feeders	
Northern crested caracara	Survey- # of nesting pairs
	% suitable habitat
Red-cockaded Woodpecker	% suitable habitat
Wading Birds	
Wood stork	% suitable habitat
<i>Mammals</i>	
Florida Panther	Maintenance of existing panther populations- sightings per year
	Maintenance of Panther habitat through Advanced Mitigation Programs # PHU per year
Florida Bonneted Bat	Maintenance of existing bonneted bat populations- sightings per year
	Maintenance of bonneted bat habitat through prescribed burning and construction of bat houses
<i>Reptiles</i>	
Eastern Indigo Snake	% suitable habitat
Gopher Tortoise	% suitable habitat

Brighton Reservation Indicators

Brighton	
Species	Performance Indicator
<i>Birds</i>	
<i>Birds of Prey</i>	
Bald Eagle	Survey- # of nesting pairs
<i>Opportunistic Feeders</i>	
Northern crested caracara	Survey- # of nesting pairs
	% suitable habitat
<i>Wading Birds</i>	
Wood stork	% suitable habitat
<i>Mammals</i>	
Florida Panther	Maintenance of existing panther populations- sightings per year
	Maintenance of Panther habitat through Panther Preserve and Brighton Advance Mitigation Site
Florida Bonneted Bat	Maintenance of existing bonneted bat populations- sightings per year
	Maintenance of bonneted bat habitat through prescribed burning and construction of bat houses
<i>Reptiles</i>	
Eastern Indigo Snake	% suitable habitat
Gopher Tortoise	% suitable habitat

Hollywood Reservation Indicators

Hollywood	
Species	Performance Indicator
<i>Birds</i>	
Wood Stork	% suitable habitat
<i>Mammals</i>	
Florida Bonneted Bat	Maintenance of existing bonneted bat populations- sightings per year
	Maintenance of bonneted bat habitat through construction of bat houses

Big Cypress and Brighton Reservation General Indicators

All Species	Performance Indicator
	# of acres of invasive plant species treated/year/Reservation
	# of acres of prescribe burns conducted/year/Reservation

The information obtained will be assessed and evaluated and used to update the plan and allow ERMD staff to adapt management protocols to changing conditions.

9.0 SCHEDULED PLAN MANAGAMENT EVENTS

The Tribe conducts annual surveys for the everglades snail kite and the northern crested caracara. These surveys are conducted in the winter months and continue into the spring. Prescribed burns conducted by forestry are usually conducted during the winter months when the conditions are favorable. Invasive treatments are conducted year round, though chemical treatments are better conducted outside of the wet season. Below is a table of projects with their approximate end and start dates.

Type of Project	Start Date	End date
Caracara Surveys	October 1	April 30
Everglades Snail Kite Surveys	January 1	April 30
Prescribed Grassland Burns	October 1	April 30
Prescribed native Burns	Year Round	Year Round
Invasive Treatment	Year Round	Year Round

10.0 ENVIRONMENTAL RESOURCE INVENTORY AND DESCRIPTIONS

10.1 Resource Inventory and Description

In his classic book Game Management, Aldo Leopold (1933) identifies the initial step in wildlife management as an inventory of the stock at hand. Although Leopold's (1933) focus was on population census, inventory can take many forms, and, in this case, includes an elucidation of the quantity, quality, and condition of wildlife populations and habitats for the Big Cypress, Brighton, and Hollywood Seminole Reservations. The inventory and description exercise was compiled from a number of quantified and inferential sources, and included the following activities:

- Review of reports, plans, other technical information, and equipment (**Table 8**);
 - Tribe's historical knowledgeable about traditions and wildlife and plants;
 - Compilation of data from a variety of published and unpublished sources to create compendia of species by:
 - Listed wildlife species;
 - Invasive exotic and nuisance wildlife.
 - Creation of a culturally significant plant matrix, and
- Review of the 2010 Florida Land Use Cover and Forms Classification System (FLUCCS) developed by the Johnson Engineering Inc. for the Tribe.

A reliable and up-to-date inventory of the environmental setting, habitat quantity, quality and condition, and wildlife species occurrence, distribution, abundance (population level or density) and condition is critical to the development of a comprehensive wildlife conservation plan. This section contains discussion on:

- Soils;
- Cover types and vegetation;
- Culturally important plants;
- Wildlife monitoring and management programs.

10.2 Soils

The soil maps of a study area are an excellent starting point to map and understand the environmental conditions. Soil types provide direct evidence of water table conditions both present and in the recent past, the texture, mineral and organic content, and the potential for the soil to support vegetative communities.

The General Soil Map for Hendry County depicts six (6) soil map units occurring on the Hendry County portion of the Big Cypress Reservation (Belz et al. 1990). All are described, to varying degrees, as being nearly level, poorly drained, and sandy. The Holopaw-Basinger Association (HBA), and the Riviera-Hallandale-Boca Association (RHB) appear to be the most prevalent of the mapping units within the reservation, followed by the Hallandale-Riviera-Holopaw Association (HRH). The Ochopee-Rock Outcrop Association (ORO), and the Boca-Riviera-Pineda Association (BRP) appear to comprise minor map unit occurrences along the reservation's northern boundary, and the Margate Association, if it occurs on the reservation at all (Belz et al. 1990), occupies such a small portion of the Hendry County property as to be relatively inconsequential for the purpose of preparing a wildlife management plan. Soil Survey maps are not available for Everglades habitat in western Broward County.

As mentioned, the predominant soil map units occurring on Big Cypress Reservation are the HBA and the RHB. The HBA, one of three soils characterized as "Soils of the Sloughs and Freshwater Marshes" (Belz et al. 1990), forms a band running through much of the central part of the reservation, and appears to be associated primarily with improved (211), and unimproved pasture (212) FLUCCS cover types on the reservation. This land use is consistent with the capability of this soil association as described in the Soil Survey (Belz et al. 1990).

In its native condition, the HBA supports chalky bluestem (*Andropogon virginicus*), cypress (*Taxodium spp.*), pickerelweed (*Pontederia cordata*), slash pine, and cabbage palm. Thick stands of cypress, sawgrass (*Cladium jamaicense*) and other grasses and sedges predominate in wetter areas (Belz et al. 1990). The limitations of the soil for agricultural and urban uses are described as "severe" (Belz et al. 1990).

The HRH and RHB associations appear to underlay virtually all of the Native Area in the southwestern portion of the reservation. The pine flatwoods (411) FLUCCS community in the Native Area appears to occur primarily on the HRH Association, while the cypress community (FLUCCS 620) (2010 FLUCCS) in the Native Area appears to occur primarily on the RHB Association. (Belz et al. 1990) notes that the RHB Association is typically covered with water 3-7 months out of the year. The vegetation occurring on the HRH and RHB associations are generally typical of that expected under natural conditions (Belz et al. 1990), although some effects resulting from alteration of natural hydroperiod and fire return frequency is suggested.

A small area in the northwestern portion of the reservation is underlain by the ORO Association, and appears to support citrus groves. The Soil Survey suggest that there are severe limitations associated with the use of this map unit for agriculture and cultivation (Belz et al. 1990). In its native condition, ORO is most often associated with pine flatwoods (FLUCCS 411), slough and marsh plant communities (FLUCCS 640). A small area categorized as wetlands hardwood forest (FLUCCS 610) is associated with the citrus groves occurring on this soil association.

A small area identified as the BRP Association appears to occur along the north central boundary of the Big Cypress Reservation in an area utilized for improved pasture (FLUCCS 211), and including a mixture of hammocks and hardwoods and mixed conifer (FLUCCS 420) (2010 FLUCCS). Both the native vegetation expected to occur on these soils, and their agricultural capability as defined by (Belz et al. 1990) are consistent with the reported land use and cover types.

Soil Surveys prepared by the U.S. Natural Resources Conservation Service provide useful information about the utility and limitations of the various soils. The General Soil Map for Glades County (Carter 2000) depicts three soil map units underlying the Brighton Reservation. The two predominant soil map units on the Brighton Reservation are collectively described as “soils of sloughs and hammocks.” The most prevalent soil map unit on the reservation is Basinger-Valkaria (BV). It is described as a “poorly drained soil of the sloughs.” Natural vegetation includes blue maidencane (*Amphicarpum mublenbertianum*), low panicums (*Panicum spp.*), wax-myrtle (*Myrica cerifera*), and other grasses. It is described as “poorly suited” for citrus and row crops, but is moderately suited to improved pasture and pine production (Carter 2000). On Brighton Reservation, this soil type appears to be used primarily for improved and woodland pastures. The primary limitation on this soil map unit is identified as wetness (Carter 2000). The other predominant soil map unit on Brighton Reservation is Felda-Pineda- Malabar (FPM). It is also described as a “...nearly level, poorly drained...” soil that has “...a loamy subsoil.” Natural vegetation includes ‘...slash pine (*Pinus elliotii*), cabbage palm (*Sabal palmetto*), saw palmetto (*Serenoa repens*), wax-myrtle, maidencane (*Panicum hemitomon*), panicums (*Panicum spp.*), bluestems (*Andropogon spp.*), sand cordgrass (*Spartina bakeri*), and other water-tolerant species.’ As is the case with the other predominant soil map unit on the Brighton Reservation, the FPM map unit is shown as being moderately suited to improved pasture and pine production (Carter 2000). It appears to be utilized for improved pasture, unimproved pasture, and citrus production on Brighton Reservation. Its primary limitations are associated with wetness, and its marginal suitability for the operation of equipment (Carter 2000).

Soil Surveys prepared by the U.S. Department of Agriculture provide soil surveys for Broward County. The General Soil Map for Broward County depicts five soil types underlying the Hollywood Reservation. The two predominant soil map units on the Brighton Reservation are collectively described as “soils of sloughs and hammocks.” The most prevalent soil map unit on the reservation is Immokalee Fine Sand (I). It is described as a “poorly drained soil” and though this soil type is not great for vegetation, some citrus may be grown on it. The Hollywood reservation is completely urbanized; therefore soils are not in their original state.

10.3 Cover Types and Vegetation

In 2010 the Tribe contracted Johnson Engineering Inc. to conduct FLUCCS surveys and create maps for the Big Cypress and Brighton Reservations. All Hollywood FLUCCS data is obtained from the South Florida water Management District (SWMD) 2004. The acreages of various FLUCCS cover types were generated with Geographic Information Systems (GIS) technology for the Big Cypress, Brighton, and Hollywood Seminole Reservation. Those data were consolidated into seventy three (73) FLUCCS cover types for Big Cypress Reservation (**Table 1**), sixty nine (69) for Brighton (**Table 2**), and sixteen (16) for Hollywood (**Table 3**). The distribution of the FLUCCS cover types on the Big Cypress Reservation (**Figure 2**), Brighton (**Figure 4**), and Hollywood (**Figure 6**).

10.4 Current Land Uses

The intended focus in this wildlife conservation plan will be on the lands that are:

- Substantially naturally occurring land cover types;
- Managed for agricultural purposes (range, forestry, agronomy, etc.);
- Included in the evolving Water Resources Plans authored by the Tribe and the SFWMD;
- Covered by surface water, and/or
- Otherwise appropriate for consideration.

This approach precludes further consideration for lands that are under FLUCCS classifications 100 (Urban and Built- Up), 700 (Barren Land), 800 (Transportation, Communication and Utilities) and 900 (Special Classifications). Much of the current wildlife habitat on the Big Cypress and Brighton Reservation is a product of other land uses and water management practices begun by other entities,

in some cases prior to the creation of the reservation. Fire and hydroperiod (Wade et al. 1980, Abrahamson and Hartnett: 1990, Ewel 1990, Kushlan 1990, Snyder et al. 1990) were especially important factors which shaped the development of many of the natural communities which historically occurred on the reservation. Alteration of these natural processes by fire suppression, exclusion and control; human-induced alterations in the hydroperiod, especially by works of the SFWMD (and its predecessor agency); and land uses practices such as agricultural conversion and development of improved pastures changed the nature of the naturally occurring plant cover.

For example, reservation lands have been bisected by canals (Volin et al. 2003), reducing the stage and duration of hydroperiods, thereby allowing substantial acreages of native plant communities to be cleared and replaced with cultivated pasture grasses and agronomic crops. The present landscape is generally drier, the fire return frequency is generally reduced, and, when fire is prescriptively applied to these man-altered plant communities, it is often during the cool season (Long et al. 1999), when it can be more easily controlled, rather during the growing season, when natural fires most often occurred under the natural regime.

Consequently, many of the naturally occurring habitats (of 75-100 years ago) have been replaced or dramatically altered. Changes in the nature and extent of wildlife habitat inevitably bring about changes in wildlife populations. For every change in habitat, some species or species groups are benefited, and some are impacted in a detrimental way. Such habitat changes should not be characterized as “beneficial” or “detrimental” to wildlife in general. Rather, they should be viewed as beneficial to some species, and detrimental to others. Consequently, it should be recognized that such habitat changes can dramatically affect the abundance and distribution of naturally occurring species of both wildlife and plants.

10.5 Culturally Important Plants

Tribal members and staff have indicated that some native plants are important for cultural and medicinal purposes and have furnished information on plants of cultural or medicinal significance. The matter of culturally important plants has been further researched through interviews with selected Tribal members and employees and through selective review of available literature. Some Tribal members and employees have expressed concern that plants of cultural significance to the Tribe are declining in abundance and availability. Several inferences derived from the available information are discussed here. Cultural tradition evolved in a period when the Tribe derived its livelihood from essentially natural ecosystems. South Florida’s inland ecosystems have changed dramatically during the last 100 years, and much of this change is attributable to man-made changes, especially extremes in hydroperiods (drought/flood cycles) and fire which create disclimax conditions (Abrahamson and Hartnett: 1990, Ewel 1990, Kushlan 1990, Snyder et al. 1990). Additional changes in the nature and structure of South Florida ecosystems result from both deliberate management practices (pasture conversion, forestry, agronomy, etc.), and as by-products of activities such as herbicide-based weed control. The reduction in the availability of culturally significant plants that Tribal members suggest might be occurring on Big Cypress and Brighton Reservations may well reflect the loss of plant diversity resulting from changing land stewardship practices, land management practices in areas surrounding the reservation, and negative impacts to the South Florida ecosystem as a whole.

The Tribe has two programs that have the potential to affect a measure of ecosystem restoration on the Big Cypress Reservation. The implementation of a Wetland Management Plan could potentially achieve some measure of restoration of the native plant community of the Native Area where culturally important plants are often found. The final result of the Seminole Tribe’s Big Cypress Wetland Management Plan, and other plans involving the Comprehensive Everglades Restoration Plan (CERP), could alter the landscape and land use, resulting in a more natural and historic ecosystem. The plan calls for re-establishing the natural hydroperiod of the areas which would

change the composition of the understory (Applied Technology and Management Inc. et al. 2005). By bringing back the historic ecosystem, plants that were available prior to the drainage of the Everglades may be available once more. The Big Cypress Advanced Mitigation Plan enhances 4000+ acres of wetland habitat, including the removal of the exotic plant species melaleuca (*Melaleuca quinquenervia*) and old world climbing fern (*Lygodium microphyllum*) which out-compete native plants. The invasive exotic tree species Brazilian pepper (*Schinus terebinthifolius*) is also known to occur on Big Cypress and Brighton Reservation. Invasive exotic plants are further discussed in the next section.

10.6 Invasive Exotic Plants

Chapter 9 of the 2006 South Florida Environmental Report (Ferriter et al. 2006) discusses the potential impacts of invasive exotic species as they relate to the Comprehensive Everglades Restoration Plan (CERP). Eight geographic “modules” are utilized by Ferriter et al. (2006) to detail the occurrence of nonindigenous species in southern Florida. The Big Cypress Reservation appears to fall within the “Western Big Cypress Module.” Fifteen plant species are identified as “priority nonindigenous plant species” for the Western Big Cypress Module by Ferriter et al. (2006). A program to identify and develop methods of control for invasive exotic plants has been undertaken by the Tribe.

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12.0 TABLES

Table 1: Big Cypress FLUCCS

Big Cypress FLUCCS Table			
FLUCFCS Code	Description	Area in acres	Percent %
110	Residential	579.86	1.10
140	Commercial and Services	115.88	0.22
1453	Recreational Vehicle Park	2.40	0.00
141	Retail Sales and Services	6.49	0.01
144	Cultural and Entertainment	28.85	0.05
148	Cemeteries	2.20	0.00
162	Sand and Gravel Pits	239.81	0.45
171	Educational facilities	11.60	0.02
172	Religious	9.17	0.02
175	Governmental	7.25	0.01
183	Race Tracks	38.59	0.07
186	Community Recreational Facilities	9.99	0.02
189	Other Recreation	17.75	0.03
191	Undeveloped Land within Urban Areas	1.94	0.00
211	Improved Pasture	7214.54	13.67
212	Unimproved Pasture	72.52	0.14
214	Row Crops	1064.64	2.02
221	Citrus Groves	1743.43	3.30
251	Horse farm	19.02	0.04
261	Fallow Crop Land	967.47	1.83
310	Herbaceous	83.49	0.16
320	Shrub and Brushland	5.81	0.01
321	Palmetto Prairies	157.87	0.30
330	Mixed Rangelands	7.35	0.01
411	Pine Flatwoods	1699.64	3.22
422	Brazilian Pepper	119.90	0.23
424	Melaleuca	31.73	0.06
425	Temperate Hardwood (Oak and Cabbage Palm)	1133.62	2.15
427	Oak with Saw Palmetto (Live and Laurel)	346.75	0.66
428	Cabbage Palm	53.98	0.10
434	Hardwood, Conifer Mix (Oak, Pine and Cabbage Palm)	977.62	1.85
437	Australian Pine	0.24	0.00
510	Streams and Waterways	652.09	1.24
534	Reservoirs less than 10 acres	100.18	0.19
610	Wetland Hardwood Forest Mix (Maple, Willow, Brazilian Pepper, Wax Myrtle)	1492.63	2.83

Big Cypress FLUCCS Table			
FLUCFCS Code	Description	Area in acres	Percent %
616	Inland Ponds and Sloughs (Pop Ash, Pond Apple, Cypress, Willow, typ.)	741.61	1.41
617	Mixed Wetland Hardwoods (Maple, Oak, Pop Ash, Pond Apple, typ.)	1583.61	3.00
618	Willow	437.08	0.83
619B	Brazilian Pepper	928.20	1.76
619M	Melaleuca	1100.55	2.09
621	Cypress	7913.52	15.00
6212	Cypress with Graminoid Understory	602.70	1.14
624	Cypress, Pine, Cabbage Palm Mix	1196.93	2.27
625	Hydric Pine	1935.52	3.67
628	Hydric Cabbage Palm	97.71	0.19
630	Wetland Forested Mix (Cypress, Oak, Cabbage Palm, typ.)	4508.19	8.54
6301	Oak, Cabbage Palm, Brazilian Pepper, hydric	81.88	0.16
6308	Oak, Shrub, Prairie Mix	132.08	0.25
631	Wetland Shrubs (Wax Myrtle, typ.)	2951.18	5.59
641	Freshwater Marsh	3050.28	5.78
6411	Freshwater Marsh, Sawgrass	9.04	0.02
6412	Cattail marsh	2.91	0.01
643	Wet Prairie	1766.71	3.35
6439	Wet Prairie, Disturbed (Fallow Fields, typ.)	3255.36	6.17
740	Disturbed Land	133.37	0.25
742	Borrow area	6.93	0.01
743	Spoil area	123.33	0.23
811	Airport	53.01	0.10
814	Roads, Trails, and approx. Right-of-Way	1086.95	2.06
822	Communication Facilities	0.42	0.00
830	Utilities	3.60	0.01
8335	Pump Station	0.23	0.00
834	Sewage Treatment Facility	53.20	0.10
Total		52772.40	100.00

Table 2: Brighton FLUCCS

Brighton FLUCCS Table			
FLUCFCS Code	Description	Area in acres	Percent %
110	Residential, Low Density	601.64	1.65
130	Residential, High Density	23.87	0.07
132	Mobile Home Units	12.3	0.03
140	Commercial and Services	11.27	0.03
160	Extractive	111.33	0.30
171	Educational facilities	8.42	0.02
172	Religious	6.2	0.02
174	Medical and Health Care	3.68	0.01
175	Governmental	7.33	0.02
177	Other Institutional	20.82	0.06
178	Commercial Child Care	3.08	0.01
180	Recreational	64.73	0.18
191	Undeveloped Land within Urban Areas	20.11	0.05
211	Improved Pasture	12734.44	34.83
212	Unimproved Pasture	1271.5	3.48
213	Woodland Pastures	8.23	0.02
214	Row Crops	1379.83	3.77
221	Citrus Groves	449.08	1.23
233	Swine feeding operations	9.28	0.03
260	Open Land, Rural	2.12	0.01
261	Fallow Crop Land	488.12	1.33
310	Herbaceous, Dry Prairie	247.71	0.68
320	Shrub and Brushland	43.84	0.12
321	Palmetto Prairie	161.69	0.44
329	Other shrub and brush	170.51	0.47
330	Mixed Rangeland	1288.98	3.53
411	Pine Flatwoods	517.31	1.41
422	Brazilian Pepper	168.4	0.46
424	Melaleuca	1.48	0.00
425	Temperate Hardwood (Oak and Cabbage Palm)	7134.95	19.51
427	Live Oak	140.51	0.38
428	Cabbage Palm	383.54	1.05
434	Hardwood, Conifer Mix (Oak, Pine and Cabbage	487.9	1.33
435	Dead Trees	1.09	0.00
436	Upland Scrub, Pine and Hardwoods	803.3	2.20
437	Australian Pine	4.6	0.01
510	Streams and Waterways	959.06	2.62
530	Reservoirs	3.68	0.01
533	Reservoirs larger than 10 acres	286.02	0.78
534	Reservoirs less than 10 acres	19.21	0.05
616	Inland Pond and Sloughs (Pop Ash, Pond Apple, Cypress, Willow)	0.88	0.00
617	Mixed Wetland Hardwoods (Maple, Oak, Pop Ash, Pond Apple)	9.26	0.03
618	Willow	30.21	0.08
619B	Exotic Wetlands, Brazilian Pepper	249.99	0.68
619M	Exotic Wetlands, Melaleuca	3.67	0.01

Brighton FLUCCS Table			
FLUCFCS Code	Description	Area in acres	Percent %
621	Cypress	4.07	0.01
625	Hydric Pine	214.41	0.59
626	Hydric Pine Savanna	30.28	0.08
631	Wetland Shrub	779.34	2.13
641	Freshwater Marsh	1849.98	5.06
643	Wet Prairie	2102.79	5.75
740	Disturbed Land	104	0.28
742	Borrow Areas	10.99	0.03
743	Spoil Areas	521.64	1.43
743/510	Berm / Ditch Combination	5.73	0.02
8113	Private airport	0.97	0.00
814	Roadway	485.49	1.33
830	Utilities	0.65	0.00
8331	Water Treatment Plant	8.74	0.02
8333	Water Tanks	2.36	0.01
8334	Well fields	0.79	0.00
8341	Wastewater Treatment Plant	9.25	0.03
8343	Aeration Fields	68.98	0.19
835	Solid Waste Disposal	10.71	0.03
Total:		36,566.34	100.00

Table 3: Hollywood FLUCCS

Hollywood FLUCCS Table			
FLUCFCS Code	Description	Area in acres	Percent %
1180	Rural Residential	10.74	0.91
1210	Fixed Single Family Units	590.76	50.24
1320	Mobile Home Units	147.11	12.51
1330	Multiple Dwelling Units, Low Rise	10.36	0.88
1400	Commercial and services	163.08	13.87
1490	Commercial and services Under Construction	32.31	2.75
1700	Institutional	86.66	7.37
1850	Parks and Zoos	13.82	1.18
1900	Open Land	14.29	1.22
2140	Row Crops	5.94	0.51
4200	Upland Hardwood Forest	39.03	3.32
4220	Brazilian Pepper	17.35	1.48
5300	Reservoirs	24.54	2.09
8320	Electrical Power Transmission Lines	13.27	1.13
8340	Sewage Treatment	6.68	0.57
Total:		1175.95	100.00

Table 4: Category I & II Invasive species

Category I

Scientific Name	Common Name	FLEPPC Cat.	Gov. List	Reg. Dist.	BCSIR present (Y/N)	BRSIR present (Y/N)
<i>Abrus precatorius</i>	rosary pea	I	N	C, S		Y
<i>Acacia auriculiformis</i>	earleaf acacia	I		C, S		
<i>Albizia julibrissin</i>	mimosa, silk tree	I		N, C		
<i>Albizia lebbek</i>	woman's tongue	I		C, S		
<i>Ardisia crenata</i> (<i>A. crenulata misapplied</i>)	coral ardisia	I		N, C, S		
<i>Ardisia elliptica</i> (<i>A. humilis misapplied</i>)	shoebutton ardisia	I	N	C, S		
<i>Asparagus aethiopicus</i> (<i>A. sprengeri</i> ; <i>A. densiflorus misapplied</i>)	asparagus-fern	I		N, C, S		
<i>Bauhinia variegata</i>	orchid tree	I		C, S		
<i>Bischofia javanica</i>	bishopwood	I		C, S	Y	
<i>Calophyllum antillanum</i> (<i>C. calaba</i> and <i>C. inophyllum misapplied</i>)	santa maria, mast wood, Alexandrian laurel	I		S		
<i>Casuarina equisetifolia</i>	Australian-pine, beach sheoak	I	P, N	N, C, S	Y	Y
<i>Casuarina glauca</i>	suckering Australian-pine, gray sheoak	I	P, N	C, S		
<i>Cinnamomum camphora</i>	camphor tree	I		N, C, S		
<i>Colocasia esculenta</i>	wild taro	I		N, C, S		
<i>Colubrina asiatica</i>	lather leaf	I	N	S		
<i>Cupaniopsis anacardioides</i>	carrotwood	I	N	C, S		
<i>Deparia petersenii</i>	Japanese false spleenwort	I		N, C		
<i>Dioscorea alata</i>	winged yam	I	N	N, C, S		
<i>Dioscorea bulbifera</i>	air-potato	I	N	N, C, S	Y	Y
<i>Eichhornia crassipes</i>	water-hyacinth	I	P	N, C, S	Y	Y
<i>Eugenia uniflora</i>	Surinam cherry	I		C, S		
<i>Ficus microcarpa</i> (<i>F. nitida</i> and <i>F. retusa</i> var. <i>nitida misapplied</i>) ¹	laurel fig	I		C, S		
<i>Hydrilla verticillata</i>	hydrilla	I	P, U	N, C, S	Y	
<i>Hygrophila polysperma</i>	green hygromy	I	P, U	N, C, S		

Category I						
Scientific Name	Common Name	FLEPPC Cat.	Gov. List	Reg. Dist.	BCSIR present (Y/N)	BRSIR present (Y/N)
<i>Hymenachne amplexicaulis</i>	West Indian marsh grass	I		N, C, S		
<i>Imperata cylindrica</i> (<i>I. brasiliensis</i> misapplied)	cogon grass	I	N, U	N, C, S	Y	Y
<i>Ipomoea aquatica</i>	water-spinach	I	P, U	C		
<i>Jasminum dichotomum</i>	Gold Coast jasmine	I		C, S		
<i>Jasminum fluminense</i>	Brazilian jasmine	I		C, S		
<i>Lantana camara</i> (= <i>L. strigocamara</i>)	lantana, shrub verbenia	I		N, C, S		
<i>Ligustrum lucidum</i>	glossy privet	I		N, C		
<i>Ligustrum sinense</i>	Chinese privet, hedge privet	I		N, C, S		
<i>Lonicera japonica</i>	Japanese honeysuckle	I		N, C, S		
<i>Ludwigia peruviana</i>	Peruvian primrosewillow	I		N, C, S		
<i>Lumnitzera racemosa</i>	kripa; white-flowered mangrove; black mangrove	I		S		
<i>Luziola subintegra</i>	Tropical American water grass	I		S		
<i>Lygodium japonicum</i>	Japanese climbing fern	I	N	N, C, S	Y	
<i>Lygodium microphyllum</i>	Old World climbing fern	I	N, U	C, S		
<i>Macfadyena unguis-cati</i>	cat's claw vine	I		N, C, S		
<i>Manilkara zapota</i>	sapodilla	I		S	Y	
<i>Melaleuca quinquenervia</i>	melaleuca, paper bark	I	P, N, U	C, S	Y	
<i>Melinis repens</i> (= <i>Rhynchelytrum repens</i>)	Natal grass	I		N, C, S		
<i>Mimosa pigra</i>	catclaw mimosa	I	P, N, U	C, S		
<i>Nandina domestica</i>	nandina, heavenly bamboo	I		N, C		
<i>Nephrolepis brownii</i> (= <i>N. multiflora</i>)	Asian sword fern	I		C, S		
<i>Nephrolepis cordifolia</i>	sword fern	I		N, C, S		
<i>Neyraudia reynaudiana</i>	Burma reed, cane grass	I	N	S		
<i>Nymphoides cristata</i>	snowflake	I		C, S		
<i>Paederia cruddasiana</i>	sewer vine, onion vine	I	N	S		
<i>Paederia foetida</i>	skunk vine	I	N	N, C, S		

Category I						
Scientific Name	Common Name	FLEPPC Cat.	Gov. List	Reg. Dist.	BCSIR present (Y/N)	BRSIR present (Y/N)
<i>Panicum repens</i>	torpedo grass	I		N, C, S	Y	
<i>Pennisetum purpureum</i>	Napier grass	I		N, C, S	Y	
<i>Phymatosorus scolopendria</i>	serpent fern, wart fern	I		S		
<i>Pistia stratiotes</i>	water-lettuce	I	P	N, C, S	Y	Y
<i>Psidium cattleianum</i> (= <i>P. littorale</i>)	strawberry guava	I		C, S		
<i>Psidium guajava</i>	guava	I		C, S	Y	
<i>Pueraria montana</i> var. <i>lobata</i> (= <i>P. lobata</i>)	kudzu	I	N	N, C, S		
<i>Rhodomyrtus tomentosa</i>	downy rose-myrtle	I	N	C, S		
<i>Rhynchelytrum repens</i> (See <i>Melinis repens</i>)						
<i>Ruellia simplex</i> 2	Mexican petunia	I		N, C, S		
<i>Salvinia minima</i>	water spangles	I		N, C, S		
<i>Sapium sebiferum</i> (= <i>Triadica sebifera</i>)	popcorn tree, Chinese tallow tree	I	N	N, C, S		
<i>Scaevola taccada</i> (= <i>Scaevola sericea</i> , <i>S. frutescens</i>)	scaevola, half-flower, beach naupaka	I	N	C, S		
<i>Schefflera actinophylla</i> (= <i>Brassaia actinophylla</i>)	schefflera, Queensland umbrella tree	I		C, S		
<i>Schinus terebinthifolius</i>	Brazilian-pepper	I	P, N	N, C, S	Y	Y
<i>Scleria lacustris</i>	Wright's nutrush	I		C, S		
<i>Senna pendula</i> var. <i>glabrata</i> (= <i>Cassia coluteoides</i>)	climbing cassia, Christmas cassia, Christmas senna	I		C, S		
<i>Solanum tampicense</i> (= <i>S. houstonii</i>)	wetland nightshade, aquatic soda apple	I	N, U	C, S		
<i>Solanum viarum</i>	tropical soda apple	I	N, U	N, C, S		
<i>Syngonium podophyllum</i>	arrowhead vine	I		N, C, S	Y	
<i>Syzygium cumini</i>	jambolan plum, Java plum	I		C, S		
<i>Tectaria incisa</i>	incised halberd fern	I		S		
<i>Thespesia populnea</i>	seaside mahoe	I		C, S		

Category I						
Scientific Name	Common Name	FLEPPC Cat.	Gov. List	Reg. Dist.	BCSIR present (Y/N)	BRSIR present (Y/N)
<i>Tradescantia fluminensis</i>	small-leaf spiderwort	I		N, C		
<i>Urena lobata</i>	Caesar's weed	I		N, C, S	Y	Y
<i>Urochloa mutica</i> (= <i>Brachiaria mutica</i>)	Para grass	I		C, S		

Regional Distribution (Reg. Dist.):

N=North Florida

C= Central Florida

S= South Florida

Government List (Gov. List):

P = Prohibited aquatic plant by the Florida Department of Agriculture and Consumer Services

N = Noxious weed listed by Florida Department of Agriculture & Consumer Services

U = Noxious weed listed by U.S. Department of Agriculture

Category II						
Scientific Name	Common Name	FLEPPC Cat.	Gov. List	Reg. Dist	BCSIR present (Y/N)	BRSIR present (Y/N)
<i>Adenanthera pavonina</i>	red sandalwood	II		S		
<i>Agave sisalana</i>	sisal hemp	II		C, S		
<i>Aleurites fordii</i> (= <i>Vernicia fordii</i>)	tung oil tree	II		N, C		
<i>Alstonia macrophylla</i>	devil tree	II		S		
<i>Alternanthera philoxeroides</i>	alligator weed	II	P	N, C, S	Y	
<i>Antigonon leptopus</i>	coral vine	II		N, C, S		
<i>Ardisia japonica</i>	Japanese ardisia	II		N		
<i>Aristolochia littoralis</i>	calico flower	II		N, C, S		
<i>Asystasia gangetica</i>	Ganges primrose	II		C, S		
<i>Begonia cucullata</i>	wax begonia	II		N, C, S		
<i>Blechnum pyramidatum</i> (see <i>Ruellia blechnum</i>)						
<i>Broussonetia papyrifera</i>	paper mulberry	II		N, C, S		
<i>Bruguiera gymnorhiza</i>	large-leaved mangrove	II		S		
<i>Callisia fragrans</i>	inch plant, spiranema	II		C, S		
<i>Callistemon viminalis</i> (= <i>Melaleuca viminalis</i>)	bottlebrush, weeping bottlebrush	II		C, S		
<i>Casuarina cunninghamiana</i>	river sheoak, Australian-pine	II	P	C, S		
<i>Cecropia palmata</i>	trumpet tree	II		S		
<i>Cestrum diurnum</i>	day jessamine	II		C, S		
<i>Chamaedorea seifrizii</i>	bamboo palm	II		S		
<i>Clematis terniflora</i>	Japanese clematis	II		N, C		
<i>Cocos nucifera</i>	coconut palm	II		S		
<i>Cryptostegia madagascariensis</i>	rubber vine	II		C, S		
<i>Cyperus involucratus</i>	umbrella plant	II		C, S		
(<i>C. alternifolius</i> misapplied)						
<i>Cyperus prolifer</i>	dwarf papyrus	II		C, S		
<i>Dactyloctenium aegyptium</i>	Durban crowfootgrass	II		N, C, S		
<i>Dalbergia sissoo</i>	Indian rosewood, sissoo	II		C, S		
<i>Elaeagnus pungens</i>	silverthorn, thorny olive	II		N, C		
<i>Elaeagnus umbellata</i>	silverberry, autumn olive	II		N		
<i>Epipremnum pinnatum</i> cv. <i>Aureum</i>	pothos	II		C, S		
<i>Ficus altissima</i>	false banyan, council tree	II		S		
<i>Flacourtia indica</i>	governor's plum	II		S		
<i>Hemarthria altissima</i>	limpo grass	II		C, S		
<i>Hibiscus tiliaceus</i> (See <i>Talipariti tiliaceum</i>)						
<i>Hyparrhenia rufa</i>	jaragua	II		N, C, S		
<i>Ipomoea carnea</i> ssp. <i>fistulosa</i> (= <i>I. fistulosa</i>)	shrub morning-glory	II	P	C, S		
Category II						

Scientific Name	Common Name	FLEPPC Cat.	Gov. List	Reg. Dist	BCSIR present (Y/N)	BRSIR present (Y/N)
<i>Kalanchoe pinnata</i> (= <i>Bryophyllum pinnatum</i>)	life plant	II		C, S		
<i>Koelreuteria elegans</i> ssp. <i>formosana</i> (= <i>K. formosana</i> ; <i>K. paniculata</i> misapplied)	flamegold tree	II		C, S		
<i>Landoltia punctata</i> (= <i>Spirodela punctata</i>)	Spotted duckweed	II		N, C, S		
<i>Leucaena leucocephala</i>	lead tree	II	N	N, C, S		
<i>Limnophila sessiliflora</i>	Asian marshweed	II	P, U	N, C, S		
<i>Livistona chinensis</i>	Chinese fan palm	II		C, S		
<i>Melia azedarach</i>	Chinaberry	II		N, C, S		
<i>Melinis minutiflora</i>	Molassesgrass	II		C, S		
<i>Merremia tuberosa</i>	wood-rose	II		C, S		
<i>Mikania micrantha</i>	mile-a-minute vine	II	N, U	S		
<i>Murraya paniculata</i>	orange-jessamine	II		S		
<i>Myriophyllum spicatum</i>	Eurasian water-milfoil	II	P	N, C, S		
<i>Panicum maximum</i> (= <i>Urochloa maxima</i> , <i>Megathyrus maximus</i>)	Guinea grass	II		N, C, S		
<i>Passiflora biflora</i>	two-flowered passion vine	II		S		
<i>Pennisetum setaceum</i>	green fountain grass	II		S		
<i>Phoenix reclinata</i>	Senegal date palm	II		C, S		
<i>Phyllostachys aurea</i>	golden bamboo	II		N, C		
<i>Pittosporum pentandrum</i>	Philippine pittosporum, Taiwanese cheesewood II		S			
<i>Pteris vittata</i>	Chinese brake fern	II		N, C, S		
<i>Ptychosperma elegans</i>	solitaire palm	II		S		
<i>Rhoeo spathacea</i> (see <i>Tradescantia spathacea</i>)						
<i>Ricinus communis</i>	castor bean	II		N, C, S		
<i>Rotala rotundifolia</i>	roundleaf toothcup, dwarf Rotala, redweed	II		S		
<i>Ruellia blechum</i>	green shrimp plant, Browne's blechum	II		N, C, S		
<i>Sansevieria hyacinthoides</i>	bowstring hemp	II		C, S		
<i>Sesbania punicea</i>	purple sesban, rattlebox	II		N, C, S		
<i>Solanum diphyllum</i>	two-leaf nightshade	II		N, C, S		
<i>Solanum torvum</i>	susumber, turkey berry	II	N, U	N, C, S		
<i>Sphagneticola trilobata</i> (= <i>Wedelia trilobata</i>)	wedelia	II		N, C, S		
<i>Stachytarpheta cayennensis</i> (= <i>S. urticifolia</i>)	nettle-leaf porterweed	II		S		
Category II						

Scientific Name	Common Name	FLEPPC Cat.	Gov. List	Reg. Dist	BCSIR present (Y/N)	BRSIR present (Y/N)
<i>Syagrus romanzoffiana</i> (= <i>Arecastrum romanzoffianum</i>)	queen palm	II		C, S		
<i>Syzygium jambos</i>	Malabar plum, rose-apple	II		N, C, S		
<i>Talipariti tiliaceum</i> (= <i>Hibiscus tiliaceus</i>)	mahoe, sea hibiscus	II		C, S		
<i>Terminalia catappa</i>	tropical-almond	II		C, S		
<i>Terminalia muelleri</i>	Australian-almond	II		C, S		
<i>Tradescantia spathacea</i> (= <i>Rhoeo spathacea</i> , <i>Rhoeo discolor</i>)	oyster plant	II		S		
<i>Tribulus cistoides</i>	puncture vine, burr-nut	II		N, C, S		
<i>Vitex trifolia</i>	simple-leaf chaste tree	II		C, S		
<i>Washingtonia robusta</i>	Washington fan palm	II		C, S		
<i>Wedelia</i> (see <i>Sphagneticola</i> above)						
<i>Wisteria sinensis</i>	Chinese wisteria	II		N, C		
<i>Xanthosoma sagittifolium</i>	malanga, elephant ear	II		N, C, S		

Regional Distribution (Reg. Dist.):

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Table 5: 3 Condition Classes

Condition Class	Description
1	Less than 33 percent departure from the central tendency of the historical range of variation (HRV): Fire regimes are within the natural or historical range and risk of losing key ecosystem components is low. Vegetation attributes (composition and structure) are well intact and functioning.
2	33 to 66 percent departure: Fire regimes have been moderately altered. Risk of losing key ecosystem components is moderate. Fire frequencies may have departed by one or more return intervals (either increased or decreased). This departure may result in moderate changes in fire and vegetation attributes.
3	Greater than 66 percent departure: Fire regimes have been substantially altered. Risk of losing key ecosystem components is high. Fire frequencies may have departed by multiple return intervals. This may result in dramatic changes in fire size, fire intensity and severity, and landscape patterns. Vegetation attributes have been substantially altered.

Table 6: 5 Natural Fire Regimes

Group	Frequency	Severity	Severity description
I	0 – 35 years	Low / mixed	Generally low-severity fires replacing less than 25% of the dominant overstory vegetation; can include mixed-severity fires that replace up to 75% of the overstory.
II	0 – 35 years	Replacement	High-severity fires replacing greater than 75% of the dominant overstory vegetation.
III	35 – 200 years	Mixed / low	Generally mixed-severity; can also include low severity fires.
IV	35 – 200 years	Replacement	High-severity fires.
V	200+ years	Replacement / any severity	Generally replacement severity; can include any severity type in this frequency range.

Table 7: Wood stork Land Use within Big Cypress Action Area

Land Use within the Wood Stork Action Area
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Land Use Description	Code	Acres
Residential	1100, 1200, 1300	20,652
Commercial and Service	1400	883
Industrial	1550	518
Extractive	1600	1,202
Institutional	1700	752
Recreational	1800	293
Recreational - Golf Course**	1820	153
Urban buildup - open land	1900	11,391
Improved Pasture**	2110	153,868
Unimproved Pasture	2120	32,037
Woodland Pasture	2130	37,975
Row Crops**	2140	56,125
Field Crop**	2150	23,808
Citrus Grove**	2210	110,127
Other Groves**	2230	30
Cattle Feeding Operations	2310	35
Nurseries and Vineyards**	2400	654
Specialty Farms	2500	222
Fallow Crop Land	2610	4,415
Herbaceous - Dry Prairie	3100	8,743
Upland and Brushland	3200	22,290
Mixed Rangeland	3300	3,044
Pine Flatwoods	4100	51,198
Upland Hardwood Forests	4200	9,684
Upland Hardwood Forests - Brazilian Pepper	4220	2,270
Upland Hardwood Forests - Melaleuca	4240	624
Live Oak and Cabbage Palm Forests	4270, 4280	6,445
Hardwood Coniferous Mixed	4340	13,834
Channelized Waterways**	5120	2,642
Lakes**	5200	1,899
Reservoirs*	5300	2,553
Embayments Open Directly to Gulf/Ocean**	5410	16
Embayments Not Open Directly to Gulf/Ocean**	5430	188
Wetland Hardwood Forests*	6100	218,863
Wet Hardwood w/ Melaleuca*	6191	1,021
Wetland Coniferous Forests*	6200	357,274
Wetland Forested Mixed*	6300	2,548
Vegetated, Non-forested Wetlands*	6400	275,942

Land Use within the Wood Stork Action Area		
Land Use Description	Code	Acres
Non-vegetated Wetland*	6500	132
Disturbed Lands	7400	4,214
Transportation - Roads	8100	2,410
Communication and Utilities	8200, 8300	774
Total Action Area Acreage		1,443,748
Total Suitable Wood Stork Habitat*		858,333
Total Moderately Suitable Wood Stork Habitat**		344,765

* Suitable wood stork habitat

**Moderately suitable wood stork habitat

**Occasionally used wood stork habitat

Land use data obtained from SFWMD, 2004 Land Use

Table 8: Equipment Inventory List

Equipment Inventory List		
Equipment	Quantity	Purpose
Mechanical equipment		

2010 Swamp Buggy	1	Wildlife Surveys
John Deere Crawler Dozer	2	Firelines and land management
Firelighter Truck	1	Prescribed burning
John Deere Harrow Disc	2	Firelines and land management
Terra Riser Fore Plow	2	Firelines and land management
Mardenn Pasture Renovator	1	Firelines and land management
Gyro Track Brush Cutter	1	Firelines and land management
Roller Chopper	1	Firelines and land management
Scag Mower	1	Firelines and land management
Kello Bilt Disc	1	Firelines and land management
2008 Honda ATV	1	Wildlife surveys
Rhino	1	Wildlife surveys
2010 Polaris Crew	1	Wildlife surveys
Computer Hardware and Software		
Geo XT 2008 Series Trimble units	5	Wildlife surveys and prescribed burning
Arc Map 10	5	Wildlife surveys and prescribed burning
Arc Pad 10	5	Wildlife surveys and prescribed burning
Garmin Units	3	Wildlife surveys and prescribed burning
GIS Data on Species and Land	N/A	Wildlife surveys and prescribed burning
Cameras		
Cudde Back Wildlife Cameras	13	Wildlife surveys
Nikon D5000 DSLR Camera	1	Wildlife surveys
Digital Cameras	4	Wildlife surveys
Exotic Removal		
Spray Back Packs	2	Invasive removal
Educational Materials		
Plant Identification Guides	11	Wildlife surveys
Mammal Identification Guide	3	Wildlife surveys
Bird Identification Guide	3	Wildlife surveys
Storage Compounds to Keep Equipment		
Storage in Big Cypress	2	Keep Equipment
Storage in Brighton	1	Keep Equipment

Table 9: Primary Purpose of Grassland and Native Burns

	BC		BR	
	Grassland	Native area (including WUI)	Grassland	Native area (including WUI)

Purpose & Mgmt goals	<ul style="list-style-type: none"> • Improve grazing and forage for agricultural resources. • Maintain a Fire Regime 1 Condition Class 1 	<ul style="list-style-type: none"> • Reduce shrub coverage and stem density • Create a Fire Regime I Condition Class I • Promote herbaceous vegetation coverage 	<ul style="list-style-type: none"> • Improve grazing and forage for agricultural resources. • Maintain a Fire Regime I Condition Class I 	<ul style="list-style-type: none"> • Reduce the fuel loads that will decrease fire intensity and spread to Tribal homes • Reduce the risk of an catastrophic fires • Maintain a Fire Regime 2 Condition Class 1 for a fire dependent ecosystem
Resource Odj.	<ul style="list-style-type: none"> • Reduce hazardous fuels in WUI • Maintain agricultural resource habitat by increasing forage. 	<ul style="list-style-type: none"> • Reduce heavy fuel loading • Reduce mid story coverage and promote herbaceous coverage 	<ul style="list-style-type: none"> • Reduce hazardous fuels in WUI • Maintain agricultural resource habitat by increasing forage. 	<ul style="list-style-type: none"> • Reduce hazardous fuels in WUI/ Native • Reduce Wildfire risk • Maintain agricultural resource habitat by reducing mid story coverage.
Fire Obj.	<ul style="list-style-type: none"> • Consume 70 – 100% of fine dead fuels and 1 hour fuels • Top kill 70% of woody shrubs less than 2' tall 	<ul style="list-style-type: none"> • Consume 60 – 100% of fine dead fuels and 1 hour fuels in top 0.25" of duff layer • Reduce coverage of shrubs (greater than 3") by 40% • Reduce overstory Basal Area by 20% • Reintroduce fire into hatrack cypress and consume 40% of intermingled sawgrass 	<ul style="list-style-type: none"> • Consume 70 – 100% of fine dead fuels and 1 hour fuels • Top kill 70% of woody shrubs less than 2' tall 	<ul style="list-style-type: none"> • Consume 70 – 100% of fine dead fuels and 1 hour fuels and under brush • Top kill 40% of woody shrubs less than 2' tall • Reduce ground fuel/ duff layer by 10%

Table 10: Big Cypress Species Habitat

Common Name	Scientific Name	Status*	Habitat**	Presence/ Absence	Total (Acres)	Total (%)
Big Cypress Seminole Indian Reservation						
Florida Panther	<i>Puma concolor coryi</i>	FE	211, 212, 214, 221, 251, 261, 310, 320, 321, 330, 411, 425, 427, 428, 434, 610, 616, 617, 618, 621, 6212, 624, 625, 628, 630, 6301, 6308, 631, 641, 6411, 6412, 643, 6439	Presence	47,306.69	89.64
Northern Crested Caracara	<i>Polyborus plancus audubonii</i>	FT	211, 212, 214, 221, 251, 261, 310, 320, 321, 330, 425, 427, 428, 434, 621, 6212, 624, 628, 630, 6301, 6308, 641, 6411, 6412, 643, 6439	Presence	36,465.42	69.1
Bald Eagle	<i>Haliaeetus leucocephalus</i>	BCC	411, 425, 427, 434, 510, 534, 625, 630, 6301, 6308	Presence	11,567.57	21.92
Wood Stork	<i>Mycteria americana</i>	FE	510, 534, 610, 616, 617, 618, 621, 6212, 624, 630, 6301, 6308, 631, 641, 6411, 6412, 643, 6439	Presence	30,477.98	57.75
Eastern Indigo Snake	<i>Drymarchon corais couperi</i>	FT	162, 191, 211, 212, 214, 221, 251, 261, 310, 320, 321, 330, 411, 422, 424, 425, 427, 428, 434, 437, 740, 742, 743	Presence	16,205.00	30.71

Common Name	Scientific Name	Status*	Habitat**	Presence/ Absence	Total (Acres)	Total (%)
Everglades Snail Kite	<i>Rostrhamus sociabilis plumbeus</i>	FE	510, 534, 610, 616, 617, 618, 619B, 619M, 621, 6212, 624, 630, 6301, 6308, 631, 641, 6411, 6412, 643, 6439, 742	Presence	32,513.66	61.61
Red Cockaded Woodpecker	<i>Picoides borealis</i>	FE	411, 624, 625	Not observed	4,832.09	9.16
Florida Bonneted Bat	<i>Eumops floridanus</i>	FE	110, 140, 1453, 141, 144, 148, 162, 171, 172, 175, 183, 186, 189, 191, 330, 411, 425, 427, 428, 434	Not observed	5,290.74	10.02

* FE= Federally Endangered FT= Federally Threatened BCC= Birds of Conservation Concern

** Data based off 2010 FLUCCS provided by STOF on **Table 1**

Table 11: Brighton Species Habitat

Common Name	Scientific Name	Status*	Habitat**	Presence/ Absence	Total (Acres)	Total (%)
Brighton Seminole Indian Reservation						
Florida Panther	<i>Puma concolor coryi</i>	FE	211, 212, 213, 214, 221, 260, 261, 310, 320, 321, 329, 330, 411, 425, 427, 428, 434, 435, 436, 616, 617, 618, 621, 625, 626, 631, 641, 643	Presence	32,735.87	89.52
Northern Crested Caracara	<i>Polyborus plancus audubonii</i>	FT	211, 212, 213, 214, 221, 233, 260, 261, 310, 320, 321, 329, 330, 425, 427, 428, 434, 435, 436, 437, 621, 631, 641, 643	Presence	31,947.40	87.37
Bald Eagle	<i>Haliaeetus leucocephalus</i>	BCC	411, 425, 427, 434, 435, 436, 510, 530, 533, 534, 625, 626	Presence	10,597.72	28.98
Wood Stork	<i>Mycteria americana</i>	FE	510, 530, 533, 534, 616, 617, 618, 621, 631, 641, 643	Presence	6,044.50	16.53

Common Name	Scientific Name	Status*	Habitat**	Presence/ Absence	Total (Acres)	Total (%)
Eastern Indigo Snake	<i>Drymarchon corais couperi</i>	FT	160, 191, 211, 212, 213, 214, 221, 233, 260, 261, 310, 320, 321, 329, 330, 411, 422, 424, 425, 427, 428, 434, 435, 436, 437, 740, 742, 743, 743-510	Presence	28,672.21	78.41
Everglades Snail Kite	<i>Rostrhamus sociabilis plumbeus</i>	FE	510, 530, 533, 534, 616, 617, 618, 619M, 619B, 621, 631, 641, 643, 740, 742	Presence	6,413.15	17.54
Florida Bonneted Bat	<i>Eumops floridanus</i>	S-FE	110, 130, 132, 140, 160, 171, 172, 174, 175, 177, 178, 180, 191, 213, 330, 411, 425, 427, 428, 434, 435, 436	Not Observed	11,660.59	31.89

* FE= Federally Endangered FT= Federally Threatened BCC= Birds of Conservation Concern
S-FE= State Designated Threatened

** Data based off 2010 FLUCCS provided by STOF on **Table 2**

Table 12: Hollywood Species Habitat

Common Name	Scientific Name	Status*	Habitat**	Presence/ Absence	Total (Acres)	Total (%)
Hollywood Seminole Indian Reservation						
Wood Stork	<i>Mycteria americana</i>	FE	530	Not observed	24.54	0.55
Florida Bonneted Bat	<i>Eumops floridanus</i>	S-FE	118, 121, 131, 132, 133, 140, 149, 170, 185, 190, 420, 832	Not Observed	395.92	79.18

* FE= Federally Endangered FT= Federally Threatened BCC= Birds of Conservation Concern
S-FE= State Designated Threatened

** Data based off 2008 FLUCCS provided by SFWMD on **Table 3**

13.0 Figures

Figure 1: BCSIR Location

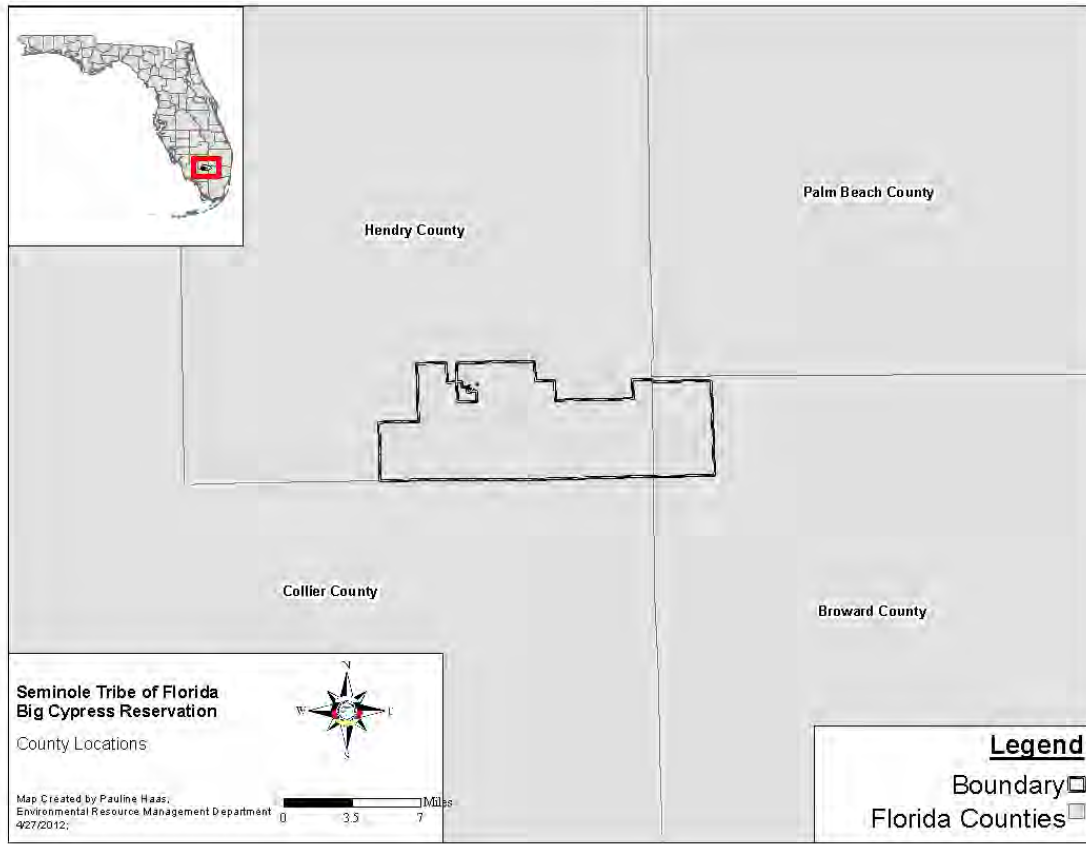


Figure 2: Big Cypress Land Use

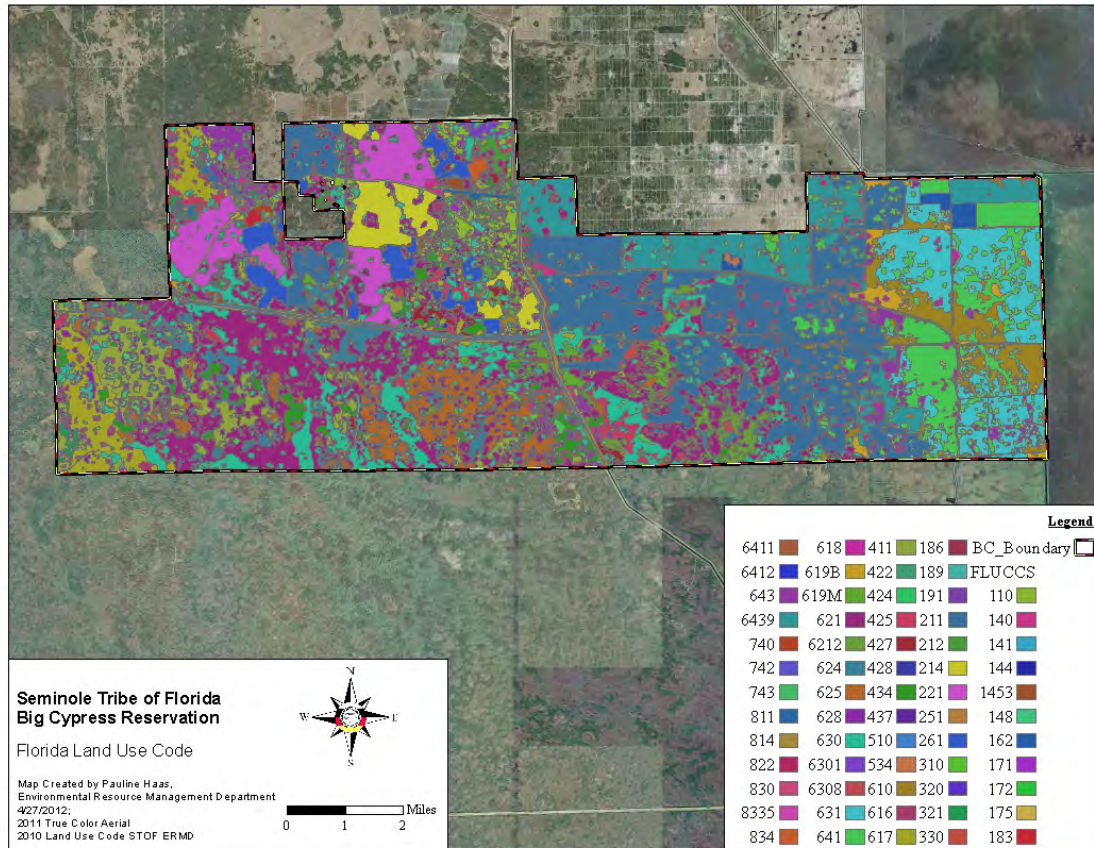


Figure 3: Brighton Reservation Location

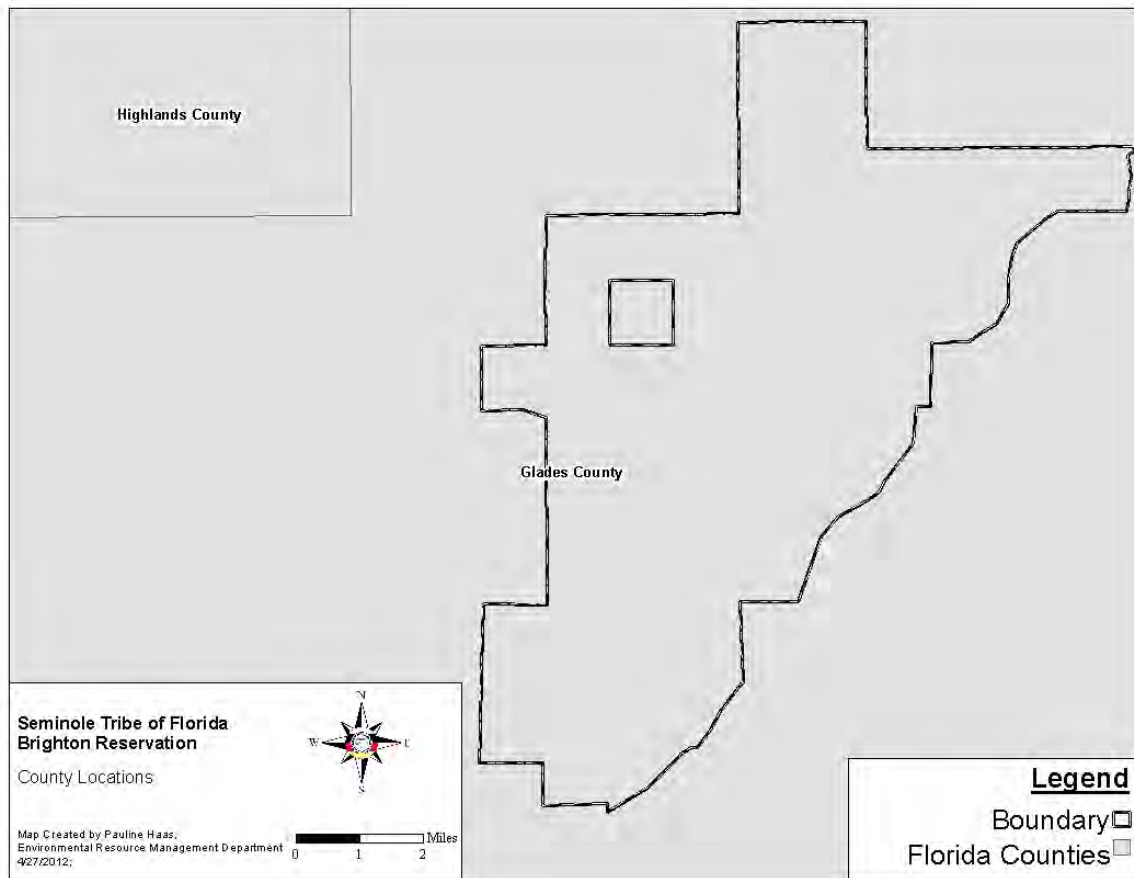


Figure 4: Brighton Land Use

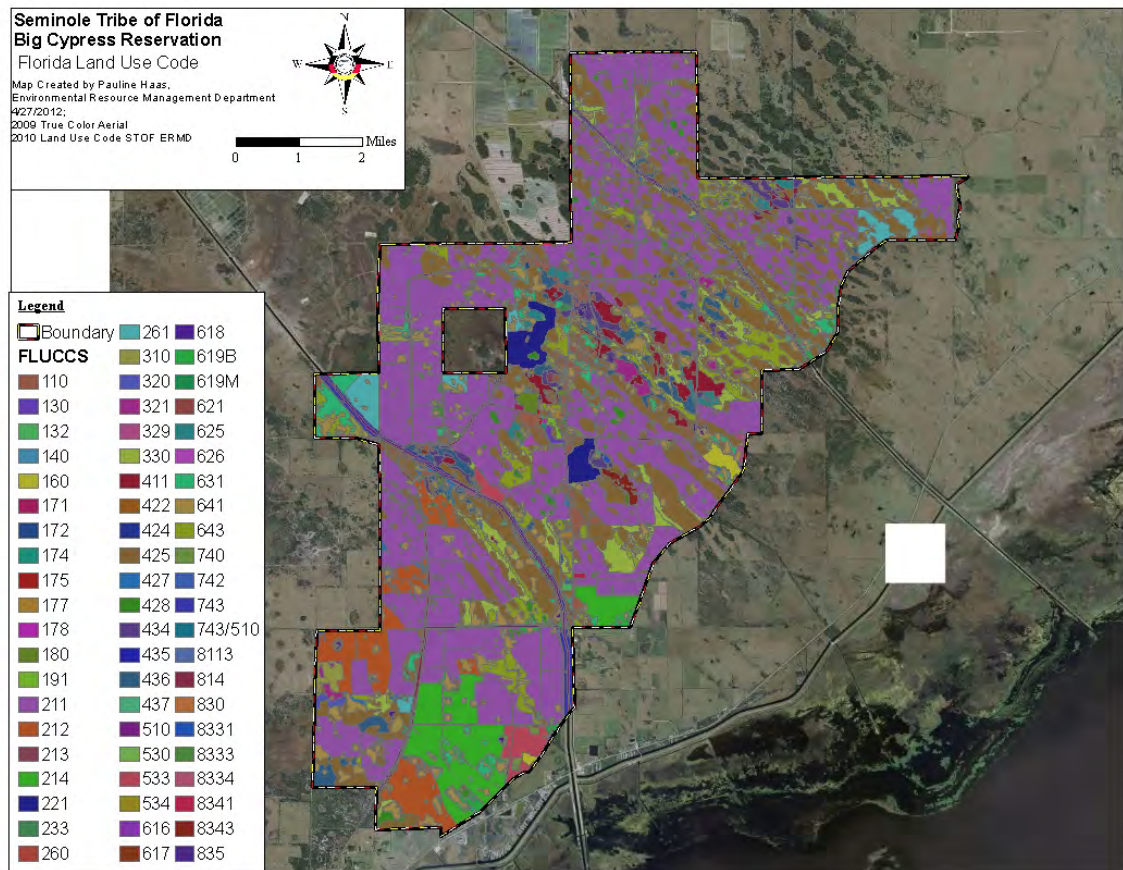


Figure 5: Hollywood Reservation Location

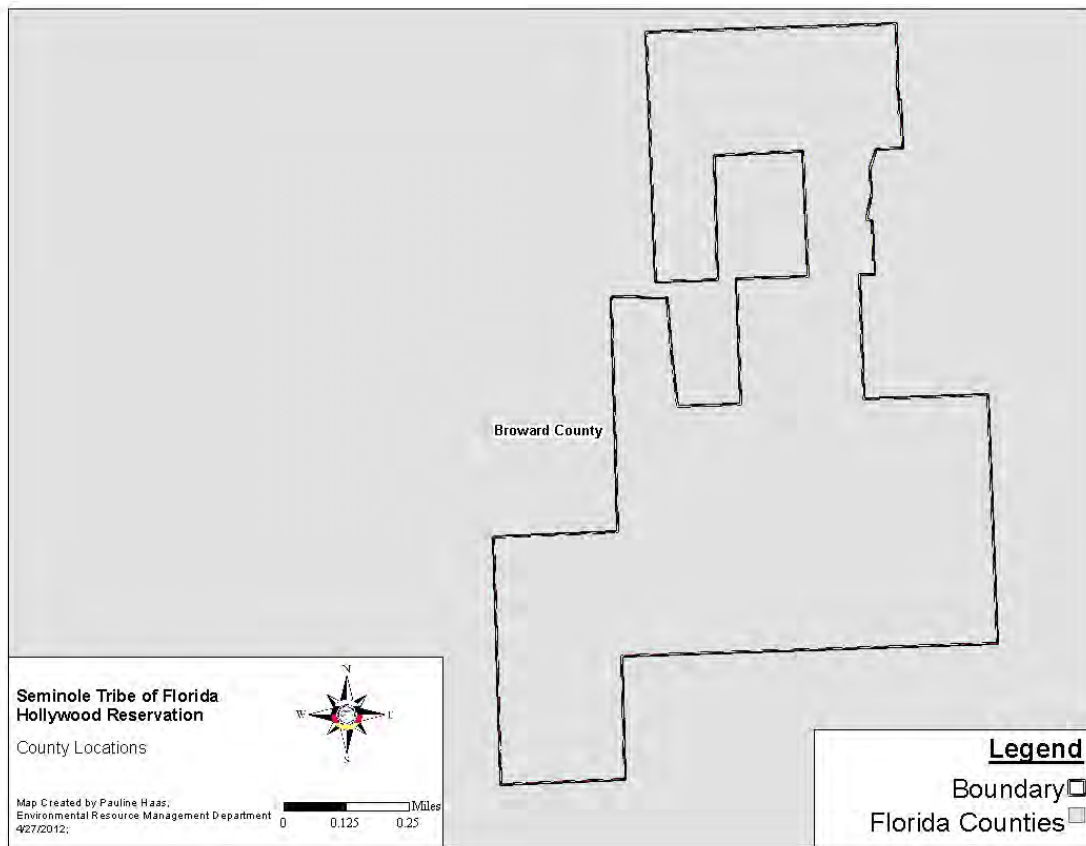


Figure 6: Hollywood Land Use

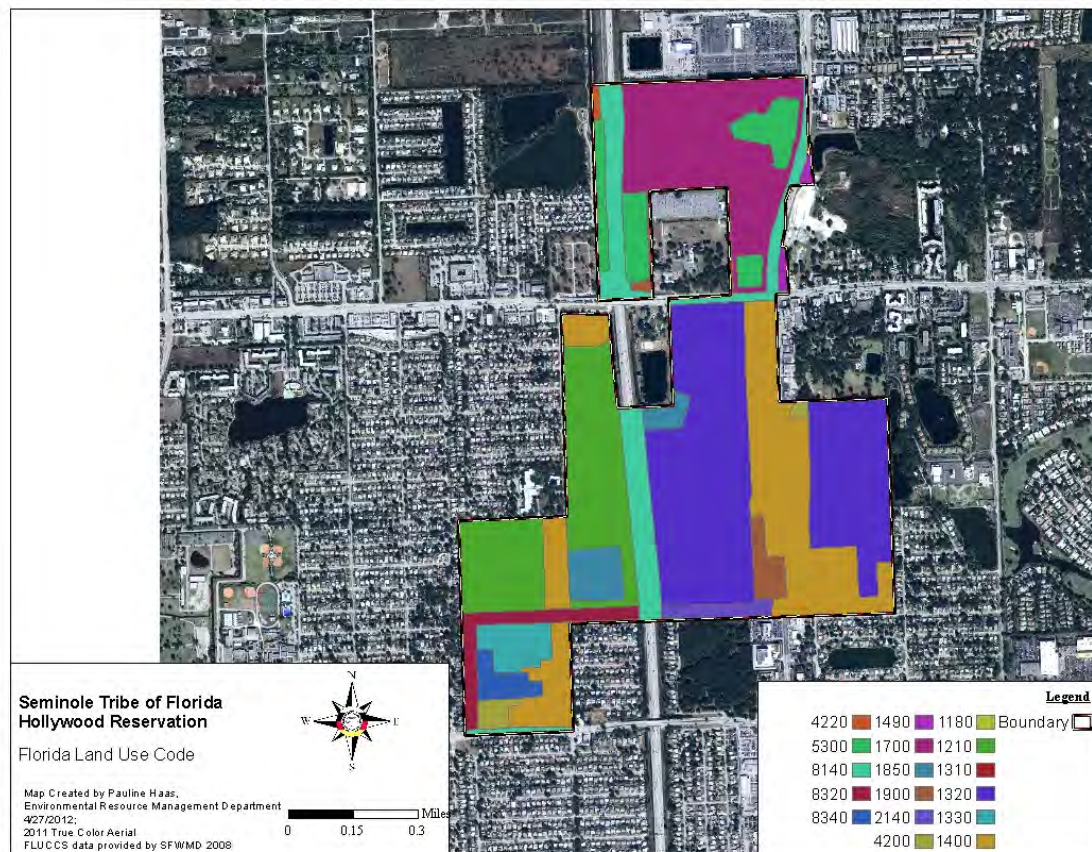


Figure 7: Florida Panther Counties



Figure 8: Florida Panther Consultation

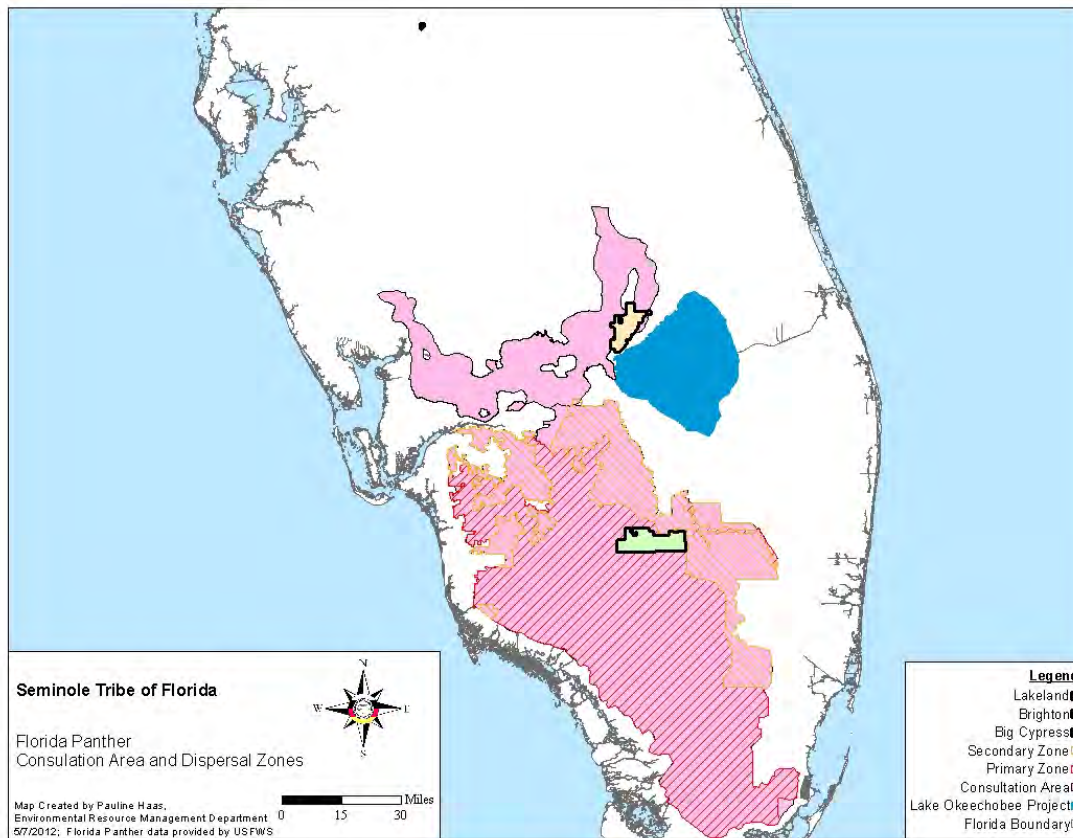


Figure 9: Florida Snail Kite Historic Distribution

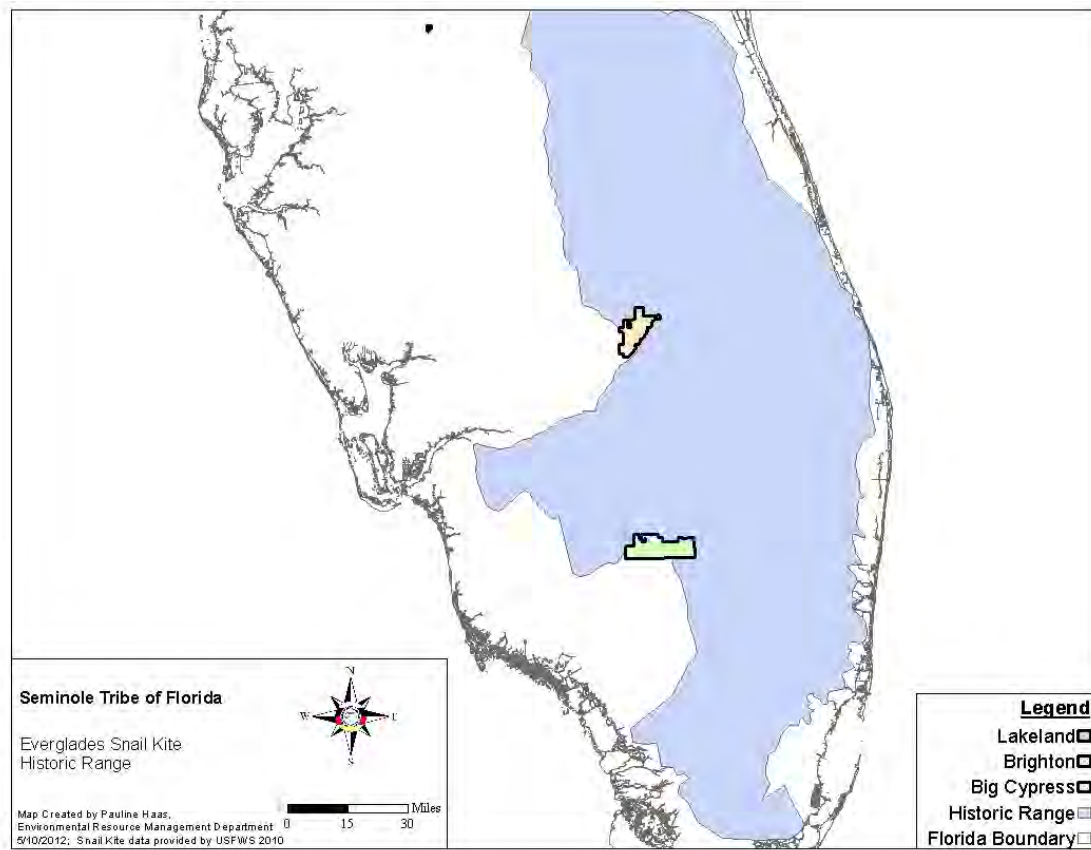


Figure 10: Wetland Enhancement Areas

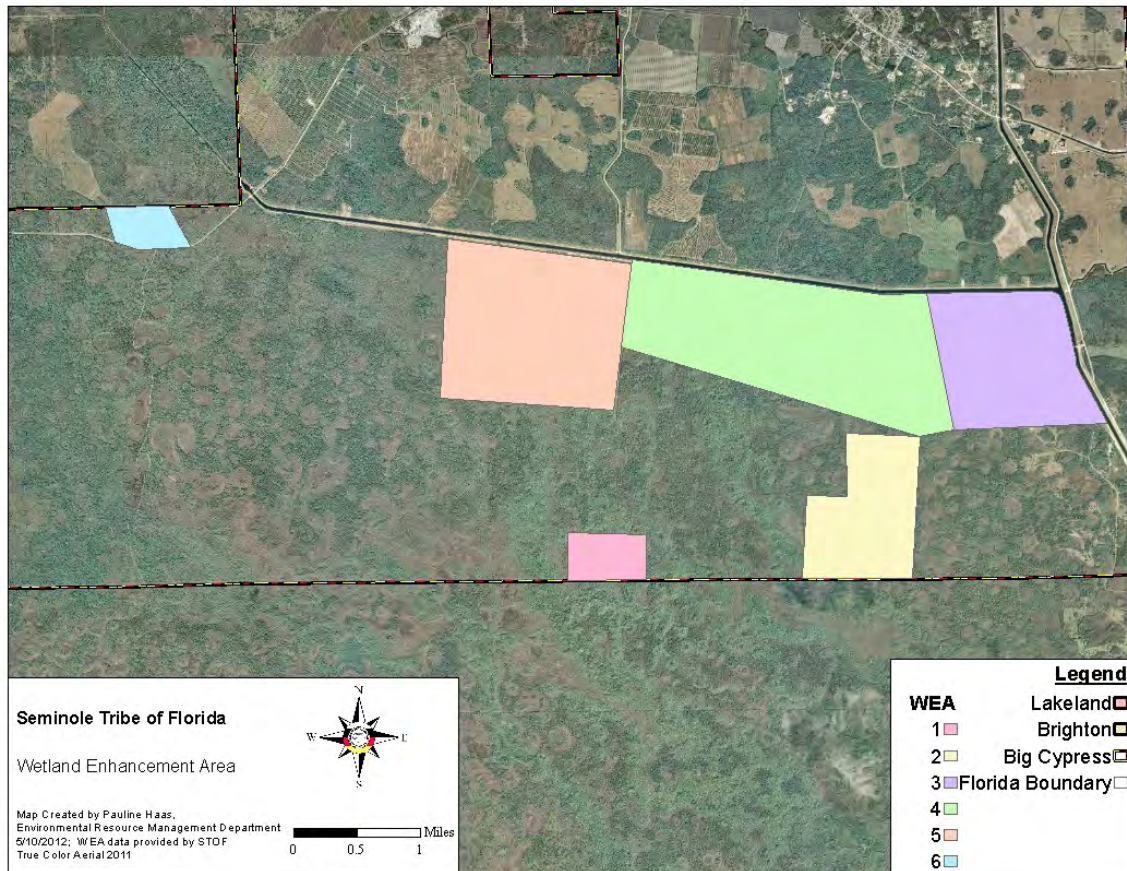


Figure 11: Native Area and Big Cypress National Preserve

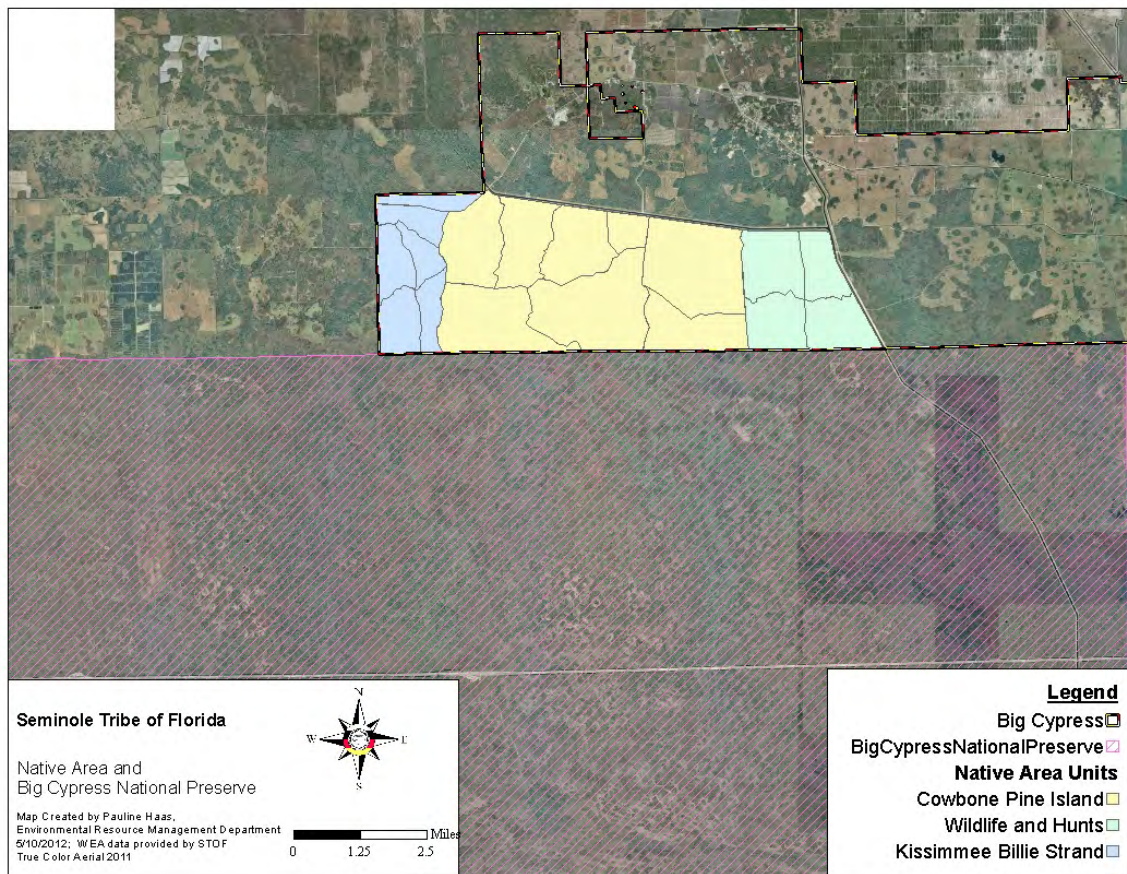


Figure 12: Big Cypress Panther Den Locations (1989 to 2010)

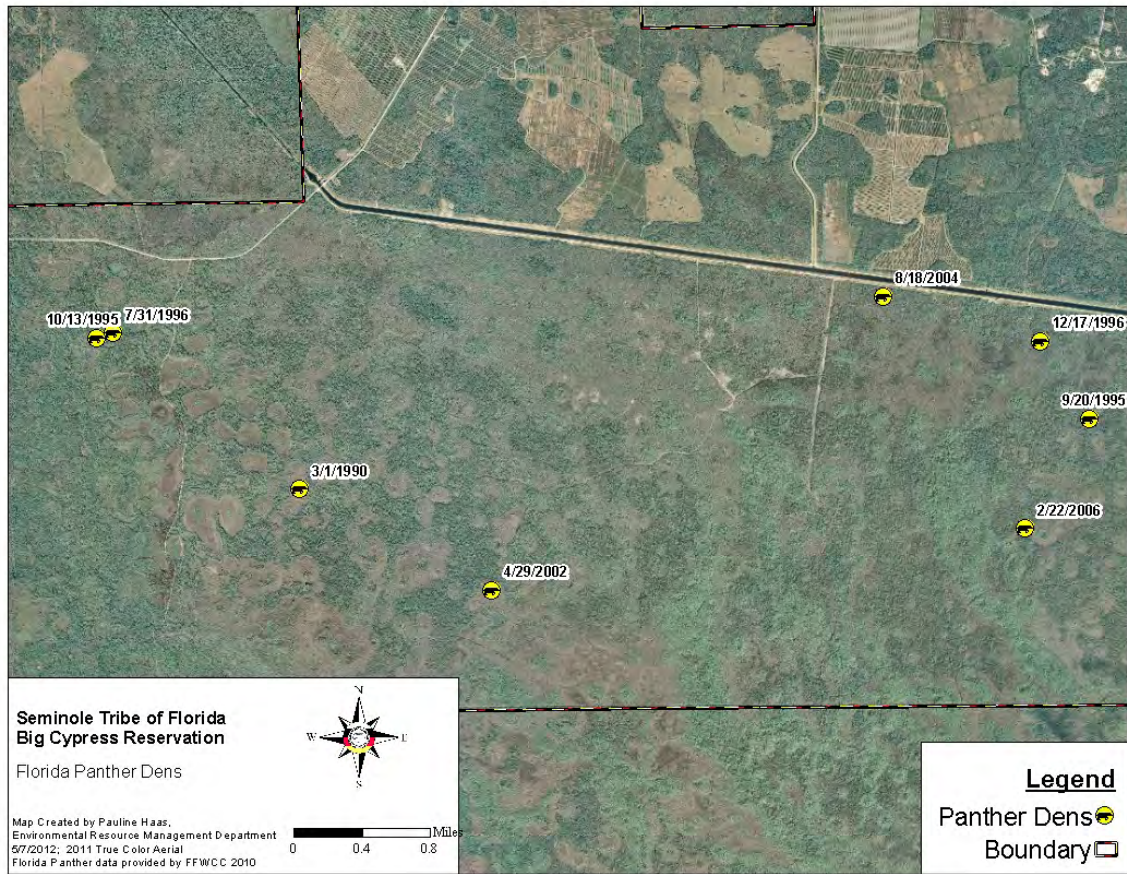


Figure 13: Big Cypress Panther Zones

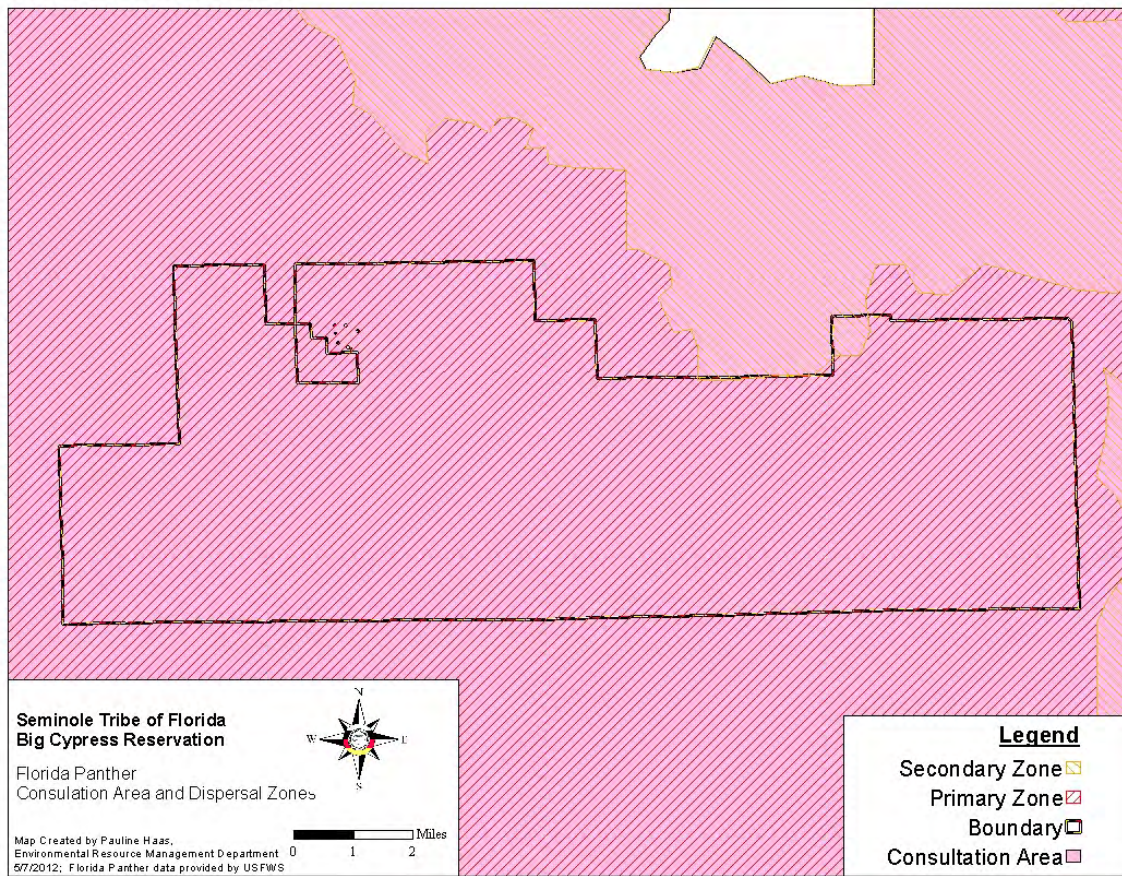


Figure 14: Brighton Panther Zones

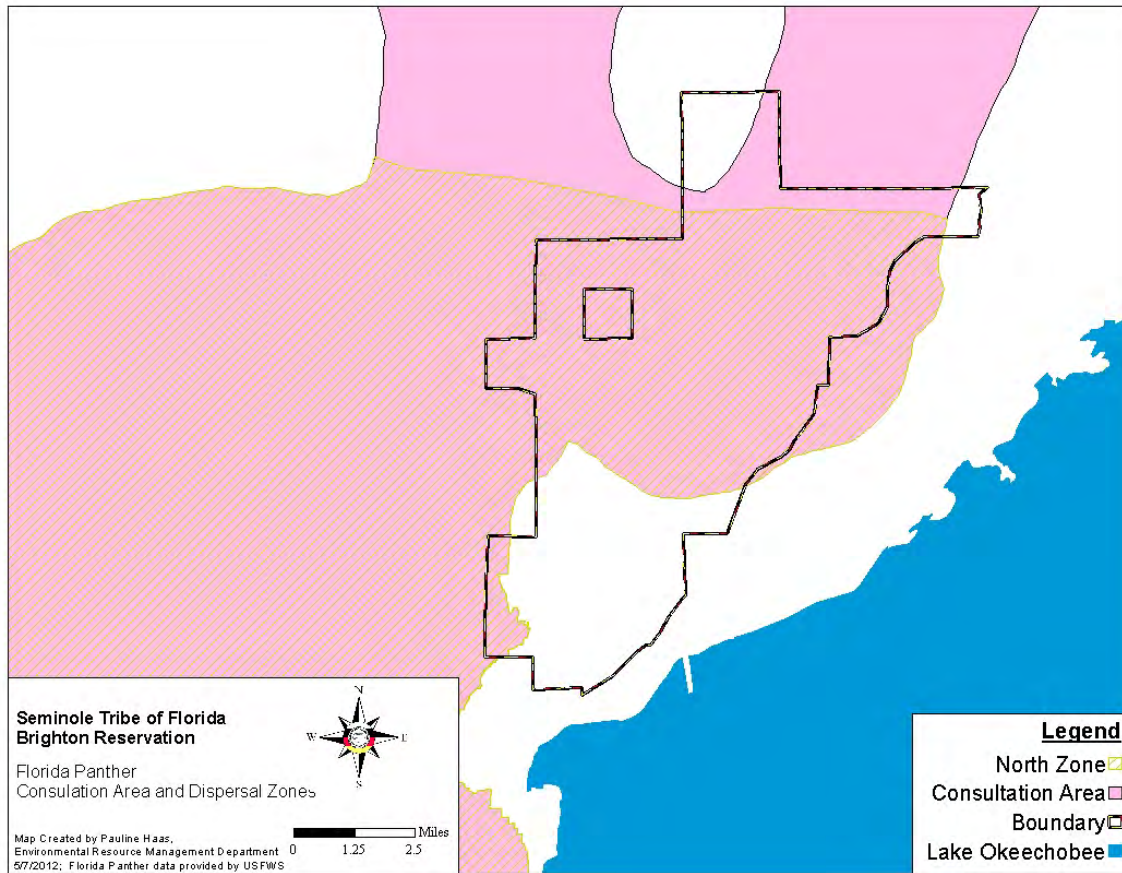


Figure 15: Big Cypress Caracara Consultation Area

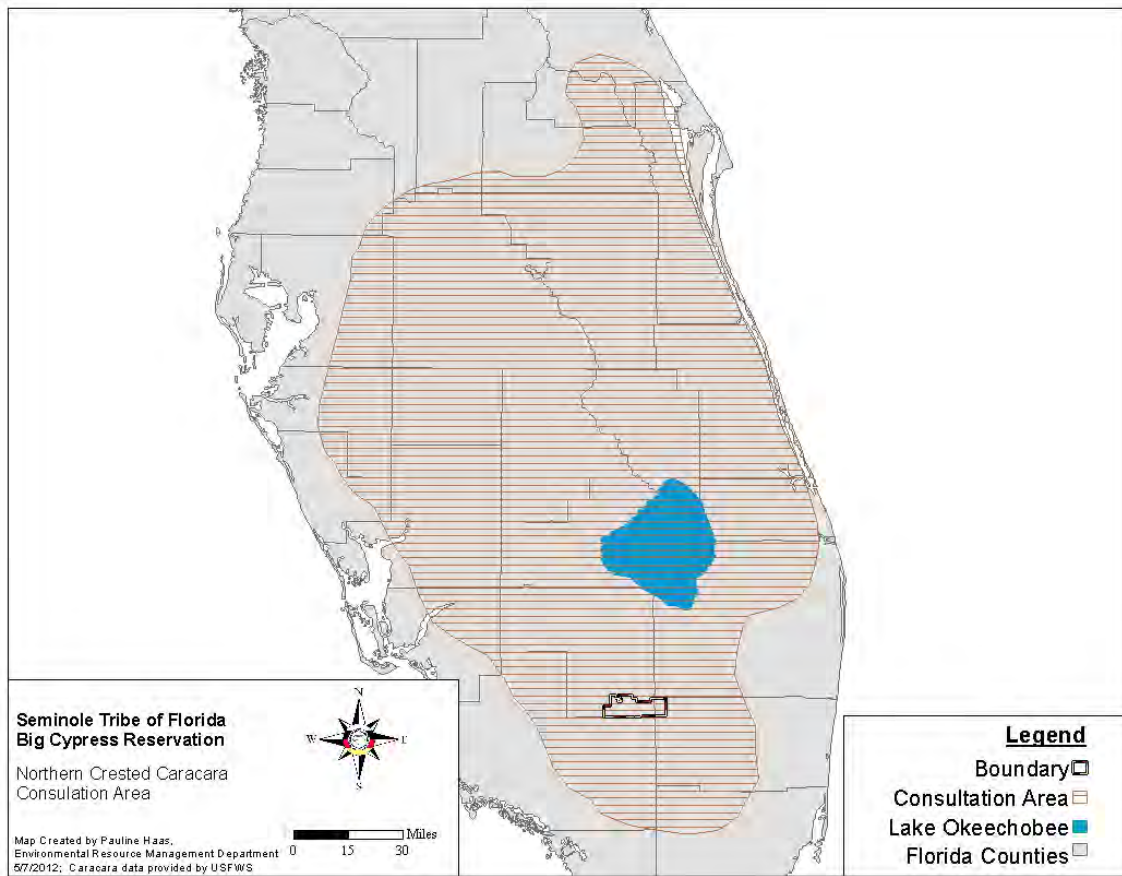


Figure 16: Boolean Model of Suitable Caracara Habitat (Morrison et al. 2007)

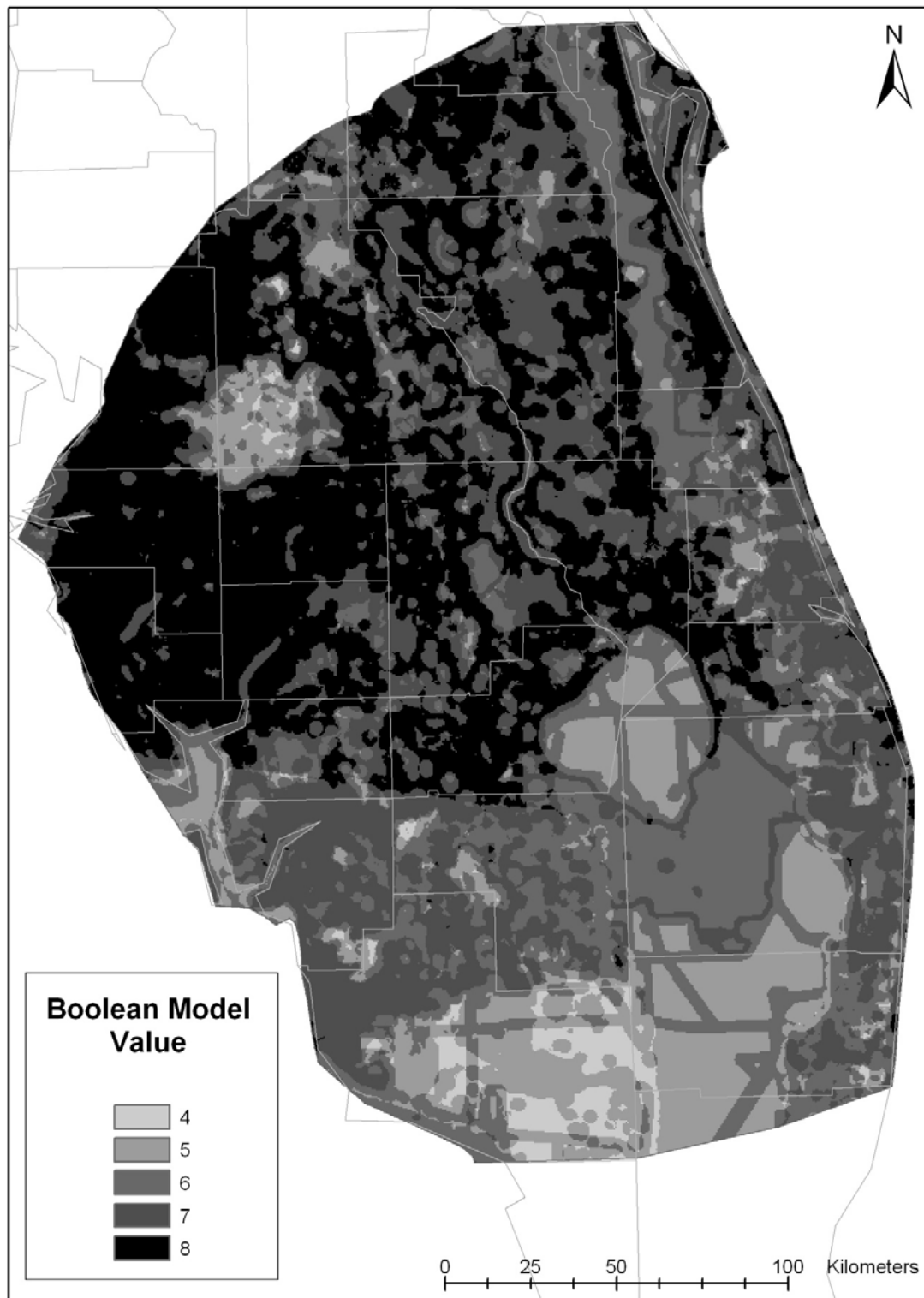


Figure 17: Mahalanobis Best Fit (Composite) Model of Suitable Caracara Habitat (Morrison et al. 2007)

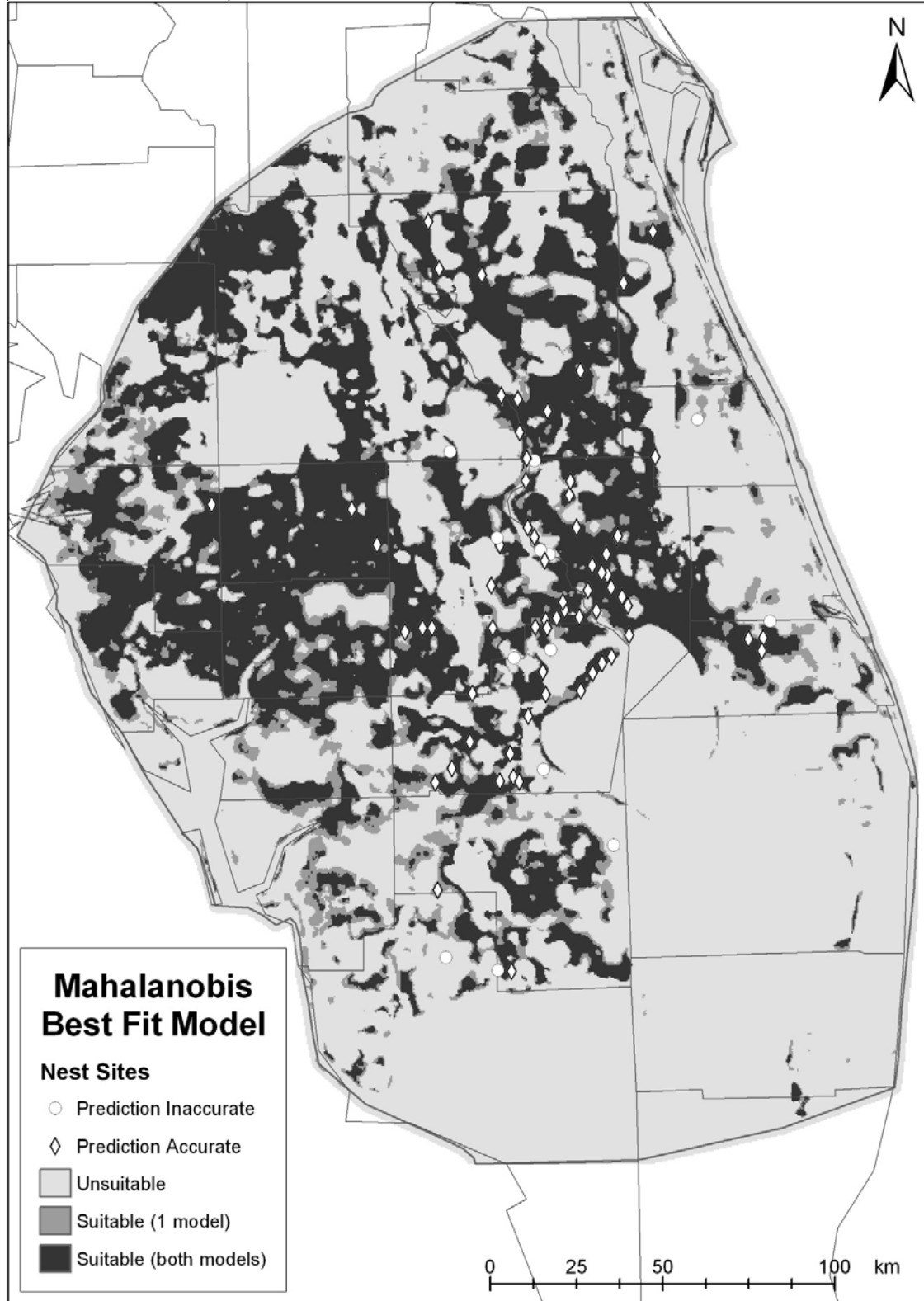


Figure 18: Caracara Habitat Suitability Model (Root & Barnes, 2007)

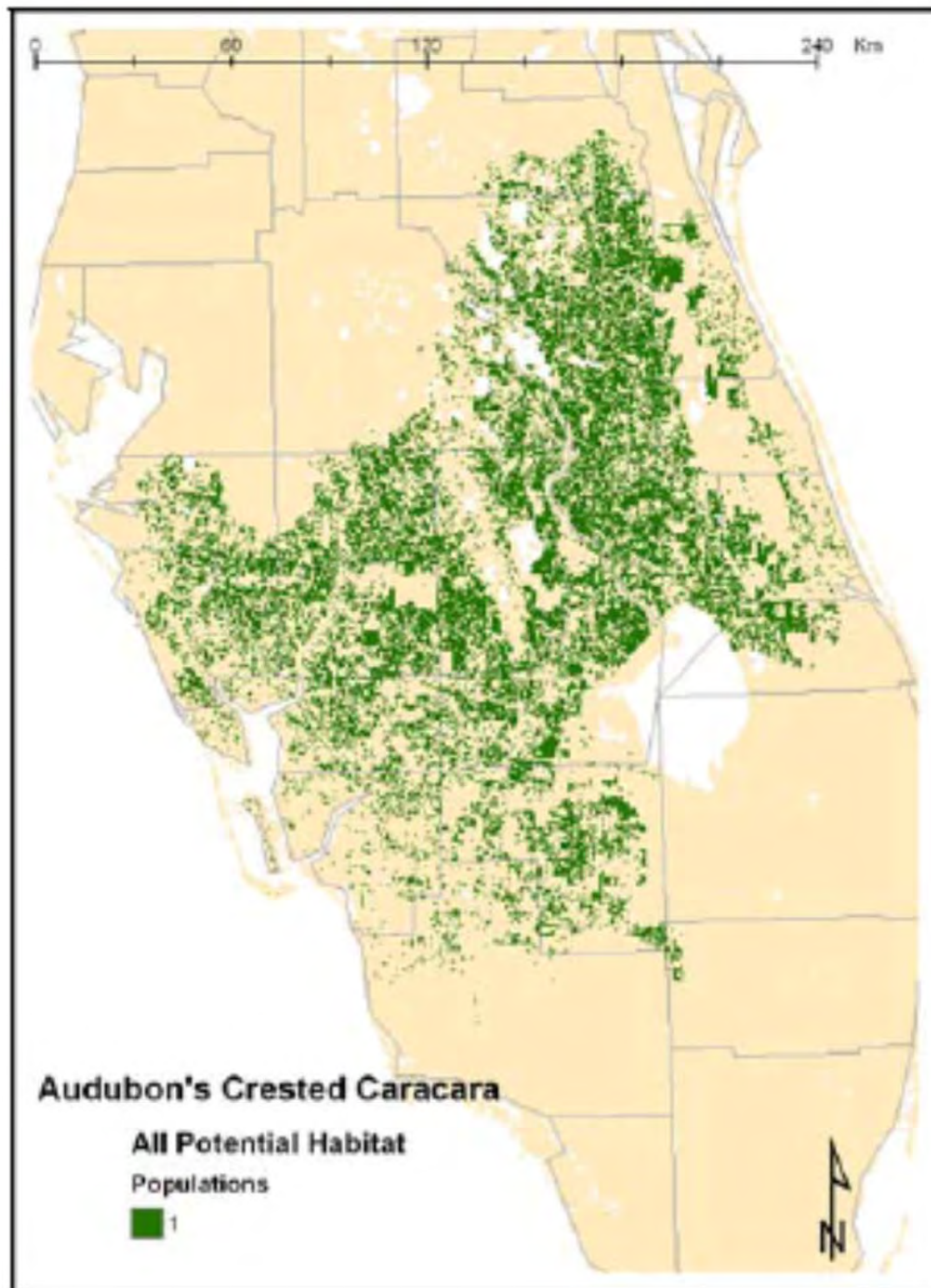


Figure 19: Regional General Permit Included and Conditional Areas

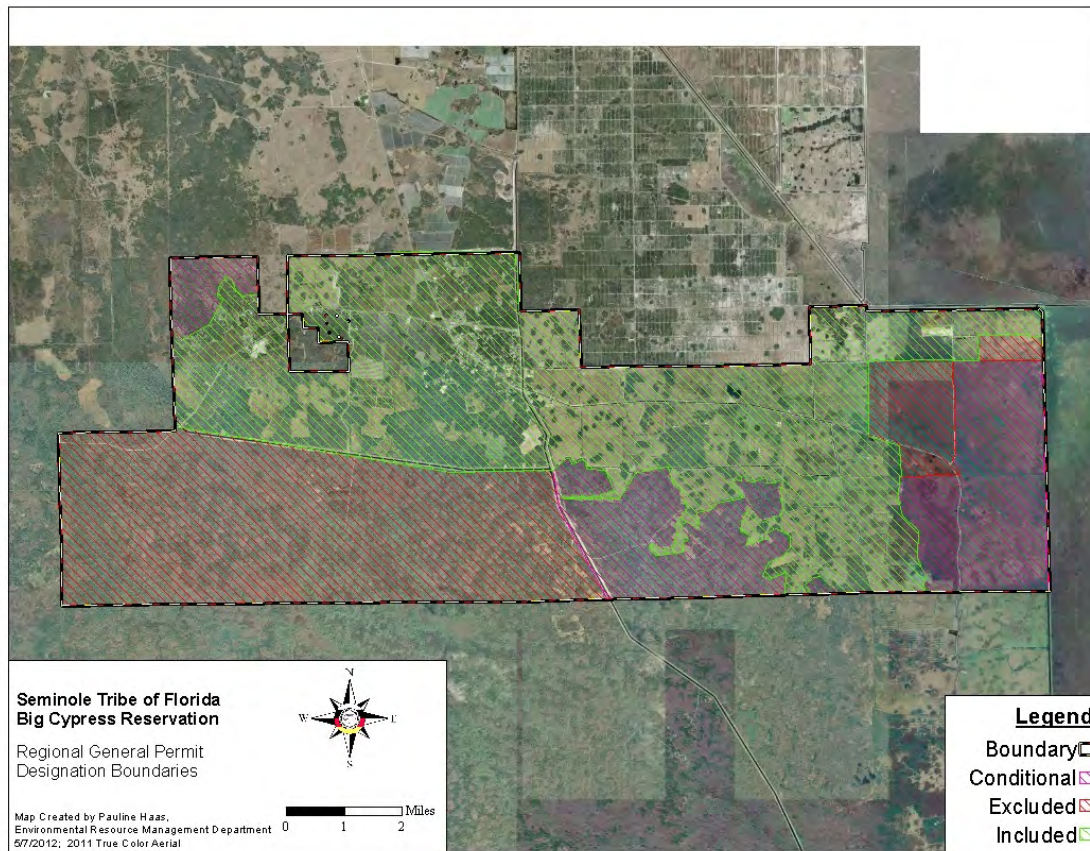


Figure 20: Big Cypress 12 Caracara Nests

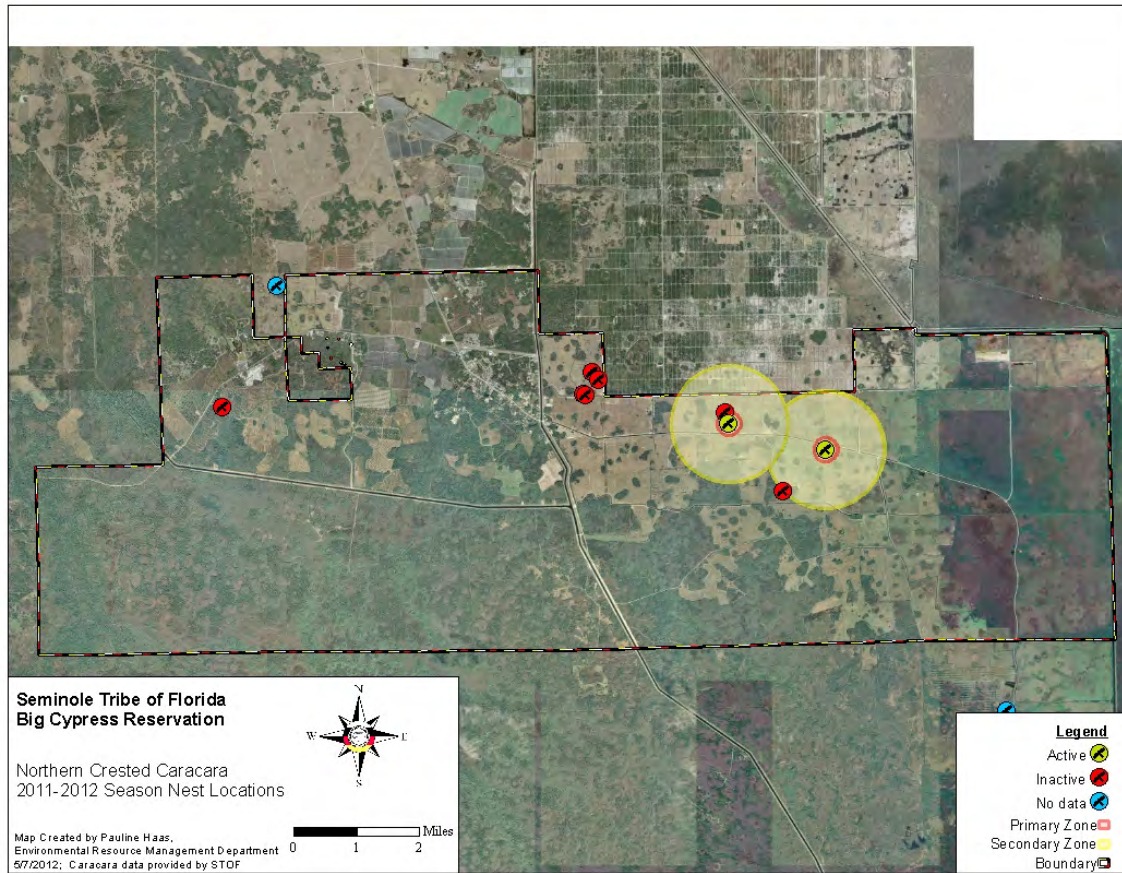


Figure 21: Brighton Caracara Consultation Area

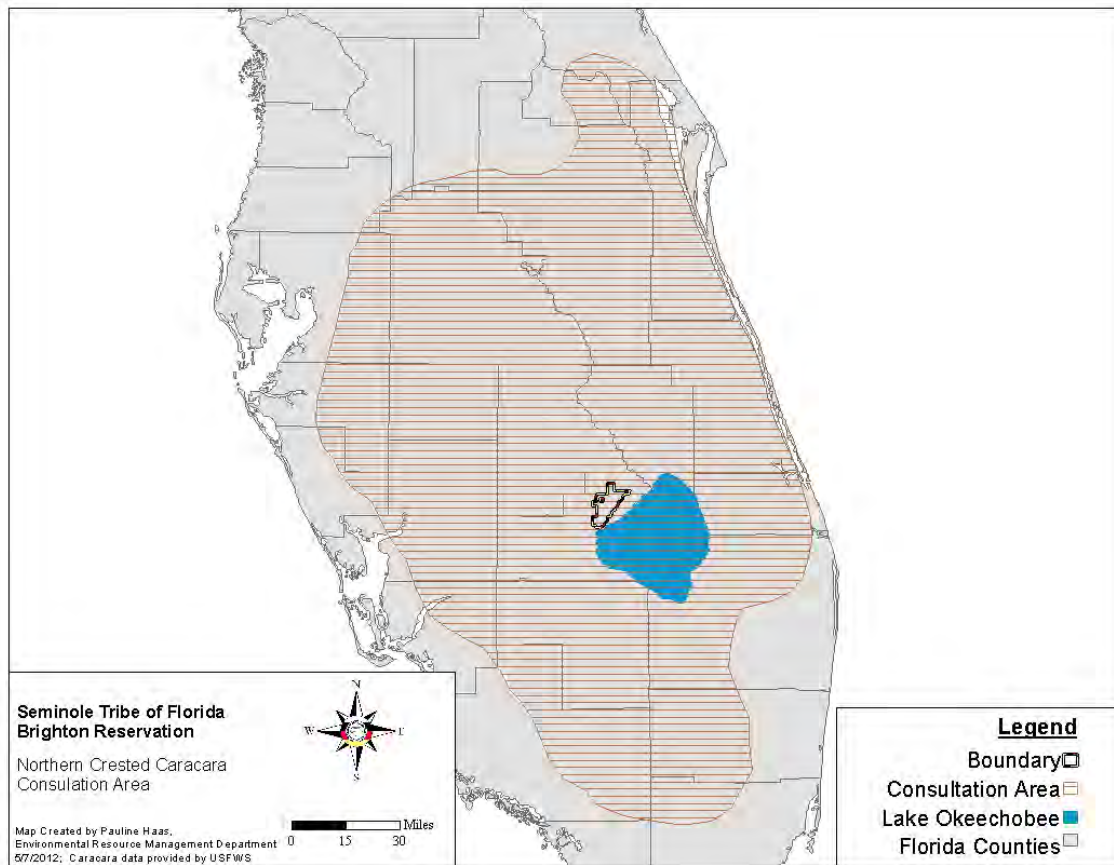


Figure 22: Hollywood Bald Eagle Nest Locations

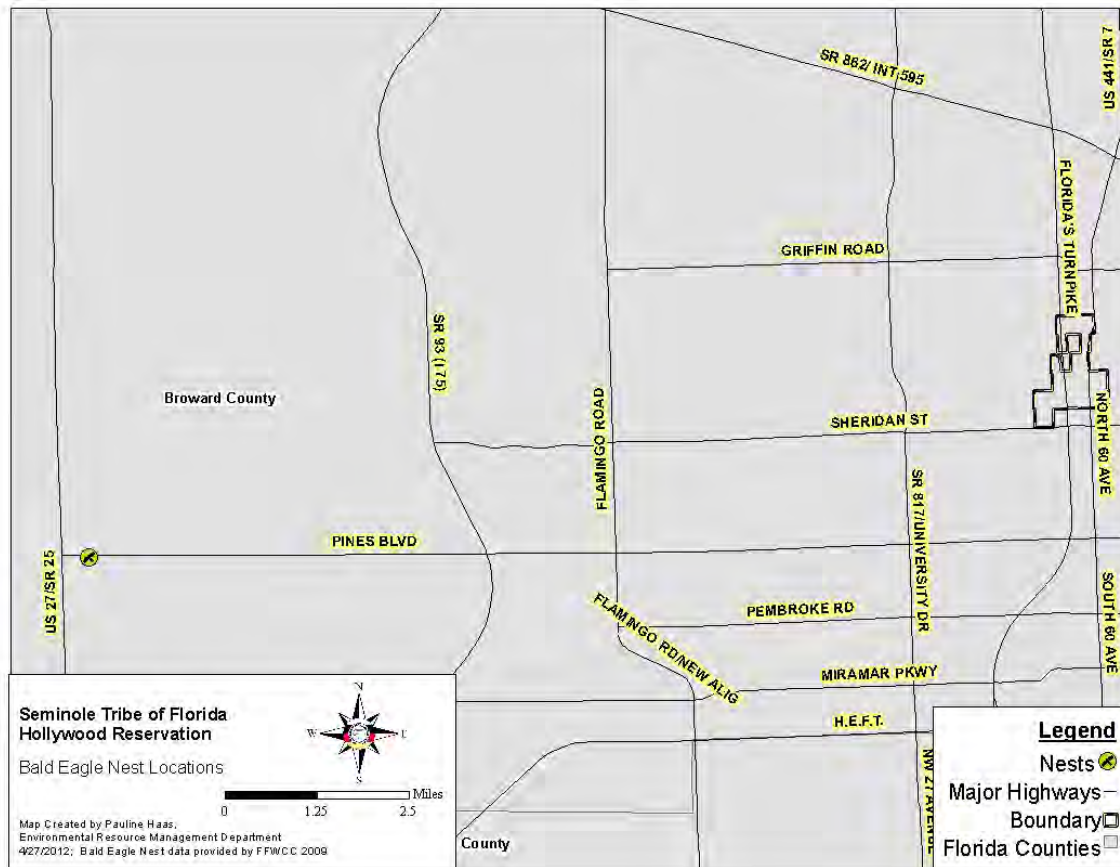


Figure 23: Big Cypress Wading Bird Rookery

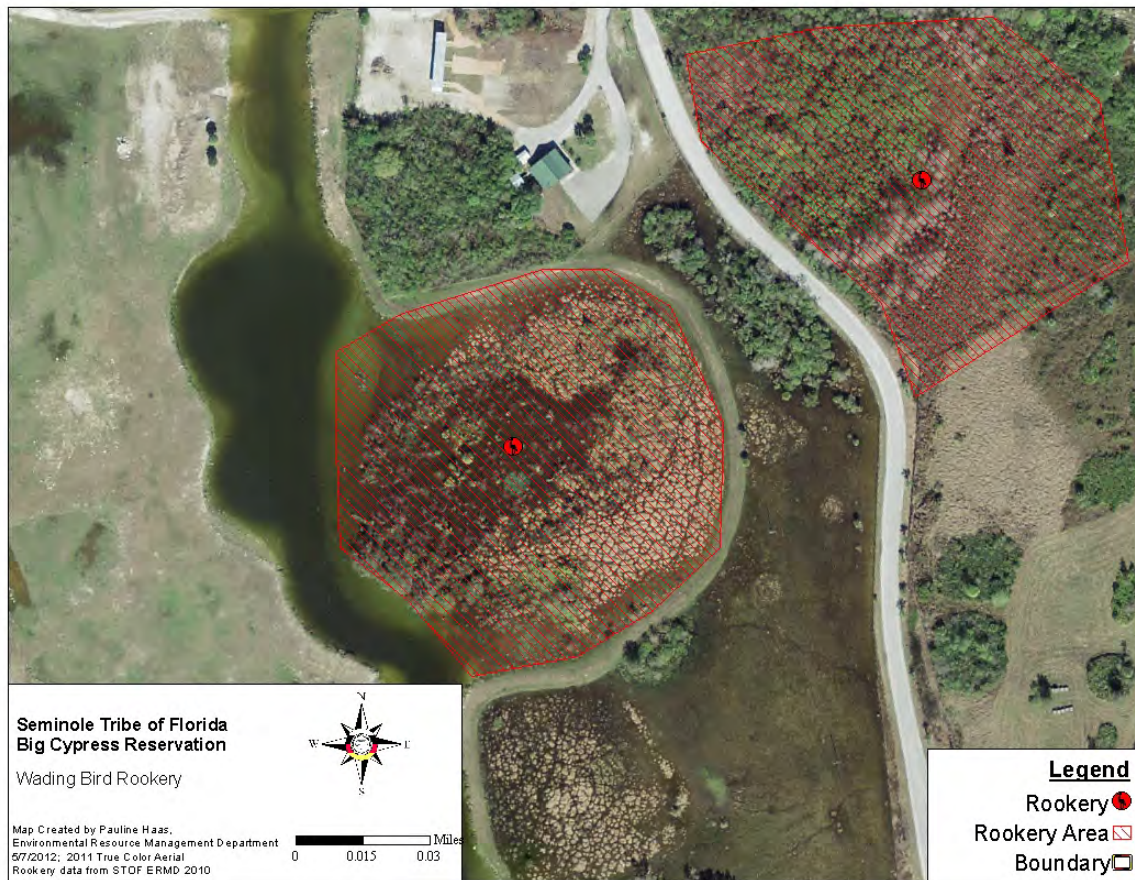


Figure 24: Big Cypress Suitable Wood Stork Foraging Habitat

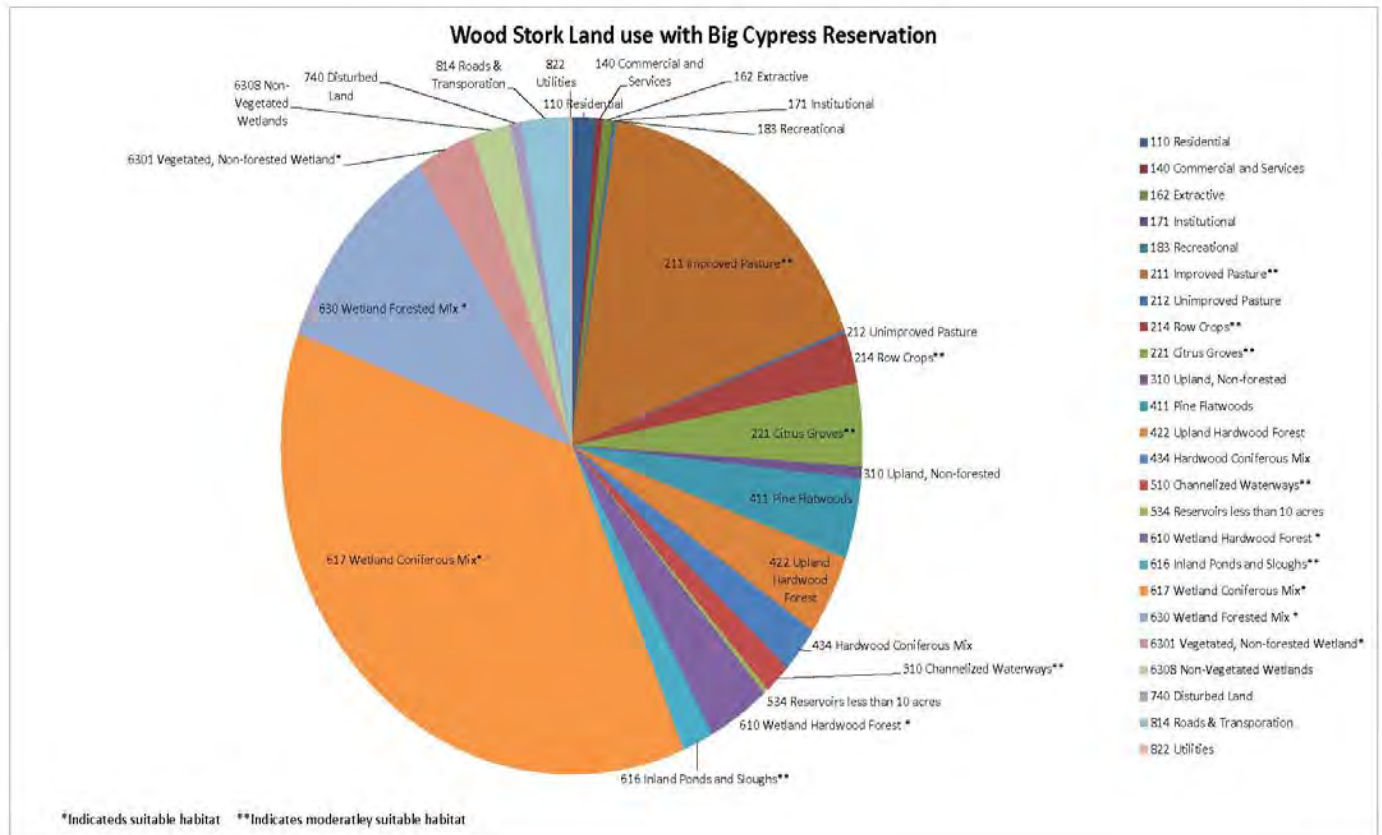


Figure 25: Big Cypress Wood Stork Colonies

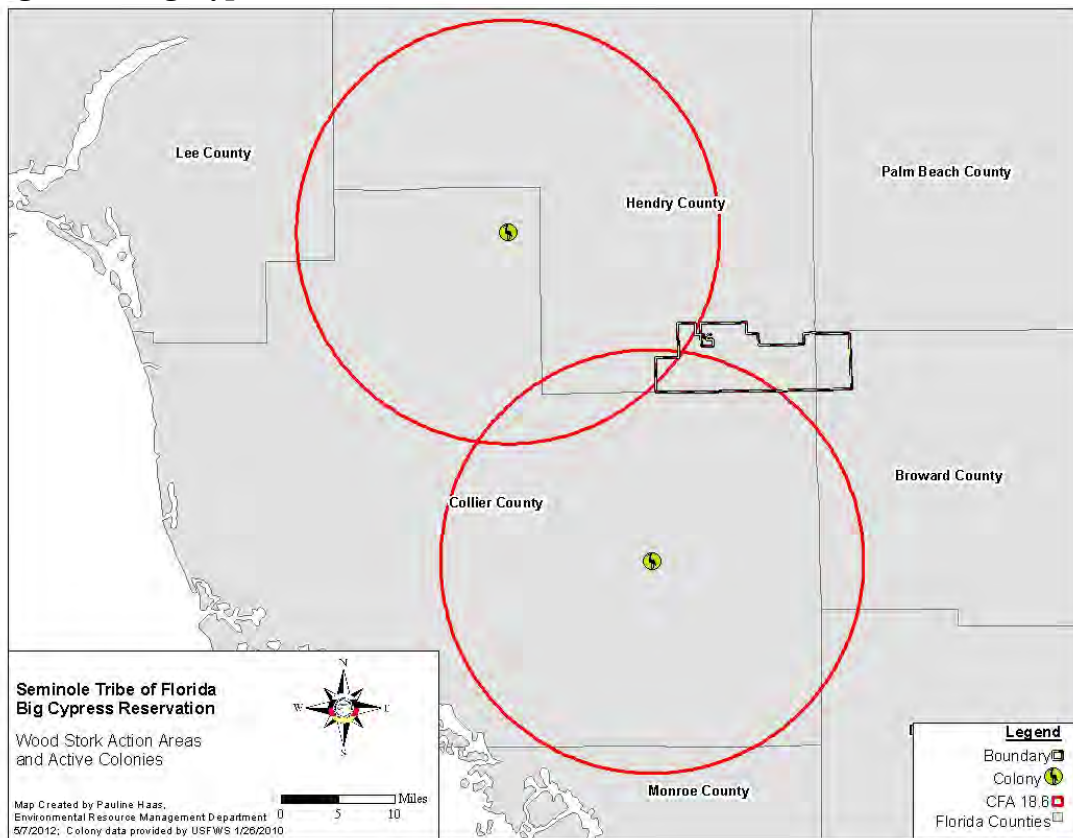


Figure 26: Brighton Wood Stork Colony

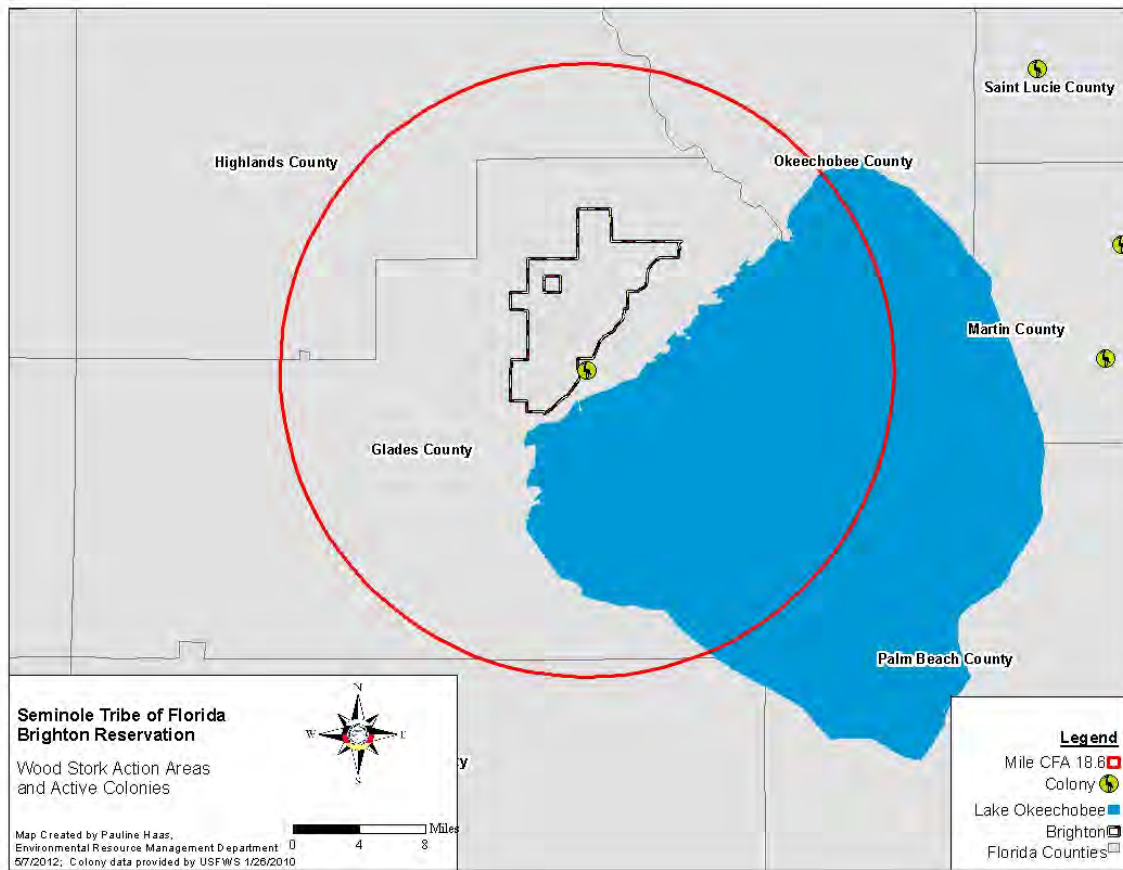


Figure 27: Hollywood Wood Stork Colony

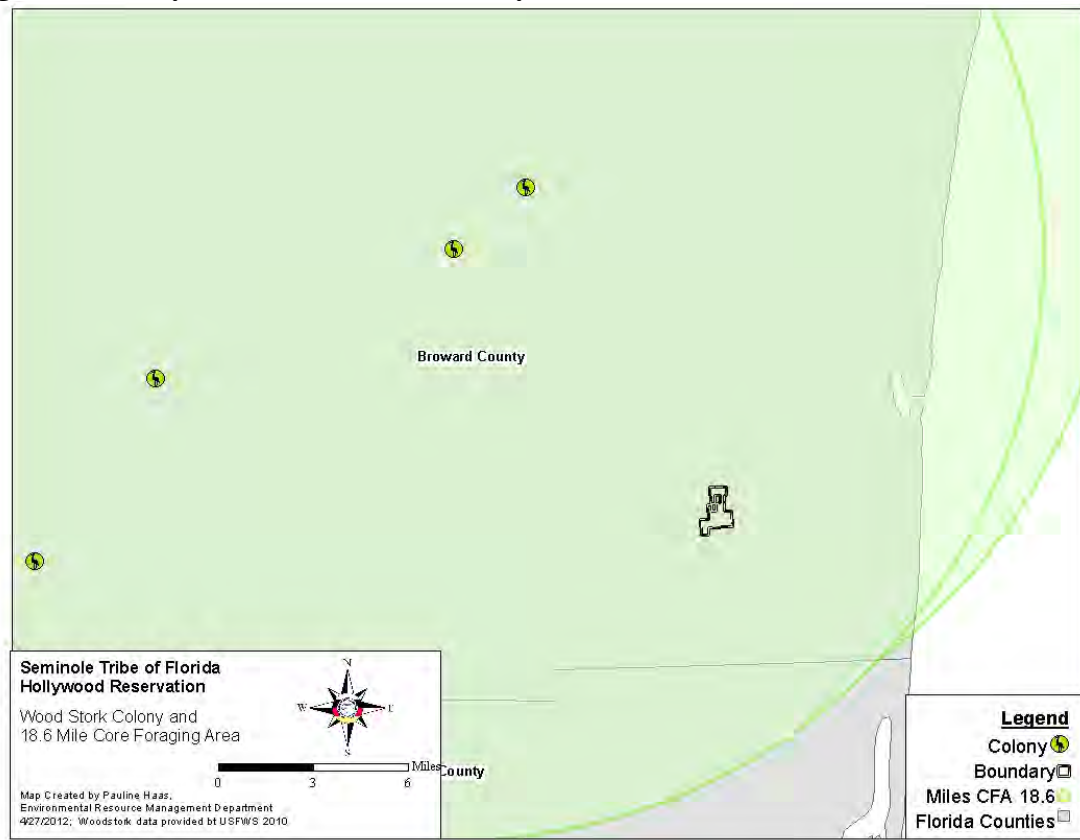


Figure 28: Big Cypress Everglades Snail Kite Consultation Area and Critical Habitat

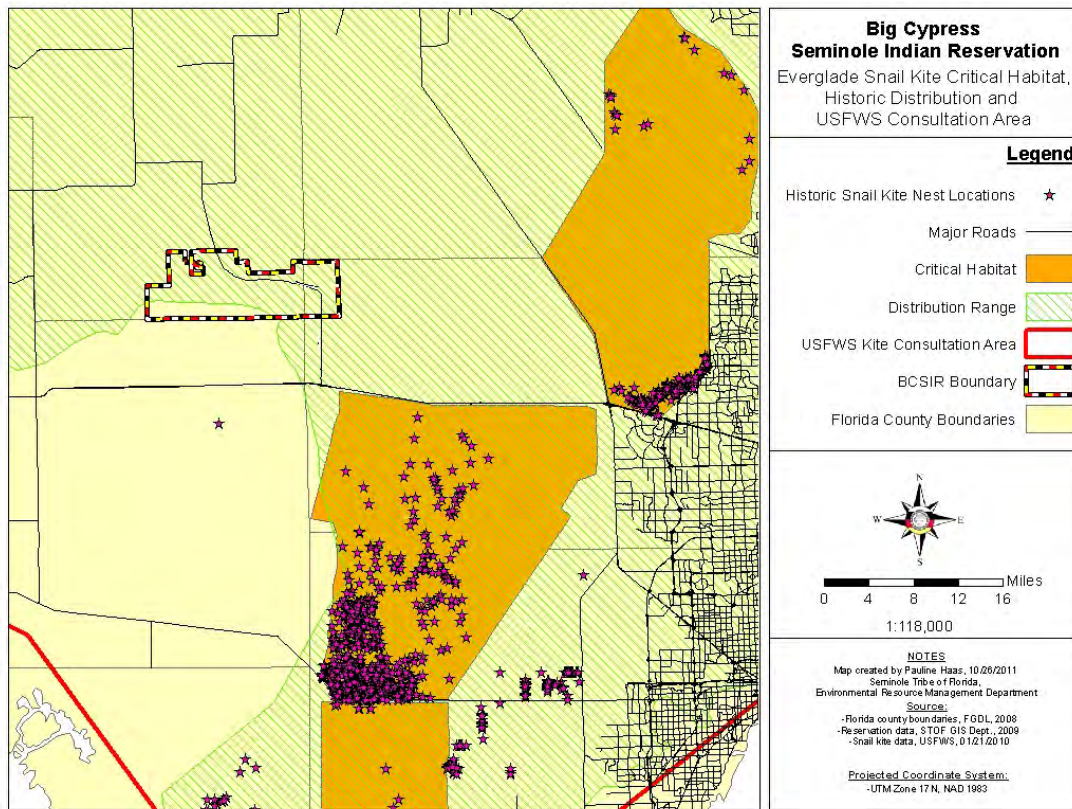


Figure 29: Brighton Everglades Snail Kite Consultation Area and Critical Habitat

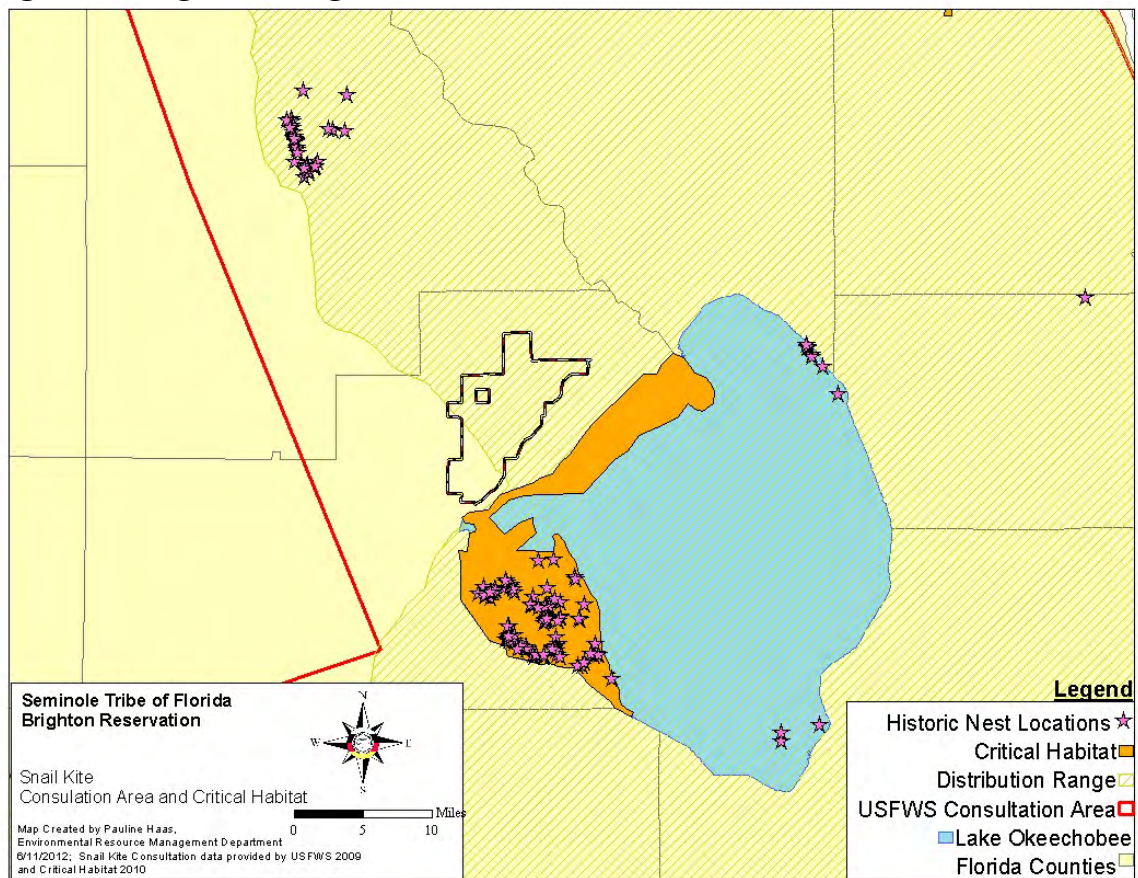


Figure 30: Hollywood Everglades Snail Kite Consultation Area and Critical Habitat

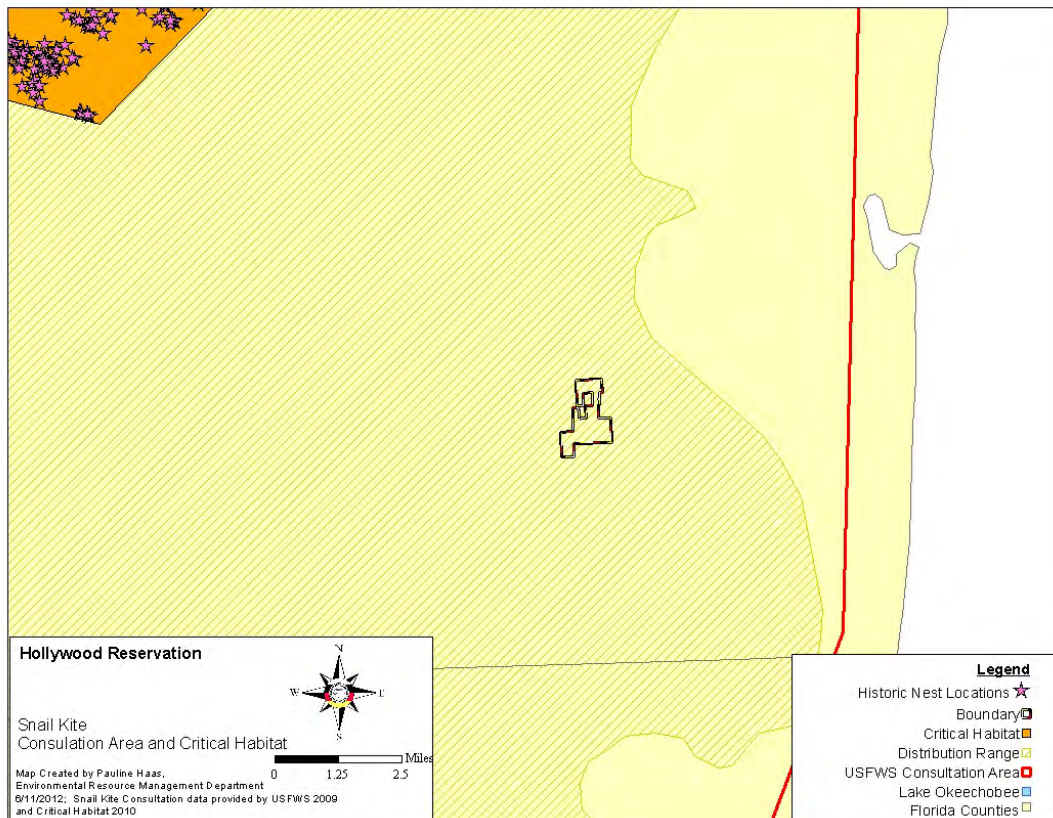


Figure 31: Big Cypress Red-cockaded Woodpecker Consultation Area

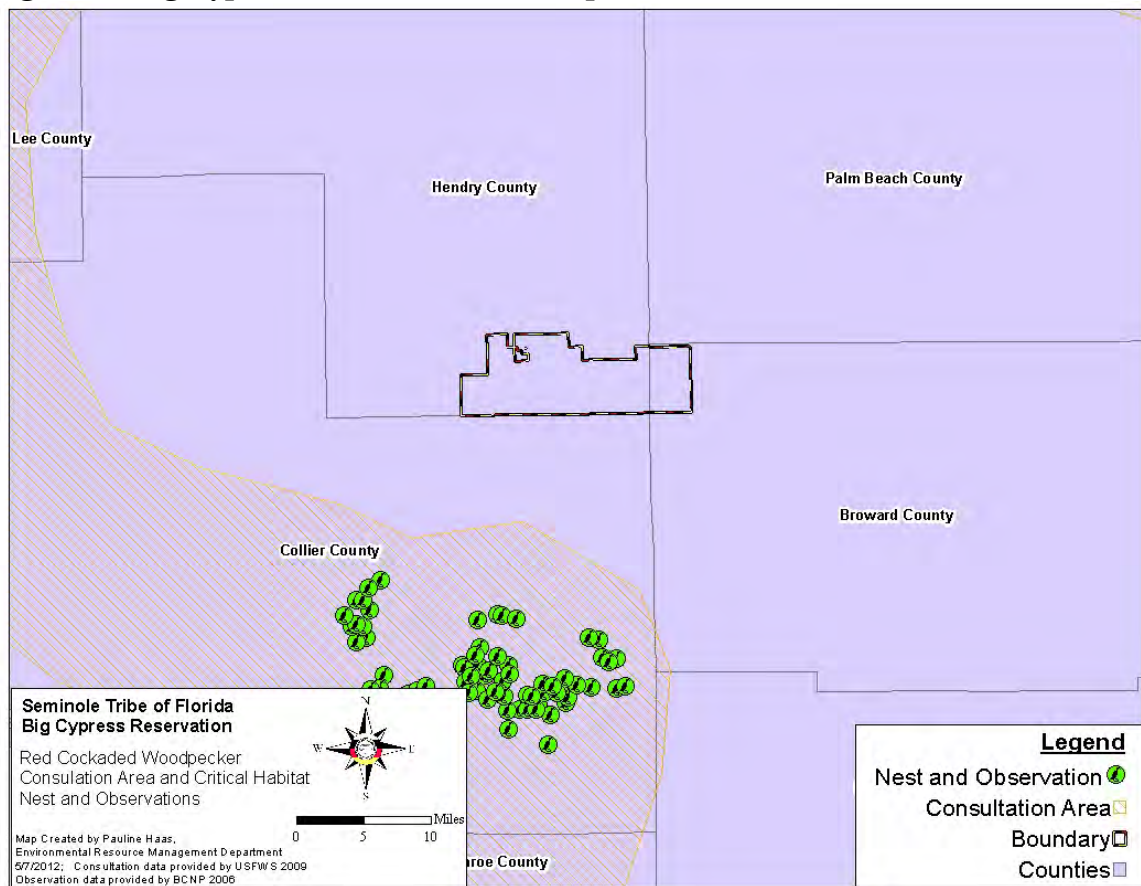


Figure 32: Brighton Red-cockaded Woodpecker Consultation Area

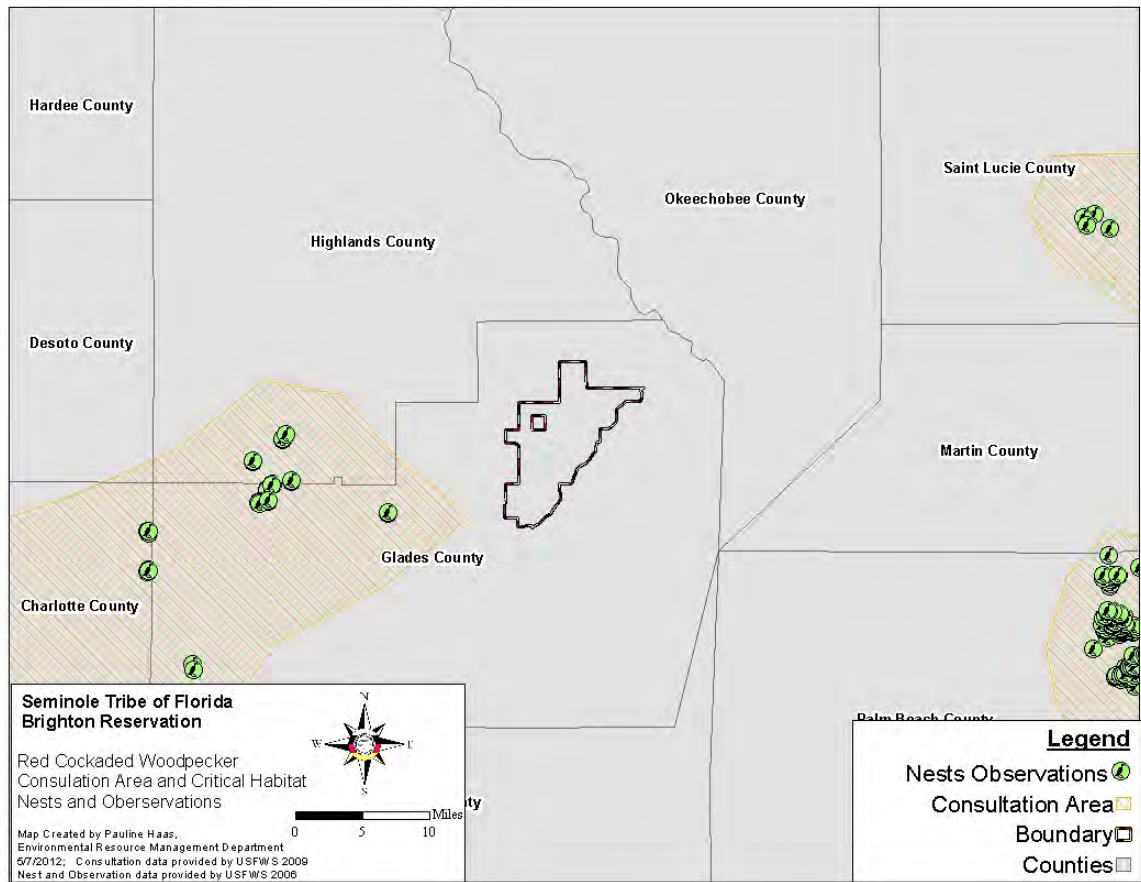


Figure 33: Hollywood Red-cockaded Woodpecker Consultation Area

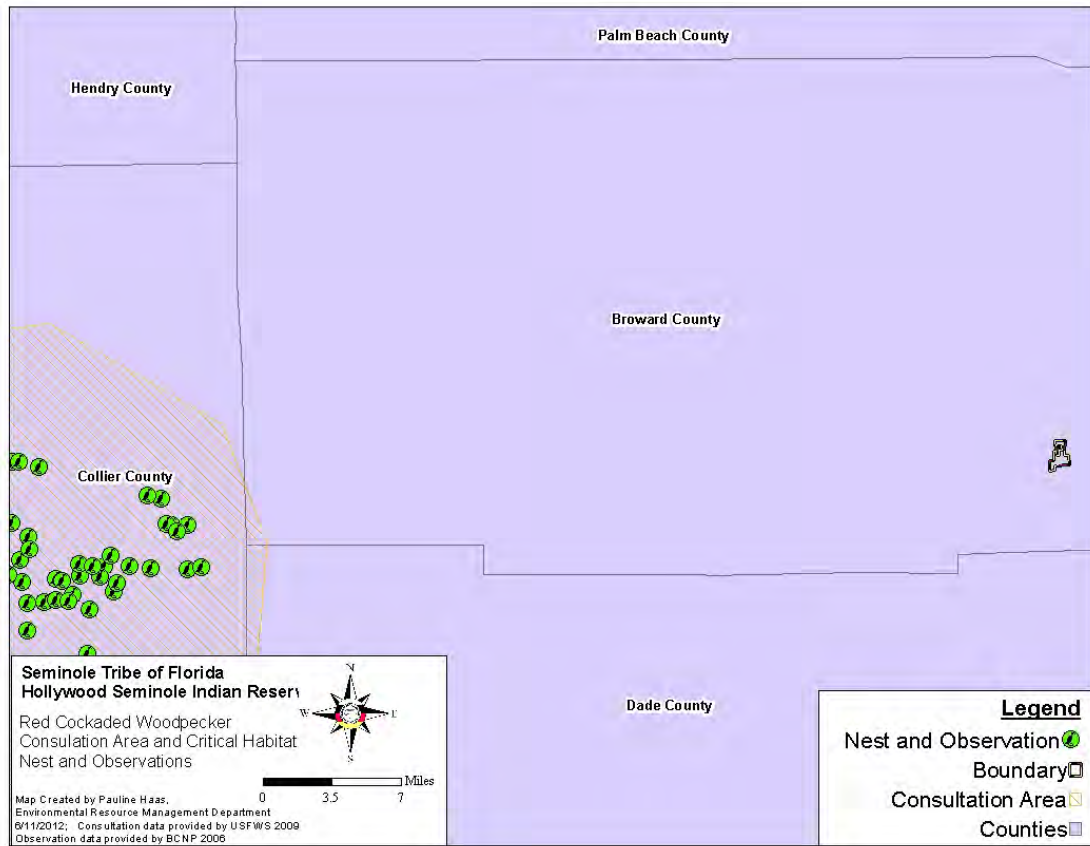


Figure 34: Big Cypress Grassland Burn Units

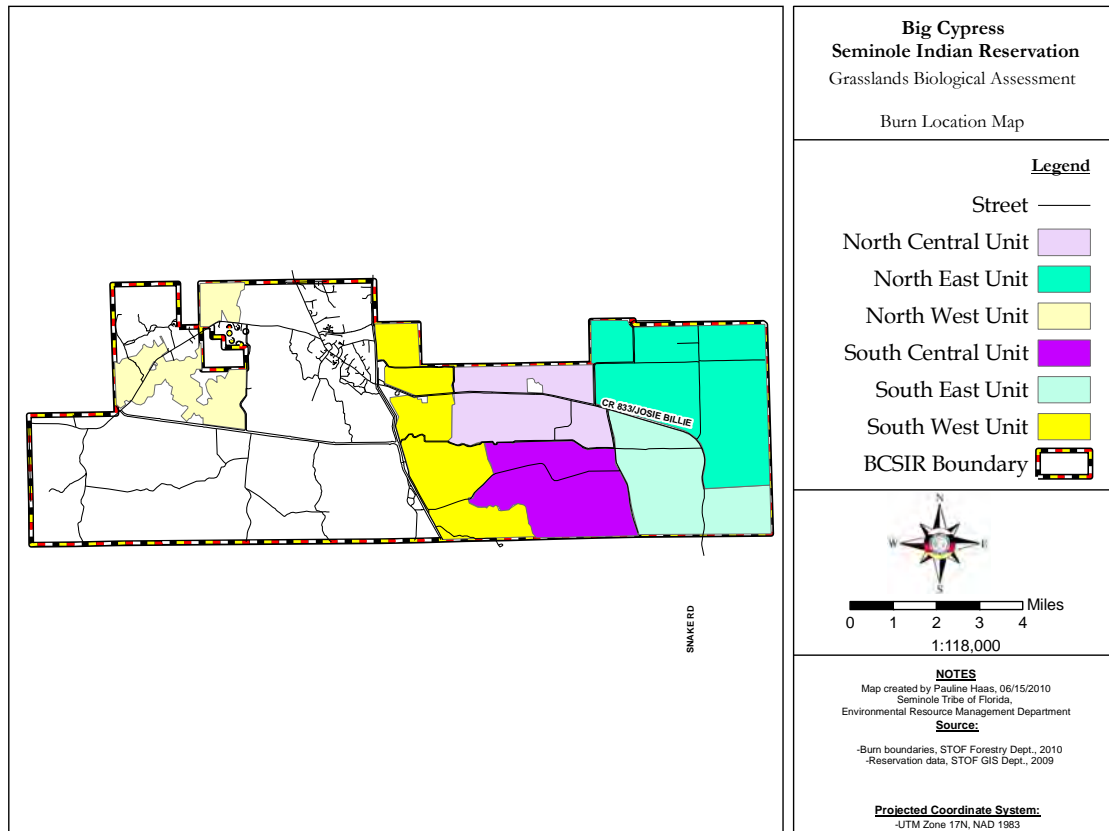


Figure 35: Brighton Grassland Burn Units

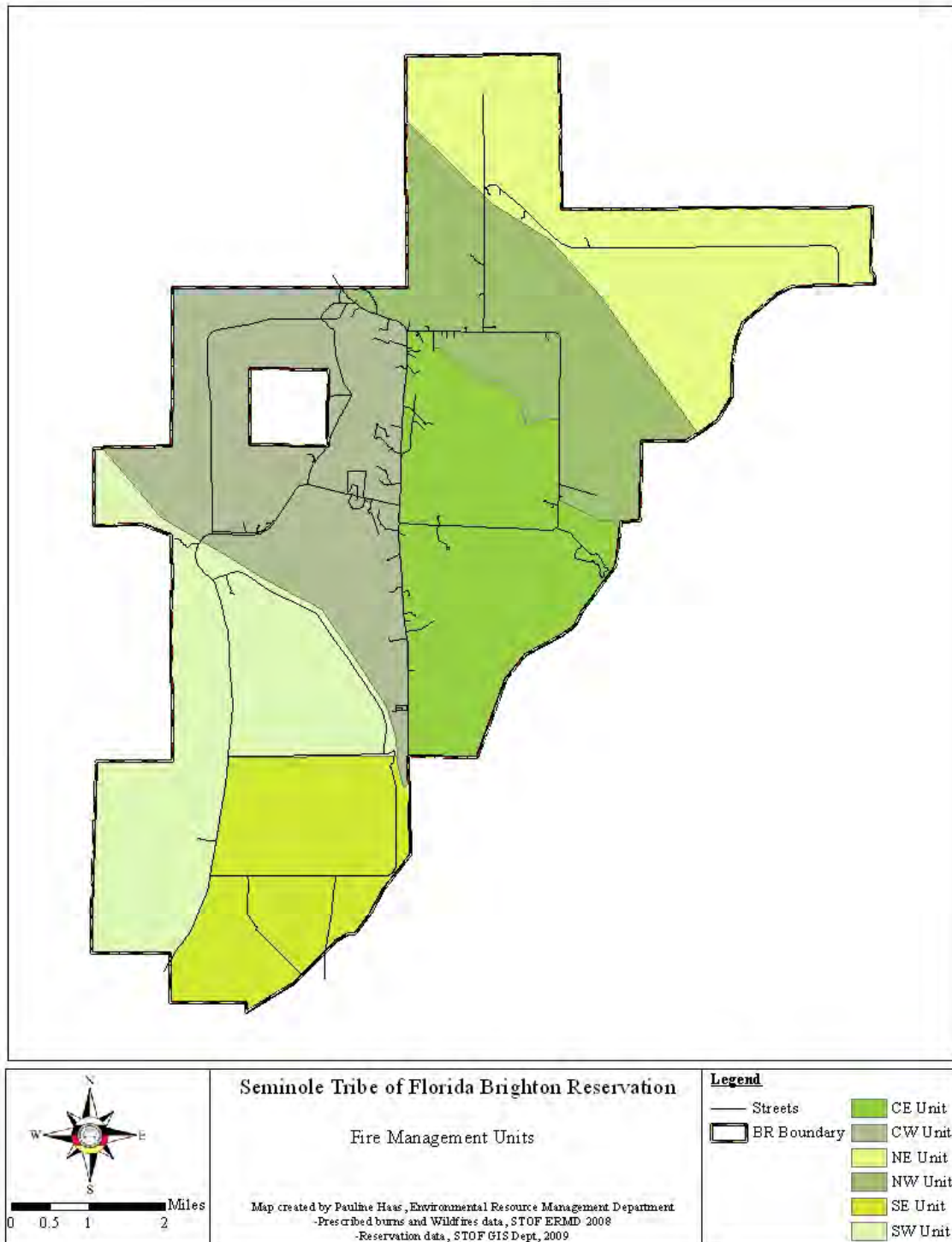


Figure 36: Big Cypress Native Burn Units

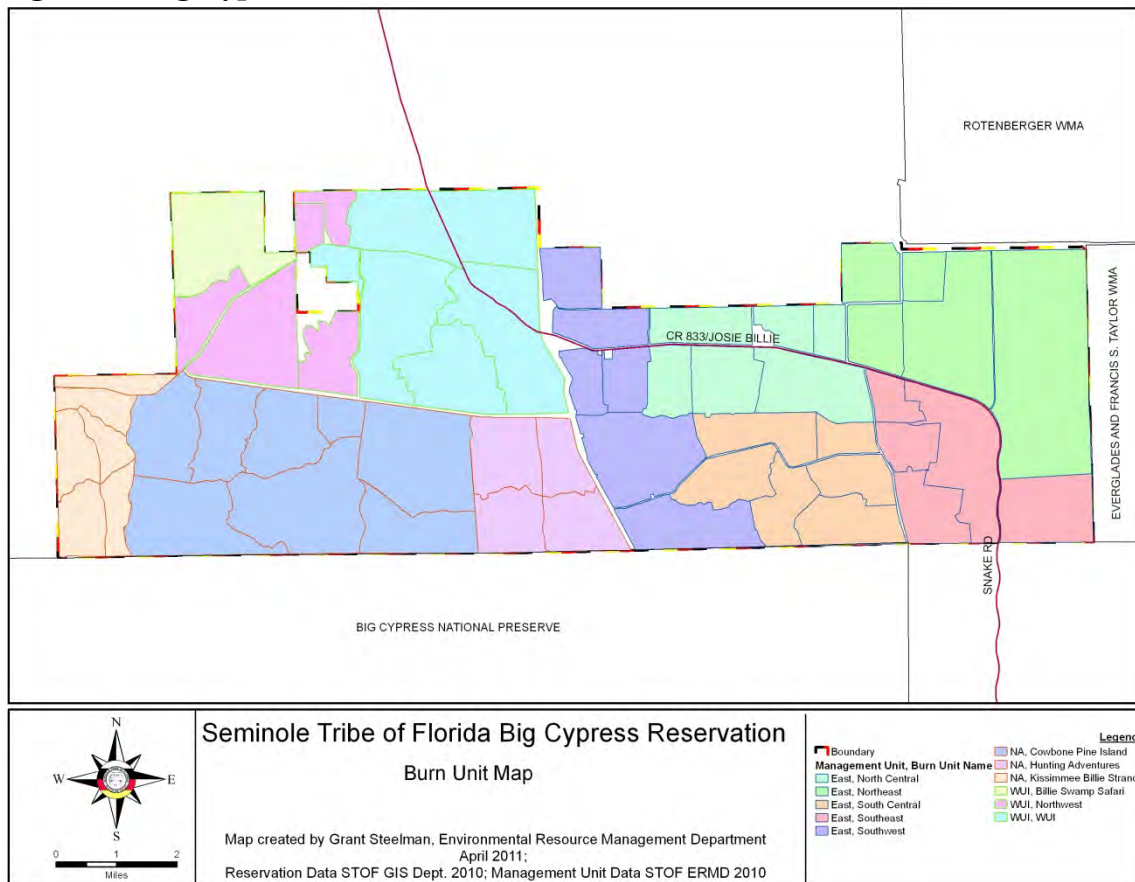
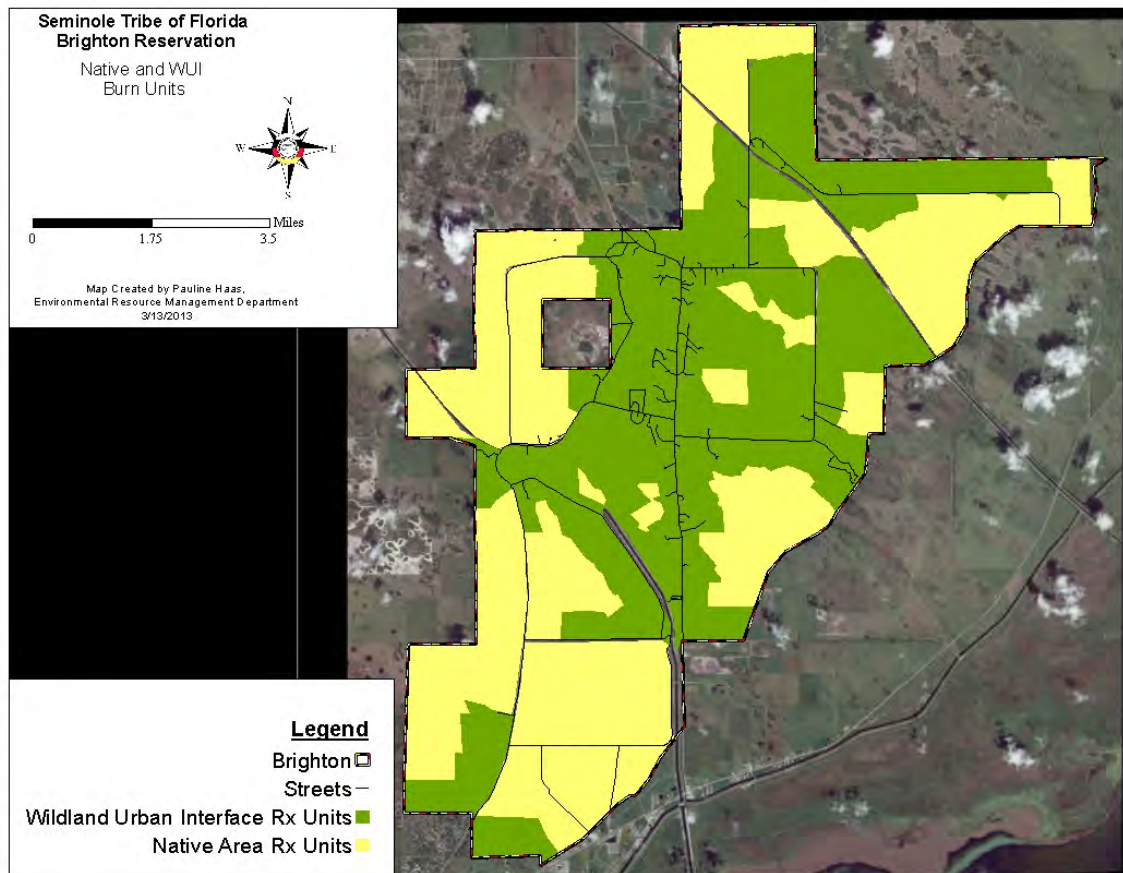


Figure 37: Brighton Native Burn Units



**APPENDIX A – American Indian Tribal Rights, Federal Tribal Trust Responsibility,
and the Endangered Species Act**

SECRETARIAL ORDER # 3206

Subject: American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act

Sec. 1. Purpose and Authority. This Order is issued by the Secretary of the Interior and the Secretary of Commerce (Secretaries) pursuant to the Endangered Species Act of 1973, 16 U.S.C. 1531, as amended (the Act), the federal-tribal trust relationship, and other federal law. Specifically, this Order clarifies the responsibilities of the component agencies, bureaus and offices of the Department of the Interior and the Department of Commerce (Departments), when actions taken under authority of the Act and associated implementing regulations affect, or may affect, Indian lands, tribal trust resources, or the exercise of American Indian tribal rights, as defined in this Order. This Order further acknowledges the trust responsibility and treaty obligations of the United States toward Indian tribes and tribal members and its government-to-government relationship in dealing with tribes. Accordingly, the Departments will carry out their responsibilities under the Act in a manner that harmonizes the Federal trust responsibility to tribes, tribal sovereignty, and statutory missions of the Departments, and that strives to ensure that Indian tribes do not bear a disproportionate burden for the conservation of listed species, so as to avoid or minimize the potential for conflict and confrontation.

Sec. 2. Scope and Limitations. (A) This Order is for guidance within the Departments only and is adopted pursuant to, and is consistent with, existing law.

(B) This Order shall not be construed to grant, expand, create, or diminish any legally enforceable rights, benefits or trust responsibilities, substantive or procedural, not otherwise granted or created under existing law. Nor shall this Order be construed to alter, amend, repeal, interpret or modify tribal sovereignty, any treaty rights, or other rights of any Indian tribe, or to preempt, modify or limit the exercise of any such rights.

(C) This Order does not preempt or modify the Departments' statutory authorities or the authorities of Indian tribes or the states.

(D) Nothing in this Order shall be applied to authorize direct (directed) take of listed species, or any activity that would jeopardize the continued existence of any listed species or destroy or adversely modify designated critical habitat. Incidental take issues under this Order are addressed in Principle 3(C) of Section 5.

(E) Nothing in this Order shall require additional procedural requirements for substantially completed Departmental actions, activities, or policy initiatives.

(F) Implementation of this Order shall be subject to the availability of resources and the requirements of the Anti-Deficiency Act.

(G) Should any tribe(s) and the Department(s) agree that greater efficiency in the implementation of this Order can be achieved, nothing in this Order shall prevent them from implementing strategies to do so.

(H) This Order shall not be construed to supersede, amend, or otherwise modify or affect the implementation of, existing agreements or understandings with the Departments or their agencies, bureaus, or offices including, but not limited to, memoranda of understanding, memoranda of agreement, or statements of relationship, unless mutually agreed by the signatory parties.

Sec. 3. Definitions. For the purposes of this Order, except as otherwise expressly provided, the following terms shall apply:

(A) The term "Indian tribe" shall mean any Indian tribe, band, nation, pueblo, community or other organized group within the United States which the Secretary of the Interior has identified on the most current list of tribes maintained by the Bureau of Indian Affairs.

(B) The term "tribal trust resources" means those natural resources, either on or off Indian lands, retained by, or reserved by or for Indian tribes through treaties, statutes, judicial decisions, and executive orders, which are protected by a fiduciary obligation on the part of the United States.

(C) The term "tribal rights" means those rights legally accruing to a tribe or tribes by virtue of inherent sovereign authority, unextinguished aboriginal title, treaty, statute, judicial decisions, executive order or agreement, and which give rise to legally enforceable remedies.

(D) The term "Indian lands" means any lands title to which is either: 1) held in trust by the United States for the benefit of any Indian tribe or individual; or 2) held by any Indian tribe or individual subject to restrictions by the United States against alienation.

Sec. 4. Background. The unique and distinctive political relationship between the United States and Indian tribes is defined by treaties, statutes, executive orders, judicial decisions, and agreements, and differentiates tribes from other entities that deal with, or are affected by, the federal government. This relationship has given rise to a special federal trust responsibility, involving the legal responsibilities and obligations of the United States toward Indian tribes and the application of fiduciary standards of due care with respect to Indian lands, tribal trust resources, and the exercise of tribal rights.

The Departments recognize the importance of tribal self-governance and the protocols of a government-to-government relationship with Indian tribes. Long-standing Congressional and Administrative policies promote tribal self-government, self-sufficiency, and self-determination, recognizing and endorsing the fundamental rights of tribes to set their own priorities and make decisions affecting their resources and distinctive ways of life. The Departments recognize and respect, and shall consider, the value that tribal traditional knowledge provides to tribal and federal land management decision-making and tribal resource management activities. The Departments recognize that Indian tribes are governmental sovereigns; inherent in this sovereign authority is the power to make and enforce laws, administer justice, manage and control Indian lands, exercise tribal rights and protect tribal trust resources. The Departments shall be sensitive to the fact that Indian cultures, religions, and spirituality often involve ceremonial and medicinal uses of plants, animals, and specific geographic places.

Indian lands are not federal public lands or part of the public domain, and are not subject to federal public land laws. They were retained by tribes or were set aside for tribal use pursuant to treaties, statutes, judicial decisions, executive orders or agreements. These lands are managed by Indian tribes in accordance with tribal goals and objectives, within the framework of applicable laws.

Because of the unique government-to-government relationship between Indian tribes and the United States, the Departments and affected Indian tribes need to establish and maintain effective working relationships and mutual partnerships to promote the conservation of sensitive species (including candidate, proposed and listed species) and the health of ecosystems upon which they depend. Such relationships should focus on cooperative assistance, consultation, the sharing of information, and the creation of government-to-government partnerships to promote healthy ecosystems.

In facilitating a government-to-government relationship, the Departments may work with intertribal organizations, to the extent such organizations are authorized by their member tribes to carry out resource management responsibilities.

Sec. 5. Responsibilities. To achieve the objectives of this Order, the heads of all agencies, bureaus and offices within the Department of the Interior, and the Administrator of the National Oceanic and Atmospheric Administration (NOAA) within the Department of Commerce, shall be responsible for ensuring that the following directives are followed:

Principle 1. THE DEPARTMENTS SHALL WORK DIRECTLY WITH INDIAN TRIBES ON A GOVERNMENT-TO-GOVERNMENT BASIS TO PROMOTE HEALTHY ECOSYSTEMS.

The Departments shall recognize the unique and distinctive political and constitutionally based relationship that exists between the United States and each Indian tribe, and shall view tribal governments as sovereign entities with authority and responsibility for the health and welfare of ecosystems on Indian lands. The Departments recognize that Indian tribes are governmental sovereigns with inherent powers to make and enforce laws, administer justice, and manage and control their natural resources. Accordingly, the Departments shall seek to establish effective government-to-government working relationships with tribes to achieve the common goal of promoting and protecting the health of these ecosystems. Whenever the agencies, bureaus, and offices of the Departments are aware that their actions planned under the Act may impact tribal trust resources, the exercise of tribal rights, or Indian lands, they shall consult with, and seek the participation of, the affected Indian tribes to the maximum extent practicable. This shall include providing affected tribes adequate opportunities to participate in data collection, consensus seeking, and associated processes. To facilitate the government-to-government relationship, the Departments may coordinate their discussions with a representative from an intertribal organization, if so designated by the affected tribe(s).

Except when determined necessary for investigative or prosecutorial law enforcement activities, or when otherwise provided in a federal-tribal agreement, the Departments, to the maximum extent practicable, shall obtain permission from tribes before knowingly entering Indian reservations and tribally-owned fee lands for purposes of ESA-related activities, and shall communicate as necessary with the appropriate tribal officials. If a tribe believes this section has

been violated, such tribe may file a complaint with the appropriate Secretary, who shall promptly investigate and respond to the tribe.

Principle 2. THE DEPARTMENTS SHALL RECOGNIZE THAT INDIAN LANDS ARE NOT SUBJECT TO THE SAME CONTROLS AS FEDERAL PUBLIC LANDS.

The Departments recognize that Indian lands, whether held in trust by the United States for the use and benefit of Indians or owned exclusively by an Indian tribe, are not subject to the controls or restrictions set forth in federal public land laws. Indian lands are not federal public lands or part of the public domain, but are rather retained by tribes or set aside for tribal use pursuant to treaties, statutes, court orders, executive orders, judicial decisions, or agreements. Accordingly, Indian tribes manage Indian lands in accordance with tribal goals and objectives, within the framework of applicable laws.

Principle 3. THE DEPARTMENTS SHALL ASSIST INDIAN TRIBES IN DEVELOPING AND EXPANDING TRIBAL PROGRAMS SO THAT HEALTHY ECOSYSTEMS ARE PROMOTED AND CONSERVATION RESTRICTIONS ARE UNNECESSARY.

(A) The Departments shall take affirmative steps to assist Indian tribes in developing and expanding tribal programs that promote healthy ecosystems. The Departments shall take affirmative steps to achieve the common goals of promoting healthy ecosystems, Indian self-government, and productive government-to-government relationships under this Order, by assisting Indian tribes in developing and expanding tribal programs that promote the health of ecosystems upon which sensitive species (including candidate, proposed and listed species) depend.

The Departments shall offer and provide such scientific and technical assistance and information as may be available for the development of tribal conservation and management plans to promote the maintenance, restoration, enhancement and health of the ecosystems upon which sensitive species (including candidate, proposed, and listed species) depend, including the cooperative identification of appropriate management measures to address concerns for such species and their habitats.

(B) The Departments shall recognize that Indian tribes are appropriate governmental entities to manage their lands and tribal trust resources. The Departments acknowledge that Indian tribes value, and exercise responsibilities for, management of Indian lands and tribal trust resources. In keeping with the federal policy of promoting tribal self-government, the Departments shall respect the exercise of tribal sovereignty over the management of Indian lands, and tribal trust resources. Accordingly, the Departments shall give deference to tribal conservation and management plans for tribal trust resources that: (a) govern activities on Indian lands, including, for the purposes of this section, tribally-owned fee lands, and (b) address the conservation needs of listed species. The Departments shall conduct government-to-government consultations to discuss the extent to which tribal resource management plans for tribal trust resources outside Indian lands can be incorporated into actions to address the conservation needs of listed species.

(C) The Departments, as trustees, shall support tribal measures that preclude the need for conservation restrictions.

At the earliest indication that the need for federal conservation restrictions is being considered for any species, the Departments, acting in their trustee capacities, shall promptly notify all potentially affected tribes, and provide such technical, financial, or other assistance as may be appropriate, thereby assisting Indian tribes in identifying and implementing tribal conservation and other measures necessary to protect such species.

In the event that the Departments determine that conservation restrictions are necessary in order to protect listed species, the Departments, in keeping with the trust responsibility and government-to-government relationships, shall consult with affected tribes and provide written notice to them of the intended restriction as far in advance as practicable. If the proposed conservation restriction is directed at a tribal activity that could raise the potential issue of direct (directed) take under the Act, then meaningful government-to-government consultation shall occur, in order to strive to harmonize the federal trust responsibility to tribes, tribal sovereignty and the statutory missions of the Departments. In cases involving an activity that could raise the potential issue of an incidental take under the Act, such notice shall include an analysis and determination that all of the following conservation standards have been met: (i) the restriction is reasonable and necessary for conservation of the species at issue; (ii) the conservation purpose of the restriction cannot be achieved by reasonable regulation of non-Indian activities; (iii) the measure is the least restrictive alternative available to achieve the required conservation purpose; (iv) the restriction does not discriminate against Indian activities, either as stated or applied; and, (v) voluntary tribal measures are not adequate to achieve the necessary conservation purpose.

Principle 4. THE DEPARTMENTS SHALL BE SENSITIVE TO INDIAN CULTURE, RELIGION AND SPIRITUALITY.

The Departments shall take into consideration the impacts of their actions and policies under the Act on Indian use of listed species for cultural and religious purposes. The Departments shall avoid or minimize, to the extent practicable, adverse effects upon the noncommercial use of listed sacred plants and animals in medicinal treatments and in the expression of cultural and religious beliefs by Indian tribes. When appropriate, the Departments may issue guidelines to accommodate Indian access to, and traditional uses of, listed species, and to address unique circumstances that may exist when administering the Act.

Principle 5. THE DEPARTMENTS SHALL MAKE AVAILABLE TO INDIAN TRIBES INFORMATION RELATED TO TRIBAL TRUST RESOURCES AND INDIAN LANDS, AND, TO FACILITATE THE MUTUAL EXCHANGE OF INFORMATION, SHALL STRIVE TO PROTECT SENSITIVE TRIBAL INFORMATION FROM DISCLOSURE.

To further tribal self-government and the promotion of healthy ecosystems, the Departments recognize the critical need for Indian tribes to possess complete and accurate information related to Indian lands and tribal trust resources. To the extent consistent with the provisions of the Privacy Act, the Freedom of Information Act (FOIA) and the Departments' abilities to continue to assert FOIA exemptions with regard to FOIA requests, the Departments shall make available to an Indian tribe all information held by the Departments which is related to its Indian lands and tribal trust resources. In the course of the mutual exchange of information, the Departments shall protect, to the maximum extent practicable, tribal information which has been disclosed to or

collected by the Departments. The Departments shall promptly notify and, when appropriate, consult with affected tribes regarding all requests for tribal information relating to the administration of the Act.

Sec. 6. Federal-Tribal Intergovernmental Agreements. The Departments shall, when appropriate and at the request of an Indian tribe, pursue intergovernmental agreements to formalize arrangements involving sensitive species (including candidate, proposed, and listed species) such as, but not limited to, land and resource management, multi-jurisdictional partnerships, cooperative law enforcement, and guidelines to accommodate Indian access to, and traditional uses of, natural products. Such agreements shall strive to establish partnerships that harmonize the Departments' missions under the Act with the Indian tribe's own ecosystem management objectives.

Sec. 7. Alaska. The Departments recognize that section 10(e) of the Act governs the taking of listed species by Alaska Natives for subsistence purposes and that there is a need to study the implementation of the Act as applied to Alaska tribes and natives. Accordingly, this Order shall not apply to Alaska and the Departments shall, within one year of the date of this Order, develop recommendations to the Secretaries to supplement or modify this Order and its Appendix, so as to guide the administration of the Act in Alaska. These recommendations shall be developed with the full cooperation and participation of Alaska tribes and natives. The purpose of these recommendations shall be to harmonize the government-to-government relationship with Alaska tribes, the federal trust responsibility to Alaska tribes and Alaska Natives, the rights of Alaska Natives, and the statutory missions of the Departments.

Sec. 8. Special Study on Cultural and Religious Use of Natural Products. The Departments recognize that there remain tribal concerns regarding the access to, and uses of, eagle feathers, animal parts, and other natural products for Indian cultural and religious purposes. Therefore, the Departments shall work together with Indian tribes to develop recommendations to the Secretaries within one year to revise or establish uniform administrative procedures to govern the possession, distribution, and transportation of such natural products that are under federal jurisdiction or control.

Sec. 9. Dispute Resolution. (A) Federal-tribal disputes regarding implementation of this Order shall be addressed through government-to-government discourse. Such discourse is to be respectful of government-to-government relationships and relevant federal-tribal agreements, treaties, judicial decisions, and policies pertaining to Indian tribes. Alternative dispute resolution processes may be employed as necessary to resolve disputes on technical or policy issues within statutory time frames; provided that such alternative dispute resolution processes are not intended to apply in the context of investigative or prosecutorial law enforcement activities.

(B) Questions and concerns on matters relating to the use or possession of listed plants or listed animal parts used for religious or cultural purposes shall be referred to the appropriate Departmental officials and the appropriate tribal contacts for religious and cultural affairs.

Sec. 10. Implementation. This Order shall be implemented by all agencies, bureaus, and offices of the Departments, as applicable. In addition, the U.S. Fish and Wildlife Service and the

National Marine Fisheries Service shall implement their specific responsibilities under the Act in accordance with the guidance contained in the attached Appendix.

Sec. 11. Effective Date. This Order, issued within the Department of the Interior as Order No. 3206, is effective immediately and will remain in effect until amended, superseded, or revoked.

This Secretarial Order, entitled "American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act," and its accompanying Appendix were issued this 5th day of June, 1997, in Washington, D.C., by the Secretary of the Interior and the Secretary of Commerce.

Secretary of the Interior
Date: June 5, 1997

Secretary of Commerce

APPENDIX

Appendix to Secretarial Order issued within the Department of the Interior as Order No. 3206

Sec. 1. Purpose. The purpose of this Appendix is to provide policy to the National, regional and field offices of the U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS), (hereinafter "Services"), concerning the implementation of the Secretarial Order issued by the Department of the Interior and the Department of Commerce, entitled "American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act." This policy furthers the objectives of the FWS Native American Policy (June 28, 1994), and the American Indian and Alaska Native Policy of the Department of Commerce (March 30, 1995). This Appendix shall be considered an integral part of the above Secretarial Order, and all sections of the Order shall apply in their entirety to this Appendix.

Sec. 2. General Policy. (A) Goals. The goals of this Appendix are to provide a basis for administration of the Act in a manner that (1) recognizes common federal-tribal goals of conserving sensitive species (including candidate, proposed, and listed species) and the ecosystems upon which they depend, Indian self-government, and productive government-to-government relationships; and (2) harmonizes the federal trust responsibility to tribes, tribal sovereignty, and the statutory missions of the Departments, so as to avoid or minimize the potential for conflict and confrontation.

(B) Government-to-Government Communication. It shall be the responsibility of each Service's regional and field offices to maintain a current list of tribal contact persons within each Region, and to ensure that meaningful government-to-government communication occurs regarding actions to be taken under the Act.

(C) Agency Coordination. The Services have the lead roles and responsibilities in administering the Act, while the Services and other federal agencies share responsibilities for honoring Indian treaties and other sources of tribal rights. The Bureau of Indian Affairs (BIA) has the primary responsibility for carrying out the federal responsibility to administer tribal trust property and represent tribal interests during formal Section 7 consultations under the Act. Accordingly, the Services shall consult, as appropriate, with each other, affected Indian tribes, the BIA, the Office of the Solicitor (Interior), the Office of American Indian Trust (Interior), and the NOAA Office of General Counsel in determining how the fiduciary responsibility of the federal government to Indian tribes may best be realized.

(D) Technical Assistance. In their roles as trustees, the Services shall offer and provide technical assistance and information for the development of tribal conservation and management plans to promote the maintenance, restoration, and enhancement of the ecosystems on which sensitive species (including candidate, proposed, and listed species) depend. The Services should be creative in working with the tribes to accomplish these objectives. Such technical assistance may include the cooperative identification of appropriate management measures to address concerns for sensitive species (including candidate, proposed and listed species) and their habitats. Such cooperation may include intergovernmental agreements to enable Indian tribes to more fully participate in conservation programs under the Act. Moreover, the Services may enter into

conservation easements with tribal governments and enlist tribal participation in incentive programs.

(E) Tribal Conservation Measures. The Services shall, upon the request of an Indian tribe or the BIA, cooperatively review and assess tribal conservation measures for sensitive species (including candidate, proposed and listed species) which may be included in tribal resource management plans. The Services will communicate to the tribal government their desired conservation goals and objectives, as well as any technical advice or suggestions for the modification of the plan to enhance its benefits for the conservation of sensitive species (including candidate, proposed and listed species). In keeping with the Services' initiatives to promote voluntary conservation partnerships for listed species and the ecosystems upon which they depend, the Services shall consult on a government-to-government basis with the affected tribe to determine and provide appropriate assurances that would otherwise be provided to a non-Indian.

Sec. 3. The Federal Trust Responsibility and the Administration of the Act.

The Services shall coordinate with affected Indian tribes in order to fulfill the Services' trust responsibilities and encourage meaningful tribal participation in the following programs under the Act, and shall:

(A) Candidate Conservation.

(1) Solicit and utilize the expertise of affected Indian tribes in evaluating which animal and plant species should be included on the list of candidate species, including conducting population status inventories and geographical distribution surveys;

(2) Solicit and utilize the expertise of affected Indian tribes when designing and implementing candidate conservation actions to remove or alleviate threats so that the species' listing priority is reduced or listing as endangered or threatened is rendered unnecessary; and

(3) Provide technical advice and information to support tribal efforts and facilitate voluntary tribal participation in implementation measures to conserve candidate species on Indian lands.

(B) The Listing Process.

(1) Provide affected Indian tribes with timely notification of the receipt of petitions to list species, the listing of which could affect the exercise of tribal rights or the use of tribal trust resources. In addition, the Services shall solicit and utilize the expertise of affected Indian tribes in responding to listing petitions that may affect tribal trust resources or the exercise of tribal rights.

(2) Recognize the right of Indian tribes to participate fully in the listing process by providing timely notification to, soliciting information and comments from, and utilizing the expertise of, Indian tribes whose exercise of tribal rights or tribal trust resources could be affected by a particular listing. This process shall apply to proposed and final rules to: (i) list species as endangered or threatened; (ii) designate critical habitat; (iii) reclassify a species from endangered

to threatened (or vice versa); (iv) remove a species from the list; and (v) designate experimental populations.

(3) Recognize the contribution to be made by affected Indian tribes, throughout the process and prior to finalization and close of the public comment period, in the review of proposals to designate critical habitat and evaluate economic impacts of such proposals with implications for tribal trust resources or the exercise of tribal rights. The Services shall notify affected Indian tribes and the BIA, and solicit information on, but not limited to, tribal cultural values, reserved hunting, fishing, gathering, and other Indian rights or tribal economic development, for use in: (i) the preparation of economic analyses involving impacts on tribal communities; and (ii) the preparation of "balancing tests" to determine appropriate exclusions from critical habitat and in the review of comments or petitions concerning critical habitat that may adversely affect the rights or resources of Indian tribes.

(4) In keeping with the trust responsibility, shall consult with the affected Indian tribe(s) when considering the designation of critical habitat in an area that may impact tribal trust resources, tribally-owned fee lands, or the exercise of tribal rights. Critical habitat shall not be designated in such areas unless it is determined essential to conserve a listed species. In designating critical habitat, the Services shall evaluate and document the extent to which the conservation needs of the listed species can be achieved by limiting the designation to other lands.

(5) When exercising regulatory authority for threatened species under section 4(d) of the Act, avoid or minimize effects on tribal management or economic development, or the exercise of reserved Indian fishing, hunting, gathering, or other rights, to the maximum extent allowed by law.

(6) Having first provided the affected Indian tribe(s) the opportunity to actively review and comment on proposed listing actions, provide affected Indian tribe(s) with a written explanation whenever a final decision on any of the following activities conflicts with comments provided by an affected Indian tribe: (i) list a species as endangered or threatened; (ii) designate critical habitat; (iii) reclassify a species from endangered to threatened (or vice versa); (iv) remove a species from the list; or (v) designate experimental populations. If an affected Indian tribe petitions for rulemaking under Section 4(b)(3), the Services will consult with and provide a written explanation to the affected tribe if they fail to adopt the requested regulation.

(C) ESA Section 7 Consultation.

(1) Facilitate the Services' use of the best available scientific and commercial data by soliciting information, traditional knowledge, and comments from, and utilizing the expertise of, affected Indian tribes in addition to data provided by the action agency during the consultation process. The Services shall provide timely notification to affected tribes as soon as the Services are aware that a proposed federal agency action subject to formal consultation may affect tribal rights or tribal trust resources.

(2) Provide copies of applicable final biological opinions to affected tribes to the maximum extent permissible by law.

(3)(a) When the Services enter formal consultation on an action proposed by the BIA, the Services shall consider and treat affected tribes as license or permit applicants entitled to full participation in the consultation process. This shall include, but is not limited to, invitations to meetings between the Services and the BIA, opportunities to provide pertinent scientific data and to review data in the administrative record, and to review biological assessments and draft biological opinions. In keeping with the trust responsibility, tribal conservation and management plans for tribal trust resources that govern activities on Indian lands, including for purposes of this paragraph, tribally-owned fee lands, shall serve as the basis for developing any reasonable and prudent alternatives, to the extent practicable.

(b) When the Services enter into formal consultations with an Interior Department agency other than the BIA, or an agency of the Department of Commerce, on a proposed action which may affect tribal rights or tribal trust resources, the Services shall notify the affected Indian tribe(s) and provide for the participation of the BIA in the consultation process.

(c) When the Services enter into formal consultations with agencies not in the Departments of the Interior or Commerce, on a proposed action which may affect tribal rights or tribal trust resources, the Services shall notify the affected Indian tribe(s) and encourage the action agency to invite the affected tribe(s) and the BIA to participate in the consultation process.

(d) In developing reasonable and prudent alternatives, the Services shall give full consideration to all comments and information received from any affected tribe, and shall strive to ensure that any alternative selected does not discriminate against such tribe(s). The Services shall make a written determination describing (i) how the selected alternative is consistent with their trust responsibilities, and (ii) the extent to which tribal conservation and management plans for affected tribal trust resources can be incorporated into any such alternative.

(D) Habitat Conservation Planning.

(1) Facilitate the Services' use of the best available scientific and commercial data by soliciting information, traditional knowledge, and comments from, and utilizing the expertise of, affected tribal governments in habitat conservation planning that may affect tribal trust resources or the exercise of tribal rights. The Services shall facilitate tribal participation by providing timely notification as soon as the Services are aware that a draft Habitat Conservation Plan (HCP) may affect such resources or the exercise of such rights.

(2) Encourage HCP applicants to recognize the benefits of working cooperatively with affected Indian tribes and advocate for tribal participation in the development of HCPs. In those instances where permit applicants choose not to invite affected tribes to participate in those negotiations, the Services shall consult with the affected tribes to evaluate the effects of the proposed HCP on tribal trust resources and will provide the information resulting from such consultation to the HCP applicant prior to the submission of the draft HCP for public comment. After consultation with the tribes and the non-federal landowner and after careful consideration of the tribe's concerns, the Services must clearly state the rationale for the recommended final decision and explain how the decision relates to the Services' trust responsibility.

(3) Advocate the incorporation of measures into HCPs that will restore or enhance tribal trust resources. The Services shall advocate for HCP provisions that eliminate or minimize the diminishment of tribal trust resources. The Services shall be cognizant of the impacts of measures incorporated into HCPs on tribal trust resources and the tribal ability to utilize such resources.

(4) Advocate and encourage early participation by affected tribal governments in the development of region-wide or state-wide habitat conservation planning efforts and in the development of any related implementation documents.

(E) Recovery.

(1) Solicit and utilize the expertise of affected Indian tribes by having tribal representation, as appropriate, on Recovery Teams when the species occurs on Indian lands (including tribally-owned fee lands), affects tribal trust resources, or affects the exercise of tribal rights.

(2) In recognition of tribal rights, cooperate with affected tribes to develop and implement Recovery Plans in a manner that minimizes the social, cultural and economic impacts on tribal communities, consistent with the timely recovery of listed species. The Services shall be cognizant of tribal desires to attain population levels and conditions that are sufficient to support the meaningful exercise of reserved rights and the protection of tribal management or development prerogatives for Indian resources.

(3) Invite affected Indian tribes, or their designated representatives, to participate in the Recovery Plan implementation process through the development of a participation plan and through tribally-designated membership on recovery teams. The Services shall work cooperatively with affected Indian tribes to identify and implement the most effective measures to speed the recovery process.

(4) Solicit and utilize the expertise of affected Indian tribes in the design of monitoring programs for listed species and for species which have been removed from the list of Endangered and Threatened Wildlife and Plants occurring on Indian lands or affecting the exercise of tribal rights or tribal trust resources.

(F) Law Enforcement.

(1) At the request of an Indian tribe, enter into cooperative law enforcement agreements as integral components of tribal, federal, and state efforts to conserve species and the ecosystems upon which they depend. Such agreements may include the delegation of enforcement authority under the Act, within limitations, to full-time tribal conservation law enforcement officers.

(2) Cooperate with Indian tribes in enforcement of the Act by identifying opportunities for joint enforcement operations or investigations. Discuss new techniques and methods for the detection and apprehension of violators of the Act or tribal conservation laws, and exchange law enforcement information in general.

APPENDIX B – Caracara Survey and Reporting Protocol

South Florida Ecological Services
DRAFT
April 20, 2004

SURVEY PROTOCOL FOR FINDING CARACARA NESTS

This supplemental information is provided for further guidance on surveying for caracara nest based on the protocol in Morrison (2001). There is the highest probability of success in finding caracara nests during the period January to April. This period covers the time when most birds are feeding the nestlings and become more visible to observers. Surveys should start in January and continue through April to provide adequate data to conclude that a caracara nest does not occur on site. Once all nests on the site are found the survey can be terminated. Surveys should be conducted by a biologist with caracara experience as the birds can be hard to find and identify at long distances. The protective area for the caracara is 1,500 m (4,920 ft) around the nest. The area surveyed should include the project area and a 1,500-m buffer to account for off-site territories that might overlap onto the project area. All areas of suitable habitat within the project area and buffer should be initially surveyed for 1 day. If the area is large or the view obstructed more than 1 day or multiple observers may be needed to completely survey the area.

The observer should position themselves in a location where the largest open area (unobstructed by trees) can be viewed. The survey area should be no more than about 500 ha, which is the largest area easily observable from one point. An aerial photograph of the property and buffer zone can be used to identify areas of suitable habitat and map observation blocks to facilitate surveying the whole area. Use the map and a site visit to select strategic points where caracaras are more likely to be seen going to and from potential nesting sites. From a stationary position search for caracara activity, especially birds moving to the nest tree carrying sticks or food. Watch for other birds, such as American crows (*Corvus brachyrhynchos*), red-tailed hawks (*Buteo jamaicensis*), and turkey vultures (*Cathartes aura*), that might elicit an aggressive response from caracaras present. Nesting caracaras will often chase potential predators away from the nest; thus, revealing their presence. Also circling vultures can indicate the presence of naturally occurring carrion that may attract caracaras. If a potential nesting tree is detected then the observer can reposition to improve observing the bird's behavior. Weather condition should

South Florida Ecological Services

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be adequate to clearly view the whole area. The area should be viewed from sunrise to 11AM and again 3 hours before sunset. During midday potential nest trees can be examined close up for evidence of nests (Morrison 2001). The area viewed during each survey should be marked on a site map. All caracara activity observed should be recorded by time of day and distinguished between juvenile and adult birds. Record flight direction to identify foraging areas and the nesting tree. Mark any nesting tree locations on a map and obtain GPS coordinates. Weather conditions including temperature, wind speed and direction, cloud cover, visibility, and precipitation, should be recorded at the start and end of each survey period.

If no nests are found during the initial survey then return and repeat the survey in 2 weeks. Continue to repeat the survey at a 2-week interval through the end of April or until a nest is found. If the survey starts after January and no nests are found the earlier part of the survey should be completed during the next nesting season to insure that early nesting birds are not missed.

The opportunity for caracara observation can be enhanced by placing fresh meat (or road kills) along the property border overnight and observing the bait site during the morning survey. These birds can be followed back to their nest trees. For more details on caracara activities and habits see Morrison (2001).

Literature Cited

Morrison, J.L. 2001. Recommended management practices and survey protocols for Audubon's crested caracaras (*Caracara cheriway audubonii*) in Florida. Technical Report No. 18. Florida Fish and Wildlife Conservation Commission, Tallahassee, Florida.

APPENDIX C – Bald Eagle Survey and Reporting Protocol and Data Sheet

BALD EAGLE MONITORING GUIDELINES

Prepared For

United States Fish and Wildlife Service

September 2007

(Revision of Bald Eagle Monitoring Guidelines Issued September 2006)

PREFACE

The U.S. Fish and Wildlife Service's (Service) Florida Ecological Services Field Offices (FO's) in Jacksonville, Panama City and Vero Beach received and reviewed monitoring reports for more than five years as prescribed by our Bald Eagle Monitoring Guidelines (pre-2002 draft, 2002, 2005) (Monitoring Guidelines) for applicants proposing construction activities occurring within 1500 feet of an active bald eagle nest during the nesting season. The cumulative result of those monitoring reports was that the Service did not observe from the data any indicators of disturbance, abnormal or atypical behavior, or nest abandonment that would have caused the applicant and/or the Service to halt construction activities during the nesting season. Consequently, the Service and the Florida Fish and Wildlife Conservation Commission (FWC) jointly concluded that monitoring of construction and nesting activities occurring from 750 feet to 1500 feet (secondary zone) was no longer warranted for projects involving construction within those distances from an active nest during nesting season.

The Service's Florida FO's revised the 2005 Monitoring Guidelines again in September 2006 to incorporate modifications that would be applicable to the draft National Bald Eagle Management Guidelines that would be implemented under the Bald and Golden Eagle Protection Act (Eagle Act) once delisting of the bald eagle was finalized. These National Management Guidelines addressed construction and a variety of other human activities that can potentially interfere with bald eagles, affecting their ability to forage, nest, roost, breed, or raise young.

The Service published a notice of availability in the Federal Register (72 Fed.Reg. 31332) on June 5, 2007, finalizing the National Management Guidelines (dated May 2007), followed by the announcement on June 28, 2007 to remove the bald eagle from the Federal List of Endangered and Threatened species effective August 8, 2007. As such, it is necessary to make additional revisions to the September 2006 Monitoring Guidelines to assure consistency with these recent policy and regulatory changes.

These revised 2007 Monitoring Guidelines accordingly are now applicable for human activities that have potential to cause disturbance within 660 feet of an active nest. Additional criteria for disturbance are defined by the codified definition of "disturb" under the Eagle Act at 50 CFR 22.3. Monitoring generally is not recommended for projects when activities occur beyond 660 feet of an active nest, as those data are no longer required. However, additional criteria for

monitoring may be indicated in previously issued Biological Opinions that reference these Monitoring Guidelines, or in such cases where public safety issues exist related to airport operations and activities, electrical facilities and communication tower facilities where monitoring is required in order to determine the most appropriate action to avoid a safety hazard to both the public and the bald eagles. A number of Federal and State laws and/or regulations prohibit, cumulatively, such acts as harassing, harming, disturbing, molesting, pursuing, etc. bald eagles, or destroying their nests. The purpose of these Monitoring Guidelines is to provide a scientific standard for documenting and evaluating bald eagle response to human activities. Such activities may lead to an alteration of otherwise normal nesting behavior and ultimately to nest abandonment and/or death of eggs or eaglets. These Monitoring Guidelines are advisory in nature.

The FWC maintains a database of all known bald eagle territories in Florida (<http://wld.fwc.state.fl.us/eagle/eaglenests/>), which should be consulted to determine the specific nest number and nesting history. It should be noted that: 1) the nest locations (latitude/longitude coordinates) in this database are approximate and should not be relied upon to establish accurate distances from proposed construction activities, 2) some territories have alternate nests that may not be reported in the database, and 3) many bald eagle territories are unknown and/or may support new active nests that have been established in recent years. Any bald eagle nest discrepancies or new nest locations should be reported to the FWC bald eagle database coordinator at 352-955-2230.

The development of this document is a collaborative effort by Federal, State and private biologists who have extensive experience in the research and management of bald eagles in the Southeastern United States. J. Steve Godley¹ prepared the initial draft and all attachments, while Tom H. Logan^{2, 3} served as editor and coordinator of technical and editorial reviews of subsequent drafts. Candace Martino⁴ provided invaluable coordination to facilitate necessary input from each of the authors, and contributed technical and editorial comments for this latest edition. Dan Sullivan² provided editorial comments that were critical to the completion and technical quality of this document, as did Stephen A. Nesbitt², John H. White², Al Begazo⁴, and Tony Steffer⁵ for earlier editions of these Monitoring Guidelines.

¹ Biological Research Associates, LLC

² Florida Fish and Wildlife Conservation Commission

³ Breedlove, Dennis & Associates, Inc.

⁴ U.S. Fish and Wildlife Service

⁵ Raptor Management Consultants. Inc.

BALD EAGLE MONITORING GUIDELINES

A. Introduction

The Service and FWC recommend biological monitoring of the nesting territory if new activities which include construction of buildings, roads, trails, canals, power lines, and other linear utilities; new or expanded operations of agriculture and aquaculture, alteration of shorelines or wetlands, installation of docks or moorings, marinas, water impoundment, and mining and associated activities is proposed to occur within 660 feet of the nest tree during the nesting season (October 1 - May 15, Service 1987). The Service also recommends that monitoring be conducted where an eagle's nest is located on or adjacent to, in close proximity of, electrical transmission towers, communication towers, airport runways, or other locations where they may create hazards to themselves or humans. These circumstances may require more intense monitoring, which may include increased frequency and hours of monitoring. These resulting data are deemed necessary for the Service to make appropriate decisions as to whether nest removal or relocation is warranted and subsequently permissible under new proposed regulations under 50 CRF 22.27 for Eagle Nest Take under the Eagle Act.

These Monitoring Guidelines have been developed to provide agency personnel and others a scientific standard for gathering data that may be used to evaluate eagle responses to human and development activities, which may indicate an alteration of otherwise normal nesting behavior. The Monitoring Guidelines 1) describe normal nesting behavior of bald eagles, 2) identify specific behavioral responses of adult and young eagles that may warrant cessation of activities, 3) propose the type and level of monitoring necessary to detect a change in normal behavior, and 4) develop a procedure for reporting the observations to the USFWS/FWC, which may be used for halting or modifying the above described activities, if necessary.

Buehler (2000) and references cited therein provide excellent summaries of the biology and nesting behavior of bald eagles. Nesting behavior and response of individual eagle pairs to human activities may vary, but nesting chronology and otherwise normal behavior are relatively fixed and predictable. The probability that a pair of bald eagles will abandon their nest increases with the intensity and proximity of human activities to their nest, and decreases with the time and energy the adult eagles have invested in the eggs or young and to what extent the adult birds may habituate to human activities. This is based upon the ecological parental investment theory (e.g., Trivers 1972, Wilson 1975, Dawkins 1977) and practical experience gained from observing bald eagle/human interactions over the past two decades in Florida (e.g., Wood 1992, Nesbitt et al. 1993, Wood and Collopy 1995, Millsap et al. 2004). Accordingly, the need for appropriate monitoring and concern for disturbance is highest prior to egg laying, the closer and more intense development activities occur to the nest tree, and for nesting territories in more rural environments.

All infrastructure development, exterior building construction, and other referenced activities within 660 feet of the nest tree should, as a general rule, be completed during the non-nesting season. Infrastructure construction includes all land and lot clearing; fill work; construction of roads, drainage, sewer and storm water facilities; and installation of water, electricity and other

utilities. However, it often is not possible to complete these above-referenced activities and other human related actions during the non-nesting season. These guidelines are applicable to those circumstances where these activities must be conducted during nesting season from 330-660 feet of the nest tree. **Please Note: The Service recommends that none of the above-referenced activities be conducted from 0-330 feet during nesting season, even when a buffer zone of less than 330 feet is established in accordance with the National Bald Eagle Management Guidelines; therefore, monitoring in these instances is not applicable.**

B. Monitoring Requirements

The Monitor is defined as personnel formally educated in the biological sciences, well experienced in recognizing specific patterns and changes of eagle behavior and capable of recording those observations in a scientific manner, and is contracted by the landowner, company or entity (Responsible Party) responsible for having the activity monitored. Continuity of monitoring, data collection and reporting is best maintained if one person conducts all monitoring for a specific project site. Close coordination is essential if more than one monitor is required. Monitoring should be conducted from a location that provides a clear vantage point of the nest and the surroundings (including the referenced activities), yet far enough from the nest (e.g., > 660 feet where possible) to ensure monitoring does not cause disturbance to the eagles. Monitoring from closer locations could cause disturbance and should be avoided. Conducting the monitoring from inside a parked vehicle or from a portable blind can further minimize observer disturbance. Monitoring should be conducted using both binoculars and a high-powered spotting scope during periods when referenced activity is occurring during the nesting season (generally October 1 – May 15) and within 660 feet of the nest tree, or as specified otherwise, by Service or FWC technical assistance.

The purpose of monitoring is to detect any abnormal behavior of the adult eagles or their chicks that may be elicited in response to human activities occurring within 660 feet of the nest tree and that potentially could result in disturbance as defined under 50 CFR 22, abandonment of the nest (and/or territory), or death of the eggs or eaglets. **In cases where the Responsible Party is relying upon conditions/recommendations specified in a Biological Opinion or agency document, procedures should be established between the Monitor and the Responsible Party for suspension of work and immediate notification to the Service and FWC upon observation of such abnormal behavior of nesting eagles (see Section D for details).** Once an applicant agrees to monitor in accordance with these Monitoring Guidelines, they are held to *all* requirements of these Monitoring Guidelines.

Monitoring should begin no later than October 1 and continue through fledging, if activity is anticipated or planned to occur within 660 feet of the nest tree during the nesting season. Fledging is considered to have occurred at that age when young of the year have achieved the ability to sustain flight (see Section C.7 for details).

- **Initial Monitoring to Confirm Occupancy of the Nesting Territory:** Bald eagles are considered to have returned to the territory when one or both members of the pair appears, flies, perches, roosts, exhibits courtship, carries nest material, begins repair of the existing nest and/or begins construction of a new nest on the territory. The regulated

protection zone is considered to be the area within a 660-foot radius of the nest tree; although, some pairs may construct a new, alternate nest at farther distances. All eagle nests are protected unless declared "abandoned" in accordance with provisions of the National Bald Eagle Management Guidelines (May 2007). All alternate nests should be monitored until such time as the eagles have been observed incubating in one of the nests on the territory. Monitoring can then cease for the alternate nests in which nesting does not occur. However, if the nest in which nesting begins is lost prior to February 1, monitoring of all alternate nests should be re-initiated to determine if re-nesting occurs on the territory.

Initial monitoring of eagles to determine territory occupancy shall be conducted a minimum of one day per week and consist of in sequence: 1) nest tree observations for a minimum of two hours starting ½ hour before sunrise, followed by 2) nest tree inspection for indirect evidence of eagle use if no adults are observed. *Never* approach a nest tree if adult eagles are observed on the territory on that day. The following shall constitute positive indirect evidence that bald eagles have returned to the nesting territory: 1) fresh moss or green tree branches placed or interwoven into the nest top, or 2) fresh droppings ("whitewash") on vegetation or the ground beneath the nest tree. Such droppings typically are deposited below the nest cup or favored perch branches. Do not confuse white, dried pine resin with eagle droppings: droppings rub off upon touch, whereas resin does not. Direct or indirect evidence of territory occupancy by adult eagles triggers the requirement for more intensive monitoring (see Monitoring During Early Phases of the Nesting Cycle, below). The results of both direct bald eagle observations and nest tree inspections must be recorded each week on the Bald Eagle Monitoring Data Sheet (Figure 1). A Confirmation of Nest Territory Occupancy Report describing the basis for the determination shall be submitted to the Service and the FWC (see Section D for reporting details) within one week of finding positive evidence of bald eagle nest territory occupancy. **This report also shall include a specific schedule of dates planned for monitoring during the next month.** Each subsequent monthly report submitted to the Service and FWC shall contain a schedule of monitoring dates for the upcoming month, with the understanding that any scheduling changes shall be reported to the agencies by email as soon as possible.

- **Monitoring During Early Phases of the Nesting Cycle:** The normal cycle of bald eagle nesting behavior is described below. Once a territory is determined to be occupied, it should be considered active, and nesting eagles should, at that time, be monitored a minimum of three days each week and four hours each day (beginning at 1/2 hour before sunrise) from onset of nesting behavior through the fourth week post-hatching and care of eaglets. **Monitoring is *not* required on days when no infrastructure development, exterior building construction, or other human activities referenced in the National Management Guidelines occurs within 660 feet of the nest tree.** Monitoring should be scheduled to occur on the days that are representative of all major phases of these activities at times when they will occur.
- **Monitoring During Last Phase of the Nesting Cycle:** Monitoring frequency for activities may be reduced to one day each week (four hours beginning 1/2 hour before sunrise) beginning five weeks post-hatching and continue until fledging occurs or May

15, whichever occurs first. However, this once a week monitoring event should occur on days that are representative of all major phases of these activities at times when they will occur.

- **Special Circumstances:** Additional monitoring may be appropriate should special circumstances arise as described in Section C.6. The monitoring and construction plans for any nesting territory may be re-evaluated for modifications during any year. Weekly nest territory monitoring may cease after February 1 of that nesting season if: 1) no adult bald eagles are observed on the territory or 2) if an eagle was observed on the territory, but nesting was not attempted, or a nest attempt was documented to have failed and re-nesting was not attempted. Additionally, monitoring may cease if great horned owls (*Bubo virginianus*) are documented to have occupied the nest and there are no alternate nest sites available to the eagles within 660 feet of the project, and no evidence of eagles constructing a new nest within 660 feet of the project. Evidence must be clear from information recorded in the Bald Eagle Monitoring Data Sheets and/or provision of additional data, that circumstances exist that would warrant any modification of planned monitoring (i.e. increase, decrease or termination of monitoring).
- **General Comments:** Residential and commercial development is the most common form of human activity that requires monitoring. Single-family homes typically may require a minimum of 5 months for completion of construction, and all major stages of construction (described below), except truss placement, occur over multiple days. Monitoring should be timed to include truss placement. In all cases, the Monitor should use a site plan of the project to prepare weekly maps on which to document the specific construction activities that are occurring within 660 feet of the nest tree. Recorded construction activities should include, but not be limited to, the stage of construction of each home (i.e., fill placement, slab pouring, sidewall construction, truss placement, roofing, external finish work, internal finish work and landscaping). All observations of construction and eagle behavior *must* be recorded using the attached data sheet (Figure 1).

The following nest cycle activities must be documented and monitored for comparison with normal nesting behavior (see Section C for details) and for detecting and evaluating behavior that may be indicative of disturbance and/or pending risk:

1. Temporal patterns of nest attendance by the adults.
2. Observations of courtship, mating and nest building/maintenance.
3. Incubation and brooding behavior.
4. Feeding, growth and care of the eaglet(s).
5. Flight patterns to and from the nest tree.
6. Fledging of the eaglet(s).

All behavioral data and construction activities should be recorded within 15 minute intervals to facilitate analysis as a basis for detecting and evaluating behavior which may indicate pending risk. Figure 2 summarizes the typical nesting chronology of bald eagles in Florida. Please note that egg laying typically occurs during mid-December in Florida, but may vary by year, pair and latitude, and can extend from October through April, with most late nesters likely representing

second breeding attempts (Buehler 2000). Figure 3 provides a typical pattern of nest attendance and phenology of a pair of eagles in Sarasota County, Florida, monitored over a three-year period during one 4-hour observation period each week from October through May.

Nesting behavior which may be interpreted as abnormal, a response to construction activities and/or indicative of pending risk may include, but not be limited to: 1) adults raising or standing up over the nest, 2) increased time spent away from the nest by the adults that is not associated with normal nesting phenology, 3) changes in flight patterns or perch tree use, 4) distress calls, 5) flushing behavior from the nest tree or perch trees, 6) changes in the feeding schedule of the eaglet(s) and 7) premature fledging of the eaglet(s). Descriptions of specific behaviors that would warrant concern and may be indicative of pending risk are described below. Such behaviors occasionally result from factors other than human disturbance, such as death of an adult, sterility or immaturity (i.e., one member of the pair not in definitive plumage), entrance of a foreign adult eagle or great horned owls into the territory, inadequate food supply for the number of eaglets present, etc. Therefore, it is very important that observations of any abnormal behavior be reported immediately to assure proper interpretation and appropriate courses of action (see Section D for details).

C. Normal Nesting Behavior and Indicators of Disturbance

1. Adult Behavior at the Nest

Eagles often assume an alert posture in response to an unusual event. This behavior also may be accompanied by distress calls and ultimately result in flushing behavior (Fraser et al. 1985, Buehler et al. 1991, McGerigal et al. 1991). Incubating adults may react to a distraction or an annoyance by rising from their incubation posture and standing over their eggs. They also may step off the eggs and stand on the side of the nest. They may or may not vocalize in conjunction with this behavior. Such standing behavior may be seen prior to flying and as an indication that the bird may flush from the nest in response to a distraction. The bird also may settle back down into incubation posture without flying, once the distraction has passed or the bird has decided the distraction is not a sufficient threat to warrant flushing from the nest. This behavior (whether the adult flushes or not) does indicate that the disturbance is great enough to interfere with normal behavior and is of concern. This posture could be confused with stretching or egg turning which are normal parts of incubation behavior. It will be the responsibility of the monitoring biologist to accurately judge whether a bird is exhibiting normal behavior or is reacting to a distraction or an annoyance that could be interpreted as “disturbance.”

2. Patterns of Nest Attendance

Figure 3 provides a representative example of normal baseline nest attendance by at least one adult eagle during the nesting season. Please note that attendance may be sporadic early in the nesting season, but increases dramatically immediately prior to egg-laying. At least one adult is present almost 100% of the time during the 35-day incubation period and the first 2-3 weeks post-hatching (Fraser 1981, Wallin 1982). Females average about 1/5 larger in size than males, and the sexes are distinguishable when the pair is together. The female does the majority of the incubation and early nestling attendance, although the male participates in both activities. One

adult (usually female) broods constantly during inclement (i.e., cool or rainy) weather, and will shade the young to avoid heat stress until a chick(s) is approximately 4 weeks of age (Jenkins 1989, Herrick 1924). Nest attendance declines sharply after 5-6 weeks, and the adults often roost and loaf away from the nest.

Nest attendance would be considered abnormal if: 1) at least one adult is not present during two consecutive, 4-hour (minimum) monitoring days prior to egg laying or 2) both adults are absent for more than two consecutive 15-minute periods during incubation, early brooding or inclement weather prior to 4 weeks post-hatch.

3. Flight Patterns Between Nest and Feeding Areas

Florida eagles generally nest in proximity to water, and flight paths to and from the nest often are relatively direct to their feeding areas. Flight information should include recording the direction of each flight to and from the nest in the eight cardinal directions. Simple chi-square or other non-parametric statistics can be used to test if flight patterns are random, directed towards foraging areas or away from on-going human activity.

4. Vocalizations on the Nesting Territory

Verner and Lehman (1982) describe three distinctive calls of nesting birds that are typical responses to human approaches: 1) a “chatter call” described as consisting of 3-4 introductory notes separated by short gaps of silence (<1s) followed by a rapid sequence of descending notes, usually 6-9 notes in sequence (*kwit kwit kwit kwit kee-kee-kee-kee-kee*), 2) a “peal” consisting of a high-pitched, prolonged, gull-like cry, often repeated 3-5 times and 3) a “wails” call that is seldom given (Buehler 2000). Variants of these calls may also be given in response to an intruding adult eagle or other raptors, such as great horned owls, and the chatter call also is often given upon approach to the nest tree by a member of the pair, independent of human disturbance. Any distress call must be investigated to determine cause, and **any construction or human activity that may be responsible for the distress call, must be halted or modified immediately.**

5. Flushing Behavior

Adult eagles may flush from the nest tree, particularly if humans are on foot (Fraser et al. 1985, Buehler et al. 1991, Grubb and King 1991, McGarigal et al. 1991, Grubb et al. 1992). Risk increases with the duration and frequency of events. The sensitivity of eagles to human disturbance varies between individuals and across populations, as measured by experimental flushing studies (e.g., Stalmaster and Newman 1978, Knight and Knight 1984, Fraser et al. 1985, Buehler et al. 1991, McGarigal et al. 1991). Unfortunately, no similar studies have been conducted in Florida. The response of individual eagles may range from temporary agitation (alert posture) to flushing from the nest or perch tree, to permanent displacement. Humans in vehicles generally elicit a much lower response than those on foot. Additionally, eagles that nest in proximity to existing human activities may habituate and be more tolerant to forms of human activity than they may have previously experienced.

Flushing behavior is more typically in response to human approach to the nest on foot; therefore, it is imperative that the monitor attempt to stop all such approaches. **Any construction or other human activities that appear to have caused flushing should be halted immediately.**

6. Feeding Schedule of the Eaglet(s)

Although both sexes secure food and feed the young, the male provides most of the food in the first two weeks, while the female tends the young in the nest (Wallen 1982, Gerrard and Bortolotti 1988). The female often delivers as much prey as the male after 3-4 weeks. Adults typically bring the food to the nest and tear off small pieces to feed the young. Eaglets are able to tear off food and feed themselves at approximately 6 weeks of age, although the adults often dismember larger prey (Palmer et al. 1988). Adults typically deliver food 2-8 times per day (mean = 4), and the early morning period accounts for proportionately more food deliveries (Herrick 1924). Food delivery rates also typically decrease as eaglets mature and or eaglet numbers decline with normal attrition. Therefore, deliveries may not be observed during some monitoring periods for older broods. The nutritional requirements of eaglets have not been reported in the literature (Buehler 2000), but free ranging adult bald eagles in Washington at 5°C were reported to consume about 77.3 g/kg per day (425.5 kJ/kg per day), slightly less than 10% of their body weight per day (Stalmaster and Gessaman 1984). Nestlings may use food that accumulates at the nest for more than one day, unless fresh food is provided (Herrick 1993). Both adults and chicks are capable of storing food in their crop, then digesting the food over time. **Additional monitoring may be appropriate should an abnormal reduction in feeding rates be observed; if accompanied by other behavioral indicators of stress (i.e., flushing and/or distress calls), the Monitor should suspend construction or other human activities and report these observations** (see Section D).

Mean brood size for successful nests in Florida bald eagles is 1.55 young per brood, with 3 young not uncommon (Nesbitt et al. 2002). One egg is laid per day, although often not always on successive days. Hatching is asynchronous and differential growth between the sexes can lead to differential mass among siblings, facilitating competition and fratricide (Bortolotti 1986). Sibling competition and mortality is greatest early in the nestling period, when size differences are greatest. The largest chick typically gets the majority of food in clutches with more than one chick. Brood reduction from starvation of the youngest chick may occur in broods of any size, unless food is abundant (Gerrard and Bortolotti 1988).

It is important to quantify, to the extent possible, the size and type of prey brought to the nest during all observation periods. These data may be useful for determining if the eaglet(s) is receiving adequate food and if human activity may be interfering with food delivery schedules.

7. Fledging of the Eaglet(s)

Eaglets typically fledge at approximately 11 weeks of age in Florida (Wood 1992), but nest departure can occur at 8-14 weeks (Buehler 2000). The eaglets usually begin to move about the nest and branches of the nest tree at least 2 weeks before fledging, flapping and developing muscle strength, flight coordination and landing ability in preparation for their first flight from the nest tree. These eaglets are referred to as “branchers.” Fledging typically is considered to have occurred when the eaglets have begun to make extended flights from the nest to adjacent

trees, have begun to soar and/or are seen flying around the territory with the parents. It is not uncommon for up to half of initial nest departures to be unsuccessful, with the eaglet falling to and remaining on the ground for days or weeks before regaining flight ability; in most cases, the parents will continue to feed these young (Kussman 1977, Fraser 1981). **Successful fledging**, for purposes of these Guidelines, **is defined as the time at which the eaglet(s) has near fully developed primaries and is capable of strong, coordinated, independent flight.**

Care must be taken to confirm that any premature fledging is, in fact, human related, since premature fledging is a common occurrence that may be independent of human activity.

D. Reporting Requirements

The **purpose of monitoring** bald eagles and eaglets at their nests under these Guidelines **is to minimize the occurrence of disturbance leading to nest abandonment and/or death of eggs or eaglets**, and avoid potential violations of the Eagle Act. As such, monitoring is a serious obligation. Falsification of monitoring reports can lead to criminal prosecution of both the Monitor and the Responsible Party that is contracted to conduct the monitoring. The Monitor and their supervisor *must* sign and date each completed monitoring sheet (Figure 1) beneath the statement, which reads: "I have read and understand the Bald Eagle Monitoring Guidelines. This report represents a true, accurate and representative description of the site conditions and eagle behavior at the time of monitoring".

As long as the Monitor has not detected any, irregularities or abnormalities as described above, then **Only** a summary report of monitoring results (See Figure 4) should be mailed via hardcopy or email to the appropriate Service Field Office and FWC (Endangered Species Coordinator, Tallahassee) on a monthly basis when the Monitor has not detected any irregularities, or abnormalities as described above. Individual Bald Eagle Monitoring Data Sheets should be retained on file by the Monitor for a minimum of 3 years for reference, should such need occur. **A final report that summarizes monitoring results and the fate of any reproductive effort must be sent to the reviewing agencies within one month of the conclusion of monitoring.** The Monitor has the obligation to immediately report any suspension of work activities and/or any documented abnormal behavior, as defined in Section C above, to the Responsible Party and the Service and FWC, **and subsequently send the individual Bald Eagle Monitoring Data Sheets describing all relevant activities to all parties.** The Service and FWC will coordinate a review within a week of the reported behavior and circumstances associated with any suspension of work activities. A verbal determination followed by a written recommendation will be issued in a timely manner as to whether construction should resume or be modified, or if monitoring frequency should be increased.

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Bald Eagle Monitoring Data Report

Nest #: _____ **Start Time:** _____ **Name of Monitor:** _____
Date: _____ **End Time:** _____ **Name of Supervisor:** _____
Tree Status¹: _____ **Tree type²:** _____ **# Adult Present:** _____ **# Young Present:** _____

Time	Behavioral activity observed (list all that apply):				
	Weather conditions	T:	W:	C:	P:
	Description of ongoing construction events:				
	Notes/Comments:				
Time	Behavioral activity observed (list all that apply):				
	Weather conditions	T:	W:	C:	P:
	Description of ongoing construction events:				
	Notes/Comments:				
Time	Behavioral activity observed (list all that apply):				
	Weather conditions	T:	W:	C:	P:
	Description of ongoing construction events:				
	Notes/Comments:				
Time	Behavioral activity observed (list all that apply):				
	Weather conditions	T:	W:	C:	P:
	Description of ongoing construction events:				
	Notes/Comments:				

Sworn Affidavit: I have read and understand the USFWS Bald Eagle Monitoring Guidelines. This report represents a true, accurate, and representative description of the site conditions and eagle behavior at the time of monitoring.

Signature of Monitor

Signature of Supervisor

Date

Nest #:

Monitoring Date:

Monitor's signature: _____

Supervisor's signature: _____

Time	Behavioral activity observed (list all that apply):				
	Weather conditions	T:	W:	C:	P:
	Description of ongoing construction events:				
	Notes/Comments:				
Time	Behavioral activity observed (list all that apply):				
	Weather conditions	T:	W:	C:	P:
	Description of ongoing construction events:				
	Notes/Comments:				
Time	Behavioral activity observed (list all that apply):				
	Weather conditions	T:	W:	C:	P:
	Description of ongoing construction events:				
	Notes/Comments:				
Time	Behavioral activity observed (list all that apply):				
	Weather conditions	T:	W:	C:	P:
	Description of ongoing construction events:				
	Notes/Comments:				

Sworn Affidavit: I have read and understand the USFWS Bald Eagle Monitoring Guidelines. This report represents a true, accurate, and representative description of the site conditions and eagle behavior at the time of monitoring.

Signature of Monitor_____
Signature of Supervisor_____
Date

Nest #:

Monitoring Date:

Monitor's signature: _____

Supervisor's signature: _____

Time	Behavioral activity observed (list all that apply):				
	Weather conditions	T:	W:	C:	P:
	Description of ongoing construction events:				
	Notes/Comments:				
Time	Behavioral activity observed (list all that apply):				
	Weather conditions	T:	W:	C:	P:
	Description of ongoing construction events:				
	Notes/Comments:				
Time	Behavioral activity observed (list all that apply):				
	Weather conditions	T:	W:	C:	P:
	Description of ongoing construction events:				
	Notes/Comments:				
Time	Behavioral activity observed (list all that apply):				
	Weather conditions	T:	W:	C:	P:
	Description of ongoing construction events:				
	Notes/Comments:				

Sworn Affidavit: I have read and understand the USFWS Bald Eagle Monitoring Guidelines. This report represents a true, accurate, and representative description of the site conditions and eagle behavior at the time of monitoring.

Signature of Monitor_____
Signature of Supervisor_____
Date

Nest #:

Monitoring Date:

Page 4

Time	Behavioral activity observed (list all that apply):				
	Weather conditions	T:	W:	C:	P:
	Description of ongoing construction events:				
	Notes/Comments:				
Time	Behavioral activity observed (list all that apply):				
	Weather conditions	T:	W:	C:	P:
	Description of ongoing construction events:				
	Notes/Comments:				
Time	Behavioral activity observed (list all that apply):				
	Weather conditions	T:	W:	C:	P:
	Description of ongoing construction events:				
	Notes/Comments:				
Time	Behavioral activity observed (list all that apply):				
	Weather conditions	T:	W:	C:	P:
	Description of ongoing construction events:				
	Notes/Comments:				

Sworn Affidavit: I have read and understand the USFWS Bald Eagle Monitoring Guidelines. This report represents a true, accurate, and representative description of the site conditions and eagle behavior at the time of monitoring.

Signature of Monitor

Signature of Supervisor

Date

Instruction for completing the Bald Eagle Monitoring Data Report

1. Insert the nest identification number, date for which the monitoring is occurring, Start time is the time at which monitoring is initiated, and end time is when the daily monitoring is completed. The monitor and the monitor's supervisor should print their name on the first page, a sign all other pages.
2. Tree Status is either L = live, D = dead, or A = artificial structure.
3. Tree type is either P = native pine, H = native hardwood, E = exotic.
4. All data reports should have an attached map of the nest territory that includes the location of the project. Major territory flights, including the time of the flight, should be drawn on this map.
5. Record all behavior events observed during the monitoring period. The following abbreviations should be used. CT = courtship; MAT = breeding/mating; NR = nest repair; INC = incubating; BRO = brooding; AF = adult feeding; YF = young being fed; TD = territory defense; STD/DV going from incubation to standing associated with distress calls; FL/DV = flushing with distress calls; DC = distress calls not associated with standing or flushing; PF = premature fledging. A monitoring event that observed nest repair, courtship and adult feeding may be recorded as NR-CT-AF. Any other behavior can be listed or described. Any abnormal behavior should be noted and described in the notes section if more space is required.
6. Enter the current weather conditions for each observation period in the appropriate place. On the data report, T = Temperature (EF); W = Wind speed & direction; C = Cloud Cover (%); P = Precipitation.
7. Record all ongoing construction/project activities that occur during the monitoring period. The following abbreviations should be used for common activities (unlisted activities should be described):
 - **FP** = fill placement,
 - **SP** = slab pouring,
 - **SC** = sidewall construction,
 - **TP** = truss placement,
 - **R** = roofing,
 - **EW** = external finish work,
 - **IW** = internal finish work;
 - **IFR** = infrastructure work;
 - **HE** = heavy equipment work;
 - **CRN** = work involving a crane.Provide details on infrastructure and heavy equipment work.
8. Any information that needs further explanation or any unusual event should be record in the Notes/Comments section. If more space is required, a supplemental sheet can be attached to this monitoring report. This supplemental sheet should clearly indicate the nest involved, the date of the monitoring, the monitoring time period to which the comment belongs (especially if needed for more than one monitoring time period), and should be signed by the monitor and supervisor.
9. In the appropriate place at the top of page 1, record the number of adults present at the nest during the entire monitoring period.
10. In the appropriate place at the top of page 1, record the number of young present at the nest during the entire monitoring period.

Nesting Chronology of Bald Eagles in Florida (typical)

Figure 2

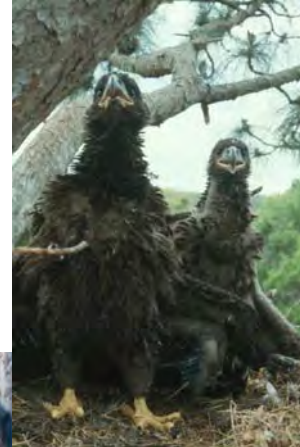
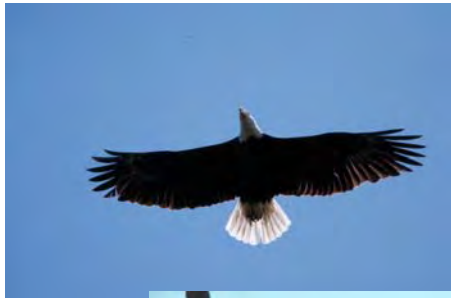
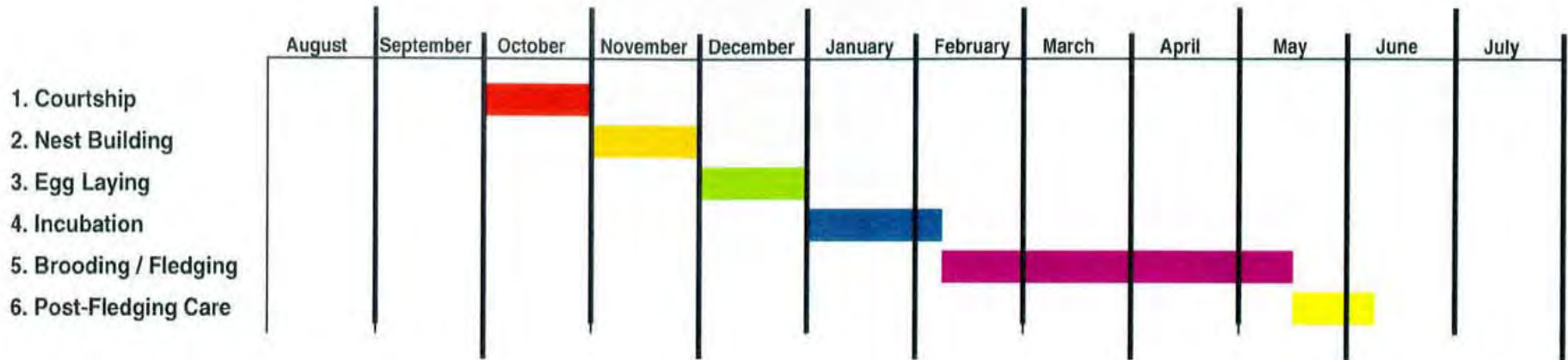
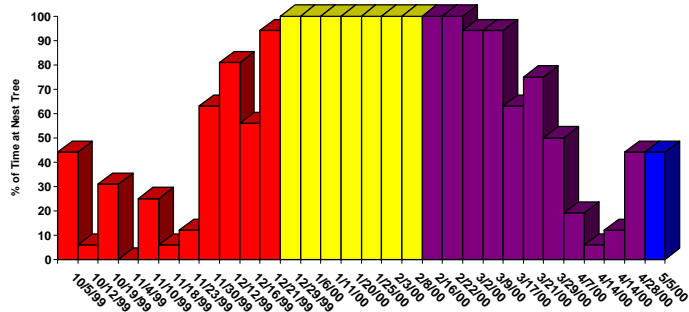


Figure 3: NEST ATTENDANCE BY AT LEAST ONE ADULT EAGLE DURING 15-MINUTE INCREMENTS OF 4-HOUR OBSERVATIONAL PERIODS

1999 - 2000 NESTING SEASON	EXISTING HOMES	WITHIN 750' PRIMARY ZONE	WITHIN 1500' SECONDARY ZONE
	HOMES UNDER CONSTRUCTION DURING NESTING SEASON	0	8
		0	26



2000 - 2001 NESTING SEASON

EXISTING HOMES	WITHIN 750' PRIMARY ZONE	WITHIN 1500' SECONDARY ZONE
HOMES UNDER CONSTRUCTION DURING NESTING SEASON	0	34
	0	8

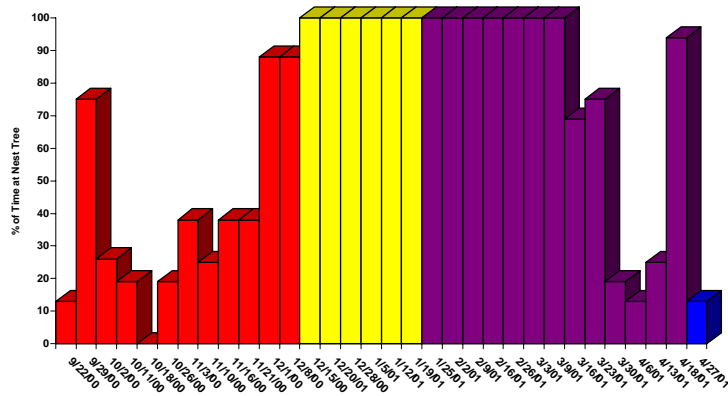


Figure 4

Please send monitoring reports by facsimile or e-mail to the appropriate USFWS Field Office and FWC (Endangered Species Coordinator, Tallahassee) on a monthly basis to:

U. S. Fish and Wildlife Service North Florida

Candace Martino

Tel: (904) 232-2580, ext. 129

Fax: (904) 232-2404

E-mail: candace_martino@fws.gov

U. S. Fish and Wildlife Service South Florida

Alfredo Begazo

Tel: (772) 562-3909 ext. 234

Fax: (772) 562-4288

E-mail: aflredo_begazo@fws.gov

U. S. Fish and Wildlife Service Florida Panhandle

Stan Simpkins

Tel: (850) 769-0552 ext. 234

Fax: (850) 763-2177

E-mail: stan_simpkins@fws.gov

Florida Fish and Wildlife Conservation Commission

Brad Gruver

Tel: (850) 488-3831

Fax: (850) 921-7793

E-mail: brad.gruver@myfwc.com

APPENDIX D – Red-cockaded Woodpecker Survey Protocol

Red-cockaded Woodpecker

South Florida

Survey Protocol

(Adapted from Service 2003)

Nesting and Foraging Habitat

Surveys are used to determine whether the nesting and/or foraging habitat of a red-cockaded woodpecker group will be adversely impacted by a proposed project. This is an important part of the conservation and management of this endangered species, and therefore the Fish and Wildlife Service has developed standard survey and analysis procedures for such determinations. These determinations must be undertaken prior to the initiation of any project within the southeastern United States that calls for removal of pine trees 60 years or older; typically such trees will be at least 25.4 cm (10 in) dbh (diameter at breast height) or larger. In south Florida slash pines as small as 15.2 cm (6 in) dbh can be this old. The procedure is also used following new land acquisition by state and federal agencies in the southeast or any other circumstance in which the presence or absence of red-cockaded woodpeckers is to be assessed.

The first step in the survey procedure is to determine if suitable nesting or foraging habitat exists within the area to be impacted by the project. If no suitable nesting or foraging habitat is present within the project impact area, further assessment is unnecessary and no effect to the red-cockaded woodpecker is anticipated. If no suitable nesting habitat is present within the project impact area, but suitable foraging habitat is present and will be impacted, potential use of this foraging habitat by groups outside the project boundaries must be determined. This is accomplished by identifying any potential nesting habitat within 0.8 km (0.5 mi) of the suitable foraging habitat that would be impacted by the project. Any potential nesting habitat is then surveyed for cavity trees. This procedure is described in greater detail below. If no active clusters are found, then to the red-cockaded woodpecker is anticipated. If one or more active clusters are found, a foraging habitat analysis is conducted (see below) to determine whether sufficient amounts of foraging habitat will remain for each group post-project.

For nesting and foraging habitat surveys within project impact areas and within 0.8 km (0.5 mi) of the project site, potential habitat is assessed at the level of the stand. A stand is a term used to refer to a wooded area receiving past or current silvicultural treatment as a single management unit. Here we expand the term to include any subset of a tract of wooded land, divided by biological community type, management history, or any other reasonable approach. A small tract of land may be considered a single stand or part of a large stand.

Identification of Suitable Foraging Habitat

For the purpose of surveying, suitable foraging habitat consists of a pine or pine/hardwood stand of forest, woodland, or savannah in which 50 percent or more of the dominant trees are pines and the dominant pine trees are generally 60 years in age or older. These characteristics do not necessarily describe good quality foraging habitat; rather, this is a conservative description of potentially suitable habitat. Identification of pine and pine/hardwood stands can be made using cover maps that identify pine and pine/hardwood stands, aerial photographs interpreted by standard techniques, or a field survey conducted by an experienced forester or biologist. Age of stands can be determined by aging representative dominant pines in the stands using an increment-borer and counting annual growth rings. Stand data describing size classes may be substituted for age if the average size of 60 year-old pines is known for the local area and habitat type.

If no suitable foraging habitat is present within the project area (that is, no pines 60 years or older will be impacted), then further evaluation is unnecessary and red-cockaded woodpeckers can be presumed absent. If the project area contains any suitable foraging habitat that will be impacted by the project, that habitat, if it contains any 60 year old trees or older, and all other suitable nesting habitat within 0.8 km (0.5 mi) of the project site, regardless of ownership, must be surveyed for the presence of red-cockaded woodpeckers.

Identification of Suitable Nesting Habitat

For the purpose of surveying, suitable nesting habitat consists of pine, pine/hardwood, and hardwood/pine stands that contain pines 60 years in age or older and that are within 0.8 km (0.5 mi) of the suitable foraging habitat to be impacted at the project site (see above). Additionally, pines 60 years in age or older may be scattered or clumped within younger stands; these older trees within younger stands must also be examined for the presence of red-cockaded woodpecker cavities. These characteristics do not necessarily describe good quality nesting habitat; rather, this is a conservative description of potential nesting habitat.

Determination of suitable nesting habitat may be based on existing stand data, aerial photo interpretation, or field reconnaissance. Trees should either be aged or assumed suitable if greater than 15.2 cm (6 in) dbh. All stands meeting the above description, regardless of ownership, should be surveyed for cavity trees.

Cavity Tree Survey

Once suitable nesting habitat is identified (above), it must be surveyed for cavity trees of red-cockaded woodpeckers by personnel experienced in management and monitoring of the species. Potential nesting habitat is surveyed by running line transects through stands and visually inspecting all medium-sized and large pines for evidence of cavity excavation by red-cockaded woodpeckers. Transects must be spaced so that all trees are

inspected. Necessary spacing will vary with habitat structure and season from a maximum of 91 m (300 ft) between transects in very open pine stands to 46 m (150 ft) or less in areas with dense midstory. Transects are run north-south, because many cavity entrances are oriented in a westerly direction, and can be set using a hand compass. While surveying for cavities look and listen for red-cockaded woodpeckers. If any are observed record their location and behavior.

When cavity trees are found, their location is recorded in the field using a Global Positioning System (GPS) unit, aerial photograph, or field map. Activity status, cavity stage (start, advanced start, or complete cavity), and any entrance enlargement are assessed and recorded at this time. A cavity can only be considered abandoned if inactive for five consecutive years. Again, it is extremely important to have all surveys and cavity tree assessments performed by experienced personnel. If cavity trees are found, more intense surveying within 457 m (1,500 ft) of each cavity tree is conducted to locate all cavity trees in the area. Cavity trees are later assigned into clusters based on observations of red-cockaded woodpeckers as described in Service (2003, section 3A).

Foraging Area Survey

When a known red-cockaded woodpecker cluster is located on site or within off site, but within 0.8 km (0.5 mi) of the project site a forage area survey is needed to determine if birds are foraging on site. If the off-site buffer can not be surveyed then the nearest known active cluster should be determined. If an active cluster occurs within 5 km (3.1 mi) of the site then a forage survey should be conducted.

Surveys for foraging area boundaries require both breeding season surveys (April 15 through June 15) and non-nesting season (fall) surveys (October 15 through December 15). Surveys should be conducted during the morning hours, from 1 hour prior to sunrise to four hours past sunrise. Surveys outside of these time frames can be inconclusive. Only calm, clear days should be surveyed as red-cockaded woodpecker activity is limited on windy and rainy days. The foraging area surveys require 14 days of survey over the season. Two methods of identifying foraging area boundaries are provided depending on the circumstances.

If there are active red-cockaded woodpecker cavities on the property the territory is considered a 0.8-km (0.5 mi) radius area surrounding the cluster. This can be modified if a foraging area survey is conducted to determine the area boundaries. A foraging area survey commences with observations of the red-cockaded woodpeckers when they leave their roosts. The surveyor documents the number of birds and tracks the birds as they forage through the adjacent habitats. Data should be collected at half hour intervals, recorded on maps, or documented with GPS coordinates for later mapping. If the red-cockaded woodpecker moves to a new location while being observed, the flight direction and the location where the red-cockaded woodpecker lands should be noted. Behavior and vocalizations should be noted, especially behavior that would indicate courtship or nesting.

If there are no active red-cockaded woodpecker cavities on the property a meandering pedestrian transect should be conducted through all suitable habitat. The observer should stop every 3 to 5 minutes, look, and listen for red-cockaded woodpecker activity. Since these birds are territorial and will defend their territory from intrusion by other individuals, the use of red-cockaded woodpecker vocal recordings can facilitate observation. Therefore, at each of the stops, play 30 seconds of continuous red-cockaded woodpecker vocal calls. Tapes of red-cockaded woodpecker vocalizations are available from Audubon and Peterson field guide series.

Report

A final survey report should include the following, as applicable:

A. Field data sheets that include:

1. dates and starting and ending times of all surveys conducted;
2. weather conditions during all surveys, including temperature, wind speed and direction, visibility, and precipitation; and
3. the total number of red-cockaded woodpeckers observed and number of red-cockaded woodpecker clusters.

Red-cockaded woodpecker activity and cavity tree information should be submitted in a survey report to the South Florida Ecological Services Office, 1339 20th Str., Vero Beach, FL 32960.

APPENDIX E – Species Brochures

*WHAT ARE THE STANDARD
PROTECTION MEASURES THAT ARE
REQUIRED?*

The Seminole Tribe of Florida is required by the Federal Endangered Species Act to abide by standard measures adopted to protect this endangered mammal:

1. A Florida panther protection/education plan has been developed which requires training for all construction crews.
2. A qualified observer/biologist will be on-site for notification by construction personnel if a potential Florida panther is sighted.
3. If a Florida panther is seen on the construction site, all activity must cease immediately, the qualified observer must be notified, and the cat allowed to move away from any dangerous area on its own.



**WHO DO YOU CONTACT IF YOU
SEE A PANTHER ?**

**CONTACT YOUR DIRECT
SUPERVISOR**

You may also contact::

Seminole Tribe of Florida's
Wildlife Biologist
Phone: 863-902-3200 x13411
Cell: 954-410-7073



*Seminole Tribe of Florida
Environmental Resource
Management Department*

Florida Panther



Protecting Tribal Resources

WHAT IS A FLORIDA PANTHER?



Panthers are known by many names throughout the country including mountain lions, pumas, and cougars.

The Florida panther is one of the most imperiled mammals in the United States. It has been federally listed as endangered since 1973 under the Endangered Species Act. It is also protected under the Wildlife Code of FL, and the FL Panther Act of 1978. Habitat loss and fragmentation are severe threats to the panther in Florida.

WHAT SIGNS CAN HELP YOU IDENTIFY A FLORIDA PANTHER ?

Tracks —The typical panther track is the imprint of four un-clawed toes around a 3-lobed heel pad.



Scratches — Panthers hone their claws by scratching on logs or trees. These scratches are probably not a form of territory marking or communication to other panthers, but they do alert humans to the presence of panthers.

Scrapes — piles of soil, leaves, or pine needles with urine or feces on top. The panther makes a scrape by flicking its hind legs backward, leaving two parallel streaks on the ground surface. Scrapes are between 10 and 20 cm long and within them you can often track near the scrapes.

HOW CAN YOU IDENTIFY A FLORIDA PANTHER?



Adults are a uniform tawny color with lighter fur on their lower chests, belly, and inner legs. Shades of individual may vary from grayish to reddish to yellowish. This uniform color conceals them effectively in a variety of habitats.

Kittens are spotted, which helps to camouflage them in the shadows of their den. These spots fade as they approach maturity at the end of their first year.

WHERE DO FLORIDA PANTHERS OCCUR?

Once the panther ranged throughout Florida as well as throughout much of the southeastern United States from Louisiana north and east to Tennessee and the Atlantic. Today only about 80-100 adult panthers remain in national and state parks and nearby private lands in southwest Florida. They occur locally throughout the Big Cypress area including the Big Cypress Seminole Reservation.

WHAT SHOULD YOU DO IF YOU SEE A FLORIDA PANTHER?

Panthers are solitary, elusive animals and are rarely observed in the wild. Encounters are unlikely, however, if you do encounter a panther avoid all contact with it. If you are driving a vehicle or heavy equipment, stop, cease operation and allow the cat to pass. Do not harm or harass it in any way. Please contact your supervisor or the number at the back of this pamphlet and report the location and circumstances.



¿Cuáles son las medidas de protección estándar requeridas?

El Acta Federal de Especies en Peligro requiere que la Tribu Seminole de la Florida tome ciertas medidas estándar para proteger la pantera de la Florida:

1. La Tribu ha desarrollado un Plan de protección/educación, que requiere que todas las cuadrillas de construcción reciban entrenamiento.
2. Un (a) biólogo (a) o persona calificada estará presente en sitio, para que el personal de construcción pueda notificarle de la posibilidad de cualquier encuentro con una pantera de la Florida.
3. Si se encuentra una pantera en el área de construcción, toda construcción cesara inmediatamente, se notificara a la persona calificada y se permitirá que la pantera se aleje de cualquier área de peligro por su propia voluntad.



¿A quien debe llamar si ve una pantera ?

A SU SUPERVISOR DIRECTO

Puede llamar también a:

Tribu
Bióloga de Animales
Tribu Seminole de la Florida
Teléfono: 863-902-3200 x13411
Celular: 954-410-7073



*Seminole Tribe of Florida
Environmental Resource
Management Department*

Pantera de la Florida



**Protegiendo los Recursos de
la Tribu**

¿Qué es una pantera de la Florida?



A las panteras se las conoce por muchos nombres, como león de la montaña, y puma.

La Pantera de la Florida es uno de los mamíferos que están mas en peligro o en vías de extinción en los Estados Unidos. El gobierno federal lo mantiene en lista bajo el Acta de Especies en Peligro desde el 1973. El Código del ambiente de la Florida y el Acta Panteras de la Florida del 1978 también lo protegen. La pérdida y la fragmentación del ambiente son amenazas severas para la pantera de la Florida.

¿Cuales son algunas señas que ayudan a identificar a una Pantera de la Florida?

Huellas — La huella típica es una imprenta de cuatro pezuñas sin garra y una pezuña redonda en el talón.



Rasguños — Las panteras afilan sus garras rasgándolas contra troncos o árboles. Estos rasguños probablemente no son una forma para marcar su territorio o comunicarse con otras panteras, pero si le sirven de alerta a los humanos sobre la presencia de las panteras.

Raspaduras — Montones de tierra, hojas, montones de palillos con orín o excremento por encima. La marca que la pantera deja son dos raspaduras paralelas en la superficie. El tamaño de las raspaduras es entre 10 y 20 centímetros de largo y frecuentemente se pueden observar las ranuras que dejan las garras.

¿Como puede identificar una pantera de la Florida?



Los Adultos son de color uniforme café claro, con pelo más claro en el pecho, el vientre y entre las patas. El color de cada pantera individual puede variar de gris a rojizo o amarillo. La pantera se sirve de este color uniforme para mantenerse oculta en hábitat varios.

Los Cachorros tienen manchas que le sirven de camuflaje en las sombras. Estas manchas se desaparecen según van madurando en su primer año.

¿En donde se encuentra la pantera de la Florida?

Una vez la pantera rondaba por toda la Florida y a través de muchos lugares del sureste de los Estados Unidos desde Louisiana hacia el norte y este a Tennessee y el Atlántico. Hoy en día sólo existen de 80-100 adultos en los parques nacionales y del estado y en territorios privados en el suroeste de la Florida. Se encuentran localmente a través del área de Big Cypress y en la Reservación Seminole de Big Cypress.

¿Qué debe hacer si ve una pantera de la Florida?

Las panteras son animales solitarios y elusivos, y no se ven con frecuencia. Encontrarse con una no es muy probable, sin embargo, si encuentra una pantera, evite cualquier contacto con ella. Si va conduciendo un vehículo o maquinaria pesada, deténgase y déjela que pase. No la toque ni la moleste de ninguna manera. Póngase en contacto con su supervisor o llame al número que aparece en este folleto y reporte el lugar y las circunstancias.



**WHAT ARE THE STANDARD
PROTECTION MEASURES THAT ARE
REQUIRED?**

The Seminole Tribe of Florida is required by the Federal Endangered Species Act to abide by standard measures adopted to protect this endangered falcon:

1. A caracara protection/education plan has been developed which requires training for all construction crews.
2. A qualified observer/biologist will be on-site for notification by construction personnel if a caracara is sighted.
3. If a caracara is found on the construction site, all activity must cease immediately, the qualified observer must be notified, and the bird allowed to move away from any dangerous area on its own.

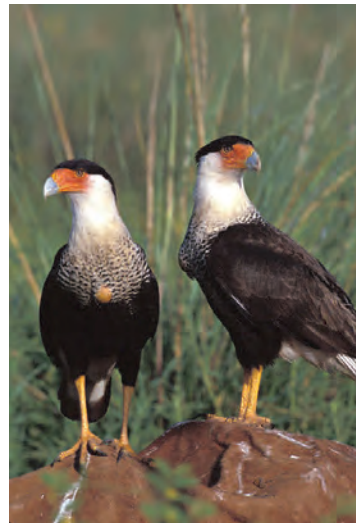


**WHO DO YOU CONTACT IF YOU
SEE A CARACARA ?**

**CONTACT YOUR DIRECT
SUPERVISOR**

You may also contact::

Seminole Tribe of Florida's
Wildlife Biologist
Office: (863)902-3200 x13411
Cell: (954)410-7073
Email: ermdwildlife@semtribe.com



*Seminole Tribe of Florida
Environmental Resource
Management Department*

Audubon's Crested Caracara



Protecting Tribal Resources

WHAT IS A CARACARA?



The caracara is the most terrestrial bird in the falcon group. It spends a great deal of time on the ground.

It prefers open habitats, typically grassland, prairie, or pastures with scattered taller trees, particularly cabbage palms, to nest in. May use sparsely wooded areas and brushland if patches of trees are interspersed with expanses of open grassland.

Caracaras usually feed on carrion (dead animals) but they will take advantage of any food opportunity. Caracaras also hunt live food on the ground or take food from other birds.

CARACARAS ARE LISTED AS A THREATENED SPECIES FEDERALLY AND BY THE STATE OF FLORIDA

HOW CAN YOU IDENTIFY A CARACARA?



* Males and females look the same

Immature (left):

- Brown back
- Pale buff neck and throat
- Pale breast streaked with dark brown

Adult (right):

- Black back and belly
- Breast and upper back marked by fine, dark bars
- Black cap with slight crest at rear of head
- White tail with black barring and thick terminal band
- Long yellow legs
- Long neck, especially apparent in flight
- Medium-sized, broad-winged, long-tailed
- Thick, gray hooked beak, with reddish, bare facial skin around eye

WHAT DO THEIR NESTS LOOK LIKE?

Stick nests are built in tops of cabbage palms more typically, but may also be found in pine trees and shrubs. The nests are very concealed and are not generally noticeable.

WHY ARE CARACARAS IMPORTANT?

Caracaras, like vultures, feed on dead animals and also help eliminate road kill throughout communities. Because populations of birds of prey are declining across the nation, it is important to secure our local populations.

WHAT SHOULD YOU DO IF YOU SEE A CARACARA?

If you encounter a caracara, avoid all contact with it. If you are driving a vehicle or heavy equipment, stop, cease operation and allow the bird to fly out of the area. Do not harm or harass the bird in any way. Please contact your supervisor or the number at the back of this pamphlet and report the location and circumstances.



¿Cuáles son las medidas de protección estándar requeridas?

El Acta Federal de Especies en Peligro requiere que la Tribu Seminole de la Florida tome ciertas medidas estándar para proteger el caracará:

1. La Tribu ha desarrollado un Plan de protección/educación, que requiere que todas las cuadrillas de construcción reciban entrenamiento.
2. Un (a) biólogo (a) o persona calificada estará presente en sitio, para que el personal de construcción pueda notificarle de la posibilidad de cualquier encuentro con un caracará.
3. Si se encuentra un caracará en el área de construcción, toda construcción cesará inmediatamente, se notificará a la persona calificada y se permitirá que el caracará se aleje del área de peligro por su propia voluntad.



¿A quien debe llamar si ve un Caracará?

A Su supervisor directo

Puede llamar también a:

Tribu

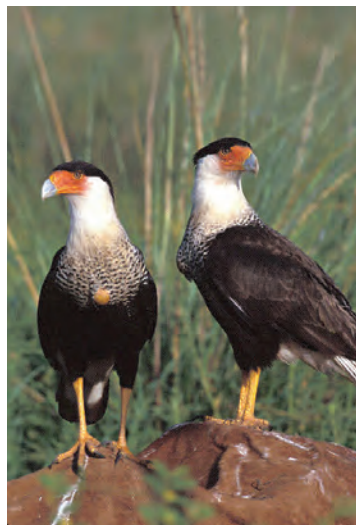
Bióloga de Animales

Tribu Seminole de la Florida

Teléfono: 863-902-3200 x13411

Celular: 954-410-7073

Email: ermdwildlife@semtribe.com



*Seminole Tribe of Florida
Environmental Resource
Management Department*

El Caracará de Audubon



**Protegiendo los Recursos de
la Tribu**

¿Que es un Caracará?

Dentro del grupo de los falcones, el caracará o buitre mejicano es uno de los pájaros más terrestres. La mayor parte del tiempo este pájaro la pasa en la tierra.



El caracará prefiere el hábitat amplio, típicamente los campos, las praderas, o las pasturas salteadas de arbustos y árboles más altos en los cuales anidan. Pueden usar áreas de escasos árboles y arbustos si la arboleda esta esparcida con áreas de prado abierto.

El caracará usualmente come carroña (animales muertos) pero se aventajan de cualquier oportunidad de comer. El caracará caza también alimentos vivos en la tierra o le quita la comida a otros pájaros.

EL GOBIERNO FEDERAL Y EL GOBIERNO DEL ESTADO DE LA FLORIDA HAN PUESTO EL CARACARÁ EN LA LISTA DE ESPECIES EN PELIGRO

¿COMO PUEDE IDENTIFICARSE UN CARACARA?



* El macho y la hembra parecen iguales

Inmaduro (izquierda):

- Color café en la espalda
- Cuello y garganta de color pálido
- Pecho pálido con marcas café oscuro

Adulto (derecha):

- Color negro en la espalda y el vientre
- Pecho y espalda superior con marcas en forma de barras negras finas
- Capa negra en la cabeza con un pequeña cresta en la parte de atrás
- Cola blanca con barras negras y una banda de plumas gruesas al final
- Patas largas y amarillas
- Cuello largo, es apreciado mas cuando esta volando
- Tamaño mediano, alas amplia, cola larga
- Pico grueso con y color gris, con piel rojiza alrededor de los ojos

¿COMO PUEDE RECONOCER UN NIDO?

Los nidos son de palo, y se hallan típicamente en la parte superior de las palmas de col, pero pueden hallarse también en árboles de pino y arbustos. Los nidos están muy ocultos y generalmente no se ven

¿PORQUE ES IMPORTANTE EL CARACARA?

El caracará, como los buitres, come animales muertos y así ayudan a eliminar los animales muertos en las calles de la comunidad. A través de la nación, la población de aves de rapiña está disminuyendo y es importante que aseguremos nuestra población local.

¿QUE DEBE HACER SI VE UN CARACARA?

Si se encuentra con un caracará, evite cualquier contacto con el. Si va conduciendo un vehiculo o maquinaria pesada, deténgase, y deje que pase el caracará antes de continuar. No lo toque ni moleste de ninguna manera. Por favor póngase en contacto con su supervisor o llame al número que aparece en este folleto y reporte el lugar y las circunstancias.



WHAT ARE THE STANDARD PROTECTION MEASURES THAT ARE REQUIRED?

The Seminole Tribe of Florida is required by the Federal Endangered Species Act to abide by standard measures adopted to protect this endangered snake:

1. An Eastern indigo snake protection/ education plan has been developed which requires training for all construction crews.
2. A qualified observer/biologist will be on-site for notification by construction personnel if a potential indigo snake is sighted.
3. If an indigo snake is found on the construction site, all activity must cease immediately, the qualified observer must be notified, and the snake allowed to move away from any dangerous area on its own.



WHO DO YOU CONTACT IF YOU SEE AN INDIGO SNAKE?

CONTACT YOUR DIRECT SUPERVISOR

You may also contact::

Seminole Tribe of Florida's
Wildlife Biologist
Phone: 863-902-3200 x13411
Cell: 863-228-1816

*Seminole Tribe of Florida
Environmental Resource
Management Department*

Eastern Indigo Snake



Protecting Tribal Resources

WHAT IS AN INDIGO SNAKE?



The eastern indigo snake (above) is the longest non-poisonous snake in North America, reaching a maximum length of 8.6 feet. More typically adult indigo snakes are about six feet in length.

This snake is classified as a threatened species by both the U. S Fish & Wildlife Service and the Fl. Fish & Wildlife Conservation Commission

BE AWARE THAT ANY DARK SNAKE, EITHER LARGE OR SMALL MAY BE AN INDIGO AND SHOULD NOT BE HARASSED IN ANY WAY

HOW CAN YOU IDENTIFY AN INDIGO SNAKE?

- Adult indigo snakes are large and slow-moving
- Juveniles have a reticulated pattern of light brown markings on a brownish background
- Shiny, iridescent, bluish-black body
- Chin is either reddish or cream colored and the scales are large and smooth



HOW ARE BLACK RACERS DIFFERENT?



- Black racers (above) are slender, fast-moving snakes
- Dull black or gray color with a typically white chin
- Vibrate their tail when threatened simulating a rattlesnake

WHERE DO INDIGO SNAKES OCCUR?

Indigo snakes are found in virtually any habitat type, from dry hardwood hammocks, to pine flatwoods, to the vicinity of wetlands. They have been observed all across the Big Cypress Reservation and may be encountered anywhere. They are not limited to the vicinity of gopher tortoise burrows as is sometimes thought.

WHAT SHOULD YOU DO IF YOU SEE AN INDIGO SNAKE?

If you encounter a snake that resembles an indigo snake, avoid all contact with it. If you are driving a vehicle or heavy equipment, stop, cease operation and allow the snake to pass before resuming construction. Do not touch the snake or harass it in any way. Please contact your supervisor or the number at the back of this pamphlet and report the location and circumstances.



¿Cuáles son las medidas de protección estándar requeridas?

El Acta Federal de Especies en Peligro requiere que la Tribu Seminole de la Florida tome ciertas medidas estándar para proteger la serpiente añil oriental:

1. La Tribu ha desarrollado un Plan de protección/educación, que requiere que todas las cuadrillas de construcción reciban entrenamiento.
2. Un (a) biólogo (a) o persona calificada estará presente en sitio, para que el personal de construcción pueda notificarle de la posibilidad de cualquier encuentro con una serpiente añil oriental.
3. Si se encuentra una serpiente en el área de construcción, toda construcción cesara inmediatamente, se notificara a la persona calificada y se permitirá que la serpiente se aleje de cualquier área de peligro por su propia voluntad.



¿A quien debe llamar si ve una serpiente añil oriental?

A SU SUPERVISOR DIRECTO

Puede llamar también a:

Tribu
Bióloga de Animales
Tribu Seminole de la Florida
Teléfono: 863-902-3200 x13411
Celular: 954-410-7073

*Seminole Tribe of Florida
Environmental Resource
Management Department*

Serpiente Añil Oriental



Protegiendo los recursos de la Tribu

¿Que es una serpiente añil oriental?



La serpiente añil oriental (arriba) es la serpiente no venenosa más larga que se puede encontrar en América del Norte. Aun cuando alcanza una medida máxima de 8.6 pies de largo, una serpiente adulta típicamente mide mas o menos seis pies de largo.

El U.S. Fish & Wildlife Service y la Comisión de Conservación de la Florida clasifican esta serpiente como una especie en peligro.



¿Como puede identificar una serpiente añil Oriental?

- La serpientes añil orientales adultas son grandes y se mueven lentamente
- Cuando jóvenes tienen un patrón reticulado de marcas color café claro sobre un fondo marrón
- El cuerpo es brillante, de color azul oscuro casi negro.
- Barbilla es rojiza o crema y las escamas son largas y suaves.



¿Como son las serpiente negra ágil diferente?

- La negra ágil (izquierda) son delgadas se mueven rápido
- Negro pálido o gris con típicamente la barbilla blanca
- Vibran la cola cuando se sienten en peligro imitando a la cascabel

TOMA EN CUENTA QUE CUALQUIER SERPIENTE COLOR OSCURO, PEQUEÑA O GRANDE PUEDE SER UNA ANIL ORIENTAL Y NO DEBE SER MALTRATADA DE NINGUNA MANERA.

¿Donde hay de estas serpientes?

La serpiente añil oriental puede encontrarse en cualquier lugar, lugares secos, en pinos, asta en la humedad. Se han visto en toda La Reservación Big Cypress. No se limitan a estar entre los hoyos de la tortuga de ardillon con se pensaba.

¿Que tienes que hacer si ves una serpiente añil oriental?

Si te encuentras con una serpiente que se parezca a la añil oriental, evita cualquier contacto con ella. Si vas conduciendo un vehiculo o maquinaria pesada para y deja que pase la serpiente antes de continuar. No la toques ni molestes de ninguna manera. Por favor contacta a tu supervisor o llama a el numero que esta en este folleto y reporta el lugar y circunstancia.



WHAT ARE THE STANDARD PROTECTION MEASURES THAT ARE REQUIRED?

The Seminole Tribe of Florida is required by the Federal Endangered Species Act to abide by standard measures adopted to protect this endangered kite:

1. All construction personnel watch the Wildlife Education Workshop video which includes information on the snail kite and be able to identify a snail kite and have brochures onsite.
2. A qualified observer/biologist will be on-site for notification by construction personnel if a snail kite is sighted.
3. If an snail kite is found on the construction site, all activity must cease immediately, and the kite allowed to move away from any dangerous area on its own.



WHO DO YOU CONTACT IF YOU SEE A SNAIL KITE?

Contact your direct supervisor

You may also contact:

***Seminole Tribe of Florida's
Wildlife Biologist***

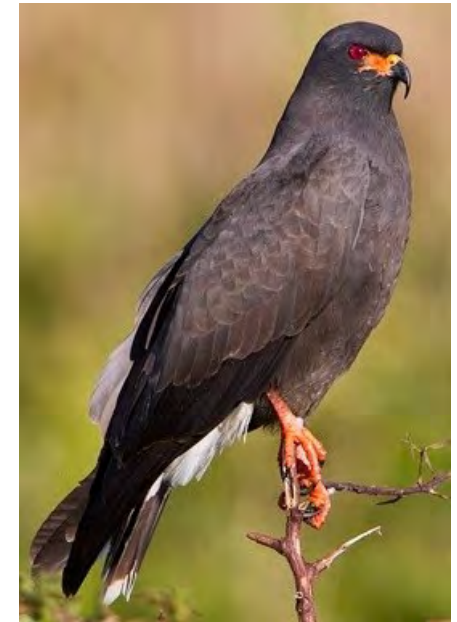
Phone: 863-902-3200 x13411

Cell: 954-410-7073

**Seminole Tribe of Florida
Environmental Resource
Management Department**

Snail Kite

Rostrhamus sociabilis plumbeus



Protecting Tribal Resources

WHAT IS A SNAIL KITE?



The snail kite has been federally listed as endangered since 1967 and was included on the Endangered Species Act as it was established in 1973.

Snail kites have a highly specialized diet of apple snails, therefore their habitat is restricted to watersheds in central and south Florida. Their beaks are evolutionarily adapted to feed on apple snails.

WHY IS THE SNAIL KITE ENDANGERED?

- Loss of wetland habitat by drainage and development resulting in eliminated shallow or freshwater habitat
- Runoff from fertilizers causing eutrophication leading to growth of invasive species such as water hyacinth, which restricts ability to feed on apple snails

HOW CAN YOU IDENTIFY A SNAIL KITE?



Adult Male (above-left):

- Dark blue-gray plumage
- Talons and beak are red-orange with black tipped beak
- Eyes are red

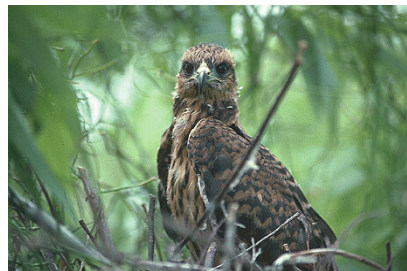
Female (above-right):

- Dark brown above with streaked white and brown under parts
- Talons and beak are red-orange with black tipped beak
- Eyes are red

*Juveniles resemble female (below)

WHAT DO THEIR NESTS LOOK LIKE?

Snail kites breed from December to August and build bulky nests over water to avoid predation. They nest in wetland trees, shrubs, and emergent vegetation.



HOW CAN YOU IDENTIFY A SNAIL KITE IN FLIGHT?



The snail kite flies slowly and flaps its wings in flight with its head facing down in search of apple snails.

The snail kite has a distinctive white patch at the base of its tail ending in a dark band with a thin white edge (above).



WHAT SHOULD YOU DO IF YOU SEE A SNAIL KITE?

If you encounter a snail kite, avoid all contact with it. If you are driving a vehicle or heavy equipment, stop, cease operation and allow the kite to pass before resuming construction. Do not touch the kite or harass it in any way.

Please contact your supervisor or the number on the back of this pamphlet to report the location and circumstance of all sightings.

CUALES SON LAS MEDIDAS ESTANDAR DE PROTECCION REQUERIDAS?

El Acta Federal de Especies en Peligro requiere que la Tribu Seminole de la Florida tome ciertas medidas estándar para proteger el Caracolero:

1. Todo el personal de construcción ver el video Educación de la Vida Silvestre cual incluye información sobre el Caracolero y como identificar un Caracolero y mantener panfletos en el sitio.
2. Un observador/biólogo calificado estará en el sitio para notificaciones por el personal de construcción en caso que un Caracolero sea visto.
3. Encaso que un Caracolero sea encontrado en un sitio de construcción, toda actividad debe cesar inmediatamente, y el Caracolero ser permitido moverse lejos de alguna área peligrosa por si mismo.



¿A quien debe llamar si ve un
Águila de Cabeza Blanca?

A Su supervisor directo

Puede llamar también a:

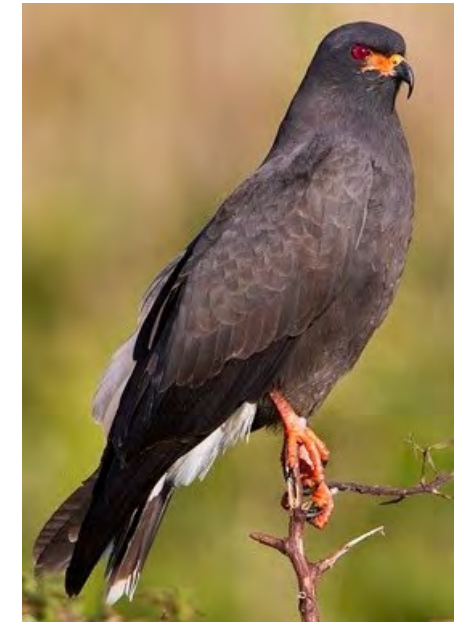
Tribu Seminole de la Florida
Bióloga de Animales

Teléfono: 863-902-3200 x13411

Seminole Tribe of Florida
Environmental Resource
Management Department

Caracolero

Rostrhamus sociabilis plumbeus



**Protegiendo los Recursos
de la Tribu**

QUE ES UN CARACOLERO?



Desde el 1967 a sido anunciado federalmente como una especie en peligro de extinción, en el 1973 fue incluido bajo el Acto de Especie en Peligro de Extinción.

Caracoleros tienen dietas sumamente especializadas de caracoles de manzana, por esa razone su hábitat es restringida a cuencas hidrográficas en el sur y centro de la Florida. Evolutivamente los picos de el Caracolero se han adaptado para alimentarse con caracoles de manzana.

PORQUE ESTA EL CARACOLERO EN PELIGRO?

- Pérdida de pantano por drenaje y desarrollo que resulta in eliminación de hábitat de agua fresca.
- La escorrentía de fertilizantes esta causando eutrofización que conduce a crecimiento de especies invasivas como Jacinto de Agua, que restringe habilidad de alimentarse en caracoles de manzana.

COMO PUEDE IDENTIFICAR EL CARACOLERO?



Adulto Macho (arriba a la izquierda):

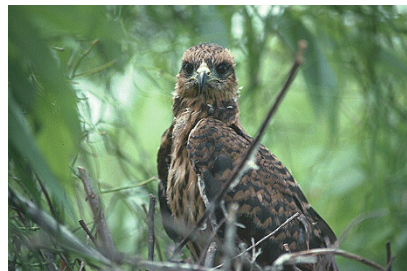
- Plumaje azul oscuro-gris
- Garras y pico son rojo-anaranjado y el pico tiene punta negra
- Ojos son rojos

Hembra (arriba a la derecha):

- Marrón oscuro con blanco y marrón rayado en la parte bajo de plumaje
- Garras y pico son rojo-anaranjado y el pico tiene punta negra
- Ojos son rojos
- * Juvenales resemblan a la hembra (mire abajo)

A QUE SE PARECEN SUS NIDOS?

Caracoleros reproducen desde Diciembre a Agosto y construyen nidos voluminosos sobra agua para evitar depredadores. Anidan en pantanos, arbustos, y en vegetación emergente.



COMO IDENTIFICAR UN CARACOLERO EN VUELO?



El caracolero vuela despacio y bate sus alas con su cabeza hacia abajo in busca de caracoles de manzana.

El caracolero tiene un distintivo parche blanco en la base de su cola que termina en una banda oscura con un borde blanco fino (mire arriba).

QUE EBE HACER SI USTED ENCUENTRA UN CARACOLERO?

Si usted encuentra a un Caracolero evite todo contacto con el. Si usted esta manejando un vehículo o maquinaria pesada, pare, cesa operación y permita al Caracolero pasar antes de resumir construcción. No intente tocar o acosar el Caracolero de ninguna manera.

Por favor de contactar a su supervisor o al numero en la parte posterior de este folleto para reportar la locación y la circunstancia de la observación.



WHAT ARE THE STANDARD PROTECTION MEASURES THAT ARE REQUIRED?

The Seminole Tribe of Florida is required by the Endangered Species Act to abide by standard measures adopted to protect this endangered stork:

1. All construction personnel watch the Wildlife Education Workshop video which includes information on the wood stork and be able to identify a wood stork and have brochures onsite.
2. A qualified observer/biologist will be on-site for notification by construction personnel if a wood stork is sighted.
3. If an wood stork is found on the construction site, all activity must cease immediately, and the stork allowed to move away from any dangerous area on its own.



WHO DO YOU CONTACT IF YOU SEE A WOOD STORK?

Contact your direct supervisor

You may also contact:

***Seminole Tribe of Florida's
Wildlife Biologist***

Phone: 863-902-3200 x13411

Cell: 954-410-7073

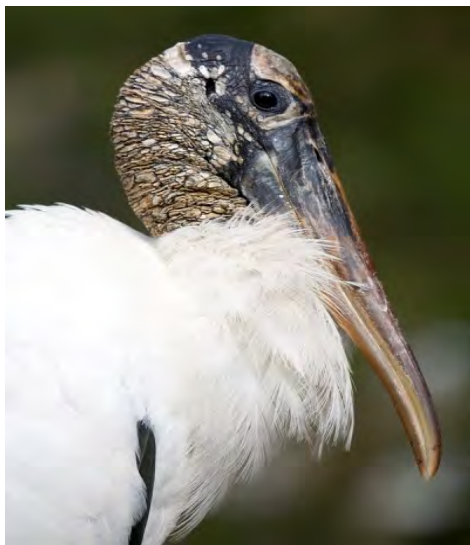
**Seminole Tribe of Florida
Environmental Resource
Management Department**

Wood Stork *Mycteria americana*



Protecting Tribal Resources

WHAT IS A WOOD STORK?



The wood stork (above) is the only native stork species found in North America. It has been federally listed as an endangered species since 1984 under the Endangered Species Act.

WHY IS THE WOOD STORK ENDANGERED?

Loss of habitat resulting in:

- Loss of main food source
- Loss of suitable nesting sites



HOW CAN YOU IDENTIFY A WOOD STORK?



Males and females look the same, though males tend to be larger

Adult (above-left):

- All white plumage except for black feathers along the tips of wing and tail
- Large, curved at tip, black beak with some brown coloration
- Face contains no plumage and is covered with blackish, rough and scaly skin

Immature (above-right):

- Duller version of adult

In flight they can be distinguished by an extended neck and black tip running all along bottom of plumage (bottom-left).

WHERE DO THEY OCCUR?

Wood storks can be found in a variety of habitats throughout Florida but they are most commonly observed wading in shallow water feeding on small fish.

Storks nest in large trees surrounded by open water to avoid predation (bottom-right). As many as 500 stork have been documented nesting within one colony!

HOW TO DISTINGUISH FROM THE EXOTIC SACRED IBIS?

The sacred ibis (below) is an invasive species native to Africa, Iraq, and Egypt.

- Smaller bird with thinner beak
- Pure black head and neck
- Extra black plumage on rump



If you suspect that you have seen a sacred ibis please call the number on the back of the brochure immediately!

WHAT SHOULD YOU DO IF YOU SEE A WOOD STORK?

If you encounter a wood stork, avoid all contact with it. If you are driving a vehicle or heavy equipment, stop, cease operation and allow the stork to pass before resuming construction. Do not touch the stork or harass it in any way. Please contact your supervisor or the number on the back of this pamphlet to report the location and circumstance of all sightings.



Cúales son las medidas de protección estándar requeridas?

El Acta Federal de Especies en Peligro requiere que la Tribu Seminole de la Florida tome ciertas medidas estándar para proteger la Cigüeña de Madera :

1. La Tribu ha desarrollado un Plan de protección/educación, que requiere que todas el personal de construcción reciban entrenamiento sobre el especie y que puedan identificar una Cigüeña de Madera.
2. Un (a) biólogo (a) o persona calificada estará presente en sitio, para que el personal de construcción pueda notificarle de la posibilidad de cualquier encuentro con una Cigüeña de Madera.
3. Si se encuentra una Cigüeña de Madera en el área de construcción, toda construcción cesará inmediatamente, se notificará a la persona calificada y se permitirá que el Cigüeña de Madera se aleje del área de peligro por su propia voluntad.



¿A quien debe llamar si ve una Cigüeña de Madera?

A Su supervisor directo

Puede llamar también a:

Tribu Seminole de la Florida
Biólogo de Animales

Teléfono: 863-902-3200 x13411
Celular: 954-410-7073

**Seminole Tribe of Florida
Environmental Resource
Management Department**

Cigüeña de Madera



**Protegiendo los Recursos
de la Tribu**

WHAT IS A WOOD STORK?



The wood stork (above) is the only native stork species found in North America. It has been federally listed as an endangered species since 1984 under the Endangered Species Act.

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- Duller version of adult
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WHAT SHOULD YOU DO IF YOU SEE A WOOD STORK?

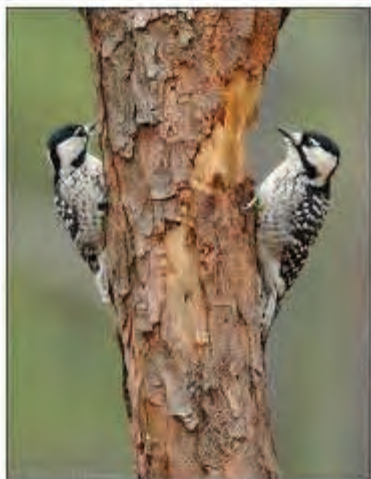
If you encounter a wood stork, avoid all contact with it. If you are driving a vehicle or heavy equipment, stop, cease operation and allow the stork to pass before resuming construction. Do not touch the stork or harass it in any way. Please contact your supervisor or the number on the back of this pamphlet to report the location and circumstance of all sightings.



¿Cuáles son las medidas de protección estándar requeridas?

El Acta Federal de Especies en Peligro requiere que la Tribu Seminole de la Florida tome ciertas medidas estándar para proteger el pájaro carpintero de copete rojo:

- 1) La Tribu ha desarrollado un Plan de protección/educación, que requiere que todas las cuadrillas de construcción reciban entrenamiento.
- 2) Un biólogo o persona calificada estará presente en sitio, para que el personal de construcción pueda notificarle si se observa un pájaro carpintero de copete rojo.
- 3) Si se encuentra un pájaro carpintero de copete rojo en el área de construcción, toda construcción cesará inmediatamente, se notificará a la persona calificada y se permitirá que el pájaro se aleje del área de peligro por su propia voluntad.



¿A quien debe llamar si ve un pájaro carpintero de copete rojo?

A su supervisor directo

Puede llamar también a:

Tribu

Bióloga de Animales

Tribu Seminole de la Florida

Teléfono: 863-902-3200 x13411

Celular: 954-410-7073

E-mail: ERMDWildlife@semtribe.com



*Seminole Tribe of Florida
Environmental Resource
Management Department*

Pájaro Carpintero de Copete Rojo *Picoides borealis alis*



**Protegiendo los recursos de la
Tribu**

¿Qué es un pájaro carpintero de copete rojo?

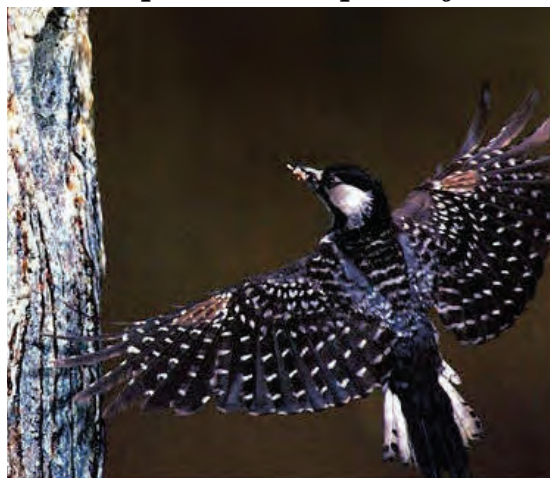


El pájaro carpintero de copete rojo es un pájaro territorial no migratorio. Vive en grupos que usualmente consisten de una pareja de cría y cuatro críos machos de años anteriores. Esos críos ayudan a incubar los huevos, alimentar la camada y incuban los huevos. Este sistema social se conoce como reproducción cooperativa.



El hábitat primario del pájaro carpintero de copete rojo es el ecosistema de pino de hoja larga. Este tipo de hábitat se ha visto reducido de su tamaño original por 3%. Esto ha resultado en que la especie se haya visto reducida por un 99% del total en el tiempo de colonización europea. Desde el 1970, este pájaro esta en la lista de especies en peligro y recibe la protección del Acta de Especies en Peligro.

¿Como puedes identificar un pájaro carpintero de copete rojo?



Los adultos miden mas o menos 8.5 pulgadas de largo y sus alas tienen una envergadura de 14 pulgadas. Tienen barras en la espalda de líneas blancas y negras (véase arriba). La característica mas destacada del pájaro carpintero de copete rojo es un capuchón y nuca negro que abarcan unos parches negros en sus cachetes de talla grande. El macho tiene una raya roja en cada lado del capuchón negro, que casi nunca se puede ver, con la excepción de la temporada de cría o los periodos de defensa territorial. Esta raya se conoce como un “copete”, lo que le da el nombre a la especie (véase abajo.)



¿Donde hacen sus nidos y que aspecto tienen?

Los pájaros carpinteros de copete rojo viven en la foresta de vegetación adulta, a menudo en los pinos de hoja largas. El pájaro carpintero de copete rojo es la única especie que excava cavidades, exclusivamente en arboles vivos de pino. Las cavidades toman de 1 a 3 años para excavar. Los arboles con cavidades activas tienen pequeñas resinas numerosas que emiten savia. Como un aparente para la defensa de la cavidad contra las serpientes ratoneras y otros posibles predadores, los pájaros mantienen la savia corriendo.



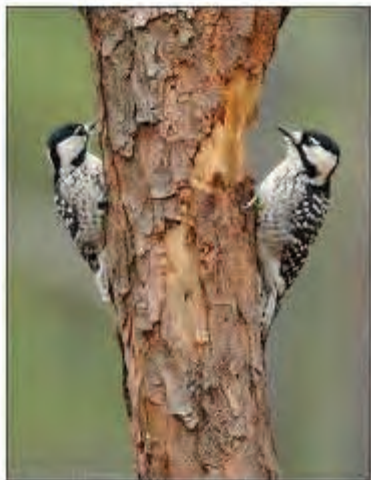
¿Que debo hacer si veo un pájaro carpintero de copete rojo?

Si te encuentras un pájaro carpintero de copete rojo, evita cualquier contacto con el. Si vas conduciendo un vehículo o maquinaria pesada, detente y deja que el pájaro vuele lejos del área antes de continuar. No lo hostigues ni le hagas ningún daño. Por favor ponte en contacto con tu supervisor o llama el número que aparece en la parte de atrás de este folleto y reporta el lugar y circunstancia del encuentro.

WHAT ARE THE STANDARD PROTECTION MEASURES THAT ARE REQUIRED?

The Seminole Tribe of Florida is required by the Federal Endangered Species Act to abide by standard measures adopted to protect this endangered bird:

1. A red cockaded woodpecker protection/education plan has been developed which requires training for all construction crews.
2. A qualified observer/biologist will be on-site for notification by construction personnel if a woodpecker is sighted.
3. If a woodpecker is found on the construction site, all activity must cease immediately, the qualified observer must be notified, and the bird allowed to move away from any dangerous area on its own.



WHO DO YOU CONTACT IF YOU SEE A RED COCKADED WOODPECKER ?

Contact your direct supervisor

You may also contact::

**Seminole Tribe of Florida's
Wildlife Biologist**

Office: (863)902-3200 x13411

Cell: (954)410-7073

Email: ermdwildlife@semtribe.com



*Seminole Tribe of Florida
Environmental Resource
Management Department*

Red Cockaded Woodpecker *Picoides borealis*



Protecting Tribal Resources

WHAT IS A RED COCKADED WOODPECKER?



The red cockaded woodpecker is a territorial, non-migratory bird. Individuals live in groups normally consisting of a breeding pair and one to four male offspring from previous years. These offspring assist in incubating eggs, feeding, and brooding.

This social system is referred to as cooperative breeding.



The primary habitat of the red cockaded woodpecker is the long-leaf pine ecosystem. This suitable habitat has been reduced by 3% of its original expanse.

Reduction of suitable habitat has caused this species to be reduced by 99% since the time of European settlement. The woodpecker was listed as endangered in 1970 and received the protection of the Endangered Species Act in 1973.

HOW CAN YOU IDENTIFY A RED COCKADED WOODPECKER?



Adults are about 8.5 inches in length and have a wingspan of 14 inches. Its back is barred with black and white horizontal stripes (above). The red cockaded woodpecker most distinguishing feature is the black cap and nape that encircle the large cheek patches. Rarely visible, except perhaps during the breeding season and periods of territorial defense, the male has a small red streak on each side of its black cap called a "cockade", hence its name (below).



WHERE DO THEY NEST AND WHAT DO THEY LOOK LIKE?



Red cockaded woodpeckers make their homes in mature pine forest, most commonly in longleaf pines. The red cockaded woodpecker is the only species to excavate cavities, exclusively in living pine trees. Cavities generally take 1 to 3 years to excavate. Cavity trees that are being actively used have numerous small resins which will exude sap. The birds keep the sap flowing, apparently as a cavity defense mechanism against rat snakes and other possible predators.

WHAT SHOULD YOU DO IF YOU SEE A RED COCKADED WOODPECKER?

If you encounter a woodpecker, avoid all contact with it. If you are driving a vehicle or heavy equipment, stop, cease operation and allow the bird to fly out of the area. Do not harm or harass the bird in any way. Please contact your supervisor or the number at the back of this pamphlet and report the location and sighting.

CUALES SON LAS MEDIDAS ESTANDAR DE PROTECCION REQUERIDAS?

El Acta Federal de Especies en Peligro requiere que la Tribu Seminole de la Florida tome ciertas medidas estándar para proteger la Charra Floridana:

1. Todo el personal de construcción ver el video Educación de la Vida Silvestre cual incluye información sobre la Charra Floridana y como identificar una Charra Floridana y mantener panfletos en el sitio.
2. Un observador/biólogo calificado estará en el sitio para notificaciones por el personal de construcción en caso que una Charra Floridana sea vista.
3. Encaso que una Charra Floridana sea encontrada en un sitio de construcción, toda actividad debe cesar inmediatamente, y la Charra Floridana ser permitida moverse lejos de alguna área peligrosa por si misma.



**¿A quien debe llamar si ve una
Charra Floridana?**

A Su supervisor directo

Puede llamar también a:

**Tribu Seminole de la Florida
Bióloga de Animales
Teléfono: 863-902-3200 x13411
Celular: 954-410-7073
E-mail: ermdwildlife@semtribe.com**

**Seminole Tribe of Florida
Environmental Resource
Management Department**

Chara Floridana

Aphelocoma coerulescens



**Protegiendo los Recursos
de la Tribu**

QUE ES UNA CHARRA FLORIDANA?



En el 1975 la Charra Florida fue anunciada por la Comisión de la Conservación de Peses y Vida Silvestre como un especie amenazado, y en el 1987 fue anunciada federalmente como una especie en peligro de extinción .

La Charra Florida es el único especie de ave que es exclusivamente encontrado en la Florida (una especie endémica). La especie a evolucionado para vivir en el hábitat matorral único de la Florida. Los matorrales de Florida son la reliquia de sabanas pliocenos. Matorrales son secos, arenoso, con buen drenaje, tierra infértil, dominados por robles y pinos de arena y son dependientes a fuegos para mantener su hábitat único.

PORQUE ESTA LA CHARRA FLORIDANA EN PELIGRO?

Solamente 10-15% del hábitat único del cual la especie depende existe, debido a:

- *Matorrales son remplazado por urbanización y and naranjales
- *Supresión de incendios naturales cuales conducen a conversión de hábitats de matorrales.

COMO PUEDE IDENTIFICAR UNA CHARRA FLORIDANA?



*Macho y hembras se parecen, el macho siendo mas grande

Adulto (arriba a la izquierda):

- Cara, alas, y cola color azul con partes bajas de color gris
- Ojos, pico, y pies negros con coloración oscura alrededor de los ojos

Juvenil (arriba a la derecha):

- Versión mas lánguido del adulto
- La cabeza es totalmente gris cual cambia a azul como van madurando

QUALES SON SUS HABITOS DE LAS NIDIFICACION?

Charra Floridanos nidifican en robles arbustivos y construyen nidos superficiales hechos de ramitas y fibras de palmeto de 3 a 11 pies del suelo. Se aparean de por vida y producen de 2-5 huevos manchados de un verde pálido y rojo-marrón. La especie exhibe cría cooperativa por lo menos un año para ayudar crear los jóvenes, defender su territorio y vigilar predadores.



QUALES SON LAS CARACTERISTICAS DE LA CHARRA FLORIDANA?

Charras Floridanos son omnívoros, comen insectos, ratones, huevos, aves chicas, y bellotas, fruta y frutos secos. El llamado de la es un sonido agudo como “quay-quay-quay” o “cheek-cheek-cheek”, la hembra tiene una vocalización única con un “hiccup”. Estudios recientes indican que son unos de los animales mas inteligentes, teniendo el cerebro grande comparado a la masa de cuerpo.



QUE DEBE HACER SI ENCUENTRA UNA CHARRA FLORIDANA?

Si usted encuentra una Charra Florida evite todo contacto con ella. Si usted esta manejando un vehículo o maquinaria pesada, pare, cesa operación, y permita pasar a la urraca azuleja antes de resumir construcción. No intente tocar o acosar la charra floridana de ninguna manera.

Por favor de contactar a su supervisor o al numero en la parte posterior de este folleto para reportar la locación y la circunstancia de la observación.

WHAT ARE THE STANDARD PROTECTION MEASURES THAT ARE REQUIRED?

The Seminole Tribe of Florida is required by the Federal Endangered Species Act to abide by standard measures adopted to protect this threatened jay:

1. All construction personnel watch the Wildlife Education Workshop video which includes information on the Florida scrub jay and be able to identify a scrub jay and have brochures onsite.
2. A qualified observer/biologist will be on-site for notification by construction personnel if a scrub jay is sighted.
3. If an scrub jay is found on the construction site, all activity must cease immediately, and the jay allowed to move away from any dangerous area on its own.



WHO DO YOU CONTACT IF YOU SEE A FLORIDA SCRUB JAY?

Contact your direct supervisor

You may also contact:

***Seminole Tribe of Florida's
Wildlife Biologist***

Phone: 863-902-3200 x13411

Cell: 954-410-7073

Email: ermdwildlife@semtribe.com

**Seminole Tribe of Florida
Environmental Resource
Management Department**

Florida Scrub Jay *Aphelocoma coerulescens*



Protecting Tribal Resources

WHAT IS A FLORIDA SCRUB JAY?



The scrub jay was listed as a threatened species in 1975 by Florida Fish & Wildlife Conservation Commission and has been federally listed as a threatened species since 1987.

Scrub jays are the only species of bird found exclusively in Florida (an endemic species). The species has evolved to live in Florida's unique scrubland habitats.

Florida scrubs are the relics of Pliocene savannahs. Scrubs are xeric (dry), sandy, well drained, infertile soils, dominated by oak and sand pines and dependent on fires to maintain their unique habitat.

WHY IS THE SCRUB JAY THREATENED?

- Loss of the unique scrub habitat that the species depends upon, only 10-15% of which still remains, due to:
 - * Scrub being replaced by housing developments and orange groves
 - * Suppression of natural fires leading to conversion of scrub habitats

HOW CAN YOU IDENTIFY A SCRUB JAY?



Adult (above-left):

- Blue face, wings, and tail with grey under parts
 - Black eyes, beak, feet, and dark coloration around eyes
- * Male and female look identical, though the male is larger

Juvenile (above-right):

- A duller version of the adult
- They have an entirely grey head which changes to blue as they reach maturity

WHAT ARE THEIR NESTING HABITS?

Scrub jays nest in shrubby oaks and build shallow nests of twigs and palmetto fibers 3-11 ft high off the ground. They mate for life and produce 2-5 pale green and red-brown spotted eggs. The species exhibits cooperative breeding, with the offspring staying at least a year to help rear young, defend territory, and watch for predators.



WHAT ARE THE CHARACTERISTICS OF SCRUB JAYS?

Scrub jays are omnivorous eating insects, mice, eggs, young birds, and also acorns, nuts, and fruit. The scrub jay call is a sharp "quay-quay-quay" or "cheek-cheek-cheek", with the female having a unique "hiccup" vocalization. Recent studies have shown that they are one of the most intelligent animals, having a large brain to body mass ratio.



WHAT SHOULD YOU DO IF YOU SEE A SCRUB JAY?

If you encounter a scrub jay, avoid all contact with it. If you are driving a vehicle or heavy equipment, stop, cease operation and allow the jay to pass before resuming construction. Do not touch the jay or harass it in any way. Please contact your supervisor or the number on the back of this pamphlet to report the location and circumstance of all sightings.

WHAT ARE THE STANDARD PROTECTION MEASURES THAT ARE REQUIRED?

The Seminole Tribe of Florida is required by the Endangered Species Act to abide by standard measures adopted to protect this endangered species:

1. All construction personnel watch the Wildlife Education Workshop video which includes information on the Florida bonneted bat and be able to identify a bonneted bat and have brochures onsite.
2. A qualified observer/biologist will be on-site for notification by construction personnel if a bonneted bat is sighted.
3. If a bonneted bat is found on the construction site, all activity must cease immediately, and the bat allowed to move away from any dangerous area on its own.



WHO DO YOU CONTACT IF YOU SEE A FLORIDA BONNETED BAT?

Contact your direct supervisor

You may also contact::

***Seminole Tribe of Florida's
Wildlife Biologist***

***Phone: 863-902-3200 x13411
Cell: 954-410-7073***

**Seminole Tribe of Florida
Environmental Resource
Management Department**

Florida Bonneted Bat

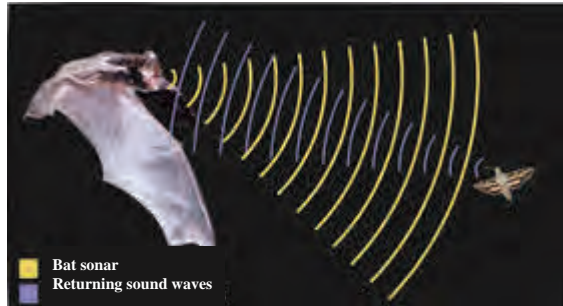
Eumops floridanus



Protecting Tribal Resources

WHAT IS A BONNETED BAT?

The Florida bonneted bat (also known as the Florida Mastiff Bat) is the largest species of bat in Florida. Bonneted bats feed strictly on insects and use echolocation to detect and capture their prey. They are fast flyers and have been observed flying at heights of 300 feet.

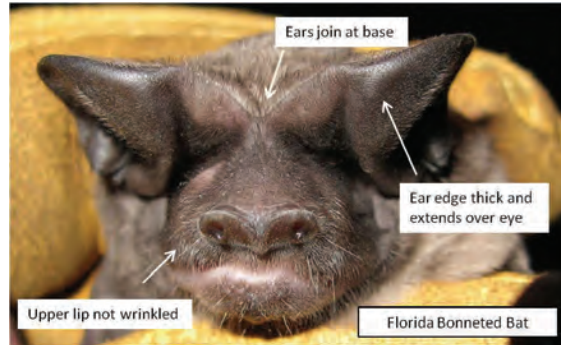


WHY WAS THE BONNETED BAT ENDANGERED?

- Loss of forested habitat
- Potential limited roost availability
- Loss of prey
- Pesticides affecting food source
- White Nose-Syndrome



HOW CAN YOU IDENTIFY A BONNETED BAT?



*Males and females look the same

- The pelage (hair) color varies from black to brown to grayish or cinnamon brown.
- 6.5 inches in length and have a 20 inch wingspan
- Ears are large and broad and slant over the eyes
- Ears are joined at the base at the mid-line of the head
- Extended free tail

WHAT DOES THEIR HABITAT LOOK LIKE?

Florida bonneted bats are very rare and only a handful of roosts have been documented. These bats roost in natural and manmade habitats. Tree cavities, caves, rock crevices, and foliage are examples of natural roosts. They have been detected foraging in semi-tropical forests with tropical hardwood, pineland and mangrove habitats, as well as manmade areas such as golf-courses and neighborhoods.



WHAT SHOULD YOU DO IF YOU SEE A BONNETED BAT?

If you encounter a bonneted bat, avoid all contact with it. If you are driving a vehicle or heavy equipment, stop, cease operation and allow the bat to pass before resuming construction. Do not touch the bat or harass it in any way. Please contact your supervisor or the number on the back of this pamphlet to report the location and circumstance of all sightings.



Cuáles son las medidas de protección estándar requeridas?

La tribu Seminole de la Florida es requerida por la ley de especies en peligro de extinción a acatar medidas estándar adoptados para proteger a esta especie en peligro de la extinción:

1. Todo el personal de construcción vea el video de taller de educación, el cual incluye información sobre el murciélago Eumops y ser capaz de identificar un murciélago Eumops y tener folletos en el sitio.
2. Un observador calificado/ biológico es tara en el sitio para notificación por si el personal de construcción a visto un murciélago Eumops
3. Si un murciélago Eumops se encuentra en el sitio de construcción, debe cesar de inmediato toda actividad, y dejar que el murciélago se aleje de la zona peligrosa por su cuenta.



¿A QUIEN DEBE CONTACTAR SI VE UN MURCIELAGO EUMOPS?

Contacte su supervisor directo

También puede contactar:

***Biólogo de vida Silvestre de la tribu
Seminole de la Florida***

***Teléfono: 863-902-3200 x13411
Celular: 954-410-7073***

**Seminole Tribe of Florida
Environmental Resource
Management Department**

**Florida Boneted
Bat**

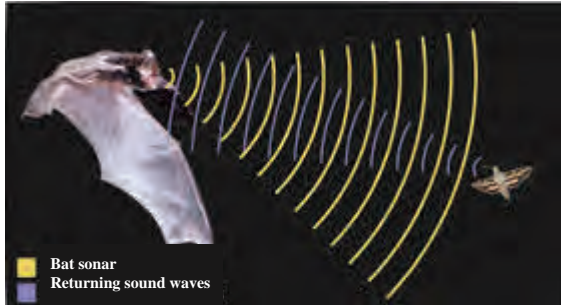
Eumops floridanus



**Protegiendo los recursos de la
Tribu**

QUE ES UN MURCIELAGO EUMOPS?

El murciélago Eumops es la especie mas grande de murciélago que hay en la Florida. Se alimentan estrictamente de insectos y usan ecolocación para detectar y capturar su victima. Son volantes rápidos y se han observado volando a una altura de 300 metros.

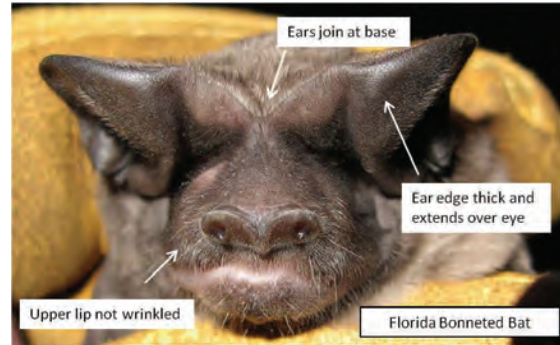


PORQUE EL MURCIELAGO EUMOPS FUE PUESTO EN PELIGRO?

- Perdida de habitación boscosa
- Disponibilidad de gallinero limitada
- Perdida de presa



COMO PUEDE IDENTIFICAR UN MURCIELAGO EUMOPS?



*Macho y hembra tienen el mismo aspecto

- El color de pelo varia de negro, marrón, marrón gris y canela.
- 6.5 pulgadas de largo y una envergadura de 20 pulgadas
- Orejas son grandes y amplias e incluyen sobre los ojos
- Orejas se unen en la base de la línea media de la cabeza
- Cola extendida

COMO ES SU HABITACION?

El murciélago Eumops es muy raro y pocas habitaciones han sido documentados. Estos murciélagos se posan en las habitaciones naturales y artificiales. Cavidades de arboles, cuevas, grietas de la roca y follaje son ejemplos de refugios naturales. Se han detectado alimentándose en los bosques semia tropicales con madura tropical, pinares y manglares, también en áreas artificiales tales como barrios y campos de golfo.



QUE DEBE HACER SI VE UN MURCIELAGO EUMOPS?

Si encuentras un murciélago, evite todo contacto con el. Si usted esta conduciendo un vehículo o maquinaria pesada, detener o cesar la operación y permite que el murciélago pase antes de continuar construcción. Favor de contactar su supervisor o llamar el numero en la parte posterior de este folleto para reportar información sobre la ubicación del avistamiento.



APPENDIX F – Species Screenings



Panther Screening for all Tribal Reservations

Factor 1:

Does the potential project site occur within a Panther Focus Area?

- ☐ No Project will have NO EFFECT on the Florida panther. Continue to determination of effect (page 3).
- ☐ Yes Continue on to **Factor 2** for additional Florida panther habitat determination factors.

Factor 2:

Will the project permanently change land use?

- ☐ No Continue on to **Factor 4** for additional project information.
- ☐ Yes Continue on to **Factor 3** for additional Florida panther habitat determination factors.

Factor 3: Does the potential project site include the following habitat types used by the Florida panther?

Florida Panther Preferred Habitats by land Use type			
1.	Hardwood Pine	2.	Upland hydric pine forest
3.	Hardwood swamp	4.	Cypress swamp
5.	Upland Hardwood forest	6.	Dry prairie
7.	Improved pasture	8.	Shrub swamp/brush
9.	Unimproved pasture	10.	Xeric scrub
11.	Orchards groves	12.	Marsh/ wet prairie
13.	Cropland	14.	Barren disturbed land
15.	Coastal wetlands	16.	Exotic nuisance plants

- ☐ Yes The project is likely to occur within panther habitat. Continue to **Factor 4**.
- ☐ No MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT

Factor 4: Is the project surrounded by developed land?

- ☐ Yes MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT.
- ☐ No Continue to **Factor 5**.

Factor 5:

Acres of impact...

- ☐ <2 acres MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT
- ☐ >2 acres Continue on to **Factor 6** for additional project information.

Factor 6:

Check type of project

- ☐ Construction Continue to **Factor 7**.
- ☐ Land management¹ MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT.
- ☐ Temp. Construction² MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT.
- ☐ Maintenance³ MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT.

Factor 7:

Is the project likely to increase or change vehicle patterns or volume of 10% or more within the surrounding mile?

- ☐ No MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT.
- ☐ Yes MAY AFFECT.

¹ Activities include prescribed burning, exotic removal (chemical and mechanical)

² Any construction in which the land may be disturbed for a short amount of time and then restored back to its original state (i.e. installing underground utilities...) or site can reasonably be expected to restore on its own after a short period of time

³ Any activity in which an existing structure is maintained to original design (i.e. ditch maintenance, fire line maintenance...)

☐ **No Effect (NE)**☐ May Affect, Not Likely to Adversely Affect (NLAA)

☐ May Affect (MA)

NOTES FOR FILE

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NAME: _____ TITLE: _____

3

APPENDIX A.

ANALYSIS OF EFFECTS

Step 1: Florida panther- STOF Practice Effects Table

The goal of this table is to provide conservation measures that will help minimize the effects of a practice on the Florida panther habitat, therefore avoiding May Affect (MA) determination and reducing practice effects to a May Affect, Not Likely to Adversely Affect (NLAA) determination.

Assumptions

- This table assumes that the potential STOF project has already been determined to be in Florida panther habitat.
- This table includes practices that could potentially result in a MA determination for the Florida panther. This determination could then potentially result in formal consultation with the U.S. Fish and Wildlife Service.

Table Directions

- Search table for practices that will be implemented at a specific project site
- Look in the **Practice Impacts to Species** column to see if a Conservation Measure is indicated for a NLAA determination; follow the Conservation Measure parameters as described in Appendix B.

Once the effects analysis for the practice is complete, check the appropriate box on page 3. This is the final part of the Florida panther screen.

APPENDIX A.

Florida panther – STOF Practice Effects Table

Practice Name	Site Specifics					Effects Determination			Practice Impact to Species
	Panther Zone	Land Use Change (Panther Habitat)*	Surrounding Habitat is Developed	Acres	Traffic Increase	NE	NLAA	MA	
Home Site Lease (Construction)	N	Y/N	Y/N	Any Size	Y/N	X			Mandatory wildlife workshop, conduct wildlife survey pre-construction, and personnel must have brochures on hand at all times.
	Y	Y	Y	<2	Y		X		Mandatory wildlife workshop, conduct wildlife survey pre-construction, and personnel must have brochures on hand at all times. Offset with Panther Habitat Units (PHUs)
	Y	Y	Y	<2	N		X		Mandatory wildlife workshop, conduct wildlife survey pre-construction, and personnel must have brochures on hand at all times. Offset with Panther Habitat Units (PHUs)
	Y	N	Y	<2	Y		X		Mandatory wildlife workshop, conduct wildlife survey pre-construction, and personnel must have brochures on hand at all times. Offset with Panther Habitat Units (PHUs)
	Y	N	Y	<2	N		X		Mandatory wildlife workshop, conduct wildlife survey pre-construction, and personnel must have brochures on hand at all times. Offset with Panther Habitat Units (PHUs)

Practice Name	Site Specifics					Effects Determination			Practice Impact to Species
	Panther Zone	Land Use Change (Panther Habitat)*	Surrounding Habitat is Developed	Acres	Traffic Increase	NE	NLAA	MA	
	Y	Y	Y	>2	Y		X		Mandatory wildlife workshop, conduct wildlife survey pre-construction, and personnel must have brochures on hand at all times. Offset with Panther Habitat Units (PHUs)
	Y	Y	Y	>2	N		X		Mandatory wildlife workshop, conduct wildlife survey pre-construction, and personnel must have brochures on hand at all times. Offset with Panther Habitat Units (PHUs)
	Y	N	Y	>2	Y		X		Mandatory wildlife workshop, conduct wildlife survey pre-construction, and personnel must have brochures on hand at all times. Offset with Panther Habitat Units (PHUs)
	Y	N	Y	>2	N		X		Mandatory wildlife workshop, conduct wildlife survey pre-construction, and personnel must have brochures on hand at all times. Offset with Panther Habitat Units (PHUs)
	Y	Y	N	<2	Y		X		Mandatory wildlife workshop, conduct wildlife survey pre-construction, and personnel must have brochures on hand at all times. Offset with Panther Habitat Units (PHUs)

Practice Name	Site Specifics					Effects Determination			Practice Impact to Species
	Panther Zone	Land Use Change (Panther Habitat)*	Surrounding Habitat is Developed	Acres	Traffic Increase	NE	NLAA	MA	
	Y	Y	N	<2	N		X		Mandatory wildlife workshop, conduct wildlife survey pre-construction, and personnel must have brochures on hand at all times. Offset with Panther Habitat Units (PHUs)
	Y	N	N	<2	Y		X		Mandatory wildlife workshop, conduct wildlife survey pre-construction, and personnel must have brochures on hand at all times. Offset with Panther Habitat Units (PHUs)
	Y	N	N	<2	N		X		Mandatory wildlife workshop, conduct wildlife survey pre-construction, and personnel must have brochures on hand at all times. Offset with Panther Habitat Units (PHUs)
	Y	Y	N	>2	Y			X	Send traffic increase to Service.
	Y	Y	N	>2	N		X		Mandatory wildlife workshop, conduct wildlife survey pre-construction, and personnel must have brochures on hand at all times. Offset with Panther Habitat Units (PHUs)
	Y	N	N	>2	Y			X	Send traffic increase to Service.
	Y	N	N	>2	N		X		Mandatory wildlife workshop, conduct wildlife survey pre-construction, and personnel must have brochures on hand at all times. Offset with Panther Habitat Units (PHUs)

Practice Name	Site Specifics					Effects Determination			Practice Impact to Species
	Panther Zone	Land Use Change (Panther Habitat)*	Surrounding Habitat is Developed	Acres	Traffic Increase	NE	NLAA	MA	
Business Lease (Construction)	N	Y/N		Any Size	Y/N	X			Mandatory wildlife workshop, conduct wildlife survey pre-construction, and personnel must have brochures on hand at all times.
	Y	Y		<2	Y		X		Mandatory wildlife workshop, conduct wildlife survey pre-construction, offset with Panther Habitat Units (PHUs)
	Y	Y		<2	N		X		Mandatory wildlife workshop, conduct wildlife survey pre-construction, offset with Panther Habitat Units (PHUs)
	Y	N		<2	Y		X		Mandatory wildlife workshop, conduct wildlife survey pre-construction, offset with Panther Habitat Units (PHUs)
	Y	N		<2	N		X		Mandatory wildlife workshop, conduct wildlife survey pre-construction, offset with Panther Habitat Units (PHUs)
	Y	Y		>2	Y			X	Send traffic increase to Service.
	Y	Y		>2	N		X		Mandatory wildlife workshop, conduct wildlife survey pre-construction, offset with Panther Habitat Units (PHUs)
	Y	N		>2	Y			X	Send traffic increase to Service.
	Y	N		>2	N		X		Mandatory wildlife workshop, conduct wildlife survey pre-construction, offset with Panther Habitat Units (PHUs)
Land Management	N	Y/N		Any Size	Y/N	X			
	Y	N		<2	Y		X		Mandatory wildlife workshop, monitored pre- and post-land management activity

Practice Name	Site Specifics					Effects Determination			Practice Impact to Species
	Panther Zone	Land Use Change (Panther Habitat)*	Surrounding Habitat is Developed	Acres	Traffic Increase	NE	NLAA	MA	
	Y	N		<2	N		X		Mandatory wildlife workshop, monitored pre- and post-land management activity
	Y	N		>2	Y		X		Mandatory wildlife workshop, monitored pre- and post-land management activity
	Y	N		>2	N		X		Mandatory wildlife workshop, monitored pre- and post-land management activity
Utilities (Temporary construction)	N	Y/N		Any Size	Y/N	X			
	Y	Y		<2	Y		X		Mandatory wildlife workshop
	Y	Y		<2	N		X		Mandatory wildlife workshop
	Y	N		<2	Y		X		Mandatory wildlife workshop
	Y	N		<2	N		X		Mandatory wildlife workshop
	Y	Y		>2	Y		X		Mandatory wildlife workshop
	Y	Y		>2	N		X		Mandatory wildlife workshop
	Y	N		>2	Y		X		Mandatory wildlife workshop
	Y	N		>2	N		X		Mandatory wildlife workshop
Roads (construction)	N	Y/N		Any Size	Y/N	X			
	Y	Y		<2	Y		X		Mandatory wildlife workshop, conduct wildlife survey pre-construction, offset with Panther Habitat Units (PHUs)

Practice Name	Site Specifics					Effects Determination			Practice Impact to Species
	Panther Zone	Land Use Change (Panther Habitat)*	Surrounding Habitat is Developed	Acres	Traffic Increase	NE	NLAA	MA	
	Y	Y		<2	N		X		Mandatory wildlife workshop, conduct wildlife survey pre-construction, offset with Panther Habitat Units (PHUs)
	Y	N		<2	Y		X		Mandatory wildlife workshop, conduct wildlife survey pre-construction, offset with Panther Habitat Units (PHUs)
	Y	N		<2	N		X		Mandatory wildlife workshop, conduct wildlife survey pre-construction, offset with Panther Habitat Units (PHUs)
	Y	Y		>2	Y			X	Send traffic increase to Service.
	Y	Y		>2	N		X		Mandatory wildlife workshop, conduct wildlife survey pre-construction, offset with Panther Habitat Units (PHUs)
	Y	N		>2	Y			X	Send traffic increase to Service.
	Y	N		>2	N		X		Mandatory wildlife workshop, conduct wildlife survey pre-construction, offset with Panther Habitat Units (PHUs)
Maintenance	N	Y/N		Any Size	Y/N	X			
	Y	Y		<2	Y		X		Mandatory wildlife workshop, Desktop Survey
	Y	Y		<2	N		X		Mandatory wildlife workshop, Desktop Survey
	Y	N		<2	Y		X		Mandatory wildlife workshop, Desktop Survey
	Y	N		<2	N		X		Mandatory wildlife workshop, Desktop Survey
	Y	Y		>2	Y		X		Mandatory wildlife workshop, Desktop Survey

Practice Name	Site Specifics					Effects Determination			Practice Impact to Species
	Panther Zone	Land Use Change (Panther Habitat)*	Surrounding Habitat is Developed	Acres	Traffic Increase	NE	NLAA	MA	
	Y	Y		>2	N		X		Mandatory wildlife workshop, Desktop Survey
	Y	N		>2	Y		X		Mandatory wildlife workshop, Desktop Survey
	Y	N		>2	N		X		Mandatory wildlife workshop, Desktop Survey

***If there is a land use change, but it is not within habitat utilized by the Florida panther Factor 3, the project will always have a NO EFFECT.**



Caracara Screening for all Tribal Reservations

Factor 1:

Does the potential project site occur within the Consultation area for the Caracara?

- ☐ **No** Project will have NO EFFECT on the caracara. Continue **page 4**.
- ☐ **Yes** Continue on to **Factor 2**.

Factor 2:

Does the potential project site occur within a caracara nesting zone?

- ☐ **No** Continue to **Factor 3**.
- ☐ **Yes** Continue on to **Factor 5** for additional determination.

Factor 3

Has the project site area been surveyed for nests?

- ☐ **Yes** No nest within 4,920 feet of proposed project site. NO EFFECT.
- ☐ **Yes** Nest found within 4,920 feet of proposed project site. Go to **Factor 5**.
- ☐ **No** Go to **Factor 4**.

Factor 4:

Step 1: Does the potential project site occur or is partially within suitable habitat for the caracara?

Land Use	
1. Improved Pasture	2. Unimproved Pasture
3. Hardwood swamp	4. Cypress swamp
5. Upland Hardwood forest	6. Dry prairie
7. Orchards groves	8. Marsh/ wet prairie
9. Cropland	10. Barren disturbed land
11. Coastal wetlands	12. Exotic nuisance plants

☐ Yes The project is likely to occur within suitable habitat. Survey site to determine if nest present.

☐ No Continue to **Step 2**.

Step 2: Does the potential project site occur or is partially within habitat not suitable for the caracara?

Land Use	
1. Reservoirs	2. STAs
3. Urban	4. Water
5. Hardwood Pine	6. Xeric scrub
7. Shrub swamp/brush	8. Upland hydric pine forest

☐ Yes NO EFFECT

☐ No Survey site to determine if nest present.

Factor 5:

What type of activity will the proposed project require?

☐ Temp. Construction¹ Go to **Factor 6**.

☐ Land use Change² Go to **Factor 7**.

☐ Land Management³ Go to **Factor 6**.

☐ Maintenance⁴ Go to **Factor 6**.

¹ Any construction in which the land may be disturbed for a short amount of time and then restored back to its original state (i.e. installing underground utilities...) or site can reasonably be expected to restore on its own after a short period of time.

² Any activity in which the current land use is to change permanently.

³ Activities include prescribed burning, exotic removal (chemical and mechanical)

⁴ Any activity in which an existing structure is maintained to original design (i.e. ditch maintenance, fire line maintenance...)

Factor 6:

What nest zone does any of the proposed project occur?

☐ Primary MAY AFFECT.

☐ Secondary MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT.

Factor 7:

What nest zone does any of the proposed project occur?

☐ Primary MAY AFFECT.

☐ Secondary MAY AFFECT.

☐ **No Effect (NE)**☐ May Affect, Not Likely to Adversely Affect (NLAA)☐ May Affect

NOTES FOR FILE

[illegible]

NAME: _____ TITLE: _____

4

APPENDIX A.

ANALYSIS OF EFFECTS

Step 1: Northern crested caracara - STOF Practice Effects Table

The goal of this table is to provide conservation measures that will help minimize the effects of a practice on the northern crested caracara habitat, therefore avoiding May Affect determination and reducing practice effects to a May Affect, Not Likely to Adversely Affect (NLAA) determination.

Assumptions

- This table assumes that the potential STOF project has already been determined to be in caracara habitat.
- This table includes practices that could potentially result in a may affect determination for the northern crested caracara. This determination could then potentially result in formal consultation with the U.S. Fish and Wildlife Service.

Table Directions

- Search table for practices that will be implemented at a specific project site
- Look in the **Practice Impacts to Species** column to see if a Conservation Measure is indicated for a NLAA determination; follow the Conservation Measure parameters as described in Appendix B.
- Once the effects analysis for the practice is complete, check the appropriate box on page 3. This is the final part of the northern crested caracara screen.

APPENDIX A

Northern Crested Caracara – STOF Practice Effects Table

Practice Name	Site Specifics			Effects Determination				Practice Impact to Species
	Within Consultation Area*	Land Surveyed	Within Nesting Zone	NE	NLAA	LAA	MA	
Home Site Lease	N	Y/N	N	X				
	Y	Y	P ⁵				X	Move site or resurvey the following year to see if nest has moved. If project must occur at this time, consultation with the Service will be required.
	Y	Y	S ⁶			X		Construction to occur outside of nesting season. If not possible, nest will be monitored during construction, equipment must be muffled, and no nest trees are to be removed. Mandatory workshop and brochures.
	Y	Y	N	X				Mandatory workshop and brochures.
	Y	N	N/A	N/A	N/A	N/A	N/A	Site needs to be surveyed.
Business Lease	N	Y/N	N	X				
	Y	Y	P				X	Move site or resurvey the following year to see if nest has moved. If project must occur at this time, consultation with the Service will be required.

⁵ Primary Zone

⁶ Secondary Zone

Practice Name	Site Specifics			Effects Determination				Practice Impact to Species
	Within Consultation Area*	Land Surveyed	Within Nesting Zone	NE	NLAA	LAA	MA	
	Y	Y	S			X		Construction to occur outside of nesting season. If not possible, nest will be monitored during construction, equipment must be muffled, and no nest trees are to be removed. Mandatory workshop and brochures.
	Y	Y	N	X				Mandatory workshop and brochures.
	Y	N	N/A	N/A	N/A	N/A	N/A	Site needs to be surveyed..
Land Management	N	Y/N	N	X				
	Y	Y	P			X		This area may not be burned. A fire line needs to be made 985 feet from the nesting tree. Mandatory workshop and brochures.
	Y	Y	S		X			Mandatory workshop and brochures. Minimize the risk of smoke dispersing in the direction of the active nest.
	Y	Y	N	X				Mandatory workshop and brochures.
	Y	N	N/A	N/A	N/A	N/A	N/A	Site needs to be surveyed.
Utilities	N	Y/N	N	X				
	Y	Y	P			X		Move site or resurvey the following year to see if nest has moved. If project must occur at this time, consultation with the Service will be required.
	Y	Y	S		X			Construction to occur outside of nesting season. If not possible, nest will be monitored during construction, equipment must be muffled, and no nest trees are to be removed. Mandatory workshop and brochures.
	Y	Y	N	X				Mandatory workshop and brochures.

Practice Name	Site Specifics			Effects Determination				Practice Impact to Species
	Within Consultation Area*	Land Surveyed	Within Nesting Zone	NE	NLAA	LAA	MA	
	Y	N	N/A	N/A	N/A	N/A	N/A	Site needs to be surveyed.
Roads	N	Y/N	N	X				
	Y	Y	P				X	Move site or resurvey the following year to see if nest has moved
	Y	Y	S			X		Construction to occur outside of nesting season. If not possible, nest will be monitored during construction, equipment must be muffled, and no nest trees are to be removed. Mandatory workshop and brochures.
	Y	Y	N	X				Mandatory workshop and brochures.
	Y	N	N/A	N/A	N/A	N/A	N/A	Site needs to be surveyed.

***If there is a land use change, but it is not within habitat which is not suitable for the caracara Factor 4: Step 2, the project will always have a NO EFFECT.**



Wood Stork Screening for all Tribal Reservations

Factor 1:

Does the potential project site occur within the 18.6 mile Core Foraging Area (CFA) of an active wood stork colony?

☐ **No** Project will have NO EFFECT on the wood stork. Continue to determination of effects (page 4).

☐ **Yes** Continue on to **Factor 2**.

0

Factor 2:

Does the potential project site occur within 0.47 miles of an active wood stork colony?

☐ **No** Continue on to **Factor 3**.

☐ **Yes** MAY AFFECT.

Factor 3:

Does the potential project site occur within suitable foraging habitat (SFH) for the wood stork?

Suitable Habitat by Land Use Type	
1. Reservoirs	2. STAs
3. Hardwood swamp	4. Cypress swamp
5. Upland Hardwood forest	6. Water
7. Coastal wetlands	8. Marsh/ wet prairie
9. Shrub swamp/brush	10. Ditches

☐ **Yes** The project is likely to occur within suitable habitat. Continue on to **Factor 4**.

☐ **No** NO EFFECT. Continue to determination of effects (page 4).

Factor 4: How many acres does the project impact?

- ☐ Less than ½ an acre MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT¹.
- ☐ More than ½ an acre Continue on to **Factor 5**

Factor 5:

What type of activity will the proposed project require?

- ☐ Permanent Construction w/Wetland Fill² Continue on to **Factor 6**
- ☐ Land Management³ Continue on to **Factor 7**
- ☐ Temp. Construction⁴ Continue on to **Factor 6**
- ☐ Maintenance⁵ Continue on to **Factor 9**

Factor 6:

How many acres of wetland fill is required for the permanent construction project?

- ☐ Less than 5 acres MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT⁶
- ☐ More than 5 acres MAY AFFECT.

Factor 7:

What type of land management activity will the proposed project require?

- ☐ Grassland burn MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT.
- ☐ Native area burn MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT.
- ☐ Creation of burn line MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT.

¹ SFH impacts to wetlands generally will not have a measureable effect on the wood stork. However, mitigation credits will be required for these losses when appropriate.

² Activities include home site construction, commercial and governmental construction, as well as roads.

³ Activities include prescribed burning, exotic removal (chemical and mechanical)

⁴ Any construction in which the land may be disturbed for a short amount of time and then restore back to its original state (i.e. installing underground utilities...)

⁵ Any activity in which an existing structure is maintained (i.e. ditch maintenance, fire line maintenance...)

⁶ Mitigation must compensate for foraging values which match the hydroperiod of the affect wetlands and provide foraging which is similar to or higher than the impacted wetland.

☐ Exotic plant treatment MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT.

☐ Other Will be reviewed under special conditions

Factor 8:

What type of temporary construction will the proposed project require?

☐ Installation of underground lines MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT.

☐ Temp. Cofferdams MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT.

☐ Short term dewatering MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT.

☐ Other Will be reviewed under special conditions

Factor 9:

What type of maintenance will the proposed project require?

☐ Ditch maintenance MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT.

☐ Burn line maintenance MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT.

☐ Mowing MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT.

☐ Fence/cattle operations MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT.

☐ Other Will be reviewed under special conditions

☐ **No Effect (NE)**☐ May Affect, Not Likely to Adversely Affect (NLAA)☐ **May Affect**

NOTES FOR FILE

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NAME: _____ TITLE: _____

4

APPENDIX A.

ANALYSIS OF EFFECTS

Step 1: Wood Stork- STOF Practice Effects Table

The goal of this table is to provide conservation measures that will help minimize the effects of a practice on the wood stork, therefore avoiding May Affect, likely to Adversely Affect (LAA) determination and reducing practice effects to a May Affect, Not Likely to Adversely Affect (NLAA) determination.

Assumptions

- This table assumes that the potential STOF project has already been determined to be in wood stork habitat.
- This table includes practices that could potentially result in a LAA determination for the wood stork. This determination could then potentially result in formal consultation with the U.S. Fish and Wildlife Service.

Table Directions

- Search table for practices that will be implemented at a specific project site
- Look in the **Practice Impacts to Species** column to see if a Conservation Measure is indicated for a NLAA determination; follow the Conservation Measure parameters as described in Appendix B.
- Once the effects analysis for the practice is complete, check the appropriate box on page 3. This is the final part of the wood stork screen.

APPENDIX A

Wood Stork – STOF Practice Effects Table

Practice Name	Site Specifics				Effects Determination			Practice Impact to Species
	Within 18.6 Mile CFA	Within 0.47 miles of Colony	Within SFH	Less than 0.5 acres	NE	NLAA	MA	
Permanent construction projects including wetland fill with more than 5 acres of wetland impacts	N	N	N	N	X			On site personnel must watch video and have brochures on hand.
	N	N	N	Y	X			On site personnel must watch video and have brochures on hand.
	Y	N	N	N	X			On site personnel must watch video and have brochures on hand.
	Y	Y	N	N			X	FVU credits will be extracted from mitigation bank and site will be enhanced to create better habitat for the wood stork.
	Y	Y	Y	Y			X	FVU credits will be extracted from mitigation bank and site will be enhanced to create better habitat for the wood stork.
	Y	N	Y	Y		X		On site personnel must watch video and have brochures on hand.
	Y	Y	N	Y			X	FVU credits will be extracted from mitigation bank and site will be enhanced to create better habitat for the wood stork.
	Y	N	N	Y	X			On site personnel must watch video and have brochures on hand.

Practice Name	Site Specifics				Effects Determination			Practice Impact to Species
	Within 18.6 Mile CFA	Within 0.47 miles of Colony	Within SFH	Less than 0.5 acres	NE	NLAA	MA	
	Y	Y	Y	N			X	FVU credits will be extracted from mitigation bank and site will be enhanced to create better habitat for the wood stork.
	N	N	Y	N	X			On site personnel must watch video and have brochures on hand.
Permanent construction projects including wetland fill with more than 5 acres of wetland impacts	N	N	N	N	X			On site personnel must watch video and have brochures on hand.
	N	N	N	Y	X			On site personnel must watch video and have brochures on hand.
	Y	N	N	N	X			On site personnel must watch video and have brochures on hand.
	Y	Y	N	N			X	FVU credits will be extracted from mitigation bank and site will be enhanced to create better habitat for the wood stork. On site personnel must watch video and have brochures on hand.
	Y	Y	Y	Y			X	FVU credits will be extracted from mitigation bank and site will be enhanced to create better habitat for the wood stork. On site personnel must watch video and have brochures on hand.
	Y	N	Y	Y		X		On site personnel must watch video and have brochures on hand.

Practice Name	Site Specifics				Effects Determination			Practice Impact to Species
	Within 18.6 Mile CFA	Within 0.47 miles of Colony	Within SFH	Less than 0.5 acres	NE	NLAA	MA	
	Y	Y	N	Y			X	FVU credits will be extracted from mitigation bank and site will be enhanced to create better habitat for the wood stork. On site personnel must watch video and have brochures on hand.
	Y	N	N	Y	X			On site personnel must watch video and have brochures on hand.
	Y	Y	Y	N			X	FVU credits will be extracted from mitigation bank and site will be enhanced to create better habitat for the wood stork. On site personnel must watch video and have brochures on hand.
	N	N	Y	N	X			On site personnel must watch video and have brochures on hand.
Land Management	N	N	N	N	X			On site personnel must watch video and have brochures on hand.
	N	N	N	Y	X			On site personnel must watch video and have brochures on hand.
	Y	N	N	N		X		On site personnel must watch video and have brochures on hand.
	Y	Y	N	N			X	FVU credits will be extracted from mitigation bank and site will be enhanced to create better habitat for the wood stork. On site personnel must watch video and have brochures on hand.

Practice Name	Site Specifics				Effects Determination			Practice Impact to Species
	Within 18.6 Mile CFA	Within 0.47 miles of Colony	Within SFH	Less than 0.5 acres	NE	NLAA	MA	
	Y	Y	Y	Y			X	FVU credits will be extracted from mitigation bank and site will be enhanced to create better habitat for the wood stork. On site personnel must watch video and have brochures on hand.
	Y	N	Y	Y		X		On site personnel must watch video and have brochures on hand.
	Y	Y	N	Y			X	FVU credits will be extracted from mitigation bank and site will be enhanced to create better habitat for the wood stork. On site personnel must watch video and have brochures on hand.
	Y	N	N	Y		X		On site personnel must watch video and have brochures on hand.
	Y	Y	Y	N			X	FVU credits will be extracted from mitigation bank and site will be enhanced to create better habitat for the wood stork. On site personnel must watch video and have brochures on hand.
	N	N	Y	N	X			On site personnel must watch video and have brochures on hand.
Temporary Construction	N	N	N	N	X			On site personnel must watch video and have brochures on hand.
	N	N	N	Y	X			On site personnel must watch video and have brochures on hand.

Practice Name	Site Specifics				Effects Determination			Practice Impact to Species
	Within 18.6 Mile CFA	Within 0.47 miles of Colony	Within SFH	Less than 0.5 acres	NE	NLAA	MA	
	Y	N	N	N		X	X	FVU credits will be extracted from mitigation bank and site will be enhanced to create better habitat for the wood stork. On site personnel must watch video and have brochures on hand.
	Y	Y	N	N			X	FVU credits will be extracted from mitigation bank and site will be enhanced to create better habitat for the wood stork. On site personnel must watch video and have brochures on hand.
	Y	Y	Y	Y			X	FVU credits will be extracted from mitigation bank and site will be enhanced to create better habitat for the wood stork. On site personnel must watch video and have brochures on hand.
	Y	N	Y	Y		X		On site personnel must watch video and have brochures on hand.
	Y	Y	N	Y			X	FVU credits will be extracted from mitigation bank and site will be enhanced to create better habitat for the wood stork. On site personnel must watch video and have brochures on hand.
	Y	N	N	Y		X		On site personnel must watch video and have brochures on hand.
	Y	Y	Y	N			X	FVU credits will be extracted from mitigation bank and site will be enhanced to create better habitat for the wood stork. On site personnel must watch video and have brochures on hand.

Practice Name	Site Specifics				Effects Determination			Practice Impact to Species
	Within 18.6 Mile CFA	Within 0.47 miles of Colony	Within SFH	Less than 0.5 acres	NE	NLAA	MA	
	N	N	Y	N		X	X	FVU credits will be extracted from mitigation bank and site will be enhanced to create better habitat for the wood stork. On site personnel must watch video and have brochures on hand.
Maintenance	N	N	N	N	X			On site personnel must watch video and have brochures on hand.
	N	N	N	Y	X			On site personnel must watch video and have brochures on hand.
	Y	N	N	N		X		On site personnel must watch video and have brochures on hand.
	Y	Y	N	N			X	FVU credits will be extracted from mitigation bank and site will be enhanced to create better habitat for the wood stork. On site personnel must watch video and have brochures on hand.
	Y	Y	Y	Y			X	FVU credits will be extracted from mitigation bank and site will be enhanced to create better habitat for the wood stork. On site personnel must watch video and have brochures on hand.
	Y	N	Y	Y		X		On site personnel must watch video and have brochures on hand.
	Y	Y	N	Y			X	FVU credits will be extracted from mitigation bank and site will be enhanced to create better habitat for the wood stork. On site personnel must watch video and have brochures on hand.

Practice Name	Site Specifics				Effects Determination			Practice Impact to Species
	Within 18.6 Mile CFA	Within 0.47 miles of Colony	Within SFH	Less than 0.5 acres	NE	NLAA	MA	
	Y	N	N	Y		X		On site personnel must watch video and have brochures on hand.
	Y	Y	Y	N			X	FVU credits will be extracted from mitigation bank and site will be enhanced to create better habitat for the wood stork. On site personnel must watch video and have brochures on hand.
	N	N	Y	N	X			On site personnel must watch video and have brochures on hand.

***If there is a land use change, but it is not within suitable foraging habitat (SFH) for the wood stork Factor 3: Step 2, the project will always have a NO EFFECT.**

Eastern indigo snake Screening for all Tribal Reservations



Factor 1:

Does the potential project site occur within suitable habitat for the eastern indigo snake?

Land Use	
1. Pine flatwoods	2. Scrubby flatwoods
3. Dry Prairie	4. Tropical Hardwood Hamock
5. Upland Hardwood forest	6. Edges of freshwater marsh
7. Agricultural fields	8. Coastal dunes
9. Human altered habitats	10. Barren disturbed land

☐ Yes The project is likely to occur within suitable habitat. Continue to **Factor 2.**

☐ No NO EFFECT.

Factor 2:

Are gopher tortoise burrows present on the site?

☐ Yes Continue to **Factor 3.**

☐ No MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT.

Factor 3:

Does the project impact less than 25% xeric habitat or have less than 25 gopher tortoise burrows?

☐ Yes Continue to **Factor 4.**

☐ No MAY AFFECT.

Factor 4:

What type of activity will the proposed project require?

- ☐ Temp. Construction¹ Go to **Factor 5**.
- ☐ Land use Change² Go to **Factor 6**.
- ☐ Land Management³ MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT ("Standard Protection Measures" required).
- ☐ Maintenance⁴ MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT ("Standard Protection Measures" required).

Factor 5:

Will project directly affect gopher tortoise burrow?

- ☐ Yes Continue to **Factor 6**.
- ☐ No MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT ("Standard Protection Measures" required).

Factor 6:

Project will be permitted to relocate tortoises?

- ☐ Yes MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT.
- ☐ No MAY AFFECT.

¹ Any construction in which the land may be disturbed for a short amount of time and then restored back to its original state (i.e. installing underground utilities...) or site can reasonably be expected to restore on its own after a short period of time.

² Any activity in which there is a significant change to the current use and is of a permanent nature..

³ Activities include prescribed burning, exotic removal (chemical and mechanical)

⁴ Any activity in which an existing structure is maintained to original design (i.e. ditch maintenance, fire line maintenance...)

☐ **No Effect (NE)**☐ May Affect, Not Likely to Adversely Affect (NLAA)☐ **May Affect**

NOTES FOR FILE

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NAME: _____ TITLE: _____

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APPENDIX A.

ANALYSIS OF EFFECTS

Step 1: Eastern indigo snake - STOF Practice Effects Table

The goal of this table is to provide conservation measures that will help minimize the effects of a practice on the eastern indigo snake habitat, therefore avoiding May Affect determination and reducing practice effects to a May Affect, Not Likely to Adversely Affect (NLAA) determination.

Assumptions

- This table assumes that the potential STOF project has already been determined to be in eastern indigo snake habitat.
- This table includes practices that could potentially result in a may affect determination for the eastern indigo snake. This determination could then potentially result in formal consultation with the U.S. Fish and Wildlife Service.

Table Directions

- Search table for practices that will be implemented at a specific project site
- Look in the **Practice Impacts to Species** column to see if a Conservation Measure is indicated for a NLAA determination; follow the Conservation Measure parameters as described in Appendix B.
- Once the effects analysis for the practice is complete, check the appropriate box on page 3. This is the final part of the eastern indigo snake screen.

APPENDIX A

Eastern indigo snake – STOF Practice Effects Table

Practice Name	Site Specifics					Effects Determination			Practice Impact to Species
	Suitable Habitat	Gopher Tortoise Burrow on Site	Less than 25% xeric Habitat	Affect Gopher Tortoise Burrow	Relocate Burrow	NE	NLAA	MA	
Home Site Lease	N	N	N	N	N	X			No conservation measures required.
	Y	N	N	N	N		X		Standard Protection Measures required.
	Y	Y	N	N	N			X	Standard Protection Measures required.
	Y	N	Y	N	N		X		Standard Protection Measures required.
	Y	Y	Y	N	N		X		Standard Protection Measures required.
	Y	Y	Y	Y	N			X	Standard Protection Measures required.
	Y	Y	Y	Y	Y		X		Standard Protection Measures required and relocation of gopher tortoise burrows.
	Y	Y	N	Y	Y			X	Standard Protection Measures required and relocation of gopher tortoise burrows.
	Y	Y	N	Y	N			X	Standard Protection Measures required.
Business Lease	N	N	N	N	N	X			No conservation measures required.
	Y	N	N	N	N		X		Standard Protection Measures required.

Practice Name	Site Specifics					Effects Determination			Practice Impact to Species
	Suitable Habitat	Gopher Tortoise Burrow on Site	Less than 25% xeric Habitat	Affect Gopher Tortoise Burrow	Relocate Burrow	NE	NLAA	MA	
	Y	Y	N	N	N			X	Standard Protection Measures required.
	Y	N	Y	N	N		X		Standard Protection Measures required.
	Y	Y	Y	N	N		X		Standard Protection Measures required.
	Y	Y	Y	Y	N			X	Standard Protection Measures required.
	Y	Y	Y	Y	Y		X		Standard Protection Measures required and relocation of gopher tortoise burrows.
	Y	Y	N	Y	Y			X	Standard Protection Measures required and relocation of gopher tortoise burrows.
	Y	Y	N	Y	N			X	Standard Protection Measures required.
Land Management	N	N	N	N	N	X			No conservation measures required.
	Y	N	N	N	N		X		Standard Protection Measures required.
	Y	Y	N	N	N			X	Standard Protection Measures required.
	Y	N	Y	N	N		X		Standard Protection Measures required.
	Y	Y	Y	N	N		X		Standard Protection Measures required.
	Y	Y	Y	Y	N		X		Standard Protection Measures required.

Practice Name	Site Specifics					Effects Determination			Practice Impact to Species
	Suitable Habitat	Gopher Tortoise Burrow on Site	Less than 25% xeric Habitat	Affect Gopher Tortoise Burrow	Relocate Burrow	NE	NLAA	MA	
	Y	Y	Y	Y	Y		X		Standard Protection Measures required and relocation of gopher tortoise burrows.
	Y	Y	N	Y	Y		X		Standard Protection Measures required and relocation of gopher tortoise burrows.
	Y	Y	N	Y	N		X		Standard Protection Measures required.
Utilities	N	N	N	N	N	X			No conservation measures required.
	Y	N	N	N	N		X		Standard Protection Measures required.
	Y	Y	N	N	N			X	Standard Protection Measures required.
	Y	N	Y	N	N		X		Standard Protection Measures required.
	Y	Y	Y	N	N		X		Standard Protection Measures required.
	Y	Y	Y	Y	Y		X		Standard Protection Measures required and relocation of gopher tortoise burrows.
	Y	Y	N	Y	Y		X		Standard Protection Measures required and relocation of gopher tortoise burrows.
	Y	Y	N	Y	N		X		Standard Protection Measures required.

Practice Name	Site Specifics					Effects Determination			Practice Impact to Species
	Suitable Habitat	Gopher Tortoise Burrow on Site	Less than 25% xeric Habitat	Affect Gopher Tortoise Burrow	Relocate Burrow	NE	NLAA	MA	
Roads	N	N	N	N	N	X			No conservation measures required.
	Y	N	N	N	N		X		Standard Protection Measures required.
	Y	Y	N	N	N			X	Standard Protection Measures required.
	Y	N	Y	N	N		X		Standard Protection Measures required.
	Y	Y	Y	N	N		X		Standard Protection Measures required.
	Y	Y	Y	Y	N			X	Standard Protection Measures required.
	Y	Y	Y	Y	Y		X		Standard Protection Measures required and relocation of gopher tortoise burrows.
	Y	Y	N	Y	Y			X	Standard Protection Measures required and relocation of gopher tortoise burrows.
	Y	Y	N	Y	N			X	Standard Protection Measures required.

***If there is a land use change, but it is not within habitat which is not suitable for the eastern indigo snake Factor 2, the project will always have a NO EFFECT.**

Everglade Snail Kite Screening for all Tribal Reservations



Factor 1:

Does the potential project site occur within the Consultation area for the snail kite?

- ☐ **No** Project will have NO EFFECT on the snail kite. Continue **page 3**.
- ☐ **Yes** Continue on to **Factor 2**.

Factor 2:

Does the potential project site occur within suitable habitat for the Snail kite?

Land Use	
1. Streams and waterways	2. Reservoirs less than 10 acres
3. Reservoirs larger than 10 acres	4. Inland ponds and sloughs
5. Wetland shrub	6. Fresh water marsh
7. Freshwater marsh with sawgrass	8. Marsh/ wet prairie
9. Cattail marsh	10. Willow

- ☐ **Yes** The project is likely to occur within suitable habitat. Continue to **Factor 3**.
- ☐ **No** Project will have NO EFFECT on the snail kite. Continue **page 3**.

Factor 3:

What type of activity will the proposed project require?

- ☐ Temp. Construction¹ NO EFFECT.
- ☐ Land use Change² Go to **Factor 4**.

¹ Any construction in which the land may be disturbed for a short amount of time and then restored back to its original state (i.e. installing underground utilities...) or site can reasonably be expected to restore on its own after a short period of time.

² Any activity in which there is a significant change to the current use and is of a permanent nature.

☐ Water and Vegetation Management⁵ Go to **Factor 4.**

☐ Land Management³ NO EFFECT.

☐ Maintenance⁴ NO EFFECT.

Factor 4:

Number of acres affected?

☐ 1 acre to 10 acres MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT.

☐ Over 10 acres MAY AFFECT.

³ Activities include prescribed burning, exotic removal (chemical and mechanical)

⁴ Any activity in which an existing structure is maintained to original design (i.e. ditch maintenance, fire line maintenance...)

⁵ Includes activities that threaten food sources – i.e. alterations of existing water levels, removal of aquatic and littoral vegetation, etc.

☐ **No Effect (NE)**☐ May Affect, Not Likely to Adversely Affect (NLAA)☐ **May Affect**

NOTES FOR FILE

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NAME: _____ TITLE: _____

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APPENDIX A.

ANALYSIS OF EFFECTS

Step 1: Everglade snail kite - STOF Practice Effects Table

The goal of this table is to provide conservation measures that will help minimize the effects of a practice on the everglade snail kite habitat, therefore avoiding May Affect determination and reducing practice effects to a May Affect, Not Likely to Adversely Affect (NLAA) determination.

Assumptions

- This table assumes that the potential STOF project has already been determined to be in everglade snail kite habitat.
- This table includes practices that could potentially result in a May affect determination for the everglade snail kite. This determination could then potentially result in formal consultation with the U.S. Fish and Wildlife Service.

Table Directions

- Search table for practices that will be implemented at a specific project site
- Look in the **Practice Impacts to Species** column to see if a Conservation Measure is indicated for a NLAA determination; follow the Conservation Measure parameters as described in Appendix B.
- Once the effects analysis for the practice is complete, check the appropriate box on page 3. This is the final part of the everglade snail kite screen.

APPENDIX A

Everglade snail kite – STOF Practice Effects Table

Practice Name	Site Specifics			Effects Determination			Practice Impact to Species
	In Consultation Area	Suitable Habitat	Less than 10 acres	NE	NLAA	MA	
Home Site Lease	N	N	N	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
	N	Y	N	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
	N	Y	Y	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
	N	N	Y	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
	Y	Y	Y		X		Modify site and work outside of nesting season. On site personnel must watch wildlife video and have species brochure on hand at all times. Wildlife staff will conduct surveys during the nesting season.
	Y	N	Y	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
	Y	Y	N			X	On site personnel must watch wildlife video and have species brochure on hand at all times. Wildlife staff will conduct surveys during the nesting season.

Practice Name	Site Specifics			Effects Determination			Practice Impact to Species
	In Consultation Area	Suitable Habitat	Less than 10 acres	NE	NLAA	MA	
	Y	N	N	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
Business Lease	N	N	N	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
	N	Y	N	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
	N	Y	Y	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
	N	N	Y	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
	Y	Y	Y		X		Modify site and work outside of nesting season. On site personnel must watch wildlife video and have species brochure on hand at all times. Wildlife staff will conduct surveys during the nesting season.
	Y	N	Y	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
	Y	Y	N			X	On site personnel must watch wildlife video and have species brochure on hand at all times. Wildlife staff will conduct surveys during the nesting season.

Practice Name	Site Specifics			Effects Determination			Practice Impact to Species
	In Consultation Area	Suitable Habitat	Less than 10 acres	NE	NLAA	MA	
	Y	N	N	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
Land Management	N	N	N	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
	N	Y	N	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
	N	Y	Y	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
	N	N	Y	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
	Y	Y	Y	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
	Y	N	Y	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
	Y	Y	N	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
	Y	N	N	X			On site personnel must watch wildlife video and have species brochure on hand at all times.

Practice Name	Site Specifics			Effects Determination			Practice Impact to Species
	In Consultation Area	Suitable Habitat	Less than 10 acres	NE	NLAA	MA	
Utilities	N	N	N	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
	N	Y	N	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
	N	Y	Y	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
	N	N	Y	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
	Y	Y	Y		X		Modify site and work outside of nesting season. On site personnel must watch wildlife video and have species brochure on hand at all times. Wildlife staff will conduct surveys during the nesting season.
	Y	N	Y	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
	Y	Y	N			X	On site personnel must watch wildlife video and have species brochure on hand at all times. Wildlife staff will conduct surveys during the nesting season.
	Y	N	N	X			On site personnel must watch wildlife video and have species brochure on hand at all times.

Practice Name	Site Specifics			Effects Determination			Practice Impact to Species
	In Consultation Area	Suitable Habitat	Less than 10 acres	NE	NLAA	MA	
Roads	N	N	N	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
	N	Y	N	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
	N	Y	Y	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
	N	N	Y	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
	Y	Y	Y		X		Modify site and work outside of nesting season. On site personnel must watch wildlife video and have species brochure on hand at all times. Wildlife staff will conduct surveys during the nesting season.
	Y	N	Y	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
	Y	Y	N			X	On site personnel must watch wildlife video and have species brochure on hand at all times. Wildlife staff will conduct surveys during the nesting season.
	Y	N	N	X			On site personnel must watch wildlife video and have species brochure on hand at all times.

Practice Name	Site Specifics			Effects Determination			Practice Impact to Species
	In Consultation Area	Suitable Habitat	Less than 10 acres	NE	NLAA	MA	
Water and Vegetation Management	N	N	N	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
	N	Y	N	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
	N	Y	Y	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
	N	N	Y	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
	Y	Y	Y	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
	Y	N	Y	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
	Y	Y	N	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
	Y	N	N	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
Maintenance	N	N	N	X			On site personnel must watch wildlife video and have species brochure on hand at all times.

Practice Name	Site Specifics			Effects Determination			Practice Impact to Species
	In Consultation Area	Suitable Habitat	Less than 10 acres	NE	NLAA	MA	
	N	Y	N	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
	N	Y	Y	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
	N	N	Y	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
	Y	Y	Y	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
	Y	N	Y	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
	Y	Y	N	X			On site personnel must watch wildlife video and have species brochure on hand at all times.
	Y	N	N	X			On site personnel must watch wildlife video and have species brochure on hand at all times.

***If there is a land use change, but it is not within habitat which is not suitable for the everglades snail kite Factor 2, the project will always have a NO EFFECT.**

Red cockaded woodpecker Screening for all Tribal Reservations



Factor 1:

Does the potential project site occur within the Consultation area for the Red cockaded woodpecker?

☐ **No** Project will have NO EFFECT on the red cockaded woodpecker. Continue **page 3**.

☐ **Yes** Continue on to **Factor 2**.

Factor 2:

Does the potential project site, with a 0.5 mile buffer zone, occur within suitable habitat for the red cockaded woodpecker and have mature pines with a 6 inch diameter at breast height?

Land Use			
1.	Upland coniferous forest	2.	Pine flatwoods
3.	Long leaf pine- xeric oak	4.	Mesic oak

☐ **Yes** The project is likely to occur within suitable habitat. Site survey needs to be conducted to determine if species is present. Continue to **Factor 3**.

☐ **No** NO EFFECT.

Factor 3:

Is species present within project foot print and 0.5 mile buffer zone?

☐ **Yes** Continue to **Factor 4**.

☐ **No** NO EFFECT.

Factor 4:

What type of activity will the proposed project require?

- ☐ Temp. Construction¹ Go to **Factor 5**.
- ☐ Land use Change² Go to **Factor 5**.
- ☐ Land Management³ MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT.
- ☐ Maintenance⁴ MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT.

Factor 5:

Conservation measures will avoid suitable habitat or occupied habitat?

- ☐ Yes MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT.
- ☐ No Continue to **Factor 6**.

Factor 6:

Do project modifications minimize adverse effects and include on site enhancement?

- ☐ Yes MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT.
- ☐ No MAY AFFECT.

¹ Any construction in which the land may be disturbed for a short amount of time and then restored back to its original state (i.e. installing underground utilities...) or site can reasonably be expected to restore on its own after a short period of time.

² Any activity in which the current land use is to change permanently.

³ Activities include prescribed burning, exotic removal (chemical and mechanical)

⁴ Any activity in which an existing structure is maintained to original design (i.e. ditch maintenance, fire line maintenance...)

☐ **No Effect (NE)**☐ May Affect, Not Likely to Adversely Affect (NLAA)☐ May Affect

NOTES FOR FILE

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NAME: _____ TITLE: _____

3

APPENDIX A.

ANALYSIS OF EFFECTS

Step 1: Red cockaded woodpecker - STOF Practice Effects Table

The goal of this table is to provide conservation measures that will help minimize the effects of a practice on the red cockaded woodpecker habitat, therefore avoiding May Affect) determination and reducing practice effects to a May Affect, Not Likely to Adversely Affect (NLAA) determination.

Assumptions

- This table assumes that the potential STOF project has already been determined to be in red cockaded woodpecker habitat.
- This table includes practices that could potentially result in a may result determination for the red cockaded woodpecker. This determination could then potentially result in formal consultation with the U.S. Fish and Wildlife Service.

Table Directions

- Search table for practices that will be implemented at a specific project site
- Look in the **Practice Impacts to Species** column to see if a Conservation Measure is indicated for a NLAA determination; follow the Conservation Measure parameters as described in Appendix B.
- Once the effects analysis for the practice is complete, check the appropriate box on page 3. This is the final part of the red cockaded woodpecker screen.

APPENDIX A

Red cockaded woodpecker – STOF Practice Effects Table

Practice Name	Site Specifics					Effects Determination			Practice Impact to Species
	Within Consultation Area*	Within Suitable Habitat	RCW Within Project footprint and 0.5 Mile Buffer Zone	Conservation Measures will Avoid Impacts	Project Modification to Minimize Adverse Effects and Offer Onsite Enhancement	NE	NLAA	MA	
Land Use Change	N	N	N	N	N	X			On site personnel must watch wildlife video and have species brochures on hand.
	Y	N	N	N	N	X			On site personnel must watch wildlife video and have species brochures on hand.
	Y	Y	N	N	N	X			On site personnel must watch wildlife video and have species brochures on hand.
	Y	Y	Y	N	N			X	On site personnel must watch wildlife video and have species brochures on hand. Wildlife staff will conduct a 100% site survey.

Practice Name	Site Specifics					Effects Determination			Practice Impact to Species
	Within Consultation Area*	Within Suitable Habitat	RCW Within Project footprint and 0.5 Mile Buffer Zone	Conservation Measures will Avoid Impacts	Project Modification to Minimize Adverse Effects and Offer Onsite Enhancement	NE	NLAA	MA	
	Y	Y	Y	Y	Y		X		On site personnel must watch wildlife video and have species brochures on hand.
	Y	N	Y	Y	Y	X			On site personnel must watch wildlife video and have species brochures on hand.
	Y	Y	N	Y	Y	X			On site personnel must watch wildlife video and have species brochures on hand.
	Y	N	N	Y	Y	X			On site personnel must watch wildlife video and have species brochures on hand.
	Y	N	Y	N	N	X			On site personnel must watch wildlife video and have species brochures on hand.
	N	N	N	N	Y	X			On site personnel must watch wildlife video and have species brochures on hand.

Practice Name	Site Specifics					Effects Determination			Practice Impact to Species
	Within Consultation Area*	Within Suitable Habitat	RCW Within Project footprint and 0.5 Mile Buffer Zone	Conservation Measures will Avoid Impacts	Project Modification to Minimize Adverse Effects and Offer Onsite Enhancement	NE	NLAA	MA	
	Y	N	N	N	Y	X			On site personnel must watch wildlife video and have species brochures on hand.
	Y	Y	N	N	Y	X			On site personnel must watch wildlife video and have species brochures on hand.
	Y	Y	Y	N	Y		X		On site personnel must watch wildlife video and have species brochures on hand.
	Y	Y	Y	Y	N		X		On site personnel must watch wildlife video and have species brochures on hand.
	Y	N	Y	Y	N	X			On site personnel must watch wildlife video and have species brochures on hand.
	Y	Y	N	Y	N	X			On site personnel must watch wildlife video and have species brochures on hand.

Practice Name	Site Specifics					Effects Determination			Practice Impact to Species
	Within Consultation Area*	Within Suitable Habitat	RCW Within Project footprint and 0.5 Mile Buffer Zone	Conservation Measures will Avoid Impacts	Project Modification to Minimize Adverse Effects and Offer Onsite Enhancement	NE	NLAA	MA	
	Y	N	N	Y	N	X			On site personnel must watch wildlife video and have species brochures on hand.
	Y	N	Y	N	Y	X			On site personnel must watch wildlife video and have species brochures on hand.
Land Management	N	N	N	N	N	X			On site personnel must watch wildlife video and have species brochures on hand.
	Y	N	N	N	N	X			On site personnel must watch wildlife video and have species brochures on hand.
	Y	Y	N	N	N	X			On site personnel must watch wildlife video and have species brochures on hand.
	Y	Y	Y	N	N		X		On site personnel must watch wildlife video and have species brochures on hand.

Practice Name	Site Specifics					Effects Determination			Practice Impact to Species
	Within Consultation Area*	Within Suitable Habitat	RCW Within Project footprint and 0.5 Mile Buffer Zone	Conservation Measures will Avoid Impacts	Project Modification to Minimize Adverse Effects and Offer Onsite Enhancement	NE	NLAA	MA	
	Y	Y	Y	Y	Y		X		On site personnel must watch wildlife video and have species brochures on hand.
	Y	N	Y	Y	Y	X			On site personnel must watch wildlife video and have species brochures on hand.
	Y	Y	N	Y	Y	X			On site personnel must watch wildlife video and have species brochures on hand.
	Y	N	N	Y	Y	X			On site personnel must watch wildlife video and have species brochures on hand.
	Y	N	Y	N	N	X			On site personnel must watch wildlife video and have species brochures on hand.
	N	N	N	N	Y	X			On site personnel must watch wildlife video and have species brochures on hand.

Practice Name	Site Specifics					Effects Determination			Practice Impact to Species
	Within Consultation Area*	Within Suitable Habitat	RCW Within Project footprint and 0.5 Mile Buffer Zone	Conservation Measures will Avoid Impacts	Project Modification to Minimize Adverse Effects and Offer Onsite Enhancement	NE	NLAA	MA	
	Y	N	N	N	Y	X			On site personnel must watch wildlife video and have species brochures on hand.
	Y	Y	N	N	Y	X			On site personnel must watch wildlife video and have species brochures on hand.
	Y	Y	Y	N	Y		X		On site personnel must watch wildlife video and have species brochures on hand.
	Y	Y	Y	Y	N		X		On site personnel must watch wildlife video and have species brochures on hand.
	Y	N	Y	Y	N	X			On site personnel must watch wildlife video and have species brochures on hand.
	Y	Y	N	Y	N	X			On site personnel must watch wildlife video and have species brochures on hand.

Practice Name	Site Specifics					Effects Determination			Practice Impact to Species
	Within Consultation Area*	Within Suitable Habitat	RCW Within Project footprint and 0.5 Mile Buffer Zone	Conservation Measures will Avoid Impacts	Project Modification to Minimize Adverse Effects and Offer Onsite Enhancement	NE	NLAA	MA	
	Y	N	N	Y	N	X			On site personnel must watch wildlife video and have species brochures on hand.
	Y	N	Y	N	Y	X			On site personnel must watch wildlife video and have species brochures on hand.
Temporary construction	N	N	N	N	N	X			On site personnel must watch wildlife video and have species brochures on hand.
	Y	N	N	N	N	X			On site personnel must watch wildlife video and have species brochures on hand.
	Y	Y	N	N	N	X			On site personnel must watch wildlife video and have species brochures on hand.

Practice Name	Site Specifics					Effects Determination			Practice Impact to Species
	Within Consultation Area*	Within Suitable Habitat	RCW Within Project footprint and 0.5 Mile Buffer Zone	Conservation Measures will Avoid Impacts	Project Modification to Minimize Adverse Effects and Offer Onsite Enhancement	NE	NLAA	MA	
	Y	Y	Y	N	N			X	On site personnel must watch wildlife video and have species brochures on hand. Wildlife staff will conduct a 100% site survey.
	Y	Y	Y	Y	Y		X		On site personnel must watch wildlife video and have species brochures on hand.
	Y	N	Y	Y	Y	X			On site personnel must watch wildlife video and have species brochures on hand.
	Y	Y	N	Y	Y	X			On site personnel must watch wildlife video and have species brochures on hand.
	Y	N	N	Y	Y	X			On site personnel must watch wildlife video and have species brochures on hand.

Practice Name	Site Specifics					Effects Determination			Practice Impact to Species
	Within Consultation Area*	Within Suitable Habitat	RCW Within Project footprint and 0.5 Mile Buffer Zone	Conservation Measures will Avoid Impacts	Project Modification to Minimize Adverse Effects and Offer Onsite Enhancement	NE	NLAA	MA	
	Y	N	Y	N	N	X			On site personnel must watch wildlife video and have species brochures on hand.
	N	N	N	N	Y	X			On site personnel must watch wildlife video and have species brochures on hand.
	Y	N	N	N	Y	X			On site personnel must watch wildlife video and have species brochures on hand.
	Y	Y	N	N	Y	X			On site personnel must watch wildlife video and have species brochures on hand.
	Y	Y	Y	N	Y		X		On site personnel must watch wildlife video and have species brochures on hand.
	Y	Y	Y	Y	N		X		On site personnel must watch wildlife video and have species brochures on hand.

Practice Name	Site Specifics					Effects Determination			Practice Impact to Species
	Within Consultation Area*	Within Suitable Habitat	RCW Within Project footprint and 0.5 Mile Buffer Zone	Conservation Measures will Avoid Impacts	Project Modification to Minimize Adverse Effects and Offer Onsite Enhancement	NE	NLAA	MA	
	Y	N	Y	Y	N	X			On site personnel must watch wildlife video and have species brochures on hand.
	Y	Y	N	Y	N	X			On site personnel must watch wildlife video and have species brochures on hand.
	Y	N	N	Y	N	X			On site personnel must watch wildlife video and have species brochures on hand.
	Y	N	Y	N	Y	X			On site personnel must watch wildlife video and have species brochures on hand.
Maintenance	N	N	N	N	N	X			On site personnel must watch wildlife video and have species brochures on hand.
	Y	N	N	N	N	X			On site personnel must watch wildlife video and have species brochures on hand.

Practice Name	Site Specifics					Effects Determination			Practice Impact to Species
	Within Consultation Area*	Within Suitable Habitat	RCW Within Project footprint and 0.5 Mile Buffer Zone	Conservation Measures will Avoid Impacts	Project Modification to Minimize Adverse Effects and Offer Onsite Enhancement	NE	NLAA	MA	
	Y	Y	N	N	N	X			On site personnel must watch wildlife video and have species brochures on hand.
	Y	Y	Y	N	N		X		On site personnel must watch wildlife video and have species brochures on hand.
	Y	Y	Y	Y	Y		X		On site personnel must watch wildlife video and have species brochures on hand.
	Y	N	Y	Y	Y	X			On site personnel must watch wildlife video and have species brochures on hand.
	Y	Y	N	Y	Y	X			On site personnel must watch wildlife video and have species brochures on hand.
	Y	N	N	Y	Y	X			On site personnel must watch wildlife video and have species brochures on hand.

Practice Name	Site Specifics					Effects Determination			Practice Impact to Species
	Within Consultation Area*	Within Suitable Habitat	RCW Within Project footprint and 0.5 Mile Buffer Zone	Conservation Measures will Avoid Impacts	Project Modification to Minimize Adverse Effects and Offer Onsite Enhancement	NE	NLAA	MA	
	Y	N	Y	N	N	X			On site personnel must watch wildlife video and have species brochures on hand.
	N	N	N	N	Y	X			On site personnel must watch wildlife video and have species brochures on hand.
	Y	N	N	N	Y	X			On site personnel must watch wildlife video and have species brochures on hand.
	Y	Y	N	N	Y	X			On site personnel must watch wildlife video and have species brochures on hand.
	Y	Y	Y	N	Y		X		On site personnel must watch wildlife video and have species brochures on hand.
	Y	Y	Y	Y	N		X		On site personnel must watch wildlife video and have species brochures on hand.

Practice Name	Site Specifics					Effects Determination			Practice Impact to Species
	Within Consultation Area*	Within Suitable Habitat	RCW Within Project footprint and 0.5 Mile Buffer Zone	Conservation Measures will Avoid Impacts	Project Modification to Minimize Adverse Effects and Offer Onsite Enhancement	NE	NLAA	MA	
	Y	N	Y	Y	N	X			On site personnel must watch wildlife video and have species brochures on hand.
	Y	Y	N	Y	N	X			On site personnel must watch wildlife video and have species brochures on hand.
	Y	N	N	Y	N	X			On site personnel must watch wildlife video and have species brochures on hand.
	Y	N	Y	N	Y	X			On site personnel must watch wildlife video and have species brochures on hand.

***If there is a land use change, but it is not within habitat which is not suitable for the red cockaded woodpecker Factor 3, the project will always have a NO EFFECT.**

Bonneted Bat Screening for all Tribal Reservations



Factor 1:

Has the project site area been surveyed for bats?

- ☐ Yes No bonneted bats present on site. NO EFFECT.
- ☐ Yes Bonneted bat observed on site. Go to **Factor 3.**
- ☐ No Go to **Factor 2.**

Factor 2:

Step 1: Does the potential project site occur or is partially within suitable habitat for the bonneted bat?

Land Use	
1. Pine Flatwoods	2. Developed Areas
3. Hardwood Forest	4. Cabbage Palms

- ☐ Yes The project is likely to occur within suitable habitat. Use conservation measures. MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT.
- ☐ No Continue to **Factor 3.**

Factor 3:

What type of activity will the proposed project require?

- ☐ Temp. Construction¹ MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT.
- ☐ Land use Change² MAY AFFECT.

¹ Any construction in which the land may be disturbed for a short amount of time and then restored back to its original state (i.e. installing underground utilities...) or site can reasonably be expected to restore on its own after a short period of time.

☐ Land Management³

MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT.

☐ Maintenance⁴

NO EFFECT.

² Any activity in which the current land use is to change permanently.

³ Activities include prescribed burning, exotic removal (chemical and mechanical)

⁴ Any activity in which an existing structure is maintained to original design (i.e. ditch maintenance, fire line maintenance...)

☐ **No Effect (NE)**☐ May Affect, Not Likely to Adversely Affect (NLAA)☐ **May Affect**

NOTES FOR FILE

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

NAME: _____ TITLE: _____

3

APPENDIX A.

ANALYSIS OF EFFECTS

Step 1: Bonneted Bat - STOF Practice Effects Table

The goal of this table is to provide conservation measures that will help minimize the effects of a practice on the bonneted bat habitat, therefore avoiding May Affect determination and reducing practice effects to a May Affect, Not Likely to Adversely Affect (NLAA) determination.

Assumptions

- This table assumes that the potential STOF project has already been determined to be in bonneted bat habitat.
- This table includes practices that could potentially result in a may affect determination for the bonneted bat. This determination could then potentially result in formal consultation with the U.S. Fish and Wildlife Service.

Table Directions

- Search table for practices that will be implemented at a specific project site
- Look in the **Practice Impacts to Species** column to see if a Conservation Measure is indicated for a NLAA determination; follow the Conservation Measure parameters as described in Appendix B.
- Once the effects analysis for the practice is complete, check the appropriate box on page 3. This is the final part of the bonneted bat screen.

APPENDIX A

Bonneted bat – STOF Practice Effects Table

Practice Name	Site Specifics			Effects Determination			Practice Impact to Species
	Within Habitat	Site Surveyed	Bat Present	NE	NLAA	MA	
Home Site Lease	N	Y/N	N	X			
	Y	Y	Y			X	Protect old trees and snags with hollows or cavities, especially large ones.
	Y	N	N				Site needs to be surveyed.
	Y	Y	N		X		Protect old trees and snags with hollows or cavities, especially large ones. Mandatory workshop and brochures.
Business Lease	N	Y/N	N	X			
	Y	Y	Y			X	Protect old trees and snags with hollows or cavities, especially large ones.
	Y	N	N				Site needs to be surveyed.
	Y	Y	N		X		Protect old trees and snags with hollows or cavities, especially large ones. Mandatory workshop and brochures.
Land Management	N	Y/N	N	X			
	Y	Y	Y		X		Protect old trees and snags with hollows or cavities, especially large ones. . Rake and/or clear vegetation around the base of known or suspected roost sites to remove fuel load before conducting prescribed burns.
	Y	N	N				Site needs to be surveyed.

Practice Name	Site Specifics			Effects Determination			Practice Impact to Species
	Within Habitat	Site Surveyed	Bat Present	NE	NLAA	MA	
	Y	Y	N	X			Protect old trees and snags with hollows or cavities, especially large ones. . Rake and/or clear vegetation around the base of known or suspected roost sites to remove fuel load before conducting prescribed burns. Mandatory workshop and brochures.
Utilities	N	Y/N	N	X			
	Y	Y	Y		X		Protect old trees and snags with hollows or cavities, especially large ones.
	Y	N	N	X			Site needs to be surveyed.
	Y	Y	N	X			Protect old trees and snags with hollows or cavities, especially large ones. Mandatory workshop and brochures.
Roads	N	Y/N	N	X			
	Y	Y	Y		X		Protect old trees and snags with hollows or cavities, especially large ones.
	Y	N	N				Site needs to be surveyed.
	Y	Y	N	X			Protect old trees and snags with hollows or cavities, especially large ones. Mandatory workshop and brochures.