

MIRASOL

**SEC 10, 11, 15, & 22, TWP 48S, RNG 26E COLLIER COUNTY,
FLORIDA**

Listed Species Survey Summary

**Updated
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PREPARED BY:



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I. INTRODUCTION

The proposed Mirasol project encompasses a total of approximately 1,798 acres in four sections of northern Collier County north of CR 846 and east of Interstate 75. A residential and golf course community is planned, with access to be provided from Immokalee Road (CR 846) along the southern property boundary. Most of the southern two sections were historically mowed and continue to be used as cattle pasture. Altered sheet flows, originating from the north and east currently back up at the Cocohatchee Canal outfall and flood the property on an annual basis. This has led to unchecked proliferation of melaleuca across the entire property that has depressed wildlife utilization of the area.

To characterize surrounding land use, a large residential development is located to the north of the property while lands to the east consist of undeveloped parcels, a mitigation parcel, and several single-family home-sites. Further to the east is another large residential project. The properties to the west of the subject parcel consist of the (not yet under construction) Parklands development (north), the proposed (and under construction) Saturnia (central) development, and the existing Olde Cypress (south) development. The southern property boundary abuts the drainage easement and Cocohatchee canal alongside of Immokalee Road (CR 846).

To consider potential effects of the proposed project on any state or federally listed species that may utilize the property for feeding/foraging and/or nesting, a Threatened and Endangered Species Survey was originally performed in 2000 and 2001. Subsequent site visits and surveys have kept the investigations current. This report summarizes the results of the subsequent survey activities that have continued to date on the subject property.

II. METHODOLOGY

Prior to any wildlife survey, careful consideration is given to the habitat type/s in question and species that are known to utilize such areas. Before any survey is carried out a number of publications and references are consulted. These include: The Official List of Florida's Endangered Species, Threatened Species and Species of Special Concern (latest dated June, 2006), Florida Fish and Wildlife Conservation Commission (FWCC) Wildlife Methodology Guidelines, The Standardized State-Listed Animal Survey Procedures for SFWMD ERP Projects, and the Florida Natural Areas Inventory (FNAI) for Collier County.

The basic objective of any wildlife survey is to obtain evidence that a listed species is using the subject site. The site may comprise a primary or secondary feeding/foraging or nesting zone or merely be adjacent to those sites for a particular listed species. As many species of concern in Florida are cryptic/camouflaged and/or nocturnal/crepuscular, patience and sufficient time must be devoted to the survey.

Aerial photos and FLUCCS mapping are consulted prior to arriving on-site and a system of meandering transects is followed throughout the subject area. The most recent field study traversed the entire site in a series of transects spaced approximately 400 feet apart. Fieldwork has taken place from June 1999 to March 2012 and more than 1,250 hours have been spent on site devoted to wildlife survey. In addition to the transects, drift fence and pit trap sampling, track count surveys, tree basal area surveys, and fish sampling has been conducted.

A slow pace along transects was maintained, stopping every few minutes to look and listen for movement or calls of any animal. Indirect evidence such as rootings, scrape marks, nests, cavities, burrows, tracks and scat were looked for and duly noted. Most recently, observation stations were established to concentrate observations in areas where wildlife utilization has been more apparent. The stations are blinds set up for optimal viewing corridors and distances with minimal exposure to detection.

Drift fences and pit traps have been set up during the dry season to sample for small mammals and amphibians. Essentially a cross is formed with silt fencing and buckets are buried along the fence even with the ground level. Small animals travel and are guided along the fence where they then fall into the buckets.

Track counts involve the monitoring stretches of sandy areas for animal tracks that cross those areas. Based on the number of tracks that completely cross the area over a given period of time, population indices can be calculated.

Fish sampling is conducted with both throw traps and acrylic funnel traps during the wet season. Number of fish and number of species is collected in order to calculate both diversity and density of fish populations across the site.

Between all of these surveys, a year-round presence on the property has been maintained for the last several years. Essentially, the site is observed at least twice a month during the dry season and once a week during the wet season. A list of dates and times of wildlife surveys for the last year is provided for review.

Species observed during the monitoring are included below.

III. RESULTS AND DISCUSSION

A list of all wildlife species observed on or adjacent to the site is provided below.

Common Name

Scientific Name

Fish and Aquatic Invertebrates

Mosquito fish

Gambusia affinis

Least killifish

Heterandria formosa

American flagfish

Jordanella floridae

Golden topminnow
 Sailfin molly
 Sunfish
 Walking catfish
 Florida gar
 Unidentified cichlids
 Grass (Ghost) shrimp
 Crayfish
 Dragonfly nymphs

Fundulus chrysotus
Poecilia latipinna
Lepomis spp.
Clarias batrachus
Lepisosteus platyrhincus

Reptiles & Amphibians

Southern toad
 Green treefrog
 Eastern narrowmouth toad
 Florida cooter *
 Florida soft-shelled turtle *
 Green anole
 Southeastern five-lined skink
 Banded water snake
 Black racer
 Garter snake
 Dusky pygmy rattlesnake
 Water moccasin

Bufo terrestris
Hyla cinerea
Gastrophryne carolinensis
Pseudemys floridana
Apalone ferox
Anolis carolinensis
Eumeces inexpectatus
Nerodia fasciata
Coluber constrictor
Thamnophis sirtalis
Sistrurus millarius barbouri
Agkistrodon piscivorous

Birds

Anhinga *
 Snowy egret
 Cattle Egret
 Tricolored heron
 Little blue heron
 Green-backed heron
 Great Egret
 Great Blue Heron
 White ibis
 Wood Stork
 Nighthawk
 Cattle egret
 Mourning Dove
 Ground Dove
 Red-bellied woodpecker
 Pileated woodpecker
 Downy woodpecker
 Blue jay
 Cardinal

Anhinga anhinga
Egretta thula
Bubulcus ibis
Egretta tricolor
Egretta caerulea
Butorides striatus
Ardea alba
Ardea herodias
Eudocimus albus
Mycteria americana
Chordeiles minor
Bubulcus ibis
Zenaida macroura
Columbina passerina
Melanerpes carolinus
Drycopus pileatus
Picoides pubescens
Cyanocitta cristata
Cardinalis cardinalis

Carolina wren	<i>Thryothorus ludovicianus</i>
Grackle	<i>Quiscalus quiscula</i>
Wild Turkey *	<i>Meleagris gallopavo</i>
Red shouldered hawk	<i>Buteo lineatus</i>
Northern Harrier *	<i>Circus cyaneus</i>
Turkey Vulture *	<i>Cathartes aura</i>
Palm warbler	<i>Dendroica palmarum</i>
Mockingbird	<i>Mimus polyglottos</i>
Grey catbird	<i>Dumetella carolinensis</i>
Killdeer	<i>Charadrius vociferus</i>
Brown Thrasher	<i>Toxostoma rufum</i>
Blue-grey gnatcatcher	<i>Poliophtila caerulea</i>
White Eyed Vireo	<i>Vireo griseus</i>
Unidentified warblers	

Mammals

Nine-banded armadillo	<i>Dasypus novemcinctus</i>
Marsh rabbit?? (scat)	<i>Sylvilagus palustris</i>
Fox Squirrel	<i>Sciurus niger</i>
Raccoon (tracks)	<i>Procyon lotor</i>
White-tailed Deer	<i>Odocoileus virginianus</i>
Bobcat	<i>Lynx rufus</i>
Black Bear (tracks)	<i>Ursus americanus floridanus</i>

* Observed on adjacent properties or flying overhead.

During the survey period Wood storks were observed perching on trees near the southern access as well as feeding along the canal to the south of the property and within a ditch located on the farm field that is now part of the project site. In December of 2006 Woodstorks were also observed foraging in a small cattle pond in Section 22. Fox squirrels have been observed on several occasions moving among trees adjacent to higher quality cypress communities. One fox squirrel leaf nest that had been observed in the along the western boundary of the central area of Section 22 is no longer present. It is believed that this squirrel nest blew down and was rebuilt in a larger pine along the Section 21 and Section 22 border. Bear tracks have been observed on a dirt road to the east of Section 10 and along the fence line between Sections 10 and 15. An exhibit depicting listed species sightings is included for review.

A list of species that would be expected to occur on the subject site can be given through analysis of known vegetative communities both on-site and contiguous to the site and available background data. Sources include the Fish and Wildlife Service Multi Species Recovery Plan, Part 2, Appendix C, Species of Concern and their Respective Community Types in South Florida, in addition to communication with personnel at state and federal wildlife agencies.

Vegetative communities are presented by FLUCFCS code with numbers in accordance with the supporting map together with potential wildlife species. Consideration of the suitability and likelihood for a given community to support a particular species is given in light of adjacent and contiguous land uses.

Abbreviations used in the discussion are as follows;

F = Federal

S = State

E = Endangered

T = Threatened

SSC = Florida Species of Special Concern

C = Federal Candidate

* = FWS Species of Management Concern

R = Rare

FLUCFCS CODE 411 / 424: Slash Pine Flatwoods / Melaleuca

Appendix C lists the following potential species within the community type Mesic Pine Flatwoods; Florida Weasel (*Mustela frenaata peninsulae*, R), Big Cypress Fox Squirrel (*Sciurus niger avicennia*, *), Florida Black bear (*Ursus americanus floridanus*, FC, ST), Florida Panther (*Puma concolor coryi*, FE, SE), White Ibis (*Eudocimus albus*, SSC), American Kestrel (*Falco sparverius paulus*, *, ST), Sandhill crane (*Grus canadensis pratensis*, ST), Bald eagle (*Haliaeetus leucocephalus*, FT, ST), Red cockaded woodpecker (*Picoides borealis*, FE, ST), Audubons crested caracara (*Polyborus plancus audubinii*, FT, ST), Eastern Indigo snake (*Drymarchon corais couperi*, FT, ST), Gopher tortoise (*Gopherus polyphemus*, ST), Eastern Beard grass skipper (*Atryone arogos arogos*, *).

Of the above species, the Big Cypress Fox Squirrel, Florida Panther and Black Bear were highlighted by the U.S Fish & Wildlife Service (FWS – Andy Eller) as potentially occurring on this site or utilizing portions for range or feeding grounds. A Red-cockaded woodpecker study was required by FWS on the property. No RCWs were observed during an adjacent property survey or during the threatened and endangered species survey or RCW surveys of this site. Due to the nature of the vegetation and dense melaleuca mid-story vegetation, none are expected. Wood Storks (FE) were also highlighted as potentially utilizing the site because of the wet nature of the existing conditions. Typical habitat required by the Big Cypress Fox Squirrel consists of mature open slash pine adjacent to cypress forests. The majority of the property does consist of pine flatwoods, however melaleuca infestation is heavy throughout.

FLUCFCS CODE 643: Wet prairie

Appendix C lists the Cape Sable seaside sparrow (*Ammodramus maritimus mirabilis*, FE, SE), Tricolor Heron (*Egretta tricolor*, SSC), Snowy Egret (*Egretta thula*, SSC), Little

Blue Heron (*Egretta caerulea*, SSC), White Ibis (*Eudocimus albus*, SSC) as species that may utilize this vegetative community.

FLUFCS CODES 621/424/624: Mixed Cypress/Melaleuca/Pine

Listed species potentially observed within this classification include the following: Ivory Billed Woodpecker (*Campephilus principalis*, FE, SE) and Wood Stork (*Mycteria americana* FE). No sightings of the Ivory Billed Woodpecker have been verified on the US mainland in recent years except for a potential sighting in Arkansas last year. Wood storks were observed as described earlier in this report.

The hydrology of the site has been altered by upstream and downstream activities resulting in greatly elevated water levels during the wet season. This, combined with the former pasture mowing done on the site has led to a proliferation of exotic infestation. All of these regions have been impacted to varying degrees by the invasion of exotic plants, primarily Melaleuca, thus the ability to support viable populations of listed species is reduced.

IV. SUMMARY

The existing condition of the subject site is a heavily exotic infested, hydrologically altered, reduced viability property. Special interest in the property as Florida panther habitat was brought up in initial conversations with agency personnel. Investigation of the site in the course of this study has shown that the property offers, at best, limited use potential for the panther due to the exotic infestation, seasonally unnaturally high water levels and the distance from an established 'core area' of the panther. The site forms essentially a cul-de-sac at the outer limits of potential panther ranging towards North Naples. It is surrounded on three and a half sides by existing or proposed development. According to the Florida Fish and Wildlife Conservation Commission, the closest known panther is an uncollared animal that ranges into Bird Swamp Rookery approximately three miles to the northeast. Telemetry data from the Conservation Commission shows that a collared panther (#92) was located immediately adjacent to the project site in 2001. The subject property offers a limited prey base, limited denning opportunities due to the exotic vegetation and annually elevated water levels across the site, and no through connectivity to other panther areas.

Development of the subject site is not expected to result in detrimental impacts to state or federally listed wildlife species, primarily because past use patterns, surrounding activities, and altered hydrology, as outlined above, have reduced the sites' ability to support populations of listed species. In the most recent U.S. Fish and Wildlife Service Biological Opinion for the proposed project FWS stated that the project would not jeopardize the existence of wood storks or panthers. They also opined that the project may impact wood storks by eliminating potential forage base due to the proposed wetland impacts but their opinion was that the enhancements proposed to the project preserves

would more than off-set the proposed impacts. The additional enhancements now proposed along with the reduction in project footprint associated with the most recent changes will only give further assurances that wood storks will not be adversely affected by the project.

The property does have the potential to support several listed species, as well as a host of non-listed resident and transient species. Preservation and enhancement of an extensive on-site preserve will increase the usefulness of the property as feeding/foraging areas for all species currently utilizing the site and should also attract several others that are not currently utilizing the site. Proper management of the preserve areas, coupled with the size of the preserve, and the limited access should serve to create an area of great use to several local listed species. Wood storks will gain valuable forage area from the open exotic free areas and the proposed constructed foraging enhancements. Fox squirrels will benefit from the re-establishment of the pine flatwoods community. Red-cockaded woodpeckers may find the site favorable to set up a colony in the preserve once all of the melaleuca has been removed and a midstory maintenance program has been established. Bears and panthers would have access to a large secondary forage area that, with the removal of the exotic vegetation, will provide a more varied and stable forage base.

Because of the potential for listed species utilization of the property, Habitat Management Plans will be created and implemented in the proposed preserves. These plans may call for site-specific management activities to take place that will improve habitat value for the target species. These practices may include periodic burning, planting plans, midstory vegetation removal, or other management practices. The plan or plans will be provided as the details are coordinated and finalized with the relevant agencies.