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March 30, 2024

OM Engineering, Inc.
621 East Washington Street, Suite 8
Orlando, Florida 32801

RE: Preliminary Ecological Assessment
CR 561 & Lakeshore Drive Roundabout
Lake County, Florida
Thomson Project No. 23-1403

Thomson Environmental Consulting, LLC (Thomson) completed a Preliminary Ecological Assessment, including a Jurisdictional Wetland and Surface Water Evaluation and Protected Wildlife Species Survey, of the project identified as the "CR 561 & Lakeshore Drive Roundabout" ("the project" or "the property") in Lake County, Florida. The field portions of the survey were conducted on June 21, 2023, and March 30, 2024. The purpose of the field visit was to evaluate the subject property for the presence of jurisdictional wetlands and/or surface waters and protected wildlife species and/or their habitat. The following report (and referenced exhibits) describes relevant ecological conditions observed on the site during the field investigation and the results of documented literature resources.

SITE DESCRIPTION AND LOCATION

The project is located at the existing intersection of County Road 561 (CR 561) and Lakeshore Drive and includes a portion of a county-owned parcel north of the intersection. The project area measures ±5.54 acres.

Figure 1 is a location map showing the property and surrounding infrastructure.

Figure 2 is a true-color rectified aerial (circa 2023) of the property and its immediate surroundings.

Figure 3 is a topographic quadrangle map showing the topographic relief on the property and in the local region surrounding the site.

SOILS

Soils were identified using the Natural Resource Conservation Service's *Soil Survey of Lake County, Florida*. The following soil unit and description was mapped by the soil survey on the property:

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- Apopka Sand, 5 to 12 Percent Slopes (Map Unit 6) – This is a well drained, sandy soil indicative of upland areas in Lake County.

Figure 4 shows the property and soils as mapped by the soil survey.

JURISDICTIONAL WETLAND AND SURFACE WATER EVALUATION

Documented Literature Search

Prior to the field visit, Geographic Information System (GIS) data from the Florida Fish and Wildlife Conservation Commission (FWC) and the Florida Natural Areas Inventory (FNAI) was used to identify documented vegetative communities and land uses per the Florida Land Use, Cover, and Forms Classification System (FLUCCS, 1998) on the property. Additionally, the US Fish and Wildlife Service (USFWS) has compiled a reference dataset known as the National Wetland Inventory (NWI) which provides information on the abundance, characteristics, and distribution of wetlands, primarily as determined through detailed imagery analysis. In addition to these resources, the topographic map and county soil survey were reviewed to identify indicators of potential jurisdictional wetlands and/or surface waters on the property.

Vegetative Communities and Land Uses (FLUCCS)

Existing vegetative community mapping identified the project area as Transportation and Citrus Grove. The property had historically been used as a citrus grove according to historical aerials. The FLUCCS was updated based on Thomson's site review to include two cover types, FLUCCS 814 (Roads and Highways) to include the paved roadways and grassy rights-of-way associated with CR 561 and Lakeshore Drive, and FLUCCS 741 (Rural Land in Transition), which best describes the ruderal field that was formerly a citrus grove.

Figure 5 shows the property with the FLUCCS areas as defined by Thomson.

National Wetland Inventory (NWI)

The NWI does not depict any wetland systems within the project area. It depicts lakes and forested wetland systems to the regional west and north.

Figure 6 shows the NWI as mapped by the USFWS.

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Topographic Map

The topographic map (Figure 3) depicts the property as roadways with a portion of land depicted with grove trees. The property slopes downward to the west (toward Lake Glona) and to the general north, toward an unnamed surface water.

Hydric Soils

The soils map (Figure 4) identifies one soil type, Apopka Sand, 5 to 12% Slopes, which is not hydric and does not contain any hydric inclusions over its mapped areal extent in Lake County.

Field Reconnaissance and Observations

During the field reconnaissance, the entire project area was traversed by pedestrian transects to identify and evaluate the onsite conditions relevant to jurisdictional wetlands and/or surface waters. Jurisdictional wetlands and/or surface waters were identified in the field using the methodology contained in Chapter 62-340 F.A.C.

The property was noted to be existing paved roadways with grassy, maintained rights-of-way. The undeveloped portion of the property contained upland vegetation, including the following: laurel oak (*Quercus laurifolia*), bahiagrass (*Paspalum notatum*), vaseygrass (*Paspalum urvillei*), johnsongrass (*Sorghum halepense*), rose natal grass, (*Melinis repens*), beggar-ticks (*Bidens* spp.), lantana (*Lantana* sp.), ragweed (*Ambrosia artemisiifolia*), dog fennel (*Eupatorium capillifolium*), flat-topped goldenrod (*Euthamia minor*), heartwing sorrel (*Rumex hastatulus*), indigo (*Indigofera suffruticosa*), and catbrier (*Smilax* sp.). Several areas were noted to be vegetated solely by dense monocultures of cogongrass (*Imperata cylindrica*). The soil was sandy with no signs of hydric indicators. There were no indicators of hydrology.

Jurisdictional Wetland Summary

No jurisdictional wetlands or surface waters were identified within the project area.

PROTECTED WILDLIFE SPECIES SURVEY

Protected wildlife species are defined as those listed as Threatened, Endangered, or Species of Special Concern by the (USFWS) and/or the Florida Fish and Wildlife Conservation Commission (FWC). The survey consisted of both a search of documented literature and a field reconnaissance.

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Documented Literature Search

Prior to the field investigation, documented literature resources were consulted regarding known occurrences of protected wildlife species on or in the vicinity of the project site. These included the FWC's Bald Eagle (*Haliaeetus leucocephalus*) Nest Locator (*https://public.myfwc.com/FWRI/EagleNests/nestlocator.aspx*) and Waterbird Colony Locator (*http://atoll.floridamarine.org/waterBirds/*) online locator sites.

The closest documented eagle's nest (Nest ID LA133) is located over 2.6 miles west-northwest of the property. The closest documented waterbird colony (Atlas No. 612302) is located more than 6.5 miles west of the property. All documented nests or colonies are located outside of any applicable buffer protection zones.

The NRCS Web Soil Survey (*https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx*) was used to identify soils suitable for the burrowing needs of gopher tortoises. The soil criteria that are taken into account in this soil interpretation are those that have been determined to have the most effect on burrow excavation, maintenance, and preservation. These include the soil texture, percent coarse fragments, depth to a restrictive layer or layer with greater than or equal to 35% clay, ponding or flooding frequency, slope, and depth to seasonal high water table. The onsite soil type was rated "Highly Suited". Refer to Appendix A for the NRCS Gopher Tortoise Burrowing Suitability.

Utilizing the USFWS's Information for Planning and Consultation (IPaC) website (results attached as Appendix B), the property was within the potential ranges of the following species:

AUDUBON'S CRESTED CARACARA
Caracara plancus audubonii
Threatened

Audubon's crested caracara is a large raptor with a crest, naked face, heavy bill, elongate neck, and unusually long legs. It is about 50 to 64 cm long and has a wingspan of 120 cm. The adult is dark brownish black on the crown, wings, back, and lower abdomen. The lower part of the head, throat, upper abdomen, and under tail coverts are white, sometimes tinged with yellow; the breast and upper back are whitish, heavily barred with black. The tail is white with narrow, dark crossbars and a broad, dark terminal band. Prominent white patches are visible near the tips of the wings in flight. The large, white patches in the primaries and the white tail, broadly tipped with black, are both very conspicuous in flight and can be recognized at a long distance. Juveniles have a similar color pattern but are brownish and buffy with the breast and upper back streaked instead of barred. Subadults resemble adults but are more brownish in color. Adults have yellow- orange facial skin and yellow legs. Facial skin of juveniles is

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pinkish in color, and the legs are gray. Full adult plumage is obtained sometime after 2 years of age. The bare skin on the face of this bird is an interesting and distinctive feature. When the bird is at rest, preening or being preened, or engaged in other non-aggressive behaviors, the facial skin is bright orange-red. When threatened, the color of the facial skin changes to a pumpkin color and finally to pale yellow. Apparently, threat or fear causes blood to bypass the subepidermal blood vessels, resulting in a change in facial skin color. The caracaras crest provides another method for communication. When a caracara is comfortable and not threatened, the crest lies flat. The crest is raised when they feel threatened, frightened, or are on alert. A caracaras feet and flight behavior are also notable. Their feet are clearly those of a raptor; however, their talons are flatter, enabling caracaras to run and walk more easily than other raptors. Caracaras are strong fliers and may reach speeds of 40 mph. They have also been observed soaring in large circles at great heights.

The region of greatest abundance for this subspecies is a five-county area north and west of Lake Okeechobee, including Glades, Desoto, Highlands, Okeechobee, and Osceola counties. The Florida population commonly occurs in dry or wet prairie areas with scattered cabbage palms. It may also be found in lightly wooded areas. Scattered saw palmetto, scrub oaks, and cypress may also be present. Widespread changes in land use may have forced a change in the type of habitat this subspecies will use. The caracara now uses improved or semi-improved pasture. The presence of seasonal wetlands may be an important factor in the attractiveness of these pastures to caracaras. (Reference: USFWS Audubon's Crested Caracara Profile *https://www.fws.gov/verobeach/MSRPPDFs/AudubonsCrestedCaracara.pdf*, refer to original for embedded citations)

EASTERN BLACK RAIL
Laterallus jamaicensis jamaicensis
Threatened

The black rail is the smallest rail in North America. Adults range from 10-15 centimeters in total length and have a wingspan of 22-28 cm. Eastern black rails weigh 35 grams on average and are larger but have less brightly colored plumage than California black rails. Males and females are similar in size, and adults are generally pale to blackish gray, with a small blackish bill and bright red eyes. The underparts from chin to abdomen are uniformly colored but are lighter on the chin and throat. The nape and upper back are chestnut and the remaining back, uppertail feathers, and remiges (wing flight feathers) are dark gray to blackish with small white spots and sometimes washed with chestnut-brown. The lower abdomen, undertail feathers and flanks are blackish streaked with narrow white and dark gray barring, washed with chestnut. Overall, males are darker and have pale to medium gray throats, while females are lighter and have pale gray to white throats. The tarsi (lower legs) and toes are a brownish gray or gray to blackish-brown.

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The eastern black rail is a wetland dependent bird primarily associated with herbaceous, persistent, emergent wetland plant cover. The subspecies requires dense overhead cover and soils that are moist to saturated (occasionally dry) and interspersed with or adjacent to very shallow water. The substrate of ideal habitat is generally considered to be moist soil with scattered small pools. Eastern black rails occur across an elevation gradient that lies between the lower and wetter portions of estuarine and palustrine marshes and the higher and drier adjacent uplands. Location of individuals across this gradient varies depending on hydrologic conditions. These habitat gradients have gentle slopes such that wetlands are capable of having large areas of shallow inundation (sheet water). These wetlands are able to shrink and expand based on hydrologic conditions and thus provide dependable foraging habitat across the wetted areas and wetland-upland transition zone for the subspecies. The wetland-upland transition zone is a narrow band of habitat where wetlands and uplands intersect and contains vegetation types from both habitats. These transition areas also provide important refugia during flooding events and minimize the risk of predation to black rails when well vegetated. (Reference: USFWS Species Status Assessment Report for the Eastern Black Rail, August 2019, *https://ecos.fws.gov/servcat/downloadfile/186791*, refer to original for embedded citations)

EVERGLADE SNAIL KITE
Rostrhamus sociabilis plumbeus
Endangered

The snail kite is a medium-sized raptor, with a total body length for adult birds of 36 to 39.5 cm and a wingspan of 109 to 116 cm. In both sexes, the tail is square-tipped with a distinctive white base, and the wings are broad, and paddle-shaped. Adults of both sexes have red eyes, while juveniles have brown eyes. The slender, decurved bill is an adaptation for extracting the kite's primary prey, the apple snail.

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

Snail kites require foraging areas that are 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 foraging. The interspersed emergent vegetation enables apple snails to climb near the surface to feed, breathe, and lay eggs. Nearly continuous flooding of wetlands for > 1 year is needed to support apple snail populations that in turn sustain foraging by the snail kite. (Reference: USFWS Everglade Snail Kite Multi-Species Recovery Plan for South Florida, *https://www.fws.gov/verobeach/MSRPPDFs/EvergladeSnailKite.pdf*, refer to original for embedded citations)

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FLORIDA SCRUB-JAY
Aphelocoma coerulescens
Threatened

(Note that this species was not contained within the IPaC results, the property is located within the USFWS-defined consultation area.)

The Florida scrub-jay is a blue and gray bird about the size of a blue jay. Scrub-jays have blue wings, head, and tail, and gray back and underparts, and a whitish forehead and neck. Unlike blue jays, this species does not have black markings or a crest.

The Florida scrub-jay is the only species of bird that is endemic to Florida. Scrub-jays inhabit sand pine and xeric oak scrub, and scrubby flatwoods, which occur in some of the highest and driest areas of Florida – ancient sandy ridges that run down the middle of the state, old sand dunes along the coasts, and sandy deposits along rivers in the interior of the state. Scrub-jays do best in areas that contain large quantities of oak shrubs that average 3.28-6.56 feet (1-2 meters). (Reference: FWC Florida Scrub-Jay Species Page*, https://myfwc.com/wildlifehabitats/profiles/birds/songbirds/florida-scrub-jay/*, refer to original for embedded citations)

EASTERN INDIGO SNAKE
Drymarchon corais couperi
Threatened

The eastern indigo snake is a large, non-venomous snake with populations occurring in portions of Florida and southeastern Georgia. Historically, the eastern indigo snake occurred throughout Florida and in the coastal plain of Georgia, Alabama and Mississippi. Although the eastern indigo snake is difficult to consistently locate in the field, important life history characteristics and species needs have been learned from numerous studies. The eastern indigo snake is a diurnal species. The species prefers upland habitat types (e.g. longleaf pine sandhills, scrub, pine flatwoods, tropical hardwood hammocks, and coastal dunes), but also uses a variety of lowland and human-altered habitats. They may move seasonally between upland and lowland habitats, especially in northern portions of their range. Throughout their range, eastern indigo snakes use below-ground shelter sites for refuge, breeding, feeding and nesting.

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 commonly used by this species include active or

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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, ground litter, brush piles, trash piles, and abandoned structures, and crevices of rock-lined ditch walls and other similar refugia. (Reference: USFWS Eastern Indigo Snake Profile, *https://www.fws.gov/verobeach/MSRPPDFs/EasternIndigoSnake.pdf*, refer to original for embedded citations)

SAND SKINK
Neoseps reynoldsi
Threatened

Sand skinks are endemic to, which means they occur only on, the sandy ridges of central Florida. Skink distribution is defined by three factors: county, elevation, and soil types. Primary populations of sand skinks occur on the Lake Wales, Winter Haven, and Mt. Dora Ridges in Highlands, Lake, Marion, Orange, Osceola, Polk, and Putnam Counties. Skinks are generally found at elevations 82 ft above sea level and higher. Skinks occur in excessively drained, well-drained, and moderately well-drained sandy soils.

Skink soils typically support scrub, sandhill, or xeric hammock natural ecological communities, such as oak-dominated scrub, turkey oak barrens, high pine, and xeric hammocks. Typical upland habitat for both sand skinks consists of sand pine-rosemary scrub or longleaf pine-turkey oak association. Sand skinks have also been documented in skink soils where natural vegetative cover has been altered for human uses such as pine plantations, active or inactive citrus groves, pastures, and residential developments, as well as neglected vegetative cover like old fields and overgrown scrub. Habitat condition or vegetative cover alone cannot be used to exclude areas that might be used by sand skinks.

Sand skinks typically occur in areas that contain a mosaic of open sandy patches interspersed with forbs, shrubs, and trees. Sand skink tracks are usually observed in open sandy areas. Sand skink tracks appear most abundant in the ecotone, or edges, between areas with abundant leaf litter and vegetative cover and adjacent open sands. Specific physical structures of habitat that sustain sand skink populations include a well-defined leaf litter layer on the ground surface and shade from either a tree canopy or a shrub layer, but not both. Leaf litter likely provides important skink foraging opportunities. Shade provided by a tree canopy or a shrub layer likely helps skinks regulate body temperature to prevent overheating. However, having both a tree canopy and a shrub layer appears to be detrimental to skinks. (Reference: *USFWS Peninsular Florida Species Conservation and Consultation Guide: Sand Skink and Blue-Tailed (Bluetail) Mole Skink*, refer to original for embedded citations)

In addition to the listed wildlife species, the following plant species were listed:

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- Britton's Beargrass (*Nolina brittoniana*) – Endangered
- Lewton's Polygala (*Polygala lewtonii*) – Endangered
- Papery Whitlow-wort (*Paronychia chartacea*) – Threatened
- Pigeon Wings (*Clitoria fragrans*) – Threatened
- Pygmy Fringe-Tree (*Chionanthus pygmaeus*) - Endangered

While not federally-protected (and therefore not included on the IPaC), the following state-listed wildlife species is known to occur in the area of the property:

GOPHER TORTOISE
Gopherus polyphemus
State-Threatened

The gopher tortoise is a moderate-sized, terrestrial turtle, averaging 9–11 inches in length when fully grown, though it can reach lengths of up to 15 inches (Ernst et al. 1994). The species is identifiable by its stumpy, elephantine hind feet and flattened, shovel-like forelimbs covered in thick scales. Hatchling (<1-year-old) and juvenile tortoises tend to be yellow-orange and brown in color (see hatchling photo, right), but the bright coloration fades with age. The shell of an adult gopher tortoise is generally tan, brown, or gray in coloration. Adult male and female tortoises can be differentiated by the presence or absence of a concavity on their lower shell (plastron); mature males will exhibit this concavity, whereas females will have a flat lower shell.

Gopher tortoises prefer well-drained, sandy soils found in habitats such as longleaf pine sandhills, xeric oak hammocks, scrub, pine flatwoods, dry prairies, and coastal dunes. They are also found in a variety of disturbed habitats including pastures and urban areas. Suitable gopher tortoise habitat contains well-drained sandy soils for digging burrows and nesting, abundant herbaceous plants for forage, and open, sunny areas with sparse canopy for nesting and basking. Periodic natural fires historically played an important role in many of the habitats where tortoises are found, as fire reduces canopy cover and promotes growth of herbaceous forage plants. When fire is suppressed from these environments, the habitat may become unsuitable for gopher tortoises.

No USFWS-identified Critical Wildlife Habitat was mapped on (or in a relevant proximity) to the property.

In addition to the federally listed wildlife species identified by the USFWS IPaC website, a Biodiversity Matrix Query was run for the area of the property (identified as Matrix Unit ID 38141, with the matrix unit ID representing one square mile) through the databases maintained by the Florida Natural Areas Inventory (FNAI). The Biodiversity Matrix Query Results are included as Appendix C.

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One Documented Element was identified within the one square mile Matrix Unit:

- Narrowleaf Naiad (*Najas filifolia*) – State-Threatened

No Documented-Historic Elements were identified within the one square mile Matrix Unit.

The following Element was identified as Likely (based on the species of community known to occur or considered likely to occur) within the one square mile Matrix Unit:

- Sandhill Upland Lake

The following state-listed wildlife species were identified as Potential Elements (based on Documented occurrences in the region):

- Florida Sandhill Crane (*Antigone canadensis pratensis*) – State-Threatened
- Florida Burrowing Owl (*Athene cunicularia floridana*) – State-Threatened
- Gopher Tortoise (*Gopherus polyphemus*) – State-Threatened

Numerous state-listed vegetative species were included in the Potential Elements list within the one square mile Matrix Unit. Refer to the Biodiversity Matrix Query Results for these listed species.

See Figure 7 for a map depicting potential Wildlife Species Issues.

Field Reconnaissance and Observations

A protected species survey and habitat assessment was conducted on the property during the field surveys on June 21, 2023, and March 30, 2024. Refer to Appendix D for site photographs showing representative habitat on the property.

None of the federal or state listed plant species were observed within the project boundaries.

No bald eagles or protected wading birds were observed during the field visit. No nests or juveniles were observed on the property. There were no suitable nesting trees observed on the property.

There was no requisite wetland habitat present onsite for use by wetland-dependent avifauna.

There were no cabbage palms on the property preferred by the Crested Caracara.

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There were no xeric oaks or scrub habitat located on the property, so there is no requisite habitat for the Florida scrub jay.
The undeveloped portions of the property meet the criteria for suitable sand skink habitat based on soils, elevation, and location. An informal, pedestrian survey for the sand skink was performed over 100% of the uplands on the property. No tracks or individuals were observed during the survey. It is Thomson's opinion that the thick vegetative coverage of various upland grasses and herbs, in addition to the historical use of the property as citrus grove, has vastly lowered the potential for the property to provide habitat. However, according to USFWS protocol, a Formal Coverboard sand skink survey performed between March 1st - May 15th or October 15th – December 15th is the only way to prove the absence of the sand skink from the property. Coordination via email with the USFWS is recommended to request that a Formal Coverboard sand skink survey not be required for the property (which is up to the discretion of the USFWS to forego) or, alternatively, a Formal Coverboard sand skink survey should be performed to determine presence or absence of the skink species.

A survey for gopher tortoises and/or occupied habitat was conducted over 100% of the upland habitat on the property by Mr. Joel Thomson of Thomson Environmental Consulting, LLC (an Authorized Agent for surveying by FWC). The results of the survey yielded two (6) Potentially Occupied (PO) gopher tortoise burrows and one (1) Abandoned gopher tortoise burrow either on or within 25 feet of the project area. The two PO burrows were located on the southern end of the project within approximately 5 feet and 20 feet of the project area boundary. Depending on the limits of construction, these burrows may need to be permitted for tortoise relocation. It is possible, if the burrows are not impacted (as they will continue to have access to upland habitat to the east and south), that they could remain post-development of the project. Greater accuracy with respect to the limits of construction and burrow location (which was captured using hand-held GPS), as well as coordination with the FWC, is recommended to determine the need for relocation efforts. Regardless, another 100% Formal Gopher Tortoise Survey should be conducted within 90 days of the intended construction.

Refer to Figure 8 for a map depicting the location of observed gopher tortoise burrows.

Based on the presence of gopher tortoise burrows and other refugia (i.e., mammal holes), there is the minor potential for the presence of the Eastern indigo snake. If necessary, the onsite activities could incorporate the USFWS' *Standard Protection Measures for the Eastern Indigo Snake*, which primarily consist of posting signage on the property during construction and educating onsite contractors on protocols to be followed should an Eastern indigo snake be observed. By following these protection measures, and as detailed in the USFWS Eastern Indigo Snake Programmatic Key, it is expected that a "Not Likely to Adversely Affect" determination is appropriate.

No other protected wildlife species concerns were observed during the course of the field survey. Based

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on the fact that the property contains existing transportation corridors and ruderal upland habitat that does not meet specific listed species' requisite criteria, it does not provide optimal onsite habitat or connectivity to meet the unique needs of protected wildlife species.

LIMITATIONS OF THIS REPORT

It is important to note that the conclusions of this report are necessarily based on the conditions observed on the day of the field reconnaissance. Due to this "snapshot" view of the site, the results presented in this report may not accurately reflect changing site conditions and/or wildlife species' temporal and spatial movements.

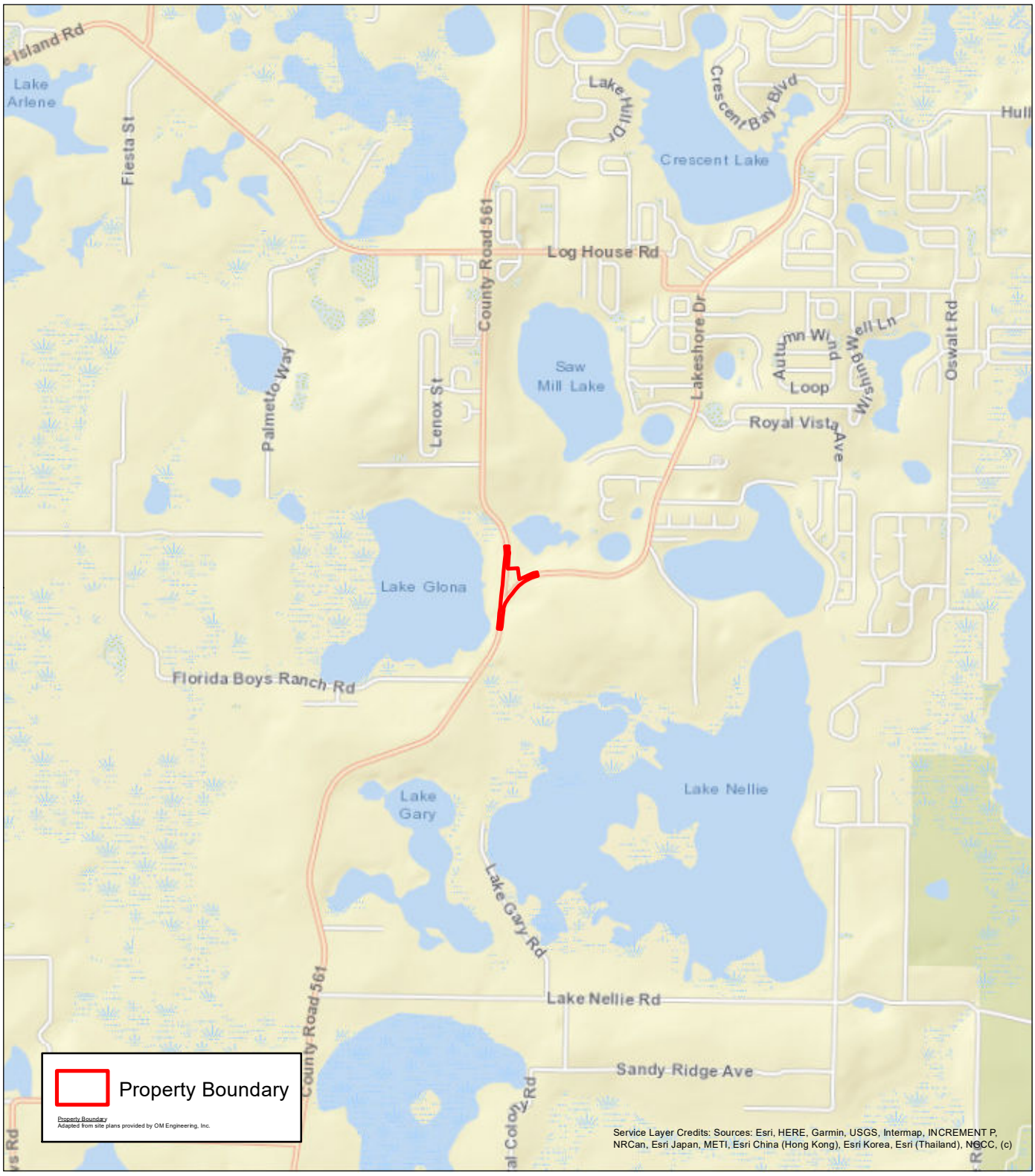
Thomson appreciates the opportunity to provide these services to you. If there are questions regarding this report, or a need for further information, please contact the undersigned at your convenience.

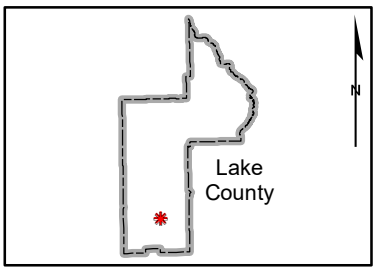
Respectfully,
Thomson Environmental Consulting, LLC

Joel A. Thomson
President

Attachments: Figures 1-8
Appendices A-D

FIGURES





General Location

0 0.25 0.5

1" = 0.5 mile

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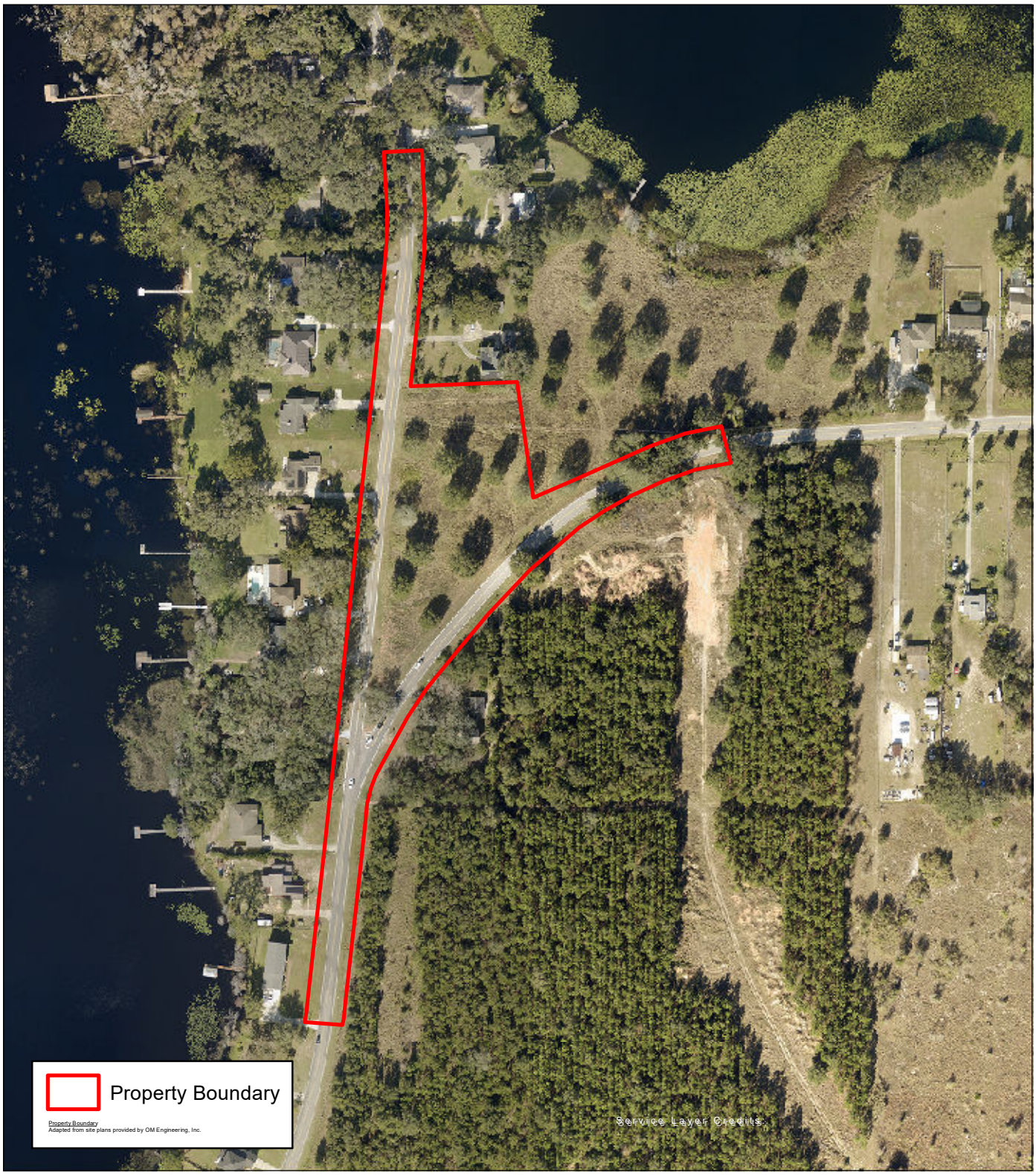
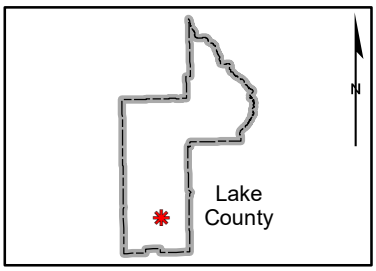
Figure 1
Location Map

CR 561 & Lakeshore Roundabout
Lake County, Florida
Section 14, Township 23 S, Range 25 E

Thomson Project No. 23-1403
March 2024





General Location

0 125 250

1" = 250'

Figure 2

2023 Aerial Photograph

CR 561 & Lakeshore Roundabout

Lake County, Florida

Section 14, Township 23 S, Range 25 E

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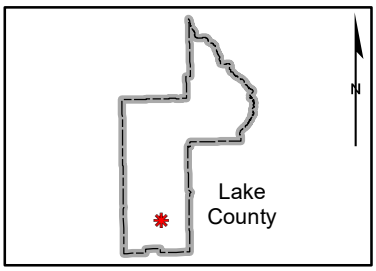

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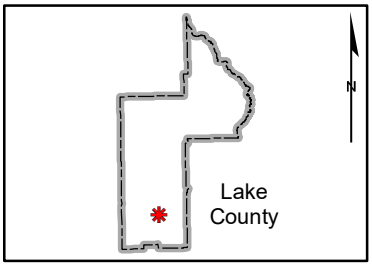
Figure 3
Topographic Map
CR 561 & Lakeshore Roundabout
Lake County, Florida
Section 14, Township 23 S, Range 25 E

Thomson Project No. 23-1403
March 2024



General Location

0 125 250

1" = 250'

Figure 4

Soils Map

CR 561 & Lakeshore Roundabout

Lake County, Florida

Section 14, Township 23 S, Range 25 E

thomson
ENVIRONMENTAL CONSULTING

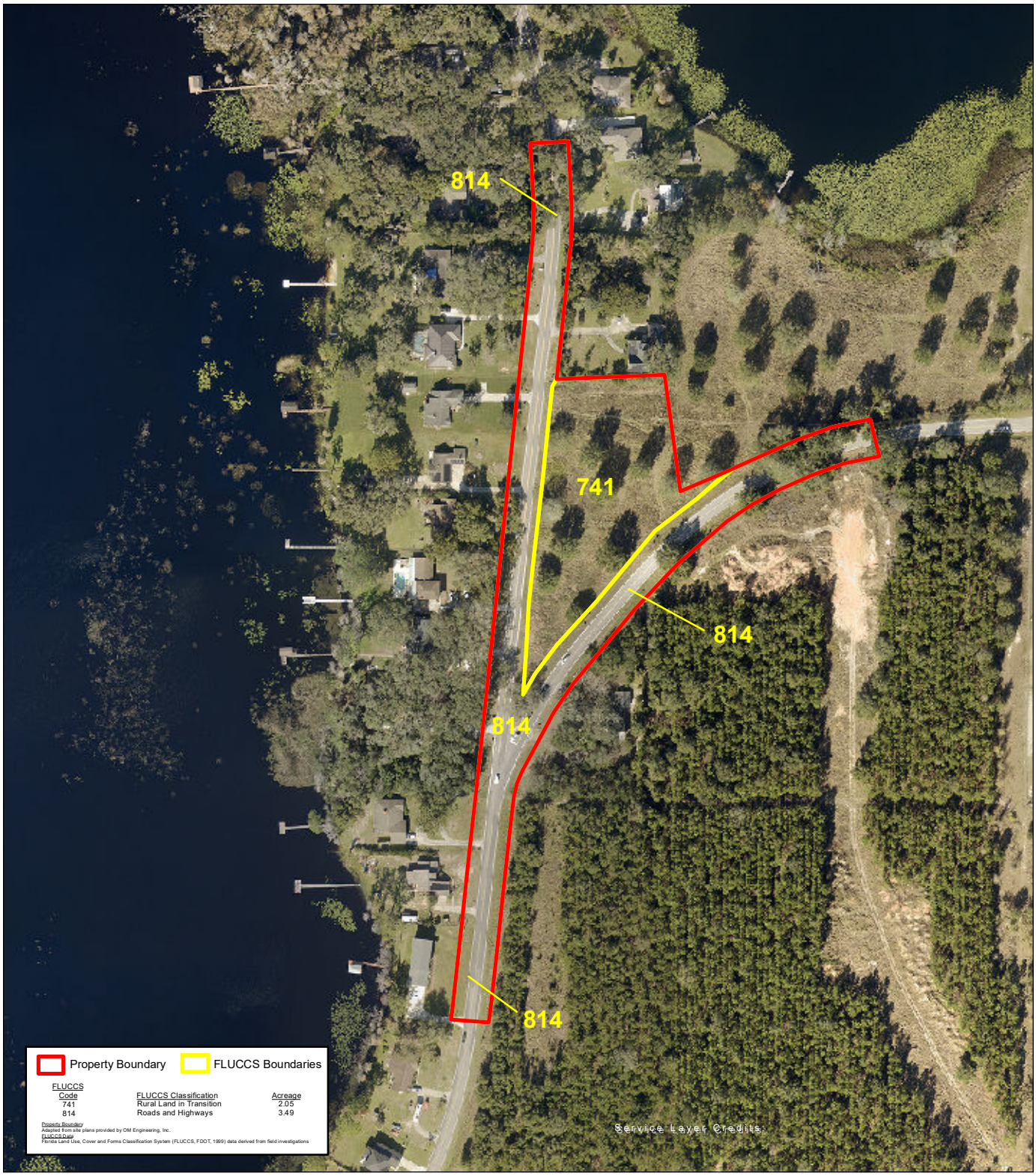
2324 LEU ROAD ORLANDO, FLORIDA 32803

TEL 407.374.3681 CELL 407.405.8725

WWW.THOMSONENV.COM

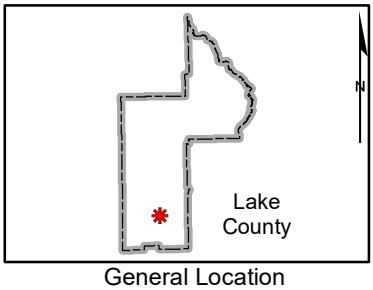
Thomson Project No. 23-1403

March 2024



0 125 250

1" = 250'



General Location

thomson
ENVIRONMENTAL CONSULTING
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TEL 407.374.3681 CELL 407.405.8725
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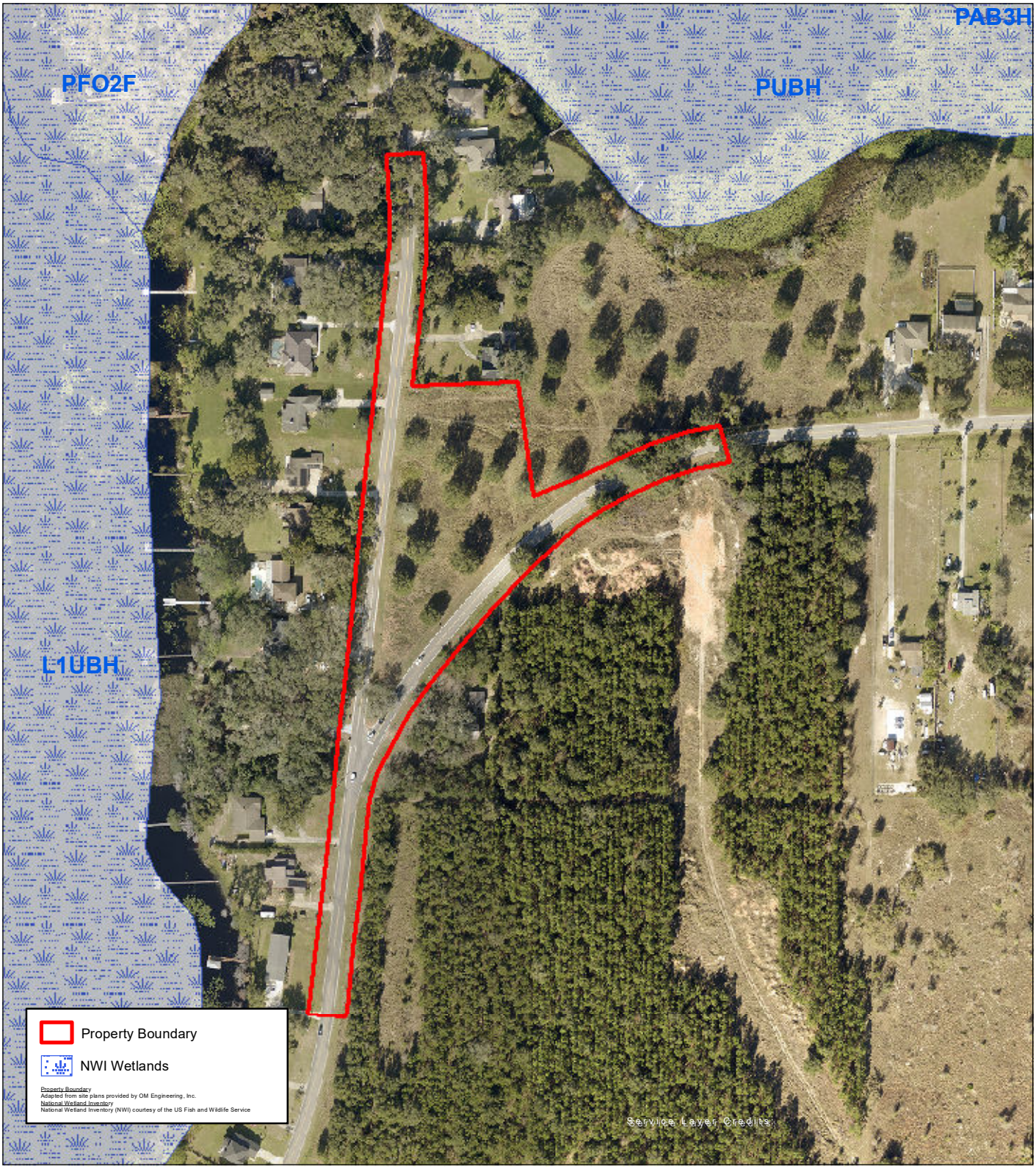
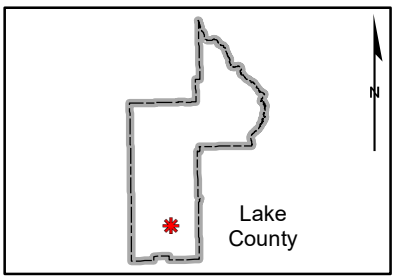
Figure 5
Land Cover Map
CR 561 & Lakeshore Roundabout
Lake County, Florida
Section 14, Township 23 S, Range 25 E

Thomson Project No. 23-1403
March 2024



0 125 250

1" = 250'



General Location

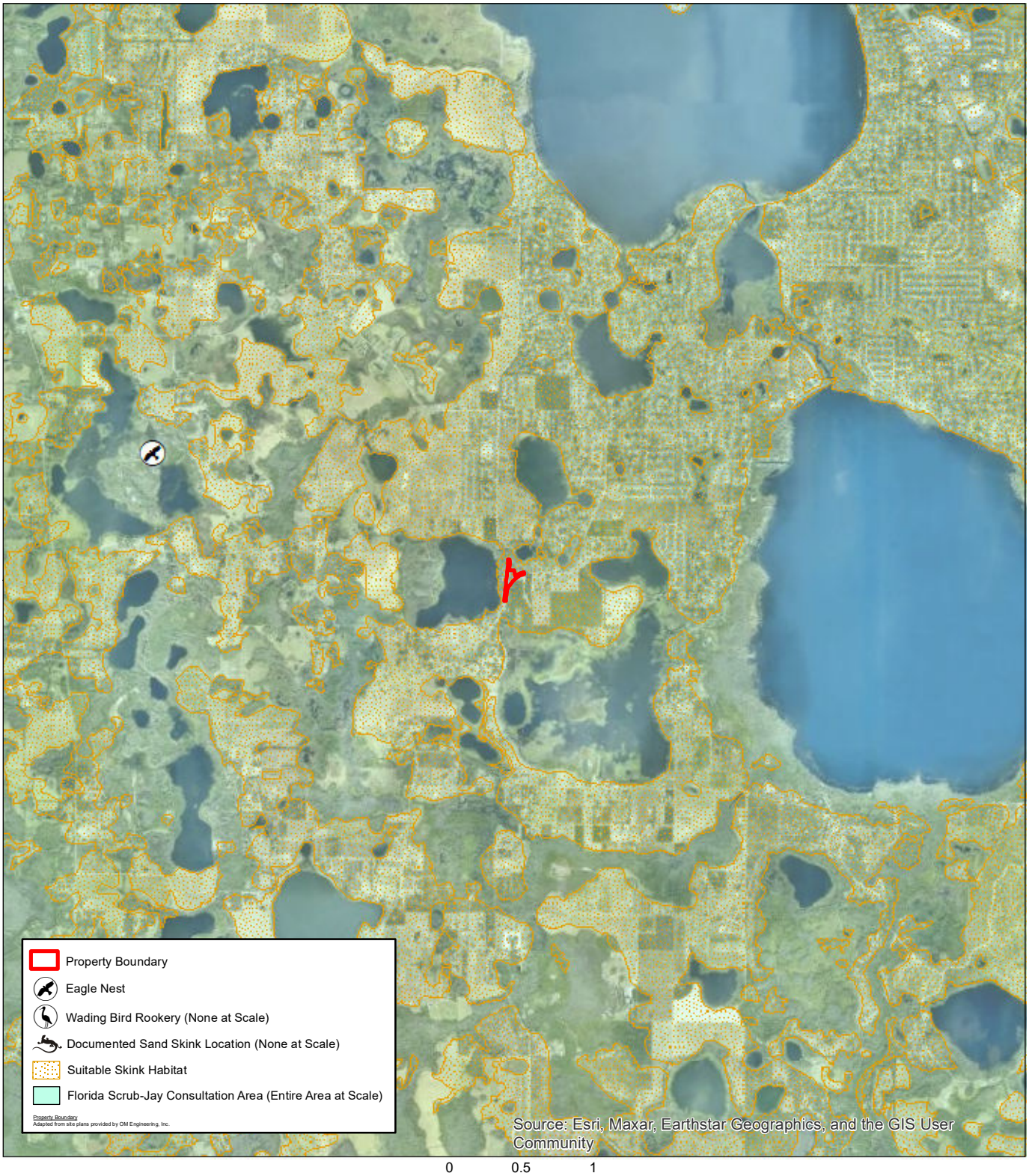
2324 Leu Road Orlando, Florida 32803
tel 407.374.3681 cell 407.405.8725
www.ThomsonEnv.com

Figure 6

National Wetland Inventory Map

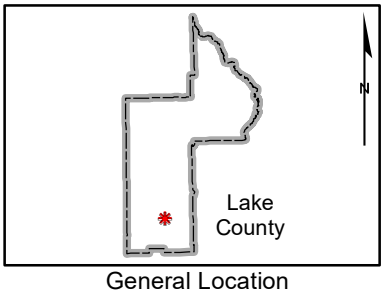
CR 561 & Lakeshore Roundabout
Lake County, Florida
Section 14, Township 23 S, Range 25 E

Thomson Project No. 23-1403
March 2024



0 0.5 1

1" = 1 mile



General Location

Figure 7

Documented Wildlife Species Issues

CR 561 & Lakeshore Roundabout

Lake County, Florida

Section 14, Township 23 S, Range 25 E

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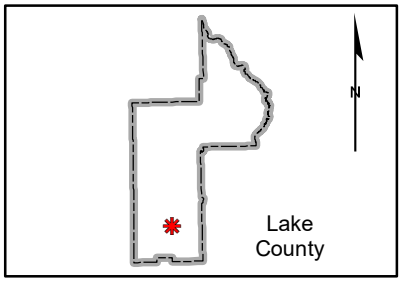
March 2024



General Location

0 125 250

1" = 250'

thomson
ENVIRONMENTAL CONSULTING

2324 Leu Road Orlando, Florida 32803
tel 407.374.3681 cell 407.405.8725
www.ThomsonEnv.com

Figure 8

Gopher Tortoise Burrow Map

CR 561 & Lakeshore Roundabout
Lake County, Florida
Section 14, Township 23 S, Range 25 E

Thomson Project No. 23-1403
March 2024

Appendix A

GT Burrowing Suitability

WLF - Gopher Tortoise Burrowing Suitability—Lake County Area, Florida
(Project_Area)

Map Scale: 1:2,740 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 40 80 160 240

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Unsuitable
- Less suited
- Moderately suited
- Highly suited
- Not rated or not available

Soil Rating Lines
- Unsuitable
- Less suited
- Moderately suited
- Highly suited
- Not rated or not available

Soil Rating Points
- Unsuitable
- Less suited
- Moderately suited
- Highly suited
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Lake County Area, Florida
Survey Area Data: Version 23, Sep 6, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 6, 2022—Mar 21, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

WLF - Gopher Tortoise Burrowing Suitability

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
6	Apopka sand, 5 to 12 percent slopes	Highly suited	Apopka (80%)		5.5	100.0%
			Apopka (7%)			
Totals for Area of Interest					**5.5**	**100.0%**

Rating	Acres in AOI	Percent of AOI
Highly suited	5.5	100.0%
Totals for Area of Interest	**5.5**	**100.0%**

Description

This soil interpretation is intended to provide ratings based on the dominant soil characteristics that influence the suitability of the soil for excavation, maintenance, and preservation of burrows by gopher tortoises (Gopherus polyphemus). The information allows the user to identify areas of potentially suitable habitat area prior to the application of conservation practices. The ratings are for the soils in their natural condition and do not consider present land use, existing vegetation, water sources, and the presence or absence of wildlife in the area. The presence or absence of a species is determined at the local level and by many factors including soil characteristics.

The gopher tortoise (Gopherus polyphemus) is a burrowing reptile that inhabits open pine forests throughout the southeastern United States. Historically, typical gopher tortoise habitat consisted of open, frequently burned longleaf pine or longleaf pine/scrub oak uplands and flatwoods on moderately well drained to xeric soils. The burrows of a gopher tortoise are the habitat and center of normal feeding, breeding, and sheltering activity. Gopher tortoises excavate and use more than one burrow for shelter beneath the ground surface. Burrows, which may extend for more than 30 feet, provide shelter from canid predators, winter cold and summer heat.

The soil criteria that are taken into account in this soil interpretation are those that have been determined to have the most effect on burrow excavation, maintenance, and preservation. These include the soil texture, percent coarse fragments, depth to a restrictive layer or layer with greater than or equal to 35% clay, ponding or flooding frequency, slope, and depth to seasonal high water table.

Each soil criteria is assigned a numerical rating between 0 and 1. In this rating, 1 represents more suitable soil characteristics, and 0 represents less suitable soil characteristics. Each criterion is calculated separately and the lowest rating is reported as the overall soil suitability rating, representing the most limiting factor in the soil's suitability for gopher tortoise burrows.

Rating classes have been defined as follows:

Highly suited (numerical rating 0.95-1): These soils have no restrictions for use and are favorable for burrowing by gopher tortoise. Colonization and population densities may be above average if other habitat factors are not limiting.

Moderately suited (numerical rating 0.5-0.95): These soils are suitable and somewhat favorable for burrowing by gopher tortoise. Some restrictive features may limit the use of the site to a minor extent. Colonization and population densities may be average to above for the area if the other habitat requirements are met.

Less suited (numerical rating 0.05-0.5): These soils have characteristics that may limit establishment, maintenance, or use of the site by gopher tortoise. Colonization and population densities may be below average or restricted in the area due to the limiting factors even though all of the other species habitat requirements are met.

Unsuitable (numerical rating 0-0.05): These soils have characteristics that may limit establishment, maintenance, or use of the site by gopher tortoise. Areas of

included soils with better drainage may provide suitable soil properties in some locations.

Not Rated: Miscellaneous areas are given a not rated status.

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen, which is displayed on the report. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the Selected Soil Interpretations report with this interpretation included from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Citations:

U.S. Fish and Wildlife Service and Natural Resources Conservation Service. 2012. Gopher Tortoise (Gopherus polyphemus) Soil Classifications for the Federally Listed Range using the National Soil Information System Database, Version 1.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Appendix B

USFWS IPaC Resource List

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Lake County, Florida

Local office

Florida Ecological Services Field Office

(352) 448-9151
(772) 562-4288
fw4flesregs@fws.gov

777 37th St
Suite D-101
Vero Beach, FL 32960-3559

https://www.fws.gov/office/florida-ecological-services

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Tricolored Bat Perimyotis subflavus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

Birds

NAME	STATUS
Crested Caracara (audubon""s) [fl Dps] Caracara plancus audubonii No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8250	Threatened
Eastern Black Rail Laterallus jamaicensis ssp. jamaicensis Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/10477	Threatened
Everglade Snail Kite Rostrhamus sociabilis plumbeus Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/7713	Endangered
Whooping Crane Grus americana No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/758	EXPN

Reptiles

NAME	STATUS
Eastern Indigo Snake Drymarchon couperi Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/646	Threatened
Sand Skink Neoseps reynoldsi Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4094	Threatened

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Flowering Plants

NAME	STATUS

Britton's Beargrass Nolina brittoniana No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4460	Endangered
Lewton's Polygala Polygala lewtonii No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6688	Endangered
Papery Whitlow-wort Paronychia chartacea No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1465	Threatened
Pigeon Wings Clitoria fragrans No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/991	Threatened
Pygmy Fringe-tree Chionanthus pygmaeus No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1084	Endangered

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act[1] and the Migratory Bird Treaty Act[2].

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats[3], should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

There are likely bald eagles present in your project area. For additional information on bald eagles, refer to Bald Eagle Nesting and Sensitivity to Human Activity

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Jul 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

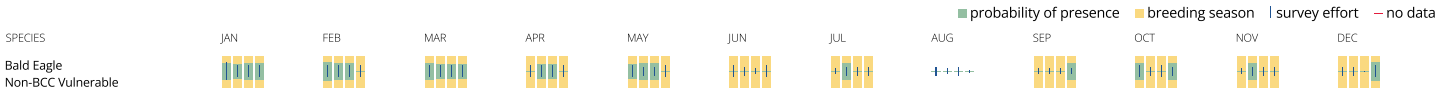
Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply). To see a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/ documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Jul 31
Chimney Swift *Chaetura pelagica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 25
Florida Burrowing Owl *Athene cunicularia floridana* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 15 to Aug 31
Great Blue Heron *Ardea herodias occidentalis* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Jan 1 to Dec 31
King Rail *Rallus elegans* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8936	Breeds May 1 to Sep 5
Lesser Yellowlegs *Tringa flavipes* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Painted Bunting *Passerina ciris* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Apr 25 to Aug 15

Red-headed Woodpecker Melanerpes erythrocephalus
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
Breeds May 10 to Sep 10

Southeastern American Kestrel Falco sparverius paulus
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/4076
Breeds Apr 1 to Aug 31

Swallow-tailed Kite Elanoides forficatus
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8938
Breeds Mar 10 to Jun 30

Worthington's Marsh Wren Cistothorus palustris griseus
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
Breeds Apr 1 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

This location did not intersect any wetlands mapped by NWI.

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Appendix C

FNAI Biodiversity Matrix Query Results

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Florida Natural Areas Inventory

Biodiversity Matrix Query Results

UNOFFICIAL REPORT

Created 4/3/2024

(Contact the FNAI Data Services Coordinator at 850.224.8207 or kbrinegar@fnai.fsu.edu for information on an official Standard Data Report)

NOTE: The Biodiversity Matrix includes only rare species and natural communities tracked by FNAI.

Report for 1 Matrix Unit: 38141

Descriptions

DOCUMENTED - There is a documented occurrence in the FNAI database of the species or community within this Matrix Unit.

DOCUMENTED-HISTORIC - There is a documented occurrence in the FNAI database of the species or community within this Matrix Unit; however the occurrence has not been observed/reported within the last twenty years.

LIKELY - The species or community is *known* to occur in this vicinity, and is considered likely within this Matrix Unit because:

1. documented occurrence overlaps this and adjacent Matrix Units, but the documentation isn't precise enough to indicate which of those Units the species or community is actually located in; *or*
2. there is a documented occurrence in the vicinity and there is suitable habitat for that species or community within this Matrix Unit.

POTENTIAL - This Matrix Unit lies within the known or predicted range of the species or community based on expert knowledge and environmental variables such as climate, soils, topography, and landcover.

Matrix Unit ID: 38141

1 **Documented** Element Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Najas filifolia Narrowleaf Naiad	G3	S2	N	T

0 **Documented-Historic** Elements Found

1 **Likely** Element Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Sandhill upland lake	G3	S2	N	N

Matrix Unit ID: 38141

43 **Potential** Elements for Matrix Unit 38141

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Agrimonia incisa incised groove-bur	G3	S2	N	T
Antigone canadensis pratensis Florida Sandhill Crane	G5T2	S2	N	ST
Arnoglossum diversifolium variable-leaved Indian-plantain	G2	S2	N	T
Athene cunicularia floridana Florida Burrowing Owl	G4T3	S3	N	ST
Bonamia grandiflora Florida bonamia	G3	S3	T	E
Calamintha ashei Ashe's savory	G3	S3	N	T
Calopogon multiflorus many-flowered grass-pink	G2G3	S2S3	N	T
Centrosema arenicola sand butterfly pea	G2Q	S2	N	E
Chionanthus pygmaeus pygmy fringe tree	G2G3	S2S3	E	E
Clitoria fragrans scrub pigeon-wing	G2G3	S2	T	E
Coelorachis tuberculosa Piedmont jointgrass	G3	S3	N	T
Coleataenia abscissa cutthroatgrass	G3	S3	N	E
Conradina brevifolia short-leaved rosemary	G2Q	S2	E	E
Drymarchon couperi Eastern Indigo Snake	G3	S2?	T	FT
Eriogonum longifolium var. gnaphalifolium scrub buckwheat	G4T3	S3	T	E
Gopherus polyphemus Gopher Tortoise	G3	S3	C	ST
Hartwrightia floridana hartwrightia	G2	S2	N	T
Heterodon simus Southern Hognose Snake	G2	S2S3	N	N
Illicium parviflorum star anise	G2	S2	N	E
Lampropeltis extenuata Short-tailed Snake	G3	S3	N	ST
Lechea cernua nodding pinweed	G3	S3	N	T
Liatris ohlingerae Florida blazing star	G2	S2	E	E
Lithobates capito Gopher Frog	G2G3	S3	N	N
Matelea floridana Florida spiny-pod	G2	S2	N	E
Mustela frenata peninsulae Florida Long-tailed Weasel	G5T3?	S3?	N	N
Myotis austroriparius Southeastern Myotis	G4	S3	N	N
Nemastylis floridana celestial lily	G2	S2	N	E
Neofiber alleni Round-tailed Muskrat	G2	S2	N	N
Nolina brittoniana Britton's beargrass	G3	S3	E	E
Notophthalmus perstriatus Striped Newt	G2G3	S2	N	C

Paronychia chartacea var. chartacea paper-like nailwort	G3T3	S3	T	E
Peucaea aestivalis Bachman's Sparrow	G3	S3	N	N
Phyllophaga okeechobea Diurnal Scrub June Beetle	G2	S2	N	N
Podomys floridanus Florida Mouse	G3	S3	N	N
Polygala lewtonii Lewton's polygala	G2	S2	E	E
Polygonella myriophylla Small's jointweed	G3	S3	E	E
Prunus geniculata scrub plum	G3	S3	E	E
Pteroglossaspis ecristata giant orchid	G2G3	S2	N	T
Salix floridana Florida willow	G2G3	S2S3	N	E
Sciurus niger niger Southeastern Fox Squirrel	G5T5	S3	N	N
Selonodon floridensis Florida Cebrionid Beetle	G2G4	S2S4	N	N
Spigelia loganioides pinkroot	G2Q	S2	N	E
Warea carteri Carter's warea	G1	S1	E	E

Unofficial Report

These results are considered unofficial. FNAI offers a Standard Data Request option for those needing certifiable data.

Appendix D

Site Photographs

Photo 1 – Representative view of proposed pond area.

Photo 2 – View of right-of-way north of intersection, looking north on CR 561.

Photo 3 – View of right-of-way of CR 561 looking south to intersection with Lakeshore Drive.

Photo 4 – Representative view of proposed pond area.

Photo 5 – Representative view of proposed pond area.

Photo 6 – View of the right-of-way area looking northeast on Lakeshore Drive.

Photo 7 – View of right-of-way looking southeast down Lakeshore Drive.

Photo 8 – Representative view of proposed pond area.