

APPENDIX G

**Federal Protected Plant Species Survey Technical
Memorandum**

1 INTRODUCTION

1.1 Project Description

The Florida Department of Transportation (FDOT) proposed State Road 70 (SR 70) roadway improvement project extends from Jefferson Avenue/Placid Lakes Boulevard to County Road 29 (**Appendix A**) and spans the width of the Lake Wales Ridge (LWR). The LWR consists of ancient sand dunes formed during the Pleistocene Epoch. The LWR is relatively narrow, averaging 15 miles wide and runs roughly 100 miles from Highlands to Lake Counties. The ecosystems on the LWR provide habitat for numerous plant species, with a high degree of endemism, with many species listed as endangered or threatened by the Florida Department of Agriculture and Consumer Services (FDACS) and the Endangered Species Act (ESA). This memo outlines the methods and findings of surveys for these plant species within the project limits (**Appendix A**).

2 METHODOLOGY

Protected plant surveys have been conducted for the subject project previously in 2018 and 2023 by FDOT (FDOT 2019 & FDOT 2023) as a part of an ongoing Project Development and Environment (PD&E). This study compiled rare plant occurrence data from multiple sources including Florida Natural Areas Inventory (FNAI), Archbold Biological Station, and the FDOT surveys that located populations not documented in these previous records.

2.1 Previous Data

This previous occurrence data from the 2019 and 2023 FDOT surveys were used in conjunction with a desktop review of the FNAI Custom Element Occurrence Report (FNAI 2018) and data from Archbold Biological station (Archbold 2017) to develop a list of plants documented to occur or having the potential to occur within the project limits. **Table 2-1** provides plant species which are federally protected by U.S. Fish and Wildlife Service (USFWS) which were previously observed within the project limits or were identified as potentially occurring along the project limits:

Table 2-1 Previously Observed Federally Protected Plants

Common Name	Scientific Name	Federal Status	Observation Source
Scrub Pigeon-Wings	<i>Clitoria fragrans</i>	Threatened	Archbold 2017 FNAI 2018 FDOT 2019
Scrub mint	<i>Dicerandra frutescens</i>	Endangered	FNAI 2018
Highlands scrub hypericum	<i>Hypericum cumulicola</i>	Endangered	FNAI 2018 FDOT 2019 FDOT 2023
Scrub blazing star	<i>Liatris ohlingerae</i>	Endangered	Archbold 2017 FNAI 2018 FDOT 2019
Britton's beargrass	<i>Nolina brittoniana</i>	Endangered	Archbold 2017 FNAI 2018 FDOT 2019 FDOT 2023
Paper nailwort	<i>Paronychia chartacea</i>	Endangered	Archbold 2017 FNAI 2018 FDOT 2019 FDOT 2023
Lewton's polygala	<i>Polygala lewtonii</i>	Endangered	FDOT 2019
Florida jointweed	<i>Polygonum basiramia</i>	Endangered	Archbold 2017 FDOT 2019 FDOT 2023
Carter's warea	<i>Warea carteri</i>	Endangered	FNAI 2018

Table 2-2 provides occurrences of the plant species which are listed as threatened or endangered by the FDACS which were previously observed within the project limits or were identified as having the potential to occur within the project limits:

Table 2-2 Previously Observed State Protected Plants

Common Name	Scientific Name	State Status	Observation Source
Curtiss' milkweed	<i>Asclepias curtissii</i>	Endangered	FDOT 2019
Ashe's savory	<i>Calamintha ashei</i>	Endangered	FNAI 2018 FDOT 2019 FDOT 2023
Cutthroat grass	<i>Coleataenia abscissa</i>	Endangered	FNAI 2018 FDOT 2019 FDOT 2023
Scrub spurge	<i>Euphorbia roscens</i>	Endangered	FNAI 2018 FDOT 2019 FDOT 2023
Garberia	<i>Garberia heterophylla</i>	Threatened	FDOT 2019 FDOT 2023
Edison's ascyrum	<i>Hypericum edisonianum</i>	Endangered	FDOT 2019 FDOT 2023
Nodding pinweed	<i>Lechea cernua</i>	Threatened	Archbold 2017 FNAI 2018 FDOT 2019 FDOT 2023
Scrub stylisma	<i>Stylisma abdita</i>	Endangered	FNAI 2018 FDOT 2019 FDOT 2023
Northern needleleaf	<i>Tillandsia balbisiana</i>	Threatened	FDOT 2019 FDOT 2023
Cardinal airplant	<i>Tillandsia fasciculata</i>	Endangered	FDOT 2019 FDOT 2023
Giant airplant	<i>Tillandsia utriculata</i>	Endangered	FDOT 2019 FDOT 2023

Rare plant surveys focused on relocating previously documented occurrences of rare plants and areas of high probability of rare plant occurrences within the boundaries of the proposed right-of-way. Previously documented occurrences consisted of all occurrences documented by FDOT (2019 & 2023) and FNAI element occurrences with available geographic data (**Appendix B**). Areas of high probability of rare plant occurrences included areas of intact scrub and scrubby flatwoods with open areas of sand visible on recent aerial imagery. This included naturally occurring openings within managed areas within the Lake Wales Ridge Wildlife and Environmental Area (LWRWEA), unmanaged, relatively intact habitats outside of conservation lands, fire breaks and management roads within the LWRWEA, and disturbed roadside areas with open sand. Habitats adjacent to these areas including mesic and xeric hammocks, mesic pine flatwoods, wet pine flatwoods, and depression marshes were also surveyed. These areas are depicted in the Land Use Map series provided in **Appendix C**.

Surveys were conducted on May 19, 20, 28, and 29th of 2025. The timing of the surveys did not overlap optimal survey seasons for several summer and fall flowering rare plant species. As a result, some previously documented occurrences of summer and fall flowering species were not relocated. In these instances, the locations of these species documented in the most recent available surveys (FDOT 2019 or FDOT 2023) were assumed to be extant.

When a population of rare plants was located, a GPS point was recorded for the individual plant or general center of the population and the species recorded. An estimate on the total number of individual plants was also recorded along with any additional relevant information. Occurrences consisting of greater than ten individual plants were estimated and placed within ranges on a logarithmic scale: 11-100 individuals, 101-1,000 individuals and 1,001-10,000 individuals.

3 RESULTS

A total of nine federally listed plant species and 11 state listed plant species have been previously observed within the project limits. A total of 158 unique occurrences of state or federally listed plant species were identified along the project limits (**Appendix D**), representing ten of the 20 previously documented species. Eight species previously documented by FDOT (2019 & 2023) but were not observed in 2025, were assumed to be extant at previously documented locations. One species not observed in this survey or the previous FDOT surveys were presumed to be extirpated from the project limits vicinity, and one species documented in FDOT (2019) was presumed to be misidentified and previously recorded as extant in error. Additionally, FWC was in the process of performing controlled burns within portions of the LWRWEA close to the 2025 field survey dates leading to some areas of that property being freshly burnt and possibly affected the results of the survey.

Descriptions of species morphologies, ranges and habitats of documented and previously documented species are provided below along with the results from this survey.

3.1 Federally Listed

Scrub pigeon-wings (*Clitoria fragrans*)

Scrub pigeon-wings is an erect herb in the legume family (Fabaceae) up to 20 inches tall with purple, waxy stems. The compound leaves are trifoliate with narrow oblong leaflets tipped with a small bristle. The leaves are dark green above and light green and waxy below and are arranged alternately along the stem. The showy flowers are papilionid and purple to pink in color with white along the banner petal. The fruit is a waxy pod up to two inches long, flattened around the seeds. Scrub pigeon-wings flowers May through June, but is vegetatively distinct year-round (FNAI 2000).

Scrub pigeon-wings was listed as threatened by the USFWS in 1993. This species is endemic to sandy, well-drained soils in central Florida, particularly in yellow sands of scrubs and sandhills, though it is also found in other xeric sites with various soil types. Scrub pigeon-wings occurs along the Lake Wales Ridge, Bombing Range Ridge and Winter Haven Ridge, as well as within the Ocala National Forest and ranges from Highlands County north to Marion County (USFWS 2025¹).

Scrub pigeon-wings was observed at six locations during the Archbold 2017 survey (Archbold 2017) and was also included in the FNAI data report (FNAI 2018) but was not encountered during the 2023 or 2025 surveys. Suitable habitat exists for this species along the project limits, though the preferred habitat of this species, sandhills and scrubs with yellow sands, was not observed. However, this species is presumed to still be extant at the previously documented locations and was likely overlooked due to the timing of the surveys. Based on this, the potential for occurrence for the scrub pigeon-wings within the project limits is considered to be **high**. It has been determined that the proposed project “**may affect and is likely to adversely affect**” scrub pigeon-wings.

Scrub mint (*Dicerandra frutescens*)

Scrub mint is a suffrutescent herb in the mint family (Lamiaceae) with square stems up to two feet high. Leaves are up to one inch long, gland-covered, ovate with rounded tips and involute margins arranged oppositely along the stem. The leaves and stems are highly aromatic. Flowers are arranged axially, in pairs along the stem and are creamy white or pale pink with purple lines and/or dots and purple anthers. The corolla tube is sharply bent. Scrub mint flowers summer through winter (FNAI 2000).

Scrub mint was listed as endangered by the USFWS in 1985. This species is endemic to the Lake Wales Ridge in Highlands County and has a high specificity to oak-hickory scrub and sand pine scrub with yellow sands (Menges et al 2007). There are only fourteen known populations of this species and the range and specific habitat are extremely limited (USFWS 2021¹).

There was one record of scrub mint within the vicinity of the project limits documented by the FNAI data report (FNAI 2018). This occurrence was located approximately 1.4 miles north of the project limits, 0.2 miles east of Old State Route 8 in what is now an orange grove. Scrub mint is highly specific to oak-hickory scrub and sand pine scrub with yellow sands (Menges et al 2007), and habitat for this species was not observed along the project limits. There are only fourteen known populations of this species and the range and specific habitat are extremely limited (USFWS 2021¹). This species was not observed along the project limits and is not likely to occur within the project limits. The FNAI occurrence appears to be extirpated. Based on this information and the lack of visual observations, it has been determined that the potential for occurrence of this species within the project study area is **moderate** and the proposed project “**may affect, but is not likely to adversely affect**” scrub mint.

Highlands scrub hypericum (*Hypericum cumulicola*)

Highlands scrub hypericum is a perennial herb in the St. Johns-wort family (Clusiaceae) with wiry stems up to 28 inches tall and shorter basal branches. Leaves are simple, less than one-quarter inch long and scale-like with glandular dots and are arranged oppositely along the stem. Flowers occur terminally and axially on the upper wiry stems. Flowers are yellow with five petals arranged in a distinct pinwheel pattern and numerous anthers. The fruit is a three-sectioned capsule encircled by five persistent sepals. Highlands scrub hypericum typically flowers from June through September but is identifiable vegetatively year-round (FNAI 2000).

Highlands scrub hypericum was listed as endangered by the USFWS in 1987. This species occurs along the southern half of the Lake Wales Ridge with most populations occurring in Highlands County. Highlands scrub hypericum is a “gap specialist” and occurs in natural sandy openings within scrub and scrubby flatwoods habitats as well as sandy management roads and firebreaks (USFWS 2025²).

Highlands scrub hypericum was observed at one location along the western portion of the project limits within an open, white sand scrub near the northeast corner of the intersection of SR 70 and Placid Lakes Blvd. within the LWRWEA. More than 50 plants were observed at this location in close association with other scrub gap specialists. Based on these surveys, the potential for occurrence for the highlands scrub hypericum within the project study area is considered to be **high**. It has been

determined that the proposed project “**may affect and is likely to adversely affect**” Highlands scrub hypericum.

Scrub blazing star (*Liatris ohlingerae*)

Scrub blazing star is an herb in the sunflower family (Asteraceae) with pubescent stems up to three feet tall. The leaves are narrow, linear up to three inches long and are arranged spirally along the stem. The flowers occur in clusters widely spaced along the stem. The involucre bracts are rounded and purple in color up to one inch long. Disk flowers are purple and numerous up to one inch across. The pappus bristles are white with barbs. Scrub blazing star flowers June through September but is identifiable vegetatively all year (FNAI 2000).

Scrub blazing star was listed as endangered by the USFWS in 1989. This species occurs within openings in rosemary scrub, scrubby flatwoods, and occasionally oak scrub. The range of this species is relatively narrow with the majority of occurrences along the Lake Wales Ridge in Highlands and Polk Counties (USFWS 2021²).

Scrub blazing star was observed at 18 locations during 2019 surveys (FDOT 2019) but was not encountered during the 2023 or 2025 surveys. Suitable habitat exists for this species along the project limits, particularly along portions of the project within the LWRWEA that harbor open scrub habitat and the rosemary scrub directly north and adjacent to Archbold Biological Station. This species is presumed to still be extant at the previously documented locations and was likely overlooked due to the timing of the surveys. Based on these surveys, the potential for occurrence for the scrub blazing star within the project study area is considered to be **high**. It has been determined that the proposed project “**may affect and is likely to adversely affect**” the Florida blazing star.

Britton’s beargrass (*Nolina brittoniana*)

Britton’s beargrass is a perennial herb in the butcher’s broom family (Ruscaceae) with a stout, bulbous stem. The leaves are distinctive and occur in a clump radiating spirally outward from the stem. Young leaves are erect, while older leaves are lax, eventually senescing on the ground. Leaves are up to six feet long and one-half inch wide. The flowering stalk is up to six feet tall with a large cluster of showy white flowers. Individual flowers are six-petaled. Fruits are a persistent papery capsule with three lobes. Britton’s beargrass flowers March through May but is vegetatively distinct year-round (FNAI 2000).

Britton’s beargrass was listed as endangered by the USFWS in 1993. This species occurs within xeric habitats including scrub, scrubby flatwoods, sandhill and xeric hammock. Britton’s beargrass is widely distributed throughout central Florida with populations documented along the Brooksville Ridge from Hillsborough to Hernando Counties, all along the Lake Wales Ridge from Highlands to Lake Counties, within the Ocala National Forest in Marion County and interior portions of western Polk and eastern Manatee Counties (USFWS 2025³).

During the 2023 survey, four distinct occurrences of Britton’s beargrass were documented at one location within the project limits adjacent to the LWRWEA boundary. Suitable habitat exists for this species within the LWRWEA and this species has been recorded growing in association with a dense

groundcover of gopher-apple (*Licania michauxii*) amongst a sub-canopy of moderately-spaced scrub oaks. This species was not observed during the 2025 survey, but is presumed to still be extant at the previously documented locations and was likely overlooked due to the timing of the surveys or the prescribed burns. Based on these surveys, the potential for occurrence for Britton's beargrass within the project study area is considered to be **high**. It has been determined that the proposed project “**may affect and is likely to adversely affect**” Britton's beargrass.

Paper nailwort (*Paronychia chartacea*)

Paper nailwort is a short-lived perennial herb in the pink family (Caryophyllaceae) with spreading wiry stems arising from a stout taproot. Stems either dense and compact (female-flowered plants) or with spindly, forking branches forming cross-shaped patterns (male-flowered plants). Leaves are scale-like, opposite, papery, with revolute margins. Flowers are tiny, with five white, deeply hooded sepals and no petals. The flowers occur in small clusters, one-half to one and one-half inches wide. Paper nailwort appears in late spring and persists through summer (FNAI 2000).

Paper nailwort was listed as threatened by the USFWS in 1987. This species occurs in openings in scrub and scrubby flatwoods on xeric soils, including disturbed roadsides and firebreaks. Paper nailwort is most abundant along the Lake Wales Ridge from Highlands County north to Lake County. A few satellite populations occur off the Lake Wales Ridge (USFWS 2021³).

Paper nailwort was documented at one location in the project limits, in the middle of the service road within the LWRWEA. The population consisted of less than 50 individuals at this location. Paper nailwort has a persistent seedbank and large increases in population sizes have been documented in response to disturbances (Schaffer et al 2013). Potential habitat for this species is abundant along the project limits and may occur in other areas in response to disturbances. Based on these surveys, the potential for occurrence for the paper-like nailwort within the project study area is considered to be **high**. It has been determined that the proposed project “**may affect and is likely to adversely affect**” the paper nailwort.

Lewton's polygala (*Polygala lewtonii*)

Lewton's polygala is a small herb in the milkwort family (Polygalaceae) with many-angled stems up to eight inches tall. The leaves are up to one-half inch long, narrow succulent and widest above the middle arranged alternately along the stem in erect clusters. The showy flowers are up to one-half inch long with unequal sepals: two large dark pink sepals and three smaller green sepals. The flowers occur along loose racemes on the upper portions of the stems. Fruits are oblong and the seeds are winged. Lewton's polygala flowers February through May (FNAI 2000).

Lewton's polygala was listed as endangered by USFWS in 1993. This species occurs along the Lake Wales Ridge and Mount Dora Ridge from Highlands County north to Marion County. Lewton's polygala is highly specific to sandhill, scrubby flatwoods and oak-hickory scrub on yellow sands (Menges et al. 2007) but has not been documented in the southern half of Highlands County (USFWS 2021⁴).

Lewton's polygala was reported as documented at 17 locations in the 2019 FDOT survey. However, based upon photographic documentation provided in Appendix C of the 2019 FDOT Report, this survey concludes that this species was mis-identified and represents observations of racemed milkwort (*Polygala polygama*), which was observed during this survey. Photographs provided of the plant specimens have evident spine-tipped leaves, and the fruits appear to be oval as opposed to oblong. Further, Lewton's polygala is highly specific to sandhill, scrubby flatwoods and oak-hickory scrub on yellow sands (Menges et al. 2007), and this specific habitat was not observed along the project limits. Additionally, Lewton's polygala has not been documented in the southern half of Highlands County (USFWS 2021⁴). Considering these factors, this species is not expected to occur within the project limits. Therefore, the potential for occurrence for the Lewton's polygala within the project study area is considered to be **low**, and the proposed project “**may affect, but is not likely to adversely affect**” the species.

Florida jointweed (*Polygonum basiramia*)

Florida jointweed is a perennial herb in the buckwheat family (Polygonaceae) with slender, wiry, red or green stems up to 32 inches tall. The stems branch at ground level and appear jointed. Leaves are tiny, alternate, red or green, with ocrea covering the stems between leaves. The ocrea has 2 or more long bristles at the top. The flowers occur on racemes, overlapping the ocrea. Individual flowers are very small, with no petals and 5 white to pinkish sepals. Florida jointweed flowers summer through fall and is easily overlooked when not in flower. The persistent basal leaves are a distinctive characteristic distinguishing this species from similar species in the buckwheat family (FNAI 2000).

Florida jointweed was listed as endangered by the USFWS in 1987. This species is restricted to the Bombing Range Ridge, Winter Haven Ridge and Lake Wales Ridge in Polk and Highlands Counties and has a relatively large distribution at these locations (USFWS 2021⁵). Florida jointweed primarily occurs within openings in rosemary scrub, sand pine scrub, oak scrub and scrubby flatwoods with white sands (Menges et al. 2007).

In 2023, Florida jointweed was observed at two distinct locations along the western portion of the project limits. One occurrence is within an open, white sand scrub near the northeast corner of the intersection of SR 70 and Placid Lakes Blvd. Three widely scattered plants were observed there growing in close association with other scrub gap specialists. The second occurrence was approximately one-quarter mile to the east of this location along a fire break. A total of three plants were observed at this location. Both occurrences were within the LWRWEA.

This species was not found during the 2025 survey, but is presumed to still be extant at the previously documented locations and was likely overlooked due to the timing of the surveys or the prescribed burns. Based on these surveys, the potential for occurrence for the Florida jointweed within the project study area is considered to be **high**. It has been determined that the proposed project “**may affect and is likely to adversely affect**” Florida jointweed.

Carter's warea (*Warea carteri*)

Carter's warea is an annual herb with many slender, branching stems, up to 40 inches tall, forming a rounded crown. The leaves are up to 2 inches long near the base of the stem, decreasing upwards to

tiny bracts arranged alternately along the stem. The leaves are pale yellow-green, with cuneate bases. The tips of the leaves are rounded and margins are entire. The lower leaves senesce by flowering time. The showy flower clusters are numerous and globose, with up to 60 flowers. Flowers are up to one-half inch wide, white, with four paddle-shaped petals and six long stamens. The fruit is a silique up to 2.5 inches long, occurring in clusters. Carter's warea only appears after fire and flowers September through October (FNAI 2000).

Carter's warea was listed as endangered by the USFWS in 1987. This species occurs in sandhill, scrubby flatwoods and disturbed sandy areas in central Florida from Glades County north to Lake County. Historical populations occurred in sandy pine rocklands in Miami-Dade County and coastal scrub in Broward, Palm Beach and Brevard Counties (USFWS 2021⁶).

There were two documented occurrences of Carter's warea within the vicinity of the project limits (FNAI 2018). One occurrence was located within Archbold Biological Station, approximately one-half mile south of the project limits, just west of the railroad tracks. The second occurrence was within the existing SR 70 FDOT right-of-way on the north side of the road, approximately 1.3 miles west of the intersection of SR 70 and Old State Route. 8. This location was surveyed and was found to consist of long-unburned scrubby flatwoods, thick with saw palmetto (*Serenoa repens*) and scrub oaks. No individuals were observed. However, suitable habitat for Carter's warea occurs immediately adjacent to this occurrence within the LWRWEA. This short-lived annual only appears in September through October after fire and may have a persistent seedbank on the adjacent LWRWEA. Based on the lack of visual observations, the potential for occurrence in the project limits for this species is considered to be **moderate** and it has been determined that the proposed project “**may affect, but is not likely to adversely affect**” Carter's warea.

3.2 State Listed

Curtiss' milkweed (*Asclepias curtissii*)

Curtiss' milkweed is a perennial herb in the milkweed family (Apocynaceae). Stems are erect or decumbent. The leaves are oblong with wavy margins and are arranged oppositely along the stem. Flowers occur as terminal umbels with pink to white hoods and pale green reflexed petals. Curtiss's milkweed flowers June through September and is inconspicuous when not flowering (FNAI 2000). This species is endemic to Florida and occurs in openings within white sand scrubs throughout the central and southern Florida peninsula (Wunderlin 2011). Curtiss' milkweed is listed as endangered by FDACS.

Curtiss' milkweed was documented in the 2019 FDOT survey at one location along the western portion of the project limits within an open, white sand scrub near the northeast corner of the intersection of SR 70 and Placid Lakes Blvd. within the LWRWEA. This species was not found during the 2023 or 2025 surveys but was likely overlooked due to the timing of the surveys. Curtiss' milkweed is presumed to still be extant at this location. The potential for occurrence of Curtiss' milkweed within the project study area is considered to be **high** because of this observation. It has been determined that the proposed project will have “**potential to adversely affect**” Curtiss' milkweed.

Ashe's savory (*Calamintha ashei*)

Ashes's savory is a deciduous suffrutescent herb in the mint family with sprawling stems up to two and one-half feet tall. Stems have distinct peeling bark and new shoots are pubescent. The leaves are nearly linear, up to one-half inch long with strongly revolute margins and are covered in fine hairs and glands. The flowers are pale lavender with a hairy corolla-lip. All parts of the plant are strongly aromatic. (Georgia Biodiversity Portal 2025). This species flowers spring through summer and is distinct year-round. This species occurs in sandhills and scrubs throughout central Florida from Glades County north to Marion and Volusia Counties (Wunderlin 2011). Ashe's savory is listed as threatened by FDACS.

In 2023, Ashe's savory occurred at two distinct locations along the project limits. In 2025, Ashe's savory was found in one of the 2023 locations, within the rosemary scrub directly north and adjacent to Archbold Biological Station. Ashe's savory was widely distributed throughout this location and adjacent, degraded scrub and sandhill habitat. There are around 25 individuals at this location. The potential for occurrence of Ashe's savory within the project study area is considered to be **high** because of these observations. It has been determined that the proposed project will have "**potential to adversely affect**" Ashe's savory.

Cutthroat grass (*Coleataenia abscissa*)

Cutthroat grass is rhizomatous perennial grass (Poaceae) that typically forms dense and expansive groundcover in wet flatwoods communities adjacent to the Lake Wales Ridge in central Florida. Plants are typically low growing, up to two feet high with flowering culms reaching four feet. The leaf blade has a narrow keel, is 16 to 18 inches long and is twisted when dry. The leaf sheath is mostly basal and overlapping, keeled, wide, and cuts back sharply at collar. The ligule forms an auriculate membrane up to 1/32-inch long. The seedhead is an open purple panicle 8 to 10 inches long (USDA 2025). Cutthroat grass is endemic to peninsular Florida and is most abundant along seepage slopes and wet flatwoods off the Lake Wales Ridge from Glades County North to Lake County. Disjunct populations occur in Martin and Palm Beach Counties. Typical habitat includes wet pine flatwoods with seepage hydrology (Wunderlin 2011) though plants do occasionally occur in adjacent mesic and scrubby flatwoods. Cutthroat grass is listed as endangered by FDACS.

Cutthroat grass was observed within the LWRWEA along the project limits during the 2025 survey and was previously documented in the 2019 and 2023 FDOT surveys. This occurrence was located in association with seepage slopes along the edges of sand ridges and consisted of hundreds or thousands of individual plants, making the potential for occurrence of this species within the project study area **high**. It has been determined that the proposed project will have "**potential to adversely affect**" cutthroat grass.

Scrub spurge (*Euphorbia roscens*)

Scrub spurge is a perennial herb, with thickened rootstock and erect or ascending stems up to 20 inches tall. The leaves are situated upon indistinct petioles and are narrowly elliptic to oblong or obovate up to one inch long. Leaves are thick and fleshy with only the midvein evident. Sap is milky white. Flowers occur within terminal cyathia with distinct ovate or lanceolate dichasial bracts to one-half

inch long (Flora of North America Editorial Committee 2016). Scrub spurge flowers spring through summer but is vegetatively distinct year-round. This species is endemic to Highlands County where it occurs in openings in sand pine and oak scrub communities (Wunderlin 2011). Scrub spurge is listed as endangered by FDACS.

In 2023, scrub spurge was observed at five distinct locations along the project limits, all within the LWRWEA. These occurrences were within sandy openings in scrub and scrubby flatwoods habitat, and along fire breaks. No scrub spurge was observed during the 2025 survey. However, this species is presumed to still be extant at the previously documented locations and was likely overlooked due to the timing of the surveys or due to the prescribed burns. Because of the 2023 observations, the potential for occurrence of this species within the project study area is **high**. It has been determined that the proposed project will have “**potential to adversely affect**” the scrub spurge.

Garberia (*Garberia heterophylla*)

Garberia is a shrub in the sunflower family typically one to five feet high. Stems are branched, usually gland-dotted and pubescent when young. Leaves are cauline and arranged alternately along the stem with short or sessile petioles. Leaf blades are obscurely nerved, spatulate to obovate with entire margins and gland dotted. The showy flowering heads are discoid and arranged in corymbs or panicles. Involucres are narrowly cylindric to one-quarter inch in diameter. Phyllary bracts are persistent. Corollas are pink to purplish with five lobes (Flora of North America Editorial Committee 2006). Garberia occurs frequently in sand pine and oak scrubs through the northern and central Florida peninsula (Wunderlin 2011). Garberia is listed as threatened by FDACS.

Garberia was previously documented in both the 2019 and 2023 FDOT surveys. During the 2025 survey, it was observed throughout the project limits, but most occurrences were within the LWRWEA within scrub and scrubby flatwoods on the east and west sides of the intersection of SR 70 and Placid Lakes Blvd. There are over 100 plants growing in association with other listed plant species, making the potential for occurrence of this species within the project study area **high**. It has been determined that the proposed project will have “**potential to adversely affect**” Garberia.

Edison's ascyrum (*Hypericum edisonianum*)

Edison's ascyrum is a shrub in the St. John's-wort family, growing up to five feet tall, forming extensive thickets. The stems are leafless, except for upper branches, with smooth, tight, gray or black bark. Stems have persistent scars from senesced leaves. The leaves are sessile and arranged oppositely along the stems and are approximately three-quarters of one inch long, oval, waxy-green above and gland-dotted below, with conspicuous red glands at the base. The leaf margins are thickened and involute. Flowers are four-petaled and yellow with numerous stamens. The sepals are unequal in two series with two large sepals, with pointed tips and rounded bases covering two narrow, tapered sepals. Fruit is a dark brown, pointed capsule. This species is vegetatively identifiable year-round. Edison's ascyrum occurs in depression marshes within scrub and scrubby flatwoods, wet flatwoods with cutthroat grass, and pond margins and wet prairies (FNAI 2000). It is endemic to Florida and ranges from Collier County, north to Polk County (Wunderlin 2011). Edison's ascyrum is listed as endangered by FDACS.

Edison's ascyrum were previously documented along the project limits in 2019 and 2023. During 2025, most occurrences were within the LWRWEA near the western end of the project limits. These occurrences were associated with seepage areas, wet flatwoods and wet prairies along the side slope of sand ridges. All occurrences totaled less than 50 individual plants, making the potential for occurrence of this species within the project study area **high**. It has been determined that the proposed project will have “**potential to adversely affect**” the Edison's ascyrum.

Nodding pinweed (*Lechea cernua*)

Nodding pinweed is a suffrutescent herb in the rock-rose family (Cistaceae). The stems are spreading to ascending up to one foot tall and are densely covered in silvery hairs. The elliptic-ovate to orbiculate leaves are up to one-half inch and have an acute apex and are arranged alternately along the stems. The lower leaf surface is covered in tomentose hairs and the upper leaf surface is covered in pilose hairs. The flowers are inconspicuous and are arranged axially with two to three per axil. The fruit is an elliptical capsule to one-half inch. Nodding pinweed flowers in the spring and summer but is vegetatively distinct all year (Flora of North America Editorial Committee 2015). This species is endemic to central and southern peninsular Florida where it occurs in openings in white sand scrub (Wunderlin 2011). It ranges from Collier and Broward Counties north to Lake County. Nodding pinweed is listed as threatened by FDACS.

Nodding pinweed was previously documented by Archbold in 2017 and in the 2019 and 2023 surveys. During the 2025 survey, nodding pinweed was observed along the fire breaks within the LWRWEA, generally between Placid View Dr. and Placid Lakes Blvd, and was also observed within openings in white sand scrub and scrubby flatwoods in this same general area. In total, there is estimated to be less than 50 plants in this general vicinity, making the potential for occurrence of this species within the project study area **high**. It has been determined that the proposed project will have “**potential to adversely affect**” nodding pinweed.

Scrub Stylisma (*Stylisma abdita*)

Scrub Stylisma is a small perennial herb in the morning glory family (Convolvulaceae) with trailing stems up to one foot long. The leaves are less than one-half inch, sericeous and linear arranged alternately along the stem. The flowers are small white and funnelform borne solitary on short stalks in the axils of the leaves. Scrub Stylisma flowers March through August (FNAI 2000). Scrub Stylisma is endemic to peninsular Florida and occurs in openings in scrub and sandhill and ranges from Collier County north to Clay County (Wunderlin 2011). Scrub Stylisma is listed as Endangered by FDACS.

In 2023, Scrub Stylisma was observed at two distinct locations along the project limits. It was found within the rosemary scrub on the south side of the project limits adjacent to Archbold Biological Station and within openings in scrubby flatwoods within the LWRWEA. However, no occurrences were documented during the 2025 survey. This species is presumed to still be extant at the previously documented locations and was likely overlooked due to the timing of the surveys or the prescribed burns in the area. Due to the 2023 observations, the potential for occurrence of this species within the project study area is **high**. It has been determined that the proposed project will have “**potential to adversely affect**” the scrub stylisma.

Northern needleleaf (*Tillandsia balbisiana*)

Northern needleleaf is an epiphytic member of the bromeliad family (Bromeliaceae) occurring as single plants or in clusters. The leaves emanate from a bulbous base and are many-ranked, reflexed, twisted, or contorted, grayish in color, up to 12 inches long and up to one inch wide. The leaves are distinct from other *Tillandsia* spp. in having a conspicuous channel. The leaf sheath is conspicuously rust colored toward base. The inflorescence occurs along a scape to two feet long with densely overlapping, twisted bracts. The scape often has up to ten lateral branches. The floral bracts are overlapping, erect, green to red, broad and leathery. The showy flowers are violet, and fruits are up to two inches long. Northern needleleaf flowers spring through summer but is identifiable year-round (Flora of North America Editorial Committee 2000). Northern needleleaf occurs in hammocks and scrub throughout south and central Florida from Monroe County north to Orange County (Wunderlin 2011). Northern needleleaf is listed as threatened by FDACS.

Northern needleleaf was previously documented in 2019 and 2023, in 2025 it was documented at two locations along the project limits. Both locations occurred along the eastern portion of the project limits in association with linear strips of long unburned oak scrub, succeeding to xeric hammock. Due to the presence of this species, the potential for occurrence within the project study area is **high**. It has been determined that the proposed project will have “**potential to adversely affect**” the northern needleleaf.

Cardinal airplant (*Tillandsia fasciculata*)

Cardinal airplant is an epiphytic member of the bromeliad family occurring as single plants or in clusters. The many-ranked leaves emanate from a non-bulbous base and are erect to spreading, gray to gray-green in color, ten to 20 inches long by one inch wide, broadly elliptic, flat, narrowly triangular, tapering evenly from base to the apex and are stiff and leathery. The leaves are involute with an attenuate apex. The sheath is dark rust colored towards the base. The inflorescence occurs along a scape to 14 inches long. The floral bracts are densely imbricate and are erect to spreading. The inflorescence spike is erect to spreading with up to 15 lateral branches. The showy floral bracts are imbricate, erect, red, red-yellow-green, or green. The flowers are violet, and fruits are up to two inches long. Cardinal airplant flowers spring through summer but is identifiable year-round (Flora of North America Editorial Committee 2000). Cardinal airplant occurs in hammocks and cypress swamps throughout central and southern Florida from Monroe County north to Volusia County (Wunderlin 2011). Cardinal airplant is listed as endangered by FDACS.

Cardinal airplant was previously documented within the project limits in 2019 and 2023. During the 2025 survey it was observed at several locations along the eastern portion of the project limits. This species was mostly found in association with linear strips of long unburned oak scrub, succeeding to xeric hammock. Due to the presence of this species, the potential for occurrence within the project study area is **high**. It has been determined that the proposed project will have “**potential to adversely affect**” the cardinal airplant.

Giant airplant (*Tillandsia utriculata*)

Giant airplant is an epiphytic member of the bromeliad family and occurs as a single plant. The many-ranked leaves emanate from a non-bulbous base and are up to three feet long by two inches wide. The leaves are spreading and recurved, not twisted, gray green, with finely appressed scales. The leaf blades are linear-triangular, leathery, and involute with an attenuate apex. The leaf sheath is pale or slightly rust colored. The inflorescence occurs along a scape to 20 inches long with densely overlapping bracts towards the base of the scape. The flowering spike has up to 40 branches. The floral bracts are widely spaced, erect, green or tinged purple. The tubular flowers are white and fruits are up to two inches. Giant airplant flowers in the summer but is identifiable year-round (Flora of North America Editorial Committee 2000). Giant airplant occurs frequently in hammocks and cypress swamps throughout peninsular Florida from Monroe County north to Putnam County (Wunderlin 2011). It is listed as endangered by FDACS.

Giant airplant was documented throughout the project limits during the 2019, 2023, and 2025 surveys. Most occurrences were found in association with linear strips of long unburned oak scrub, succeeding to xeric hammock. Due to the presence of this species, the potential for occurrence within the project study area is **high**. It has been determined that the proposed project will have “**potential to adversely affect**” the giant airplant.

4 CONCLUSION

The results shown in **Table 4-1** summarize the results of all protected plant survey results conducted by FDOT in 2019, 2023, and 2025. Plants that weren't observed in 2025 but were observed in an earlier survey year (excluding Lewton's polygala), are considered as likely to occur within the project limits. A survey for listed plant species including scrub pigeon wing, highlands scrub hypericum, scrub blazing star, Britton's beargrass, paper nailwort, Florida jointweed, Curtiss' milkweed, Ashe's savory, cutthroat grass, scrub spurge, garberia, Edison's ascyrum, nodding pinweed, scrub stylisma, northern needleleaf, cardinal airplant, and giant airplant will be performed during the design phase and coordination with USFWS/FDACS will occur if impacts to the species are anticipated. Effect determinations were made with the implementations of these measures in mind.

Table 4-1 Protected Plants Observed Within and Adjacent to Project Limits

Scientific Name	Common Name	Population Estimate (most recent)	Survey Year(s)	Anticipated Effect Determination
<i>Asclepias curtissii</i>	Curtiss' milkweed	2	2019 2023	Potential to adversely affect
<i>Calamintha ashei</i>	Ashe's savory	<25	2019 2023 2025	Potential to adversely affect
<i>Clitoria fragrans</i>	Scrub pigeon-wings	6	2023	May affect and is likely to adversely affect
<i>Coleataenia abscissa</i>	Cutthroat grass	>100	2019 2023 2025	Potential to adversely affect
<i>Euphorbia roscens</i>	Scrub spurge	11-100	2019 2023	Potential to adversely affect
<i>Garberia heterophylla</i>	Garberia	>500	2019 2023 2025	Potential to adversely affect
<i>Hypericum cumulicola</i>	Scrub hypericum	>100	2019 2023 2025	May affect and is likely to adversely affect
<i>Hypericum edisonianum</i>	Edison's aschyrum	<50	2019 2023 2025	Potential to adversely affect
<i>Lechea cernua</i>	Nodding pinweed	>50	2019 2023 2025	Potential to adversely affect
<i>Liatris ohlingerae</i>	Scrub blazing star	16	2019	May affect and is likely to adversely affect

Scientific Name	Common Name	Population Estimate (most recent)	Survey Year(s)	Anticipated Effect Determination
<i>Nolina brittoniana</i>	Britton's beargrass	8	2019	May affect and is likely to adversely affect
<i>Paronychia chartacea</i>	Paper nailwort	<50	2019 2023 2025	May affect and is likely to adversely affect
<i>Polygonum basiramia</i>	Florida jointweed	23	2019	May affect and is likely to adversely affect
<i>Stylisma abdita</i>	Scrub stylisma	<25	2023	Potential to adversely affect
<i>Tillandsia balbisiana</i>	Northern needleleaf	<10	2019 2023 2025	Potential to adversely affect
<i>Tillandsia fasciculata</i>	Cardinal airplant	<25	2019 2023 2025	Potential to adversely affect
<i>Tillandsia utriculata</i>	Giant airplant	>50	2019 2023 2025	Potential to adversely affect

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APPENDICES

Appendix A – Project Location Map

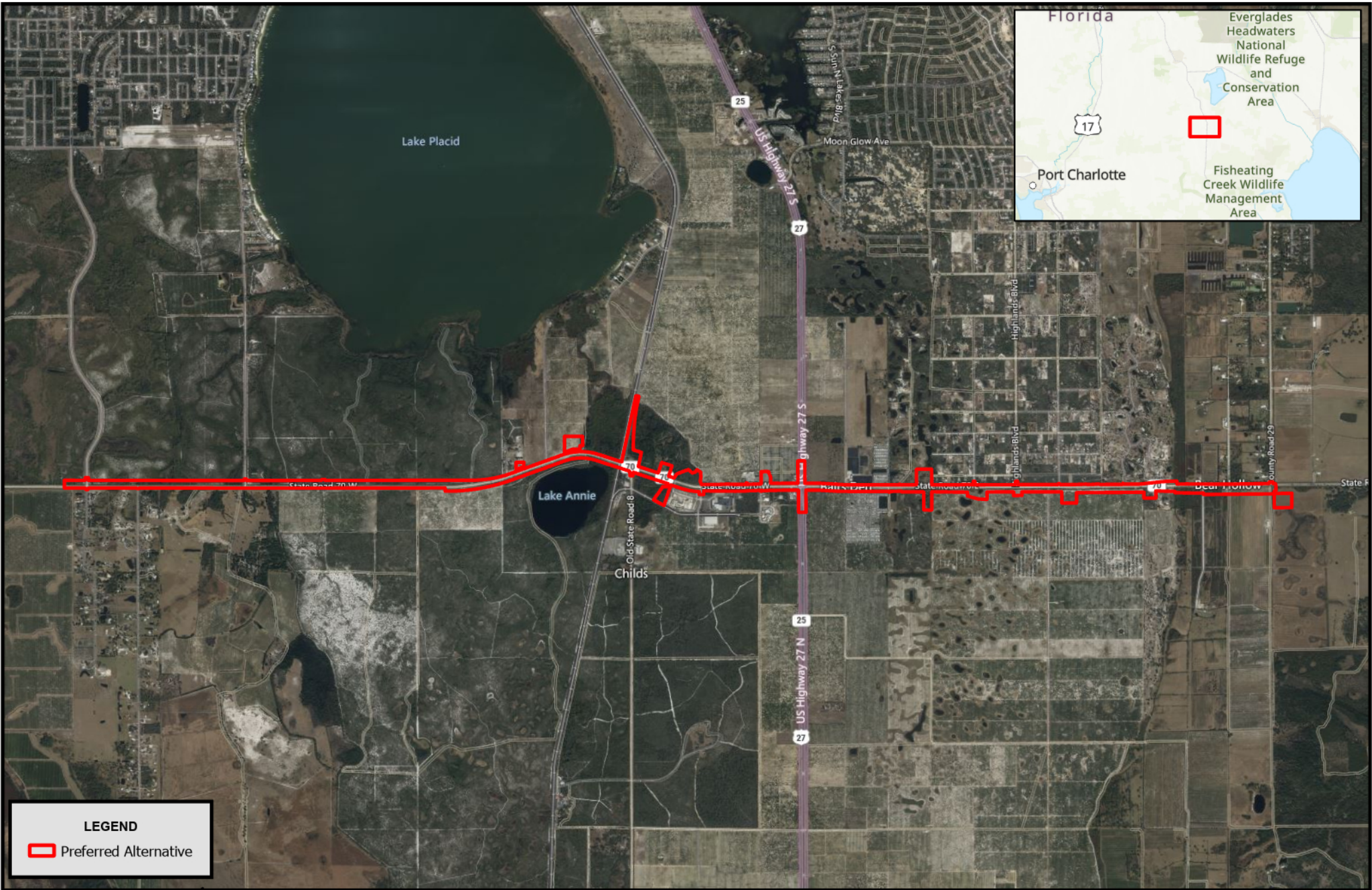
Appendix B – Previously Documented Occurrences

Appendix C – Land Use Map

Appendix D – 2025 Listed Plant Species Locations

APPENDIX A

Project Location Map



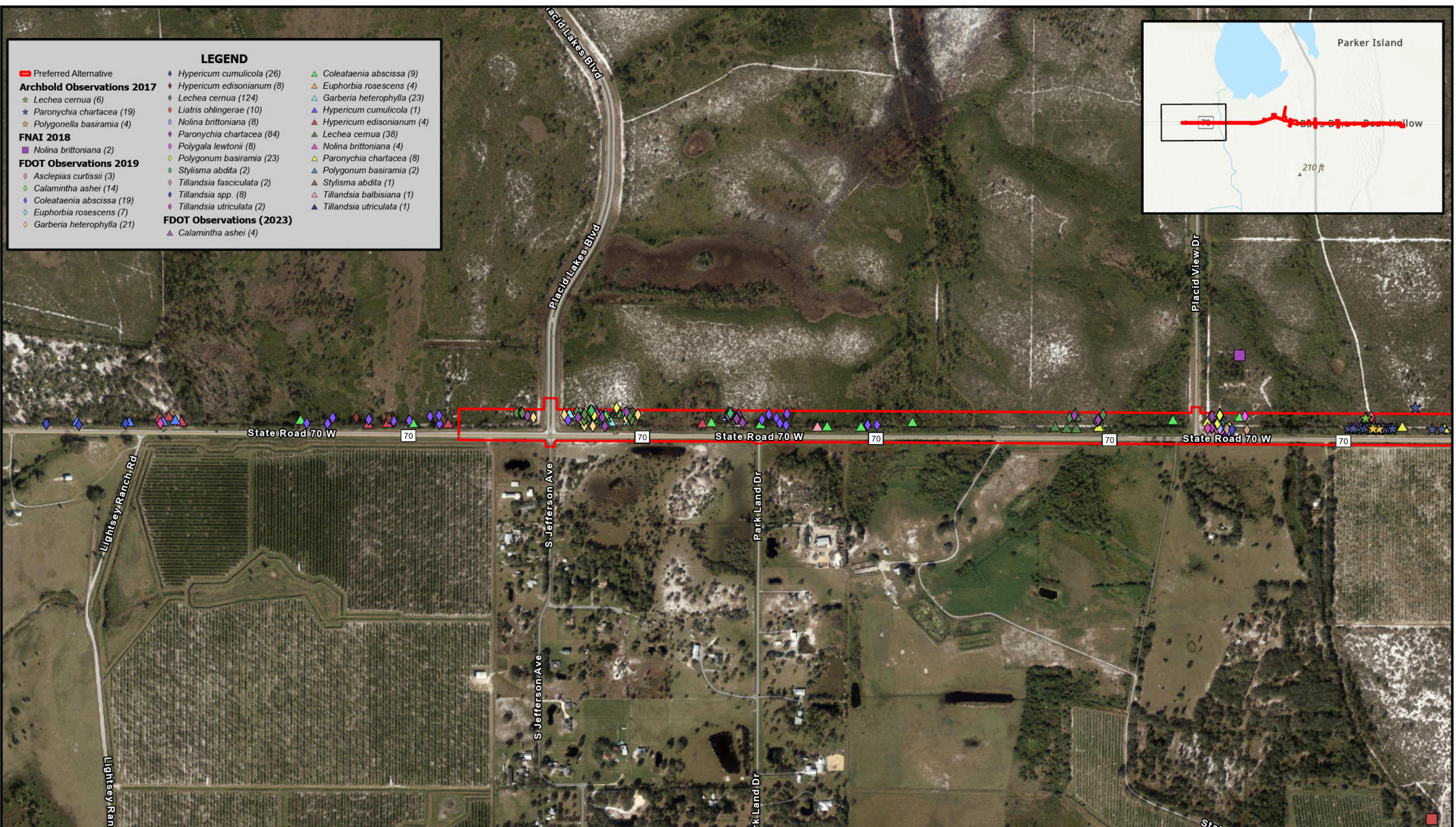
LEGEND

 Preferred Alternative

	0 4,000 8,000 Feet 1 inch = 4,000 feet	Project Location Map	SR 70 from Jefferson Ave to CR 29 FPID: 414506-1-22-01 Highlands County, Florida	
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APPENDIX B

Previously Documented Occurrences





07501,500

Feet

1 inch = 750 feet

Previously Documented Occurrences

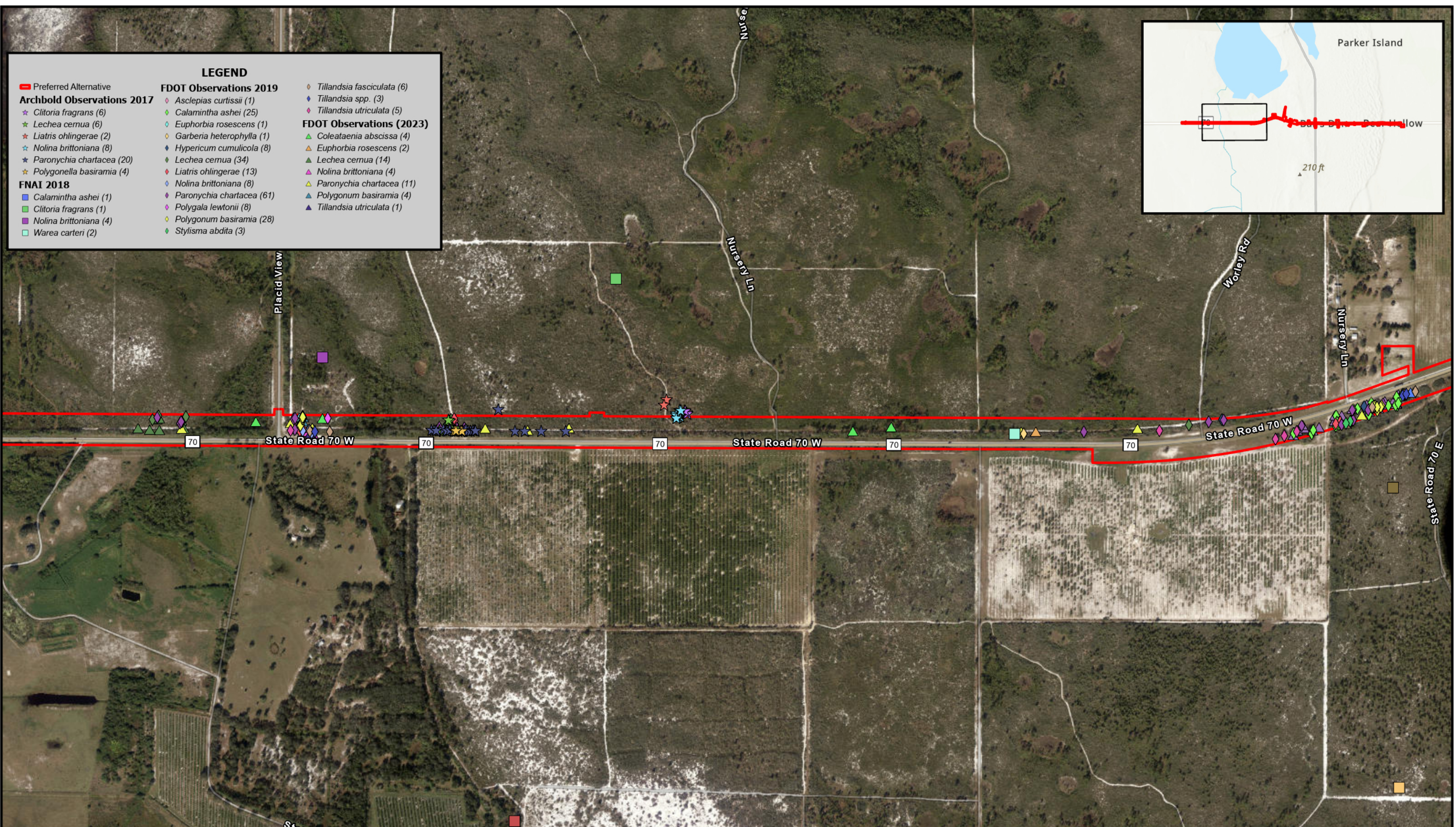
SR 70 fr Jefferson Ave to CR 29

FPID: 414506-1-22-01

Highlands County, Florida

N







07501,500

Feet

1 inch = 750 feet

Previously Documented Occurrences

SR 70 fr Jefferson Ave to CR 29

FPID: 414506-1-22-01

Highlands County, Florida

N



LEGEND

 Preferred Alternative

FNAI 2018

 *Calamintha ashei* (1)

 *Liatris ohlingerae* (1)

 *Nolina brittoniana* (2)

FDOT Observations 2019

 *Calamintha ashei* (25)

 *Garberia heterophylla* (2)

 *Hypericum cumulicola* (5)

 *Lechea cernua* (1)

 *Liatris ohlingerae* (3)

 *Paronychia chartacea* (21)

 *Polygonum basiramia* (14)

 *Stylisma abdita* (3)

 *Tillandsia fasciculata* (4)

 *Tillandsia spp.* (3)

 *Tillandsia utriculata* (4)

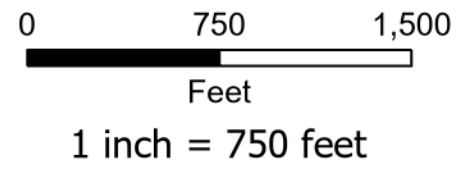
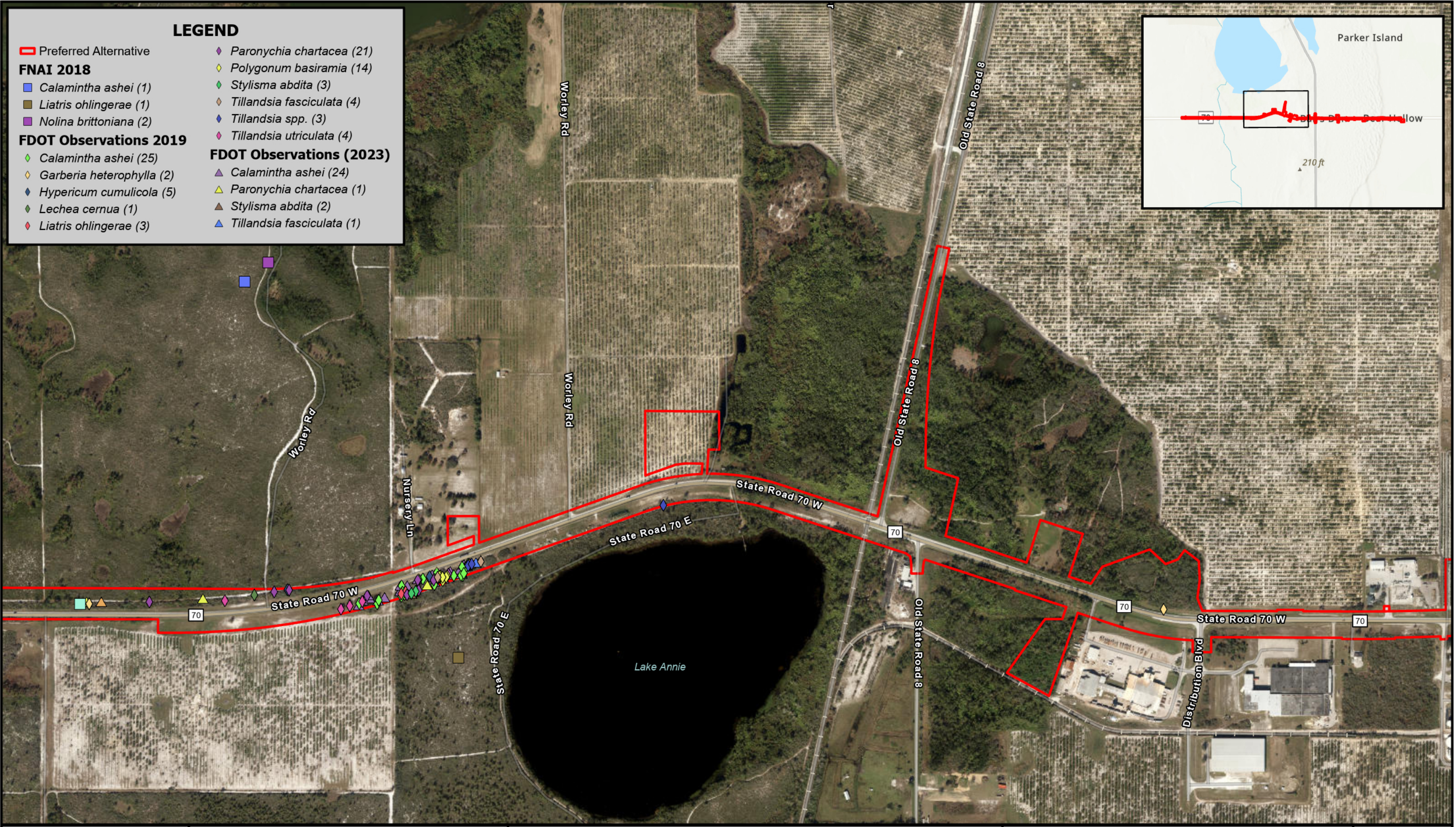
FDOT Observations (2023)

 *Calamintha ashei* (24)

 *Paronychia chartacea* (1)

 *Stylisma abdita* (2)

 *Tillandsia fasciculata* (1)



Previously Documented Occurrences

SR 70 fr Jefferson Ave to CR 29
FPID: 414506-1-22-01
Highlands County, Florida



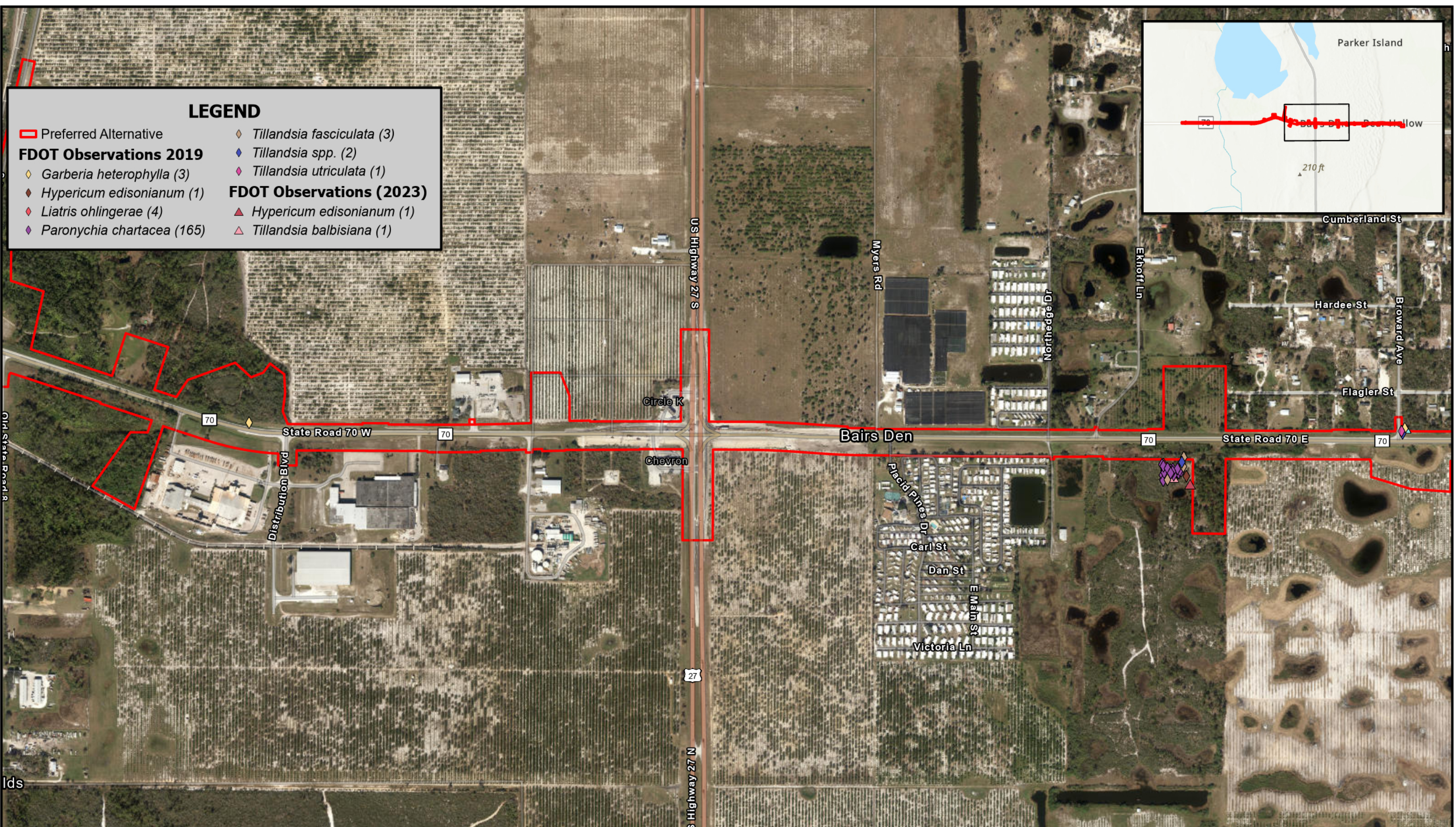
Preferred Alternative

FDOT Observations 2019

- Garberia heterophylla* (3)
- Hypericum edisonianum* (1)
- Liatris ohlingerae* (4)
- Paronychia chartacea* (165)

FDOT Observations (2023)

- Tillandsia fasciculata* (3)
- Tillandsia spp.* (2)
- Tillandsia utriculata* (1)
- Hypericum edisonianum* (1)
- Tillandsia balbisiana* (1)



LEGEND

 Preferred Alternative

FDOT Observations 2019

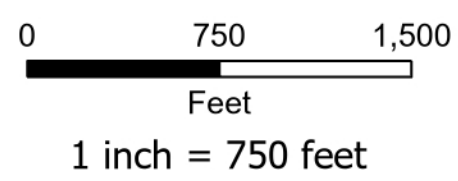
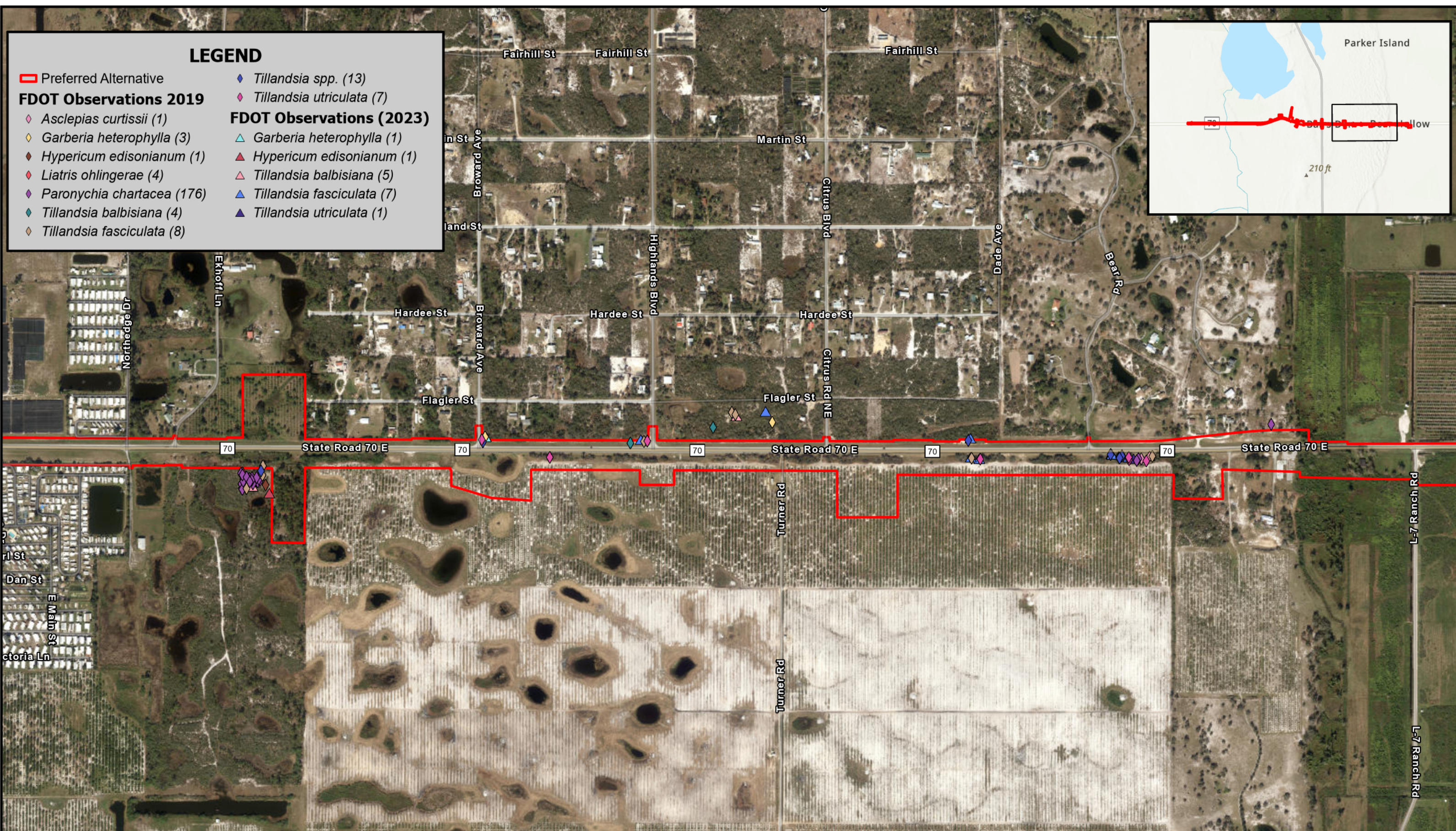
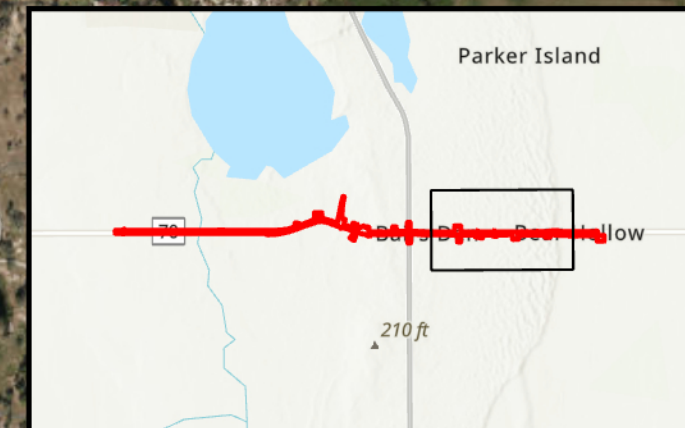
-  *Asclepias curtissii* (1)
-  *Garberia heterophylla* (3)
-  *Hypericum edisonianum* (1)
-  *Liatris ohlingerae* (4)
-  *Paronychia chartacea* (176)
-  *Tillandsia balbisiana* (4)
-  *Tillandsia fasciculata* (8)

 *Tillandsia* spp. (13)

 *Tillandsia utriculata* (7)

FDOT Observations (2023)

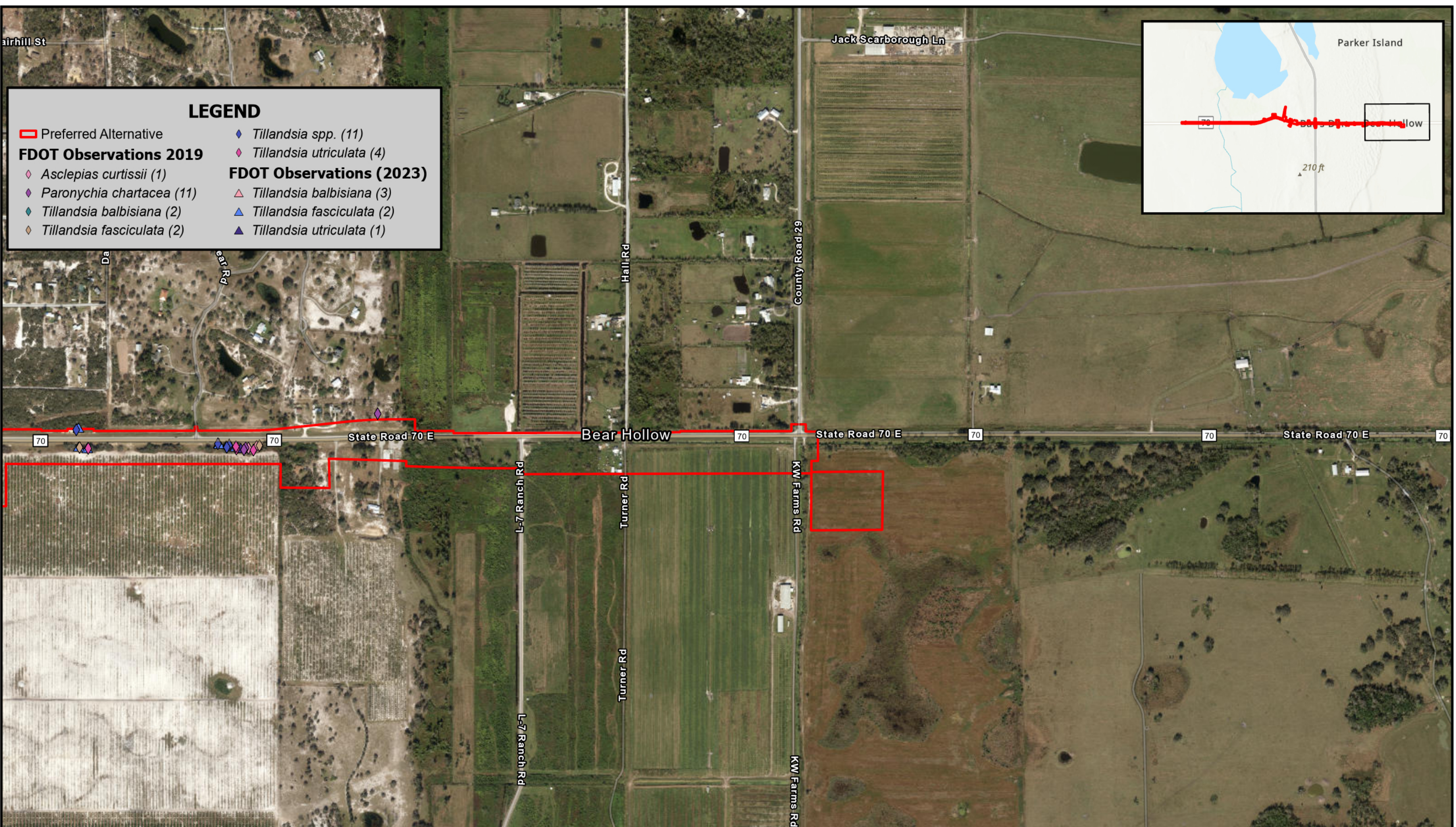
-  *Garberia heterophylla* (1)
-  *Hypericum edisonianum* (1)
-  *Tillandsia balbisiana* (5)
-  *Tillandsia fasciculata* (7)
-  *Tillandsia utriculata* (1)



Previously Documented Occurrences

SR 70 fr Jefferson Ave to CR 29
FPID: 414506-1-22-01
Highlands County, Florida





LEGEND

Preferred Alternative

FDOT Observations 2019

- ◆ *Asclepias curtissii* (1)
- ◆ *Paronychia chartacea* (11)
- ◆ *Tillandsia balbisiana* (2)
- ◆ *Tillandsia fasciculata* (2)

FDOT Observations (2023)

- ◆ *Tillandsia* spp. (11)
- ◆ *Tillandsia utriculata* (4)
- ▲ *Tillandsia balbisiana* (3)
- ▲ *Tillandsia fasciculata* (2)
- ▲ *Tillandsia utriculata* (1)

APPENDIX C

Land Use Map

LEGEND

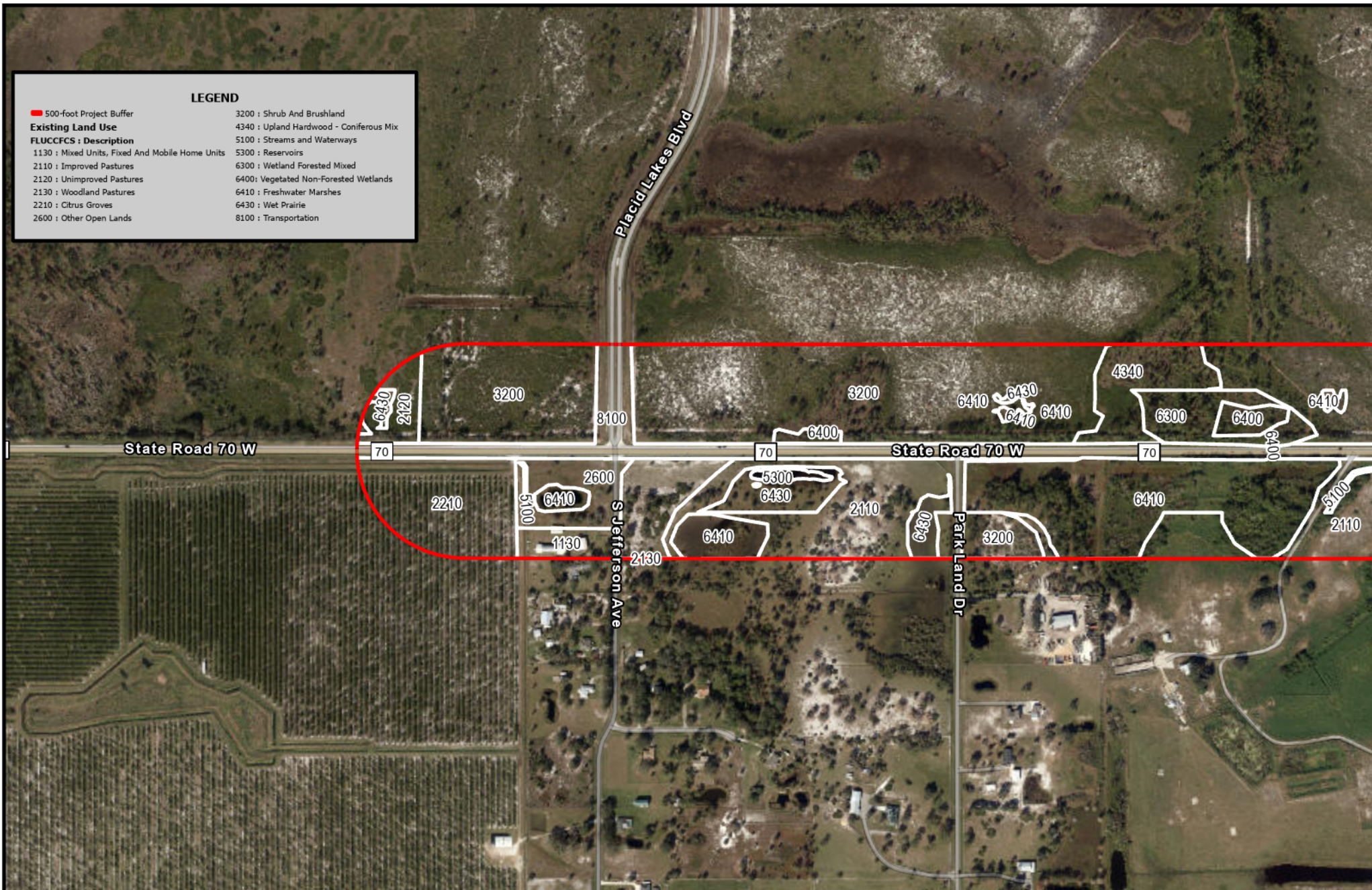
500-foot Project Buffer

Existing Land Use

FLUCCFCS : Description

1130 : Mixed Units, Fixed And Mobile Home Units
2110 : Improved Pastures
2120 : Unimproved Pastures
2130 : Woodland Pastures
2210 : Citrus Groves
2600 : Other Open Lands

3200 : Shrub And Brushland
4340 : Upland Hardwood - Coniferous Mix
5100 : Streams and Waterways
5300 : Reservoirs
6300 : Wetland Forested Mixed
6400 : Vegetated Non-Forested Wetlands
6410 : Freshwater Marshes
6430 : Wet Prairie
8100 : Transportation



FLUCFCS Land Use Map

1 inch = 600 feet

Sources: SWFWMD 2020; SFWMD 2019

SR 70 from Jefferson Ave to CR 29
FPID: 414506-1-22-01
Highlands County, Florida

Page 1 of 8



LEGEND

500-foot Project Buffer

Existing Land Use

FLUCFCS : Description

1100 : Residential Low Density Less Than 2 Dwells*

2110 : Improved Pastures

2210 : Citrus Groves

3200 : Shrub And Brushland

4340 : Upland Hardwood - Coniferous Mix

5100 : Streams and Waterways

5300 : Reservoirs

6170 : Mixed Wetland Hardwoods

6300 : Wetland Forested Mixed

6400 : Vegetated Non-Forested Wetlands

6410 : Freshwater Marshes

8100 : Transportation



FLUCFCS Land Use Map

1 inch = 600 feet

Sources: SWFWMD 2020; SFWMD 2019

SR 70 from Jefferson Ave to CR 29
FPID: 414506-1-22-01
Highlands County, Florida

Page 2 of 8



LEGEND

500-foot Project Buffer

Existing Land Use

FLUCFCS : Description

1100 : Residential Low Density Less Than 2 Dwells*

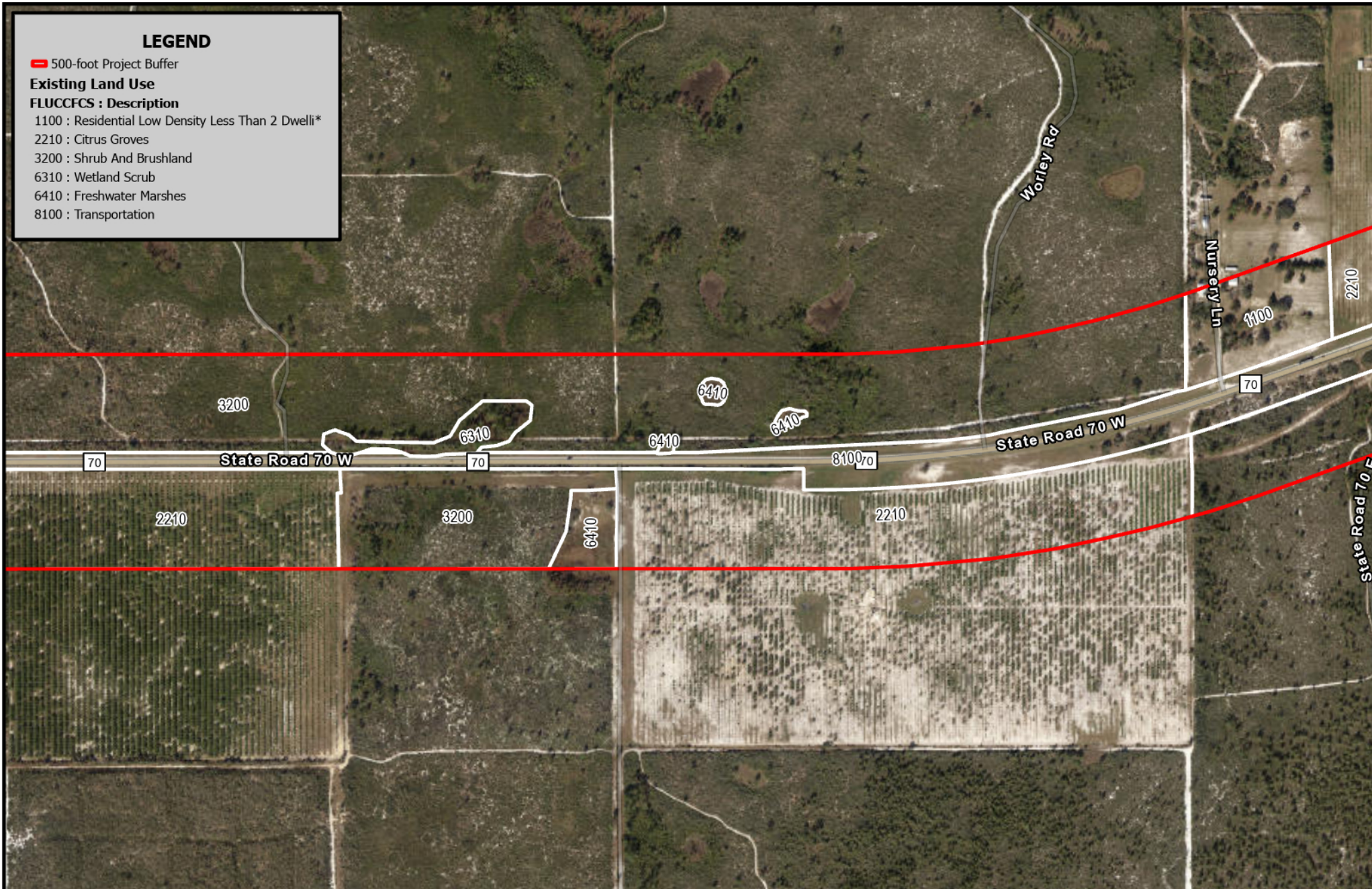
2210 : Citrus Groves

3200 : Shrub And Brushland

6310 : Wetland Scrub

6410 : Freshwater Marshes

8100 : Transportation



FLUCFCS Land Use Map

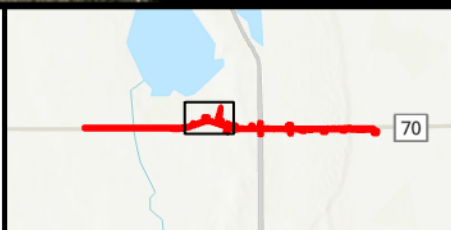
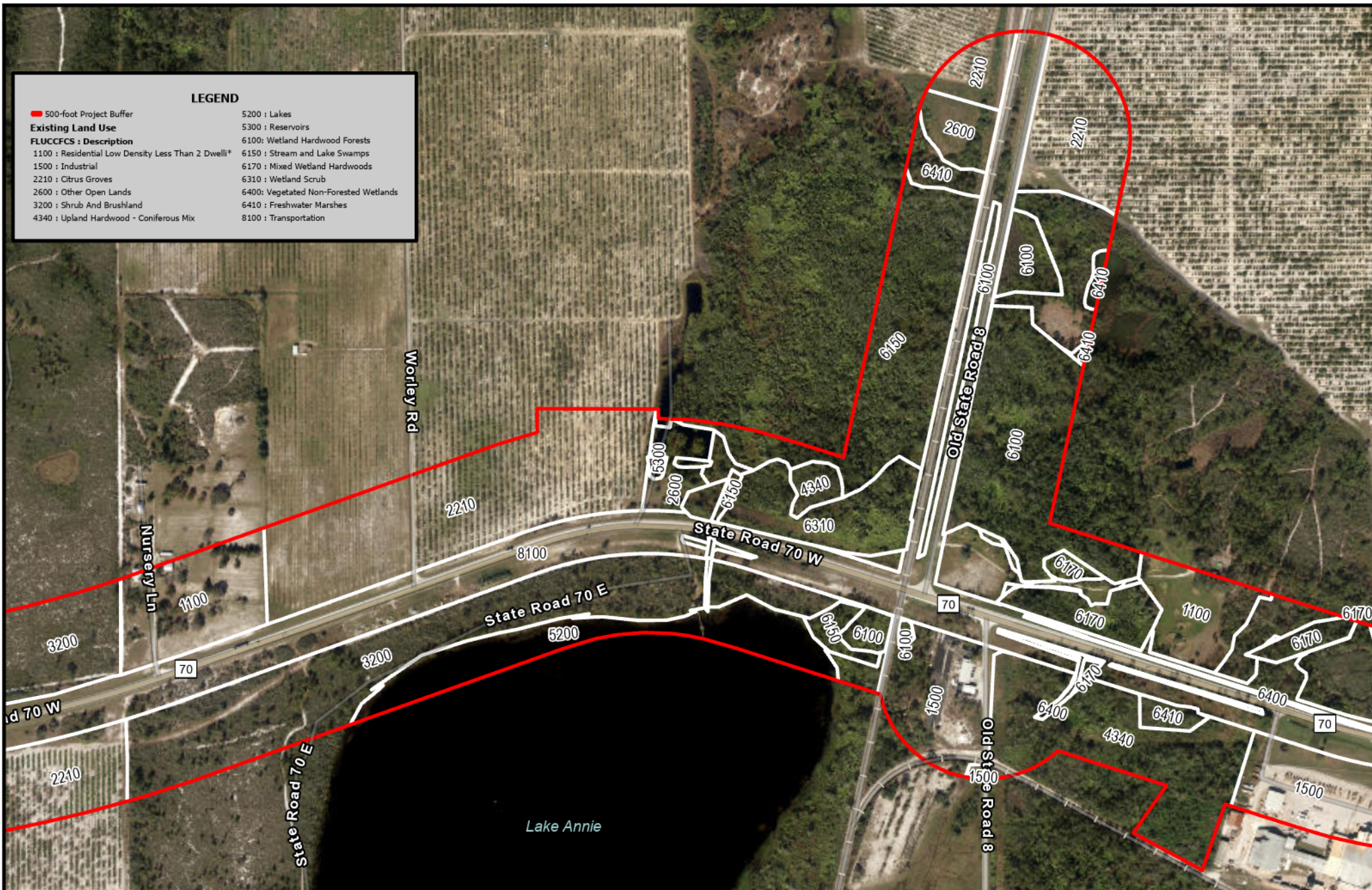
1 inch = 600 feet

Sources: SWFWMD 2020; SFWMD 2019

SR 70 from Jefferson Ave to CR 29
FPID: 414506-1-22-01
Highlands County, Florida

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FLUCFCS Land Use Map

1 inch = 600 feet

Sources: SWFWMD 2020; SWFWMD 2019

SR 70 from Jefferson Ave to CR 29
 FPID: 414506-1-22-01
 Highlands County, Florida

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6410

LEGEND

500-foot Project Buffer

Existing Land Use

FLUCFCS : Description

1100 : Residential Low Density Less Than 2 Dwelli*

1300 : Residential High Density

1400 : Commercial And Services

1500 : Industrial

2210 : Citrus Groves

2400 : Nurseries And Vineyards

3200 : Shrub And Brushland

4340 : Upland Hardwood - Coniferous Mix

5100 : Streams and Waterways

6100 : Wetland Hardwood Forests

6170 : Mixed Wetland Hardwoods

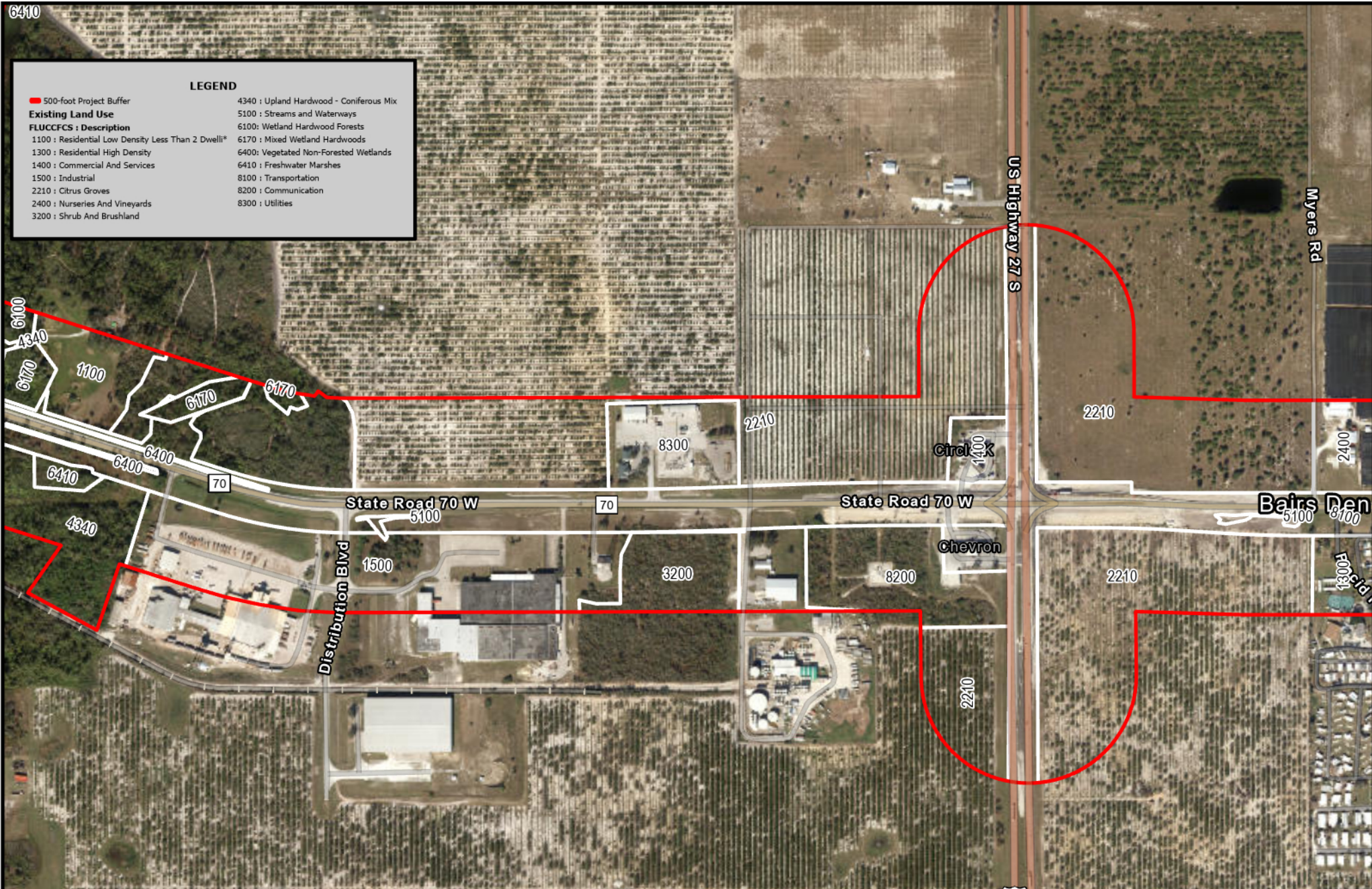
6400 : Vegetated Non-Forested Wetlands

6410 : Freshwater Marshes

8100 : Transportation

8200 : Communication

8300 : Utilities



FLUCFCS Land Use Map

1 inch = 600 feet

Sources: SWFWMD 2020; SFWMD 2019

SR 70 from Jefferson Ave to CR 29
FPID: 414506-1-22-01
Highlands County, Florida

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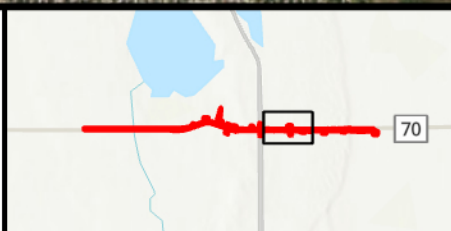
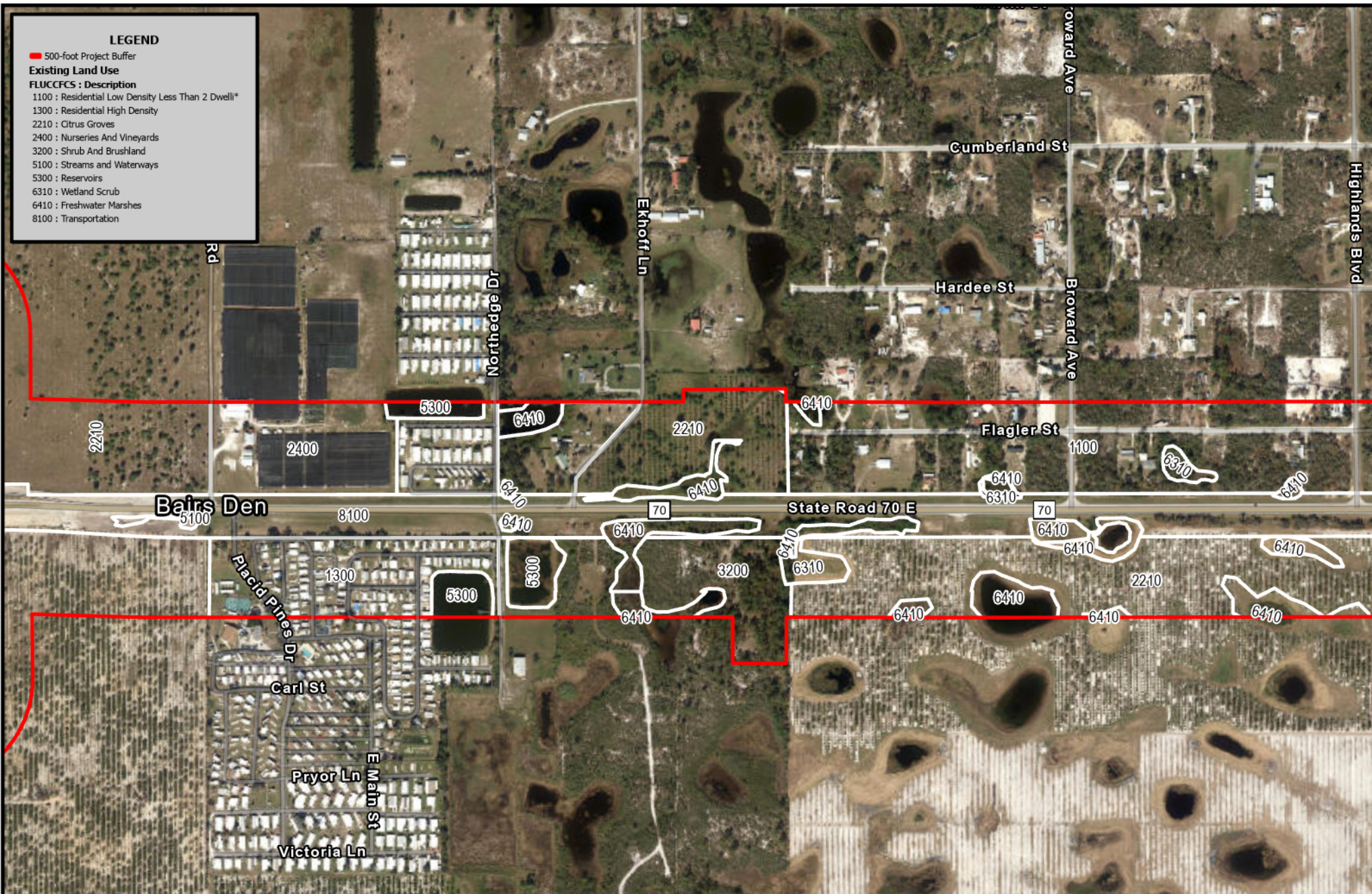
LEGEND

500-foot Project Buffer

Existing Land Use

FLUCFCS : Description

- 1100 : Residential Low Density Less Than 2 Dwelling*
- 1300 : Residential High Density
- 2210 : Citrus Groves
- 2400 : Nurseries And Vineyards
- 3200 : Shrub And Brushland
- 5100 : Streams and Waterways
- 5300 : Reservoirs
- 6310 : Wetland Scrub
- 6410 : Freshwater Marshes
- 8100 : Transportation



FLUCFCS Land Use Map

1 inch = 600 feet

Sources: SWFWMD 2020; SWFWMD 2019

SR 70 from Jefferson Ave to CR 29
FPID: 414506-1-22-01
Highlands County, Florida



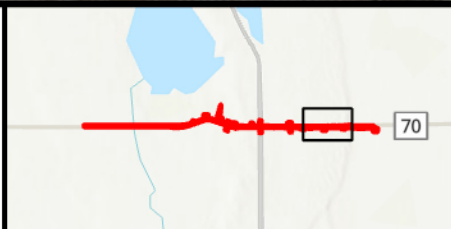
LEGEND

500-foot Project Buffer

Existing Land Use

FLUCFCS : Description

- 1100 : Residential Low Density Less Than 2 Dwelling*
- 1180 : Rural Residential
- 2130 : Woodland Pastures
- 2210 : Citrus Groves
- 4220 : Brazilian Pepper
- 6300 : Wetland Forested Mixed
- 6310 : Wetland Scrub
- 6400 : Vegetated Non-Forested Wetlands
- 6410 : Freshwater Marshes
- 8100 : Transportation



FLUCFCS Land Use Map

1 inch = 600 feet

Sources: SWFWMD 2020; SFWMD 2019

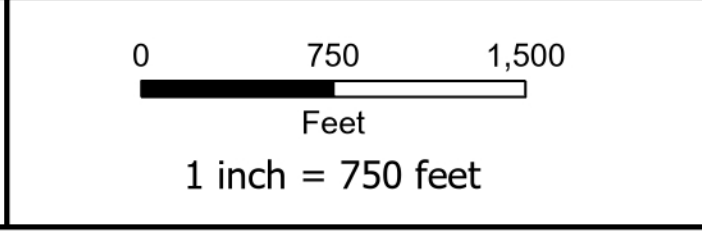
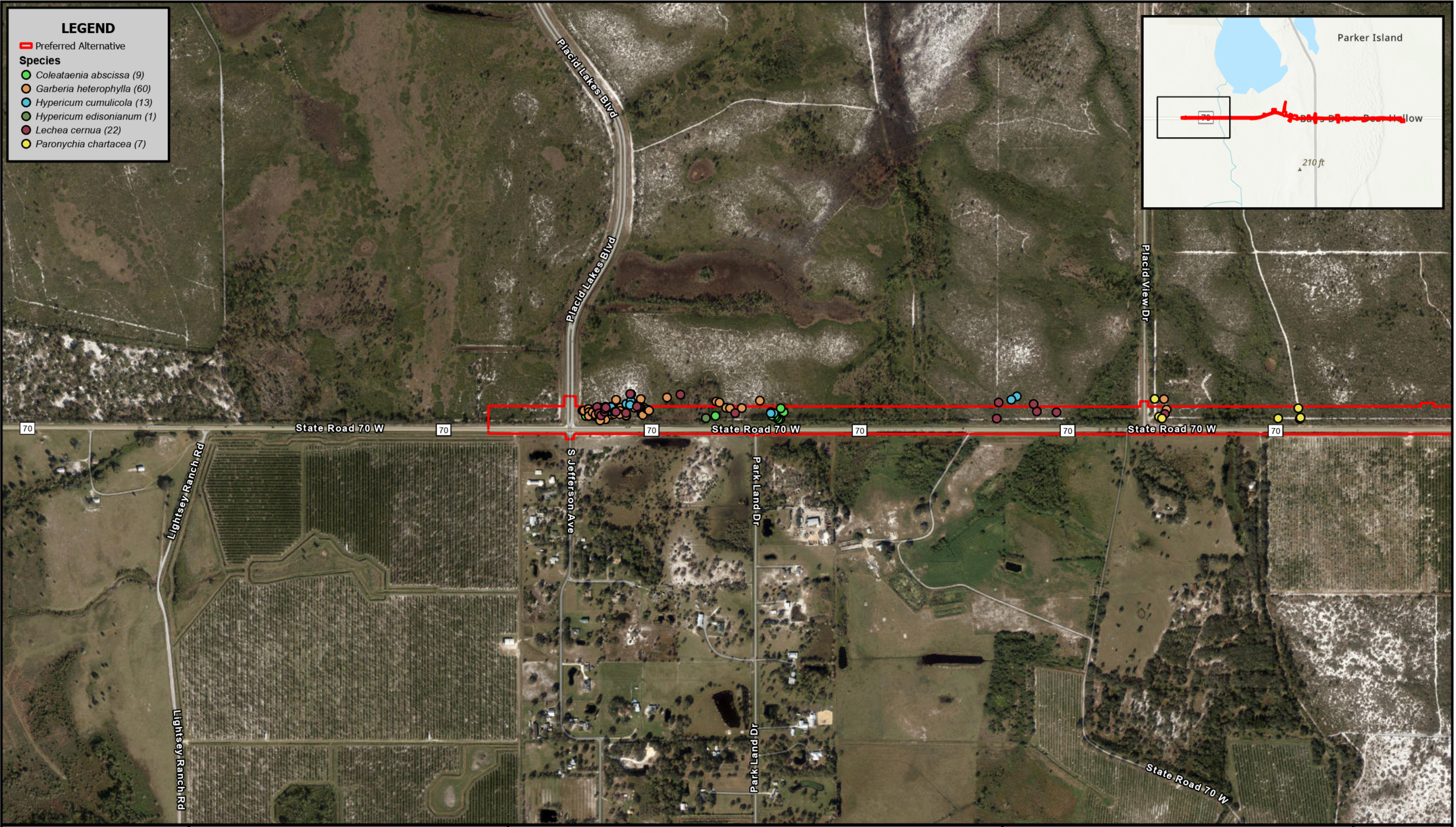
SR 70 from Jefferson Ave to CR 29
FPID: 414506-1-22-01
Highlands County, Florida

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APPENDIX D

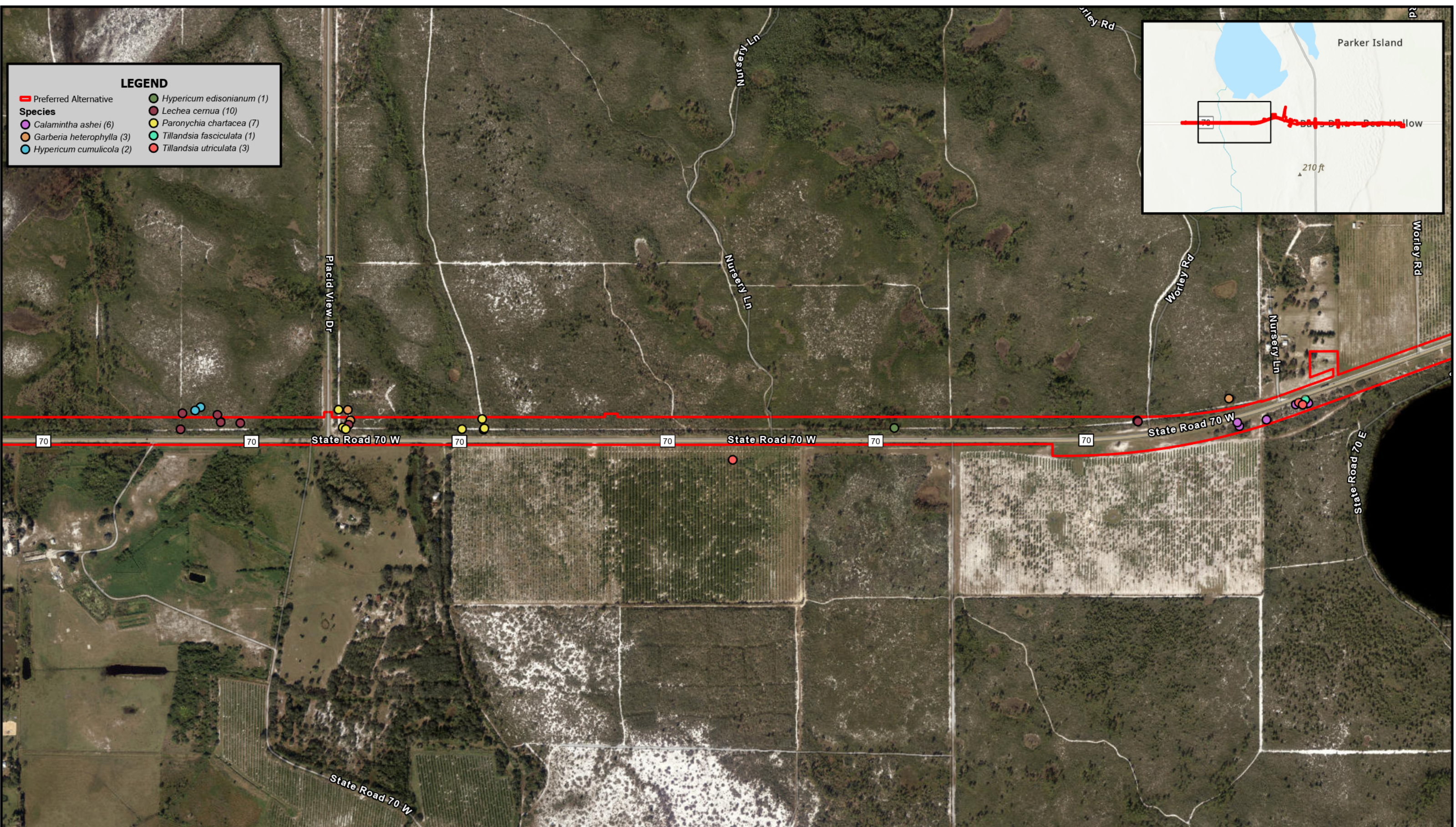
2025 Listed Plant Species Locations



Listed Plant Species Locations

SR 70 fr Jefferson Ave to CR 29
FPID: 414506-1-22-01
Highlands County, Florida





LEGEND

Preferred Alternative

Species

Calamintha ashei (6)

Garberia heterophylla (3)

Hypericum cumulicola (2)

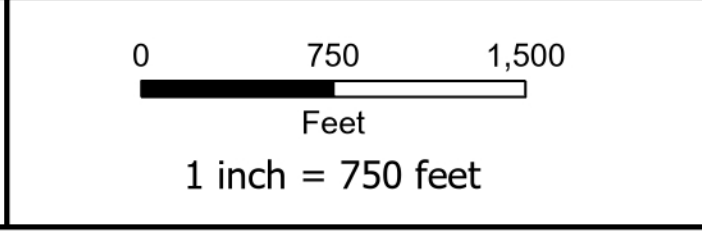
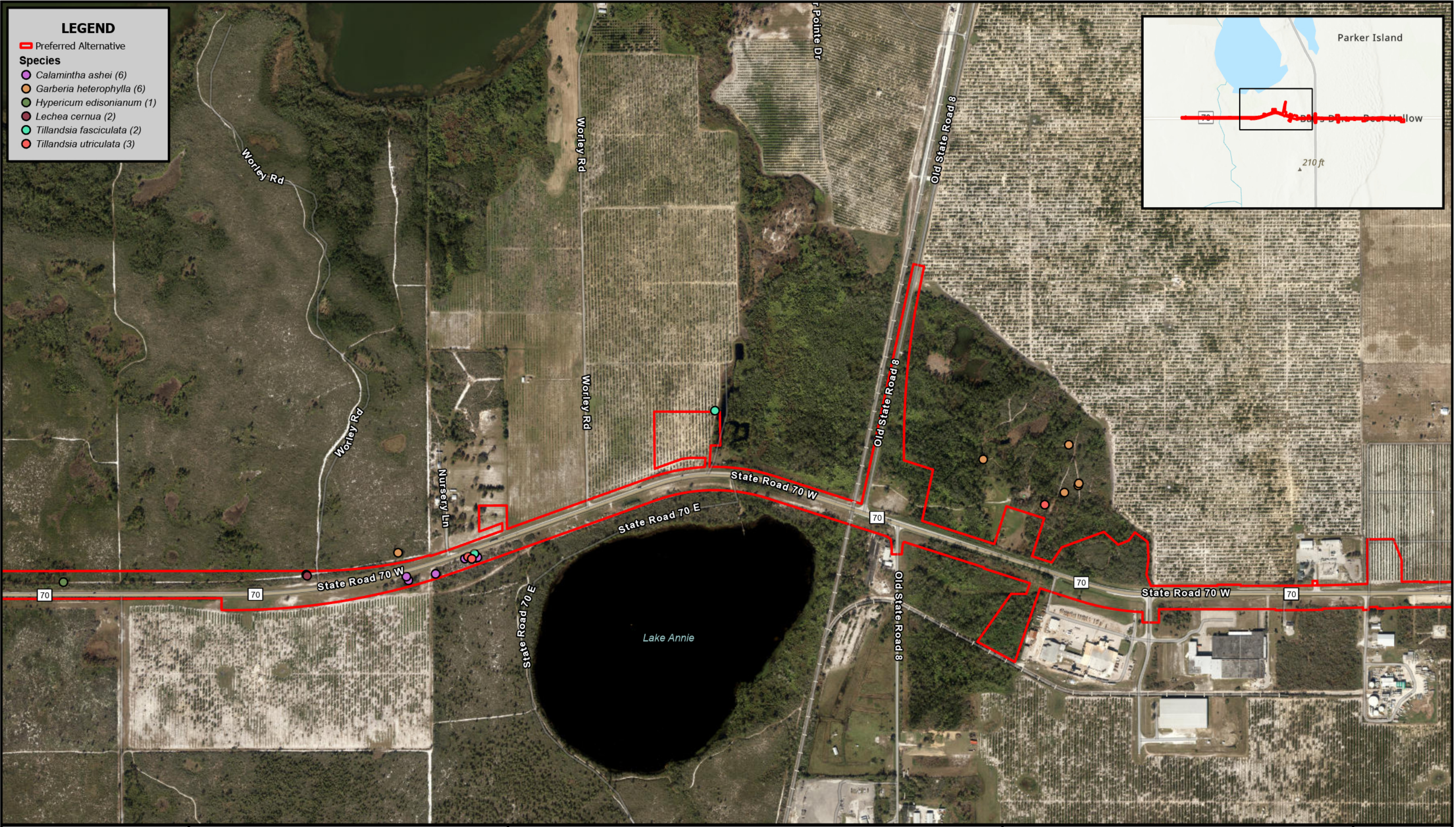
Hypericum edisonianum (1)

Lechea cernua (10)

Paronychia chartacea (7)

Tillandsia fasciculata (1)

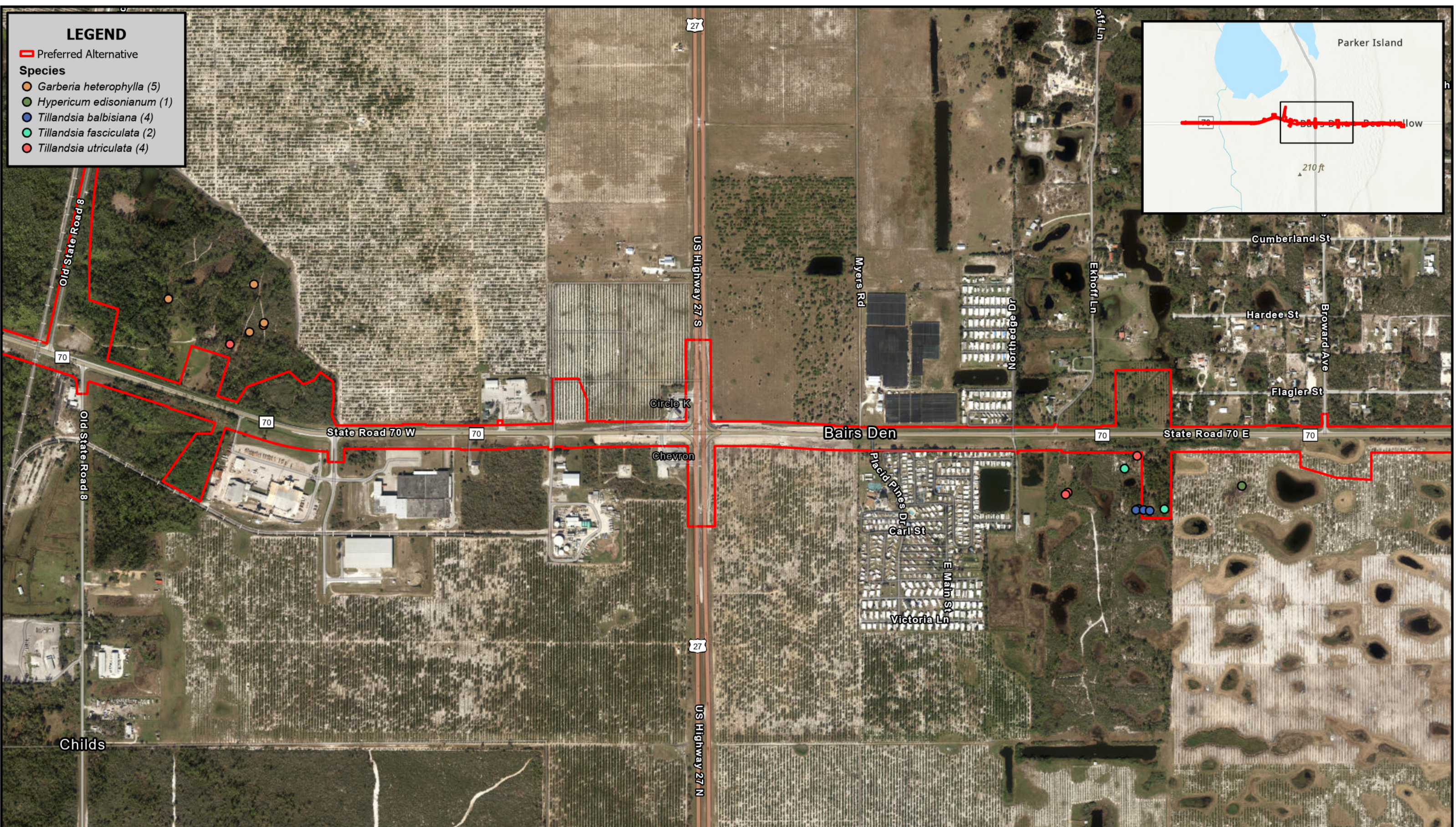
Tillandsia utriculata (3)



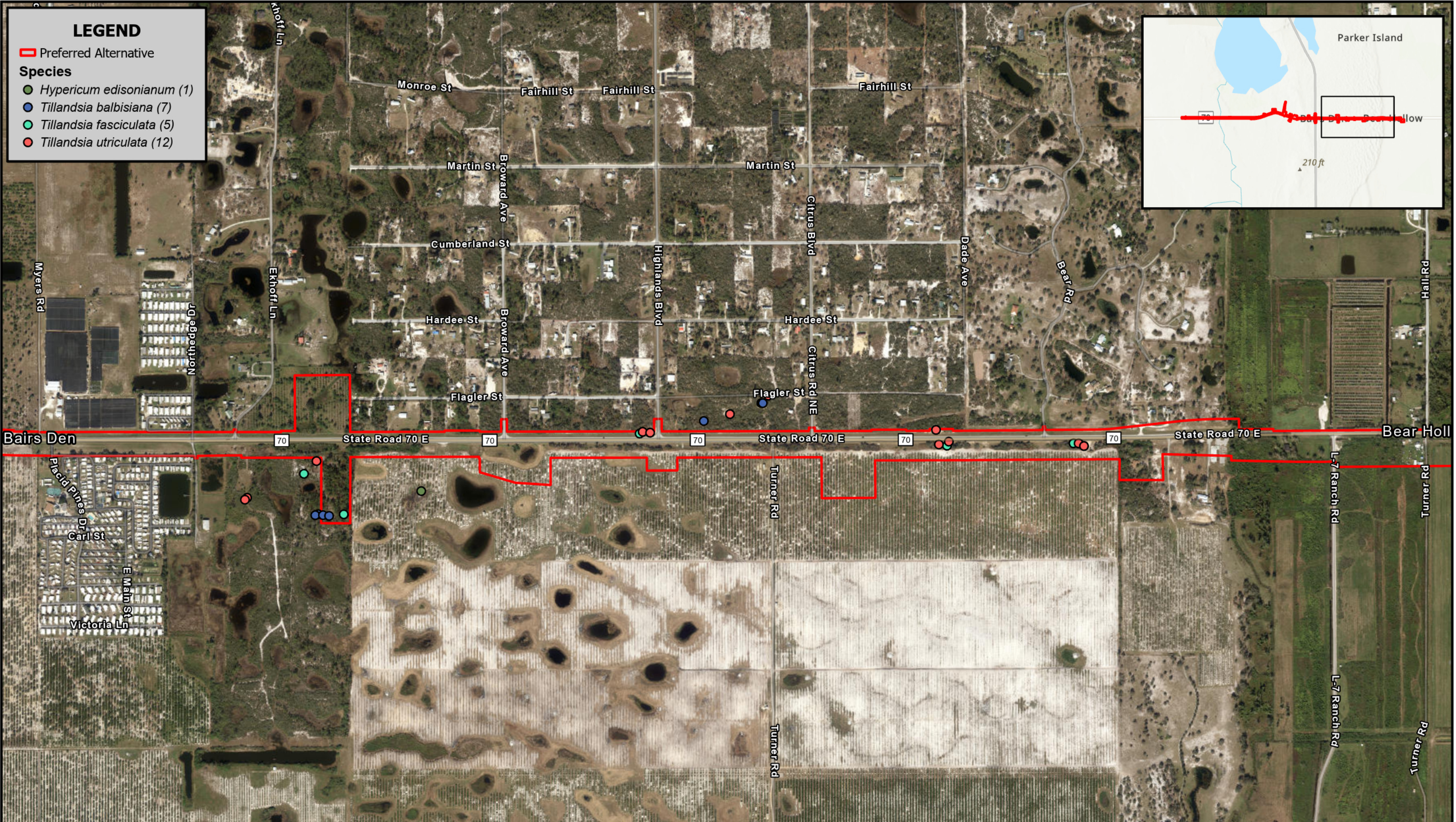
Listed Plant Species Locations

SR 70 fr Jefferson Ave to CR 29
FPID: 414506-1-22-01
Highlands County, Florida

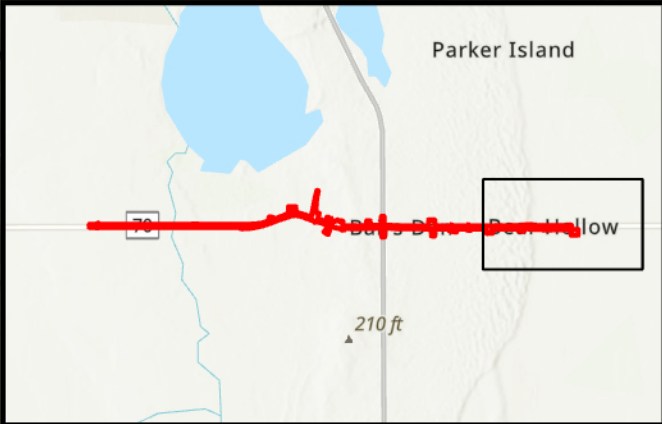
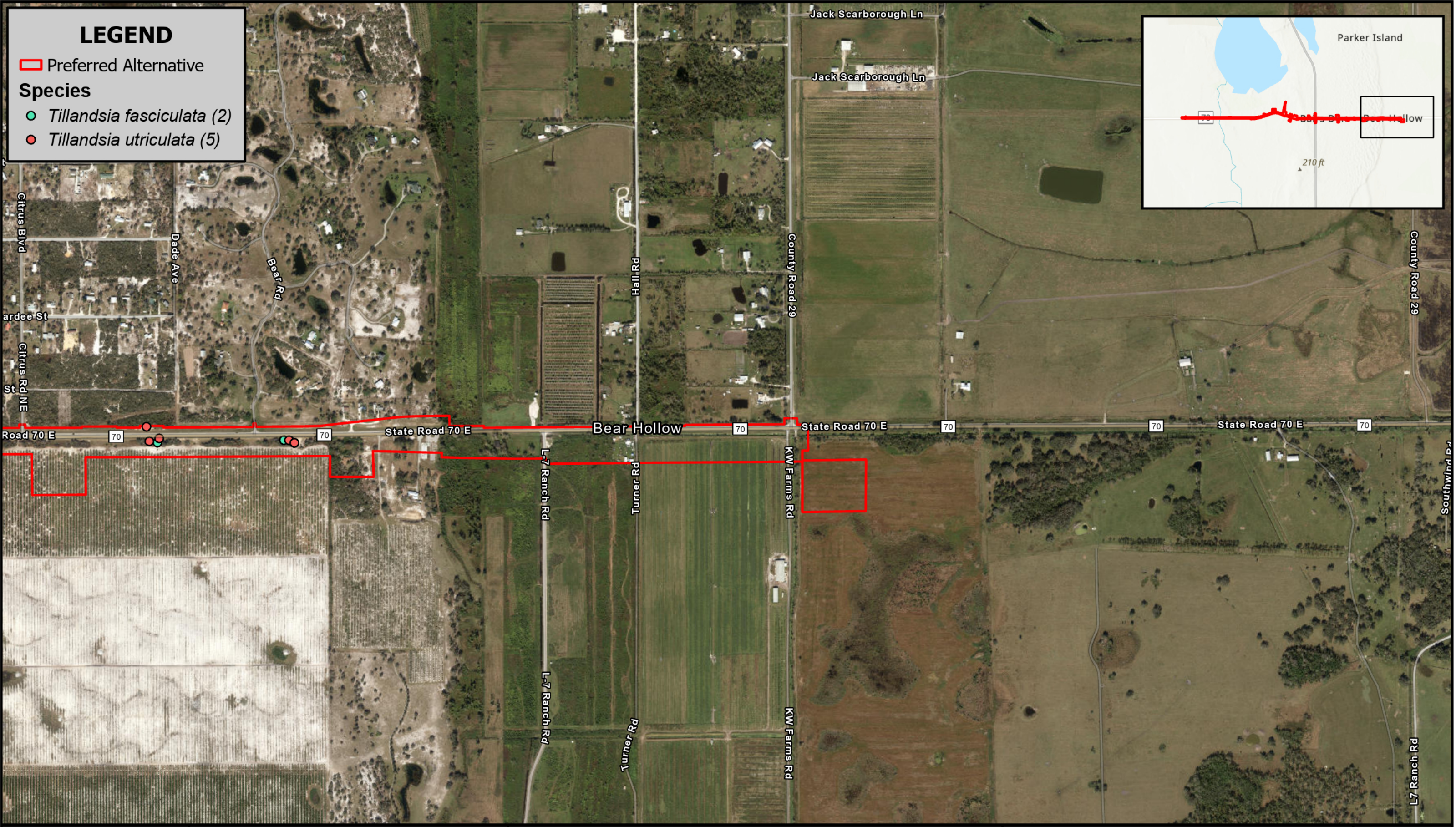




	0 750 1,500 Feet 1 inch = 750 feet	Listed Plant Species Locations	SR 70 fr Jefferson Ave to CR 29 FPID: 414506-1-22-01 Highlands County, Florida	
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	0 750 1,500 Feet 1 inch = 750 feet	Listed Plant Species Locations	SR 70 fr Jefferson Ave to CR 29 FPID: 414506-1-22-01 Highlands County, Florida	
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	0 750 1,500 Feet 1 inch = 750 feet	Listed Plant Species Locations	SR 70 fr Jefferson Ave to CR 29 FPID: 414506-1-22-01 Highlands County, Florida	N
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