

Hale Grove and Storefront Property Indian River County Environmental Bond 2024



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TABLE OF CONTENTS

<u>Section</u>		<u>Page</u>
1.0	HALE GROVE PROPERTY	1
1.1	<u>LOCATION</u>	1
1.2	<u>SIZE</u>	1
1.3	<u>CURRENT AND FUTURE ZONING</u>	1
1.4	<u>PENDING ZONING CHANGES AND SPECIAL OVERLAY DISTRICTS</u>	1
2.0	VEGETATIVE COMMUNITIES	1
2.1	<u>LAND USE AND LAND COVER</u>	2
2.2	<u>SOILS</u>	3
2.3	<u>HISTORICAL IMAGERY REVIEW</u>	3
2.4	<u>OFFSITE CONTINUITY OF NATURAL COMMUNITIES</u>	5
3.0	RARE SPECIES	6
4.0	WETLANDS	7
4.1	<u>AERIAL EXTENT AND CONNECTIVITY</u>	7
4.2	<u>ALTERATIONS</u>	7
5.0	WATER RESOURCES	7
5.1	<u>AQUIFER RECHARGE</u>	7
5.2	<u>WATER QUALITY</u>	8
5.3	<u>WATER ATTENUATION</u>	8
6.0	CORRIDORS AND GREENWAYS	8
7.0	RESTORATION, LAND MANAGEMENT, HAZARDOUS MATERIALS, AND RECREATION	8
7.1	<u>RESTORATION POTENTIAL</u>	8
7.2	<u>LAND MANAGEMENT POTENTIAL</u>	8
7.3	<u>HAZARDOUS MATERIALS</u>	8
7.4	<u>RECREATION AND EDUCATION OPPORTUNITIES</u>	9
8.0	OTHER CONSIDERATIONS	9
9.0	SUMMARY	9

LIST OF TABLES

Table

Table 1	The amount of each altered land use type or natural community type on the Hale Grove Property from the Florida Cooperative Landcover Map (2023).
Table 2	The animal species listed endangered, threatened, or that are tracked by FNAI that have the potential to occur on the Hale Grove Property.
Table 3	The plant species listed endangered, threatened, or that are tracked by FNAI that have the potential to occur on the Hale Grove Property.

LIST OF FIGURES

Figure

Figure 1	The Location of the Hale Grove Property within Indian River County, Florida
Figure 2	The Florida Cooperative Land Cover Map on the Hale Grove Property Indian River County, Florida
Figure 3	The Land Use and Natural Communities on the Hale Grove Property Indian River County, Florida
Figure 4	The Under-represented Natural Communities Mapped by FNAI for the Florida Forever Statewide Environmental Lands Acquisition Program That occur on the Hale Grove Property Indian River County, Florida
Figure 5	The Soil Types Found on the Hale Grove Property Indian River County, Florida
Figure 6	The Florida Fish and Wildlife Conservation Commission's Fish and Wildlife Research Institute Terrestrial Resources Geographic Information System Web Mapping Results for Species Observations near the Assessment Property
Figure 7	The Biodiversity Resource Priorities Model (CLIP 4.0) on the Hale Grove Property Indian River County, Florida
Figure 8	The NWI Wetlands and FEMA Flood Zones on the Hale Grove Property Indian River County, Florida
Figure 9	Groundwater Recharge Areas Critical to Springs, Sinks, Aquifers, Natural Systems, or Water Supply on the Hale Grove Property Indian River County, Florida
Figure 10	The Hale Grove Property and the Conserved Lands in the Vicinity Indian River County, Florida
Figure 11	The Landscape Resource Priorities Model (CLIP 4.0) on the Hale Grove Property Indian River County, Florida

1.0 HALE GROVE PROPERTY

The Hale Grove Property assessment is a combination of two nominated parcels, the Hale Grove Property, Environmental Bond Nomination Number 15, and the Hale Grove Storefront Property, Environmental Bond Nomination Number 16. Both parcels were nominated by a local resident with the anticipated acquisition type of Fee Simple.

1.1 LOCATION

The assessment property is in eastern Indian River County on Tax Parcels #31392800000300000003.0, #31392100000005000014.0, #31392800000300000002.0, and #31392800000300000001.0 (Figure 1). U.S. Highway 1 runs along the west boundary of the property approximately one mile north of the intersection with Highway 510 (Bridge Boulevard). There are primarily private vacant parcels to the north and east. To the south is low density residential and a small farm with row crops (pineapple).

1.2 SIZE

The property totals approximately 23.3 acres on two disjunct parcels that are separated by a swath of unincorporated Indian River County land that appears to be a set aside for stormwater drainage. Together the Hale Grove parcels are approximately 330m wide by approximately 310m north to south.

1.3 CURRENT AND FUTURE ZONING

The current land use zoning is CG - General Commercial District on the portion of the assessment property that was the Hale Grove Storefront property, and the remainder of the assessment property is labeled RM-6: Multiple-Family Residential District (up to 6 units/acre) (Version 9/04/2024). The future land use zoning on the Hale Grove Storefront portion is C/I: Commercial/Industrial and the remaining portion is L-2: Low-Density Residential-2 (6 Units/Acre) (Version 3/28/2024).

1.4 PENDING ZONING CHANGES AND SPECIAL OVERLAY DISTRICTS

An inquiry to the Director of Planning & Development Services for Indian River County, Chris Balter, revealed there are no pending zoning changes and was unaware of any Special Overlay Districts affecting the parcel.

2.0 VEGETATIVE COMMUNITIES

The Hale Grove property straddles two major vegetative community types within Indian River County. The far eastern side of the property resides in the Indian River Lagoon and associated estuarine wetlands portion of the county, and the western portion is within the south Florida flatwoods ecological community that occurs in two distinct regions of Indian River County, east and west. The Hale Grove property is within the eastern portion of the general ecological community, and predevelopment, consisted of pine flatwoods intermixed with shallow wetlands. This property is adjacent and just east of the Atlantic Coastal Sand Ridge and the scrub communities it harbors.

2.1 LAND USE AND LAND COVER

There were three natural community types, and five altered land use types identified on the property from the 2023 Florida Cooperative Landcover Map (CLC) (Figure 2). Approximately 56 percent of the site consists of former citrus groves that are currently an altered landcover type that FNAI recognizes as Abandoned Field (Table 1). The Urban Open Forested (11 percent) and what was called Upland Hardwood Forest (0.2 percent) are also better classified, as Successional Hardwood Forest (FNAI 2010). Approximately 20 percent of the site has remained naturally forested, primarily within wetland areas. The 12 percent of the site that was labeled Industrial is the location of the former Hale Grove Storefront. The CLC map Figure 3 and Table 1 present the acreage of each land use and natural community type on the property.

Table 1. The amount of each altered land use type or natural community type on the Hale Grove property from the Florida Cooperative Landcover Map (2023).

Land Use/Natural Community	Acres	% Cover	Type	Up/Wet	State Rank
Citrus (Abandoned Field)	13.14	56.4%	Altered	Upland	not ranked
Mixed Wetland Hardwoods	4.34	18.7%	Natural	Wetland	not ranked
Industrial	2.73	11.7%	Altered	Upland	not ranked
Urban Open Forested	2.53	10.9%	Altered	Upland	not ranked
Mangrove Swamp	0.29	1.2%	Natural	Wetland	Secure
Transportation	0.16	0.7%	Altered	Upland	not ranked
Upland (Succesional) Hardwood Forest	0.06	0.2%	Altered	Upland	not ranked
Mixed Hardwood-Coniferous	0.03	0.1%	Natural	Wetland	not ranked
Total Altered	18.6	80.0%			
Total Natural	4.7	20.0%			
Total Upland	18.6	80.0%			
Total Wetland	4.7	20.0%			

*The level of disturbance within each onsite natural community has not been assessed.

**The communities in (parentheses) are corrections to the map based on aerial interpretation.

Mesic and wet flatwoods were likely dominant natural communities on the western portion of the property. Typical trees and shrubs in flatwoods community include slash pine, longleaf pine, gallberry, and saw palmetto with often grasses such as creeping bluestem, lopsided indiagrass, and pineland threeawn. However, a review of the historical imagery reveals most of the habitat on the western side of the site has been altered.

Mangrove and estuarine habitats were likely historically dominant on the eastern portion of the property. Characteristic species of mangrove swamps include red mangrove, black mangrove, white mangrove, and buttonwood. Brazilian pepper can be a common component especially within disturbed estuarine communities. In the 1940s aerial there appears to be some saltmarsh along the far eastern boundary and typical salt marsh within the county is an herbaceous community that occurs in the portion of the coastal zone affected by tides and seawater but protected from large waves. Dominant species often include saltmarsh cordgrass, saltwort, glasswort, salt grass, seaside oxeye daisy, Carolina sea lavender, marsh fimbry, shoreline seapurslane, marsh elder, and saltgrass.

There were no regionally rare natural community types (e.g., scrub, scrubby flatwoods, maritime hammock) identified on the property from the CLC map or from a review of current and historical aerial imagery.

Figure 4 shows the under-represented natural communities mapped by FNAI for the Florida Forever statewide environmental lands acquisition program that occur on and near the property. Only a small portion along the eastern boundary was ranked a priority (Priority 3) for under-represented natural communities (scale is Priority 1 through 4 with 1 being the highest priority; 0=no rank).

2.2 SOILS

The soil types found on the Hale Grove Property are represented in Figure 5. The site consists of primarily two soil types, Cypress Lake (11.3 acres) and EauGallie (12.0 acres). The typical vegetation for the Cypress Lake soil series is moderately deep, poorly and very poorly drained soils formed in sandy and loamy marine sediments over a limestone bedrock. They occur on low broad flats, flatwoods, low rises and/or knolls, drainageways, and depressions on marine terraces. Dominant natural vegetation typically consists of gallberry, saw palmetto, cabbage palmetto, slash pine, and an understory of pineland threeawn. The EauGallie series consists of very deep, very poorly or poorly drained, slowly permeable soils in flats, sloughs and depressional areas in flatwoods, floodplains, sloughs and depressions in Peninsula Florida. The natural vegetation consists of long-leaf pine, South Florida slash pine, slash pine, fetterbush. The understory vegetation includes running oak, saw palmetto, inkberry, gallberry, wax myrtle, and pineland threeawn.

2.3 HISTORICAL IMAGERY REVIEW

Some of the aerial photographs reviewed for this assessment can be found in the Appendix.

1943 February 24 (UF Map Library)

- A citrus grove (mix of young and old trees) covers approximately 14.5 acres of the total 23.3 acres, most of the western and southern portions of the assessment site
- Three small buildings are on the Storefront parcel (southwest corner) along highway U.S. 1
- The northwest corner is open with few trees adjacent to U.S. 1 and is likely grazed wet flatwoods
- The northcentral portion is more densely forested (riparian forest) that drains into a tidal creek that appears to have been dug out through an open saltmarsh in the eastern 1/5 of the property and the drainage eventually connects to the Indian River Lagoon
- The eastern portion of the southern Hale Grove parcel appears natural and forested with possibly a small area of saltmarsh along the boundary
- The large central ditch that splits the Hale Grove parcels has not been constructed
- Citrus groves are offsite to the north and south of the parcels, U.S. 1 to the west with more groves and some development, and to the east is a mix of saltmarsh and possibly mangrove

1951 April 4 (UF Map Library)

- Citrus trees are more mature with some mortality or replacement in the northcentral grove
- The natural appearing forested areas are mostly still intact along with the eastern saltmarsh
- In the northwest corner of the northern Hale Grove parcel some clearing and groundcover disturbance is visible

- One structure remains along U.S. 1 on the Storefront parcel and a pit appears to have been excavated in the vicinity
- A shed or well pumphouse was constructed in the western portion of the southern grove

1957 December 21 (UF Map Library)

- About 1/3 of the central grove is bare ground with very young citrus trees
- The open eastern saltmarshes have mostly filled in with trees or shrubs, possibly mangrove
- The northern boundary is mostly now forested, and the clearing/earthwork is still visible in the northwestern corner

No aerial photography was found between 1957 and 1994

1994 March 17 (Google Earth Pro)

- The large central east-west canal that separates the two Hale Grove parcels has been excavated
- The Hale Storefront parcel (southwest corner) now has a large building and parking lot, with a small amount in citrus
- The western and central forested natural areas along the northern boundary were cleared and citrus has been planted
- A ditch about 90m south of the canal, that also runs east-west, was constructed in the grove
- A north-south ditch/retention pond was constructed behind the Storefront building, it appears to connect to the large central canal and with a ditch/canal (possibly just offsite) along the southern boundary
- All of the citrus groves look maintained with large healthy trees
- The natural areas on the eastern boundary are now fully forested
- The offsite shoreline of the river is now developed, and there are several retention ponds within the mangrove forest

1999 February 21 (Google Earth Pro)

- Much of the citrus grove is without trees
- The forested areas on the eastern boundary are intact
- Citrus remains offsite to the north and south, U.S. 1 is more developed

2003 December 31 (Google Earth Pro)

- About 1/3 of the citrus grove has trees, most of the grove appears fallow
- Water visible in the ditches and canal
- Some limited development on adjacent parcels to the north and south, the offsite grove to the south has been converted to row crops

2008 October 31 (Google Earth Pro)

- Almost 1.5 acres at the eastern edge of the north parcel citrus grove is now forested (Brazilian pepper?) and no longer maintained as citrus
- Most of the remaining citrus grove has trees and appears marginally cared for (fertilized, irrigated, mowing, some replanting, etc.)
- The eastern forested areas remain intact

2017 January 5 (Google Earth Pro)

- Approximately 11 acres out of the original 14.5-acre citrus grove still contain citrus trees and are actively mowed and maintained
- Some low spots/wet areas (aerial signature is green – possibly algae) occur in the existing groves and appear to correspond to areas of poor health
- The forested acreage in the eastern portion of the site is intact and more dense
- The large central ditch between the two parcels is filled with vegetation and the onsite ditches are green with floating algae/duckweed

2020 January 7 (Google Earth Pro)

- The forested areas in the eastern portion of the site are intact and more dense
- The citrus groves are fallow and not maintained, likely because of the effects of citrus greening, and are filling in with woody shrubs and trees
- The large building on the Storefront parcel is no longer in use
- The ditches and ditch/retention behind the storefront are full of vegetation and hardly visible
- The central canal is vegetated and not maintained, possibly lined with Brazilian pepper or something similar
- Low/wet spots in the groves with citrus mortality vegetated with weedy species

2021 January 20 (Google Earth Pro)

- The Storefront building has been demolished, but the parking lot and cleared dirt footprint remain
- The adjacent ditch/retention is completely vegetated
- The forested area in the eastern portion of the site is intact and more dense
- The citrus groves are filling in with weedy shrubs and trees, but rows of citrus are still visible

2023 May 26 (Google Earth Pro)

- The forested natural community along the sites eastern boundary is intact and more dense
- The Google Earth street view of the northeast corner of the northern Hale Grove parcel, depicts red mangrove and possibly black mangrove as a large component of this natural area
- Distinct rows are no longer visible in the citrus groves and weedy woody species are more prevalent
- Google Earth street view shows cabbage palm, exotic palms, Brazilian pepper, live oak, exotic legume trees and many other weedy groundcover, shrub, and tree species
- The signature of the natural forested areas along the eastern boundary is distinct from the fallow grove
- Plant diversity in the disturbed areas appears high, likely with a large component of invasive exotic species

2.4 OFFSITE CONTINUITY OF NATURAL COMMUNITIES

Approximately a total of 4 acres on the eastern portion of the parcels has remained forested and is contiguous with offsite mangrove forest. The fallow citrus grove that is infilling with woody species is contiguous with offsite fallow citrus grove to the north of the property (Durrance Place property). The remaining habitat on the property and offsite to the west and south has been developed or altered and there is no continuity with offsite natural communities.

3.0 RARE SPECIES

Table 2 includes a list of the animal species and Table 3 includes the plant species that have the potential to occur onsite that are considered endangered, threatened, or rare as listed by the U.S. Fish and Wildlife Service (FWS), Florida Fish and Wildlife Conservation Commission (FWC), Florida Natural Areas Inventory (FNAI) and the Florida Department of Agriculture. A search using the FNAI Biodiversity Matrix Map Server, and the FWS Information, Planning, and Consultation System (IPaC) Resource List was performed for listed species that may potentially occur within the Project Site. These lists were reviewed and only the species that have a potential to occur within the habitats available onsite were included. Additionally, species that are tracked by FNAI or state listed that occur within Indian River that were not included in the Biodiversity Matrix search, but potential habitat occurs onsite, were included in Tables 2 and 3. The majority of the potential rare animals and plants listed for this property are species that can occur in mangrove wetlands or disturbed forested communities.

Table 2. The animal species listed endangered, threatened, or tracked by FNAI that have the potential to occur on the Hale Grove property.

Species Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
<u>Bird</u>					
<i>Mycteria americana</i>	wood stork	G4	S2	T, PDL	FT
<i>Nyctanassa violacea</i>	yellow-crowned night-heron (nests)	G5	S3	N	N
<i>Setophaga discolor paludicola</i>	Florida prairie warbler	G5T3	S3	N	N
<i>Setophaga kirtlandii</i>	Kirtland's Warbler	G3	S1	N	N
<u>Reptile</u>					
<i>Drymarchon couperi</i>	eastern indigo snake	G3	S2?	T	FT
<i>Gopherus polyphemus</i>	gopher tortoise	G3	S3	N	ST

Table 3. The plant species listed endangered, threatened, or tracked by FNAI that have the potential to occur on the Hale Grove property.

Species Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
<i>Harrisia simpsonii (fragrans)</i>	Simpson's prickly apple	G2	S2	N	N
<i>Opuntia stricta</i>	erect prickly pear	G4?	S3S4	N	T
<i>Tillandsia balbisiana</i>	Balbis' airplant	G4G5	S3	N	T
<i>Tillandsia fasciculata</i>	common wild-pine	G5	S4?	N	E
<i>Tillandsia utriculata</i>	spreading airplant	G5	S3	N	E

Figure 6 shows The Florida Fish and Wildlife Conservation Commission's Fish and Wildlife Research Institute Terrestrial Resources Geographic Information System web mapping results for species observations near the assessment property. Note these observations are a collection of species documented in the vicinity by various means and are a very incomplete representation of what may occur in the area or that may utilize this property. The resources selected for documented occurrences in the area included Black Bear Calls, Black Bear Telemetry, Eagle Nesting, Panther Mortality, Panther Telemetry, Scrub Jay, Wading Bird Rookeries, and opportunistic Wildlife Observations. There are no documented wildlife sightings on the Hale Grove property (Figure 6).

Figure 7 shows the Critical Lands and Waters Identification Project (CLIP version 4.0) Biodiversity Resource Priorities model, which combines several conservation priorities models including the Strategic Habitat Conservation Areas for Florida Forever, Vertebrate Richness, Potential Rare Species Habitat, and Priority Natural Communities Core Data layers. The eastern quarter of the property is mapped as Priority 4 (Priority 1 has the highest conservation priority on a scale from 1 to 5), the remainder of the property was not listed as a priority (Figure 7).

4.0 WETLANDS

Approximately 20 percent of the site is covered in wetlands according to the CLC map. The parcel is within the Indian River Lagoon watershed.

4.1 AERIAL EXTENT AND CONNECTIVITY

From the CLC map the eastern portion of the property (4.7 acres) was mapped as primarily mixed wetland hardwoods and mangrove swamp (Table 1). These wetlands form a linear feature that extends north and south of the site and parallels the Indian River Lagoon.

Figure 8 shows the wetlands, waterbodies, and flood zones located on the property from the National Wetlands Inventory (NWI) and Federal Emergency Management Agency (FEMA) maps. The NWI map identified 4.7-acres of Estuarine wetlands, 20.2 percent of the site. The ditch that runs along the southern boundary was also delineated (0.15 acres) on the NWI map.

4.2 ALTERATIONS

From the available aerial photography, the onsite forested wetlands along the eastern portion have remained largely intact. There have been some ditches excavated through the habitat and three ponds have been excavated in close proximity offsite. Undoubtedly these features have influenced the local hydrology. Since the 1940s the saltmarsh onsite has converted to mangrove forest. In the earlier historic photographs, there appeared to be wetter communities (wet flatwoods and a forested flow way) near the north boundary that were converted to citrus grove only after the large central ditch/canal that separates the parcels was excavated. LiDAR derived digital elevation model shows that the former citrus groves were planted on a series of manmade ridges and ditches.

Invasive exotic plant infestations could be exceedingly high on this property and in addition to Brazilian pepper, likely species, including within upland areas, are Peruvian primrose willow, creeping oxeye, Guinea grass, lantana, rose Natalgrass, Caesar's weed, cogongrass, West Indian dropseed, and rosary pea.

5.0 WATER RESOURCES

5.1 AQUIFER RECHARGE

Figure 9 shows the priority ranking for aquifer recharge on the project site. This is a broad measure focusing on the recharge of springs, sinks, aquifers, natural systems, and water supply. Areas of potential recharge to the Floridan and surficial aquifers were determined from soil hydraulic conductivity, proximity to karst features, depth to water, and overburden (Florida Forever Conservation Needs Assessment, Tech Report 2023). The entire site had a priority rank for aquifer recharge

with priority values ranging between 3 and 6 and Priority 4 covering the largest proportion of the site (the ranks range 1 through 6 with Priority 1 being the highest priority; 0=no rank) (Figure 9).

5.2 WATER QUALITY

The wetlands onsite have the potential to aid in maintaining water quality and in situ water purification of stormwater entering the Indian River Lagoon system from the uplands.

5.3 WATER ATTENUATION

The wetland communities can help to store water and reduce the speed of water as it flows over the landscape.

6.0 CORRIDORS AND GREENWAYS

The Hale Grove Property is relatively isolated and is not within or immediately adjacent to any greenways or corridors. The east boundary is within 160m of the Indian River Lagoon Blueway Corridor. The closest conservation area, Wabasso Scrub Conservation Area, lies approximately 1,100m to the southwest, Pelican Island National Wildlife Refuge is approximately 1,400m east across the Indian River and an unacquired parcel of the Indian River Lagoon Blueway Florida Forever BOT project is within 1,350m to the south (Figure 10). This parcel is part of a group of parcels that have been nominated for acquisition and the total area equals approximately 43 acres.

Figure 11 shows the CLIP landscape priority ranking for the property. This model combines priorities from the Ecological Greenways and Landscape Integrity Core Data layers. No portion of this property was ranked a priority.

7.0 RESTORATION, LAND MANAGEMENT, HAZARDOUS MATERIALS, AND RECREATION/EDUCATION OPPORTUNITIES

7.1 RESTORATION POTENTIAL

Possible restoration of the onsite natural communities could include planting of native vegetation in the uplands, stormwater wetland creation/enhancement, and invasive exotic plant species control. Because of the degree to which the uplands have been altered any efforts to recreate natural communities onsite would be challenging. The alterations to the onsite hydrology would need to be more thoroughly assessed to determine the type and amount of restoration that may be beneficial and feasible within the wetlands onsite.

7.2 LAND MANAGEMENT POTENTIAL

This site might be suitable for active recreation green space in the upland areas while the wetlands could help maintain a habitat buffer to Indian River Lagoon.

7.3 HAZARDOUS MATERIALS

There are no hazardous waste sites reported on the property from two online sources provided by the Florida Department Environmental Protection Division of Waste Management.

Map Direct: <https://ca.dep.state.fl.us/mapdirect/>

Contamination Locator Map <https://ca.dep.state.fl.us/mapdirect/?web-map=bdfa237157c7426a8f552e40a741685e>

DEP cleanup sites <https://www.arcgis.com/apps/mapviewer/index.html?web-map=316f774db3f7420faf54008608faff64>

7.4 RECREATION AND EDUCATION OPPORTUNITIES

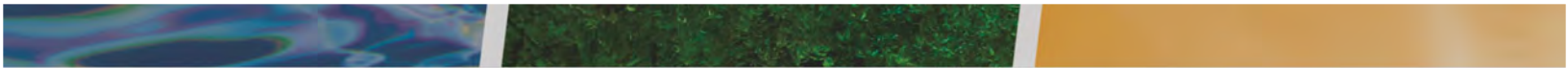
The process of establishing recreational opportunities will require inventorying the area to determine appropriate locations for activities, collaborating with stakeholders, determining the desired objectives that recreation could provide, and identifying the financial costs and benefits of providing the different types of opportunities. Some examples of potential recreation at this site include natural grass athletic fields, exercise courses, an event gathering location, school or community gardens, to name a few. There is the potential for replanting native vegetation and possibly even creating a native arboretum on the parcel.

8.0 OTHER CONSIDERATIONS

This parcel is part of a group of parcels that have been nominated for acquisition and the total area equals approximately 43-acres.

9.0 SUMMARY

The Hale Grove Property is a 23.3-acre parcel with highly disturbed uplands and relatively intact forested wetlands that consist of a mix of abandoned citrus grove and estuarine wetlands within the vicinity of the west bank of the Indian River Lagoon. Invasive exotic species infestations are likely in the disturbed uplands. Restoration potential of the uplands is mixed due to more than 80 years of intensive use; however, a stormwater attenuation park and/or recreation facilities for the disturbed areas are potential alternatives.



FIGURES

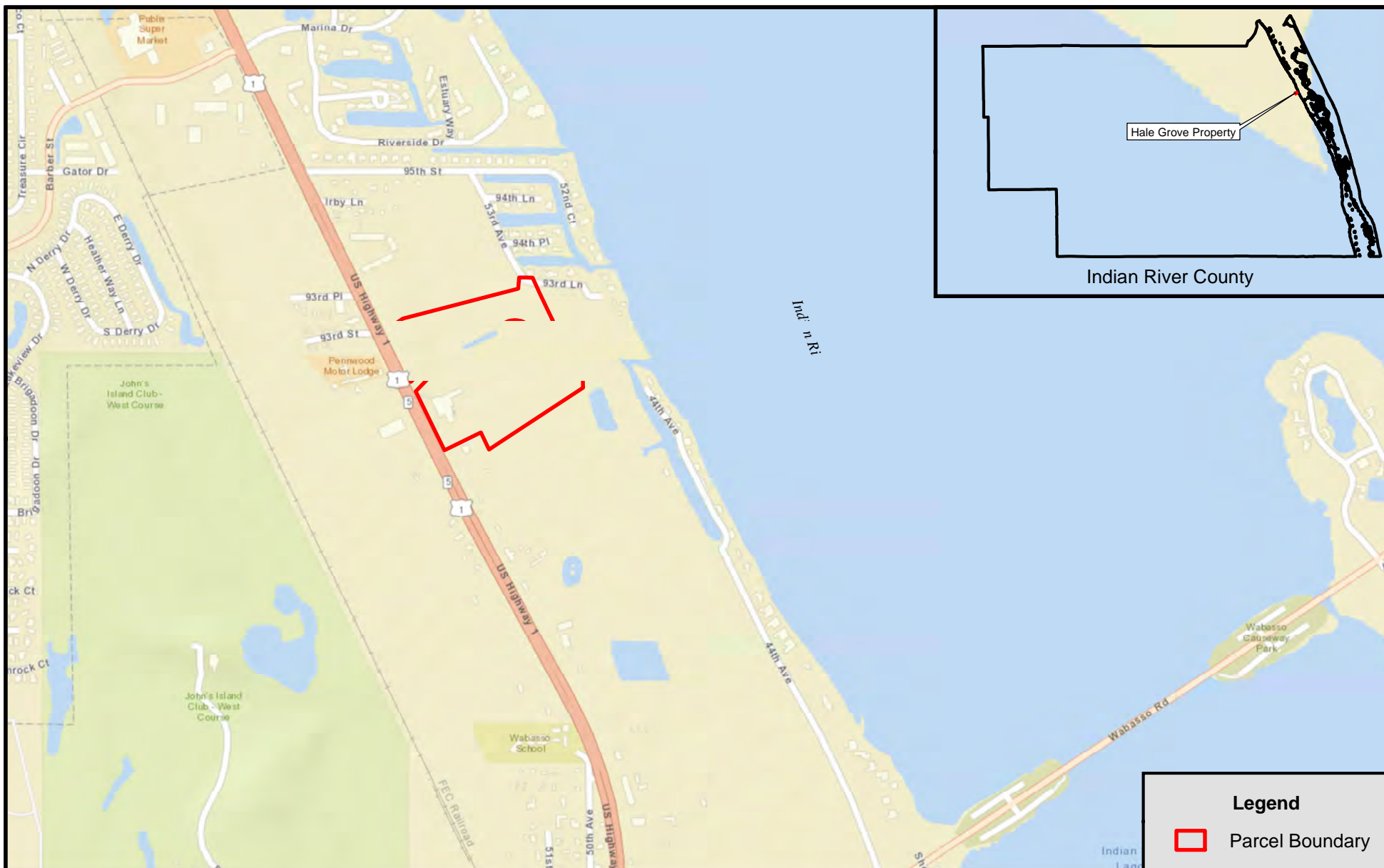
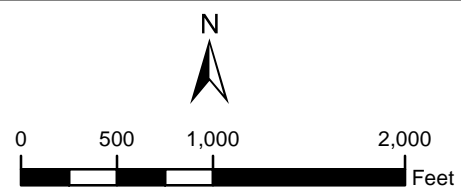


Figure 1.
The Location of the Hale Grove Property
within Indian River County, Florida

Source: ESRI, DigitalGlobe Imagery; Water & Air Research, Inc., 2024.



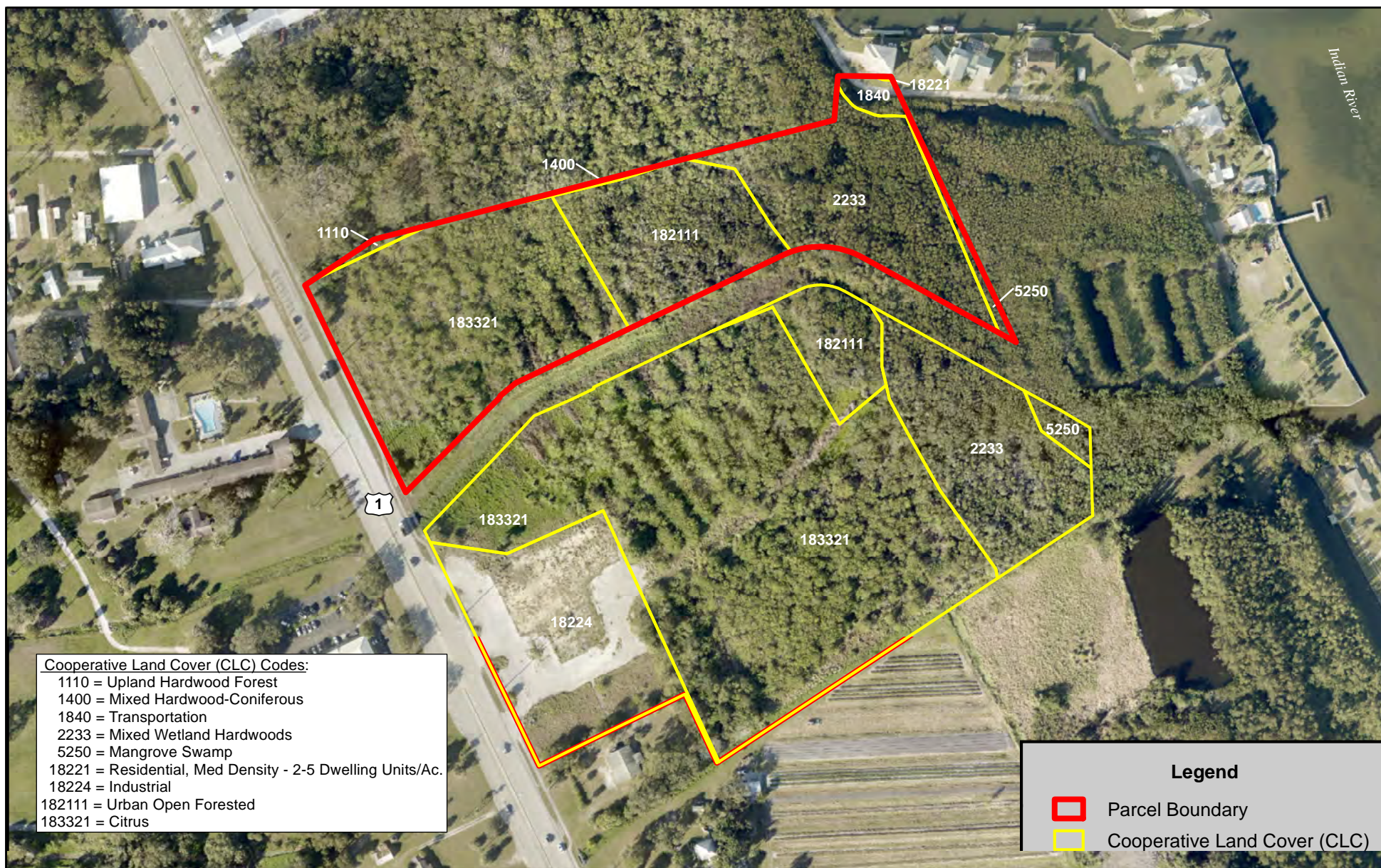
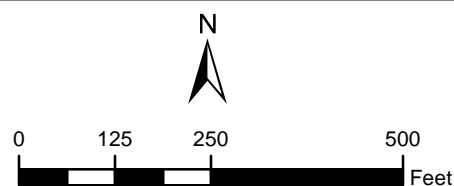


Figure 2.
The Florida Cooperative Land Cover Map
on the Hale Grove Property
Indian River County, Florida

Source: ESRI, DigitalGlobe Imagery, 2023; Water & Air Research, Inc., 2024.



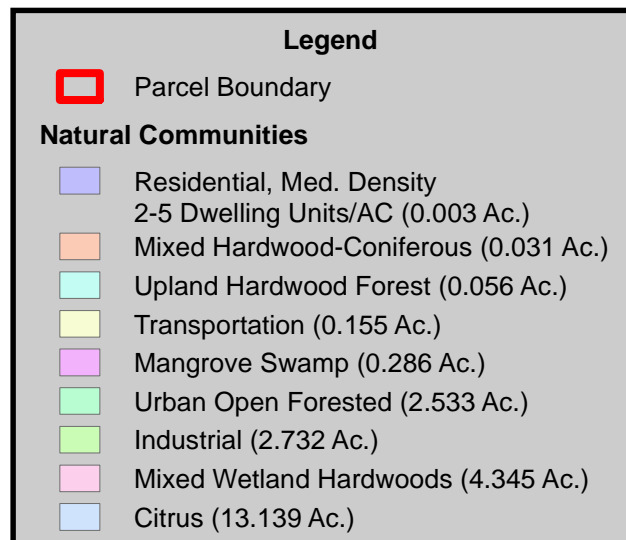
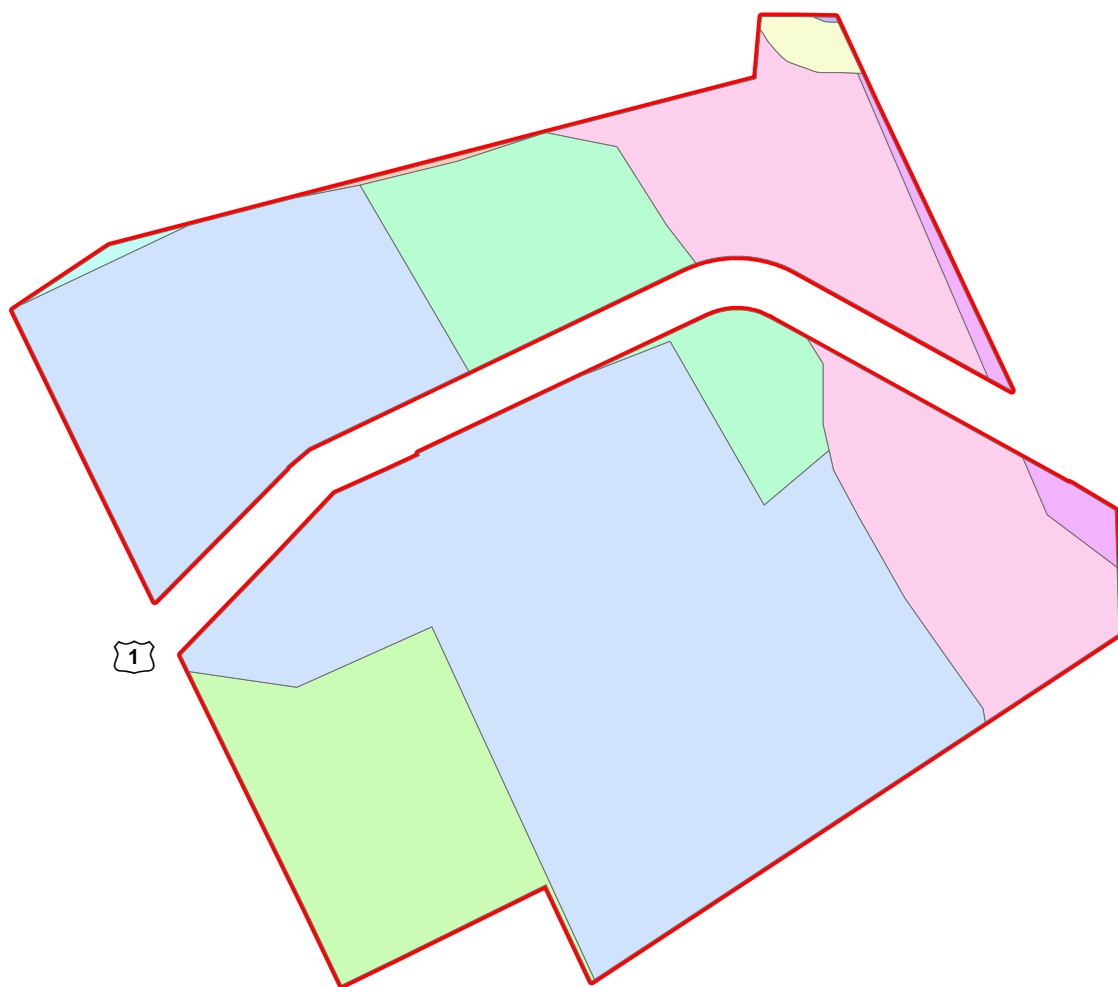
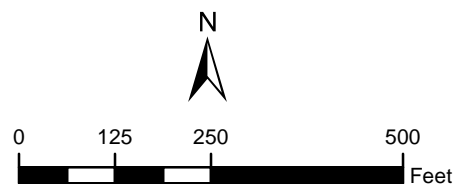


Figure 3.
The Land Use and Natural Communities
on the Hale Grove Property
Indian River County, Florida

Source: ESRI, DigitalGlobe Imagery, 2023; Water & Air Research, Inc., 2024.



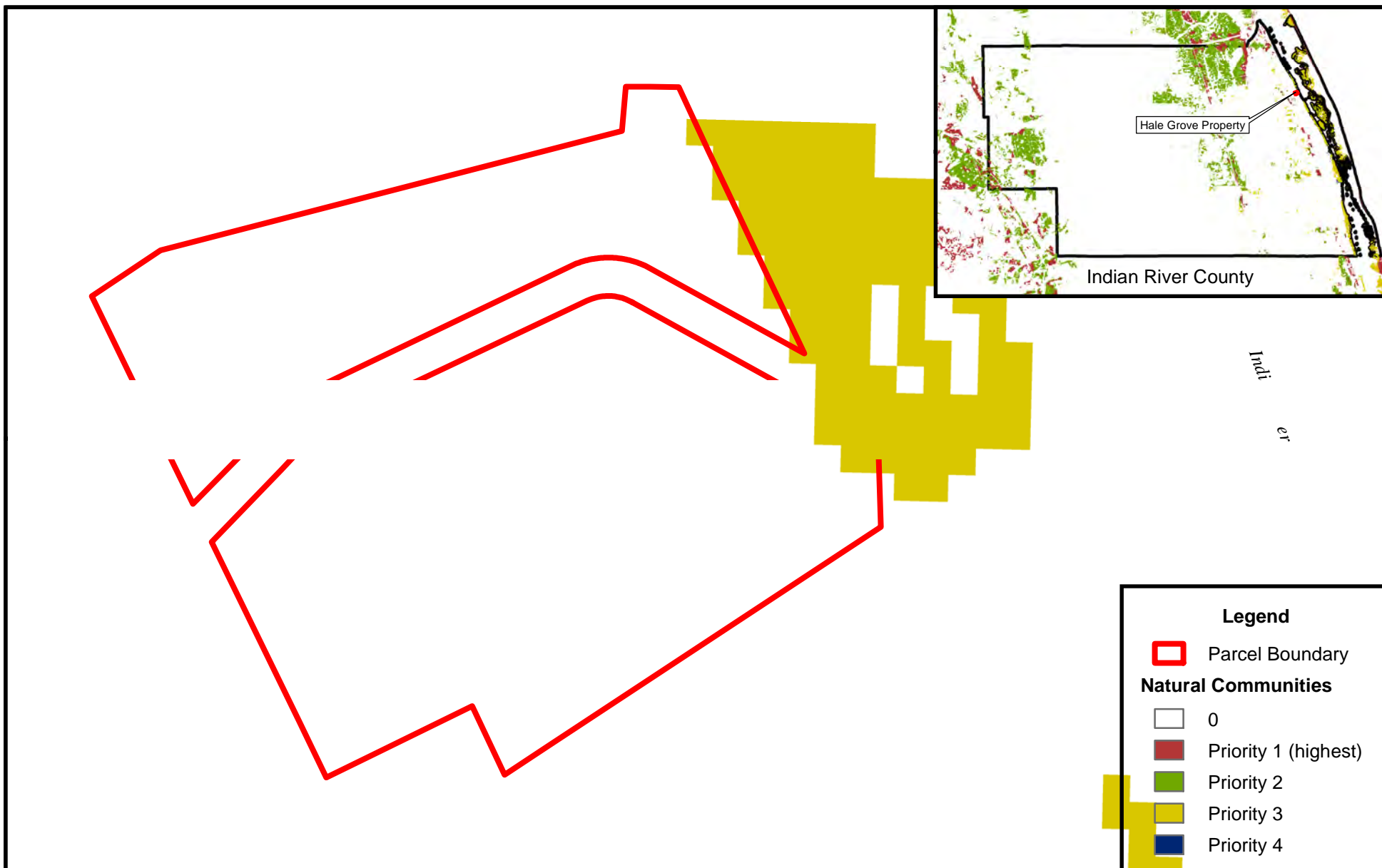
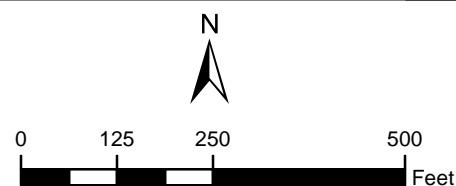


Figure 4.
The Under-represented Natural Communities Mapped by FNAI for the
Florida Forever Statewide Environmental Lands Acquisition Program
That occur on the Hale Grove Property
Indian River County, Florida
Source: Water & Air Research, Inc., 2024.



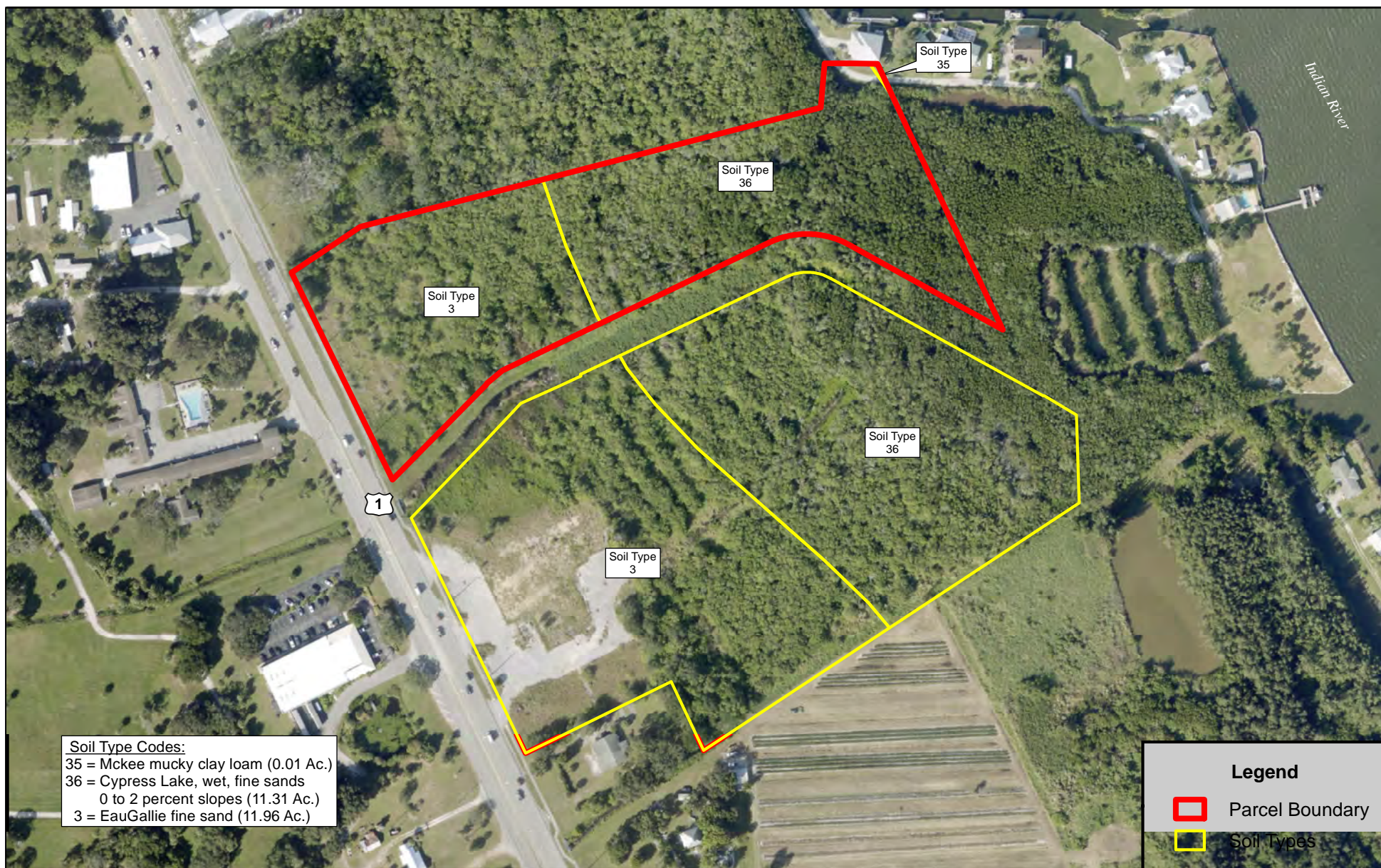
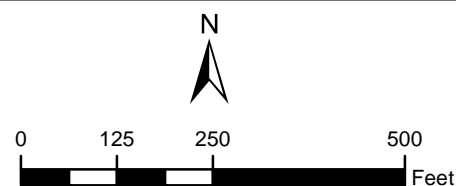


Figure 5.
 The Soil Types Found on the
 Hale Grove Property
 Indian River County, Florida

Source: ESRI, DigitalGlobe Imagery, 2023; Water & Air Research, Inc., 2024.



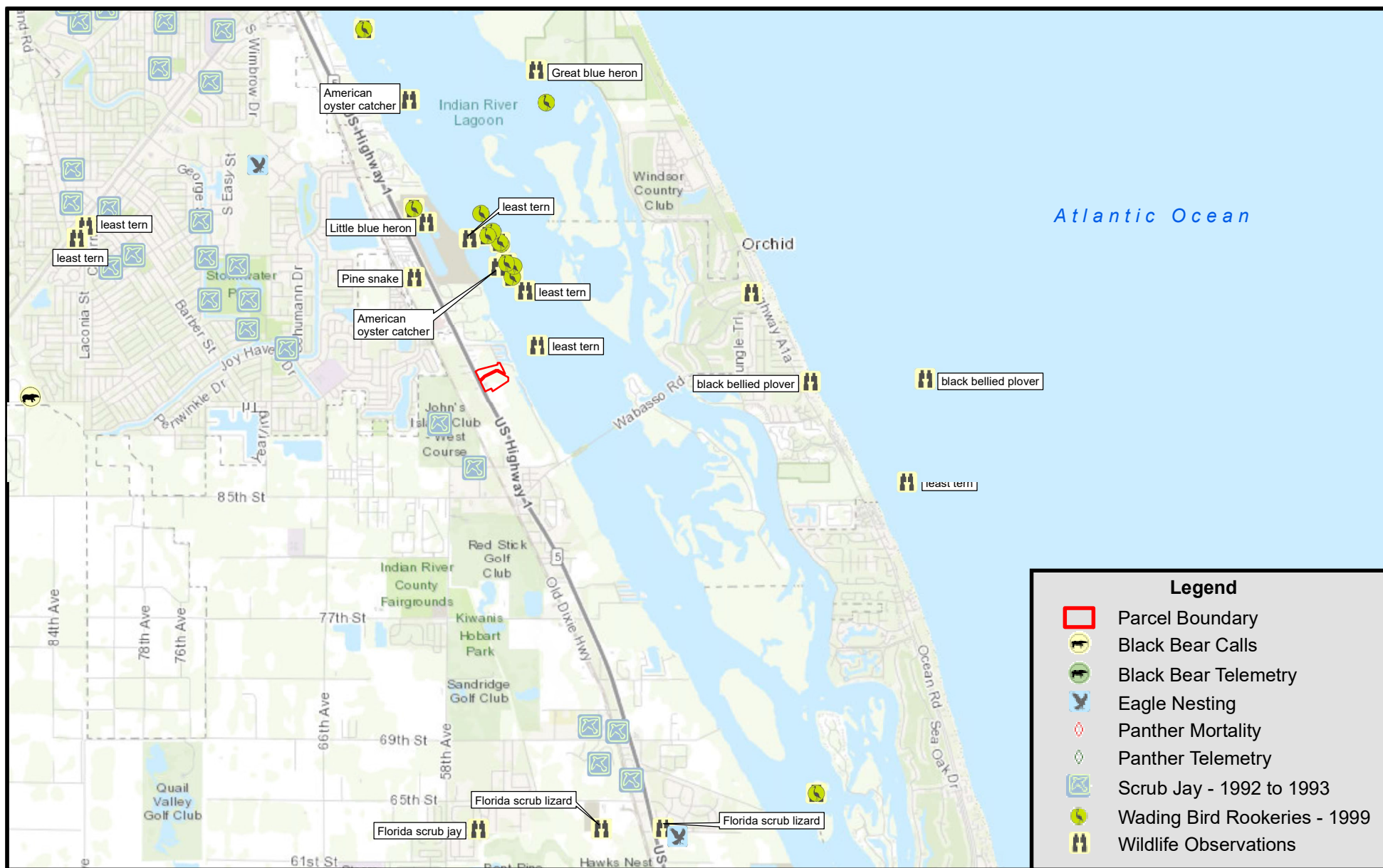
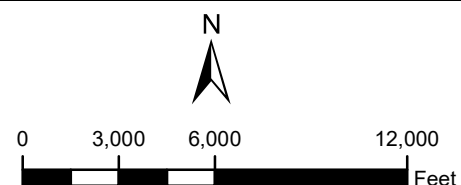


Figure 6.
The Florida Fish and Wildlife Conservation Commission's Fish and Wildlife Research Institute Terrestrial Resources Geographic Information System Web Mapping Results for Species Observations near the Assessment Property
Source: FNAI, 2023; Water & Air Research, Inc., 2024.



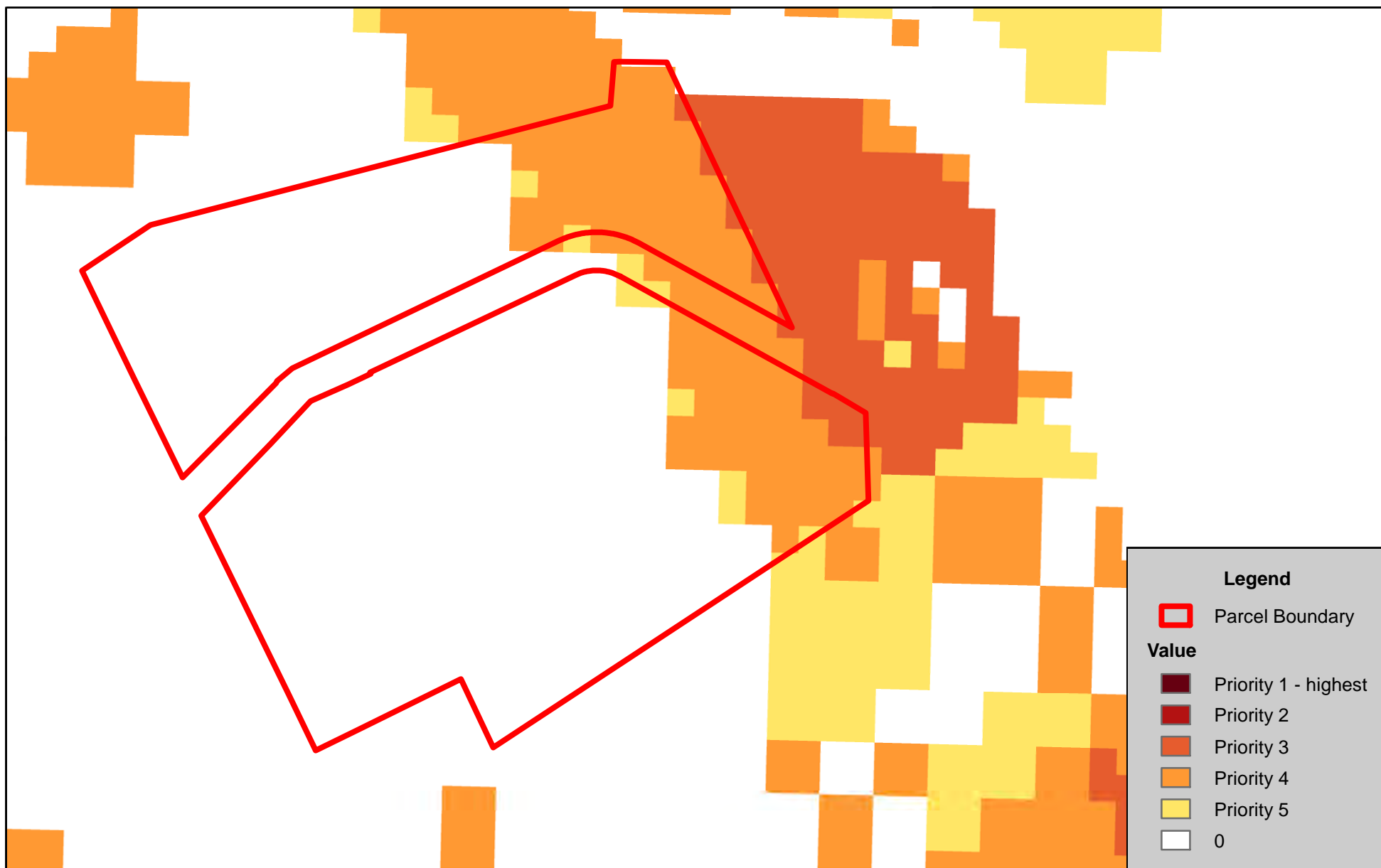


Figure 7.
The Biodiversity Resource Priorities Model (CLIP 4.0)
on the Hale Grove Property
Indian River County, Florida

Source: FNAI, 2023; Water & Air Research, Inc., 2024.

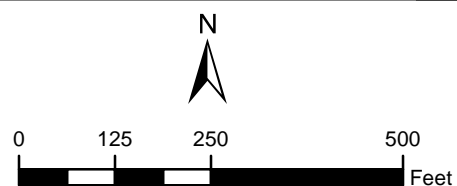
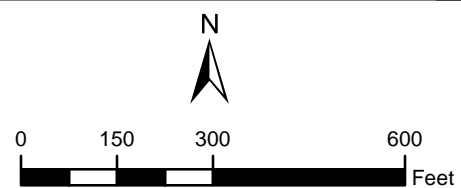




Figure 8.
The NWI Wetlands and FEMA Flood Zones
on the Haile Grove Property
Indian River County, Florida

Source: ESRI, DigitalGlobe Imagery, 2023; Water & Air Research, Inc., 2024.



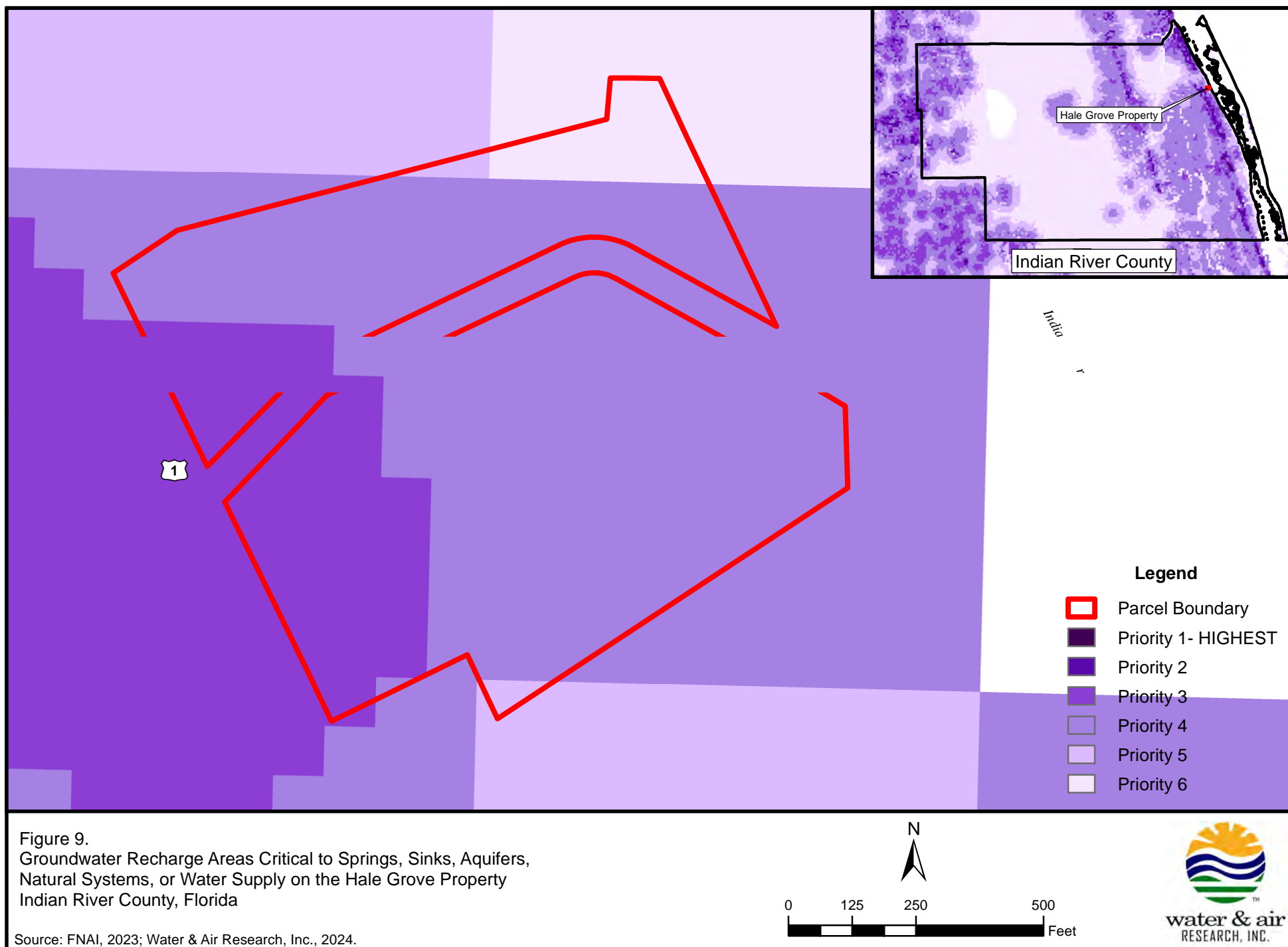
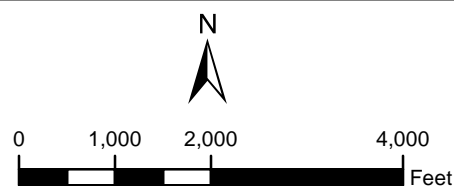




Figure 10.
The Hale Grove Property
and the Conserved Lands in the Vicinity
Indian River County, Florida

Source: ESRI, DigitalGlobe Imagery, 2023; Water & Air Research, Inc., 2024.



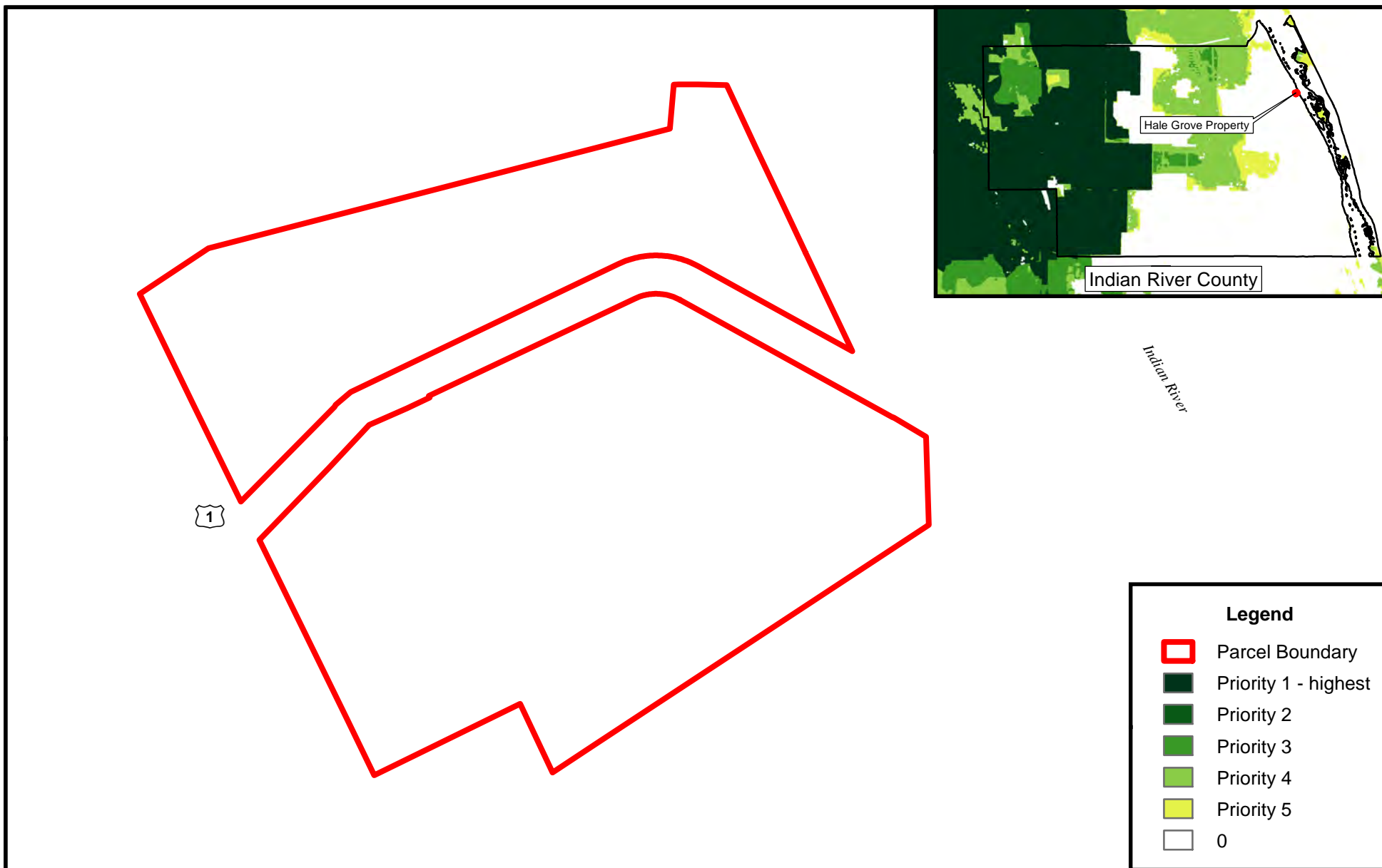
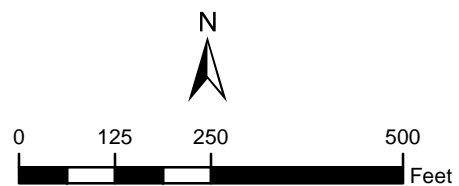
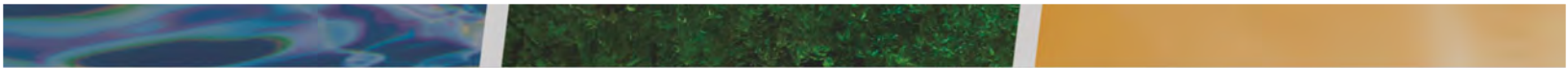


Figure 11.
The Landscape Resource Priorities Model (CLIP 4.0)
on the Hale Grove Property
Indian River County, Florida

Source: FNAI, 2023; Water & Air Research, Inc., 2024.





APPENDIX

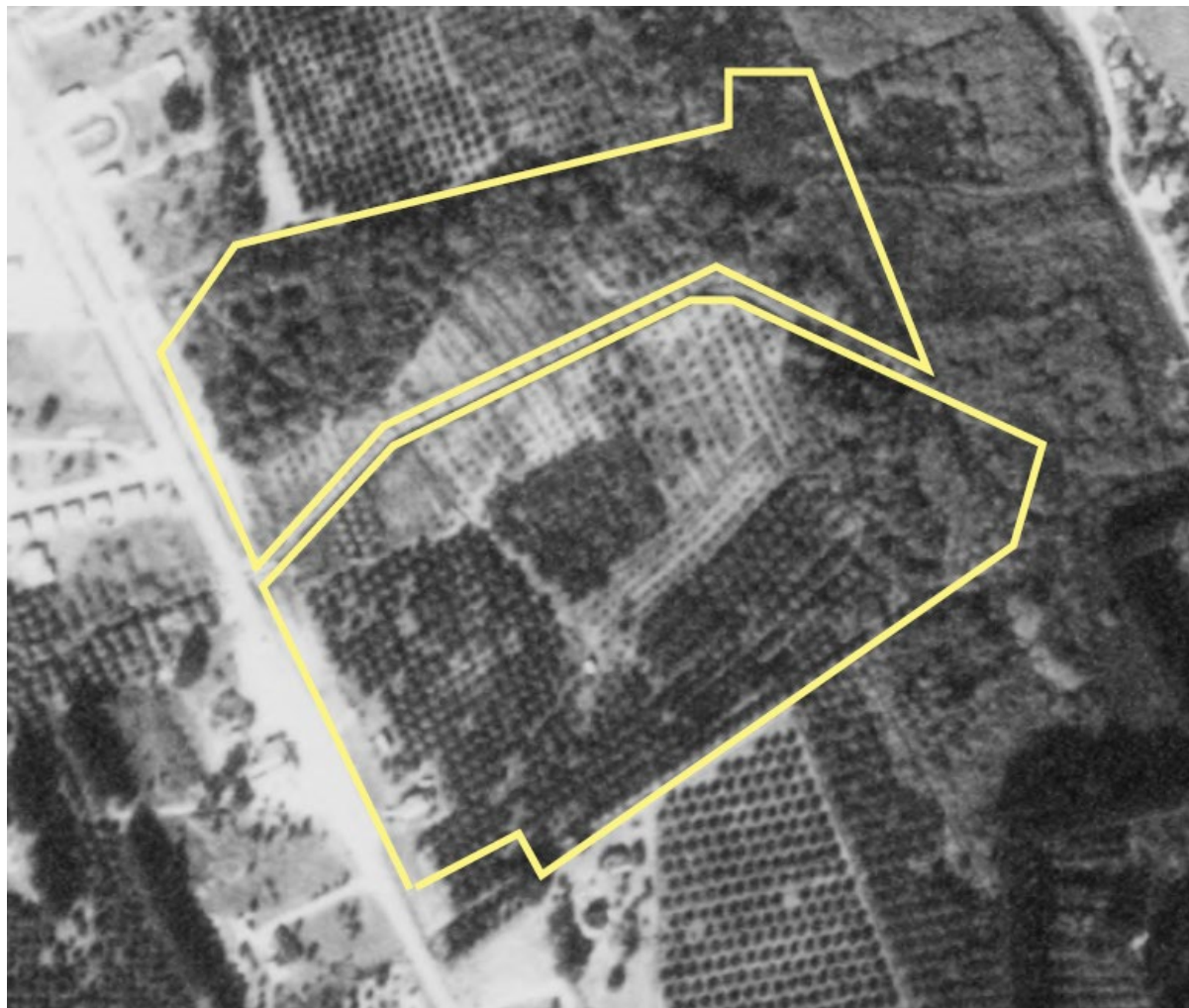
HALE GROVE AND STOREFRONT HISTORICAL AERIALS REVIEWED



1943 Aerial Photograph



1951 Aerial Photograph



1957 Aerial Photograph



1994 Aerial Photograph



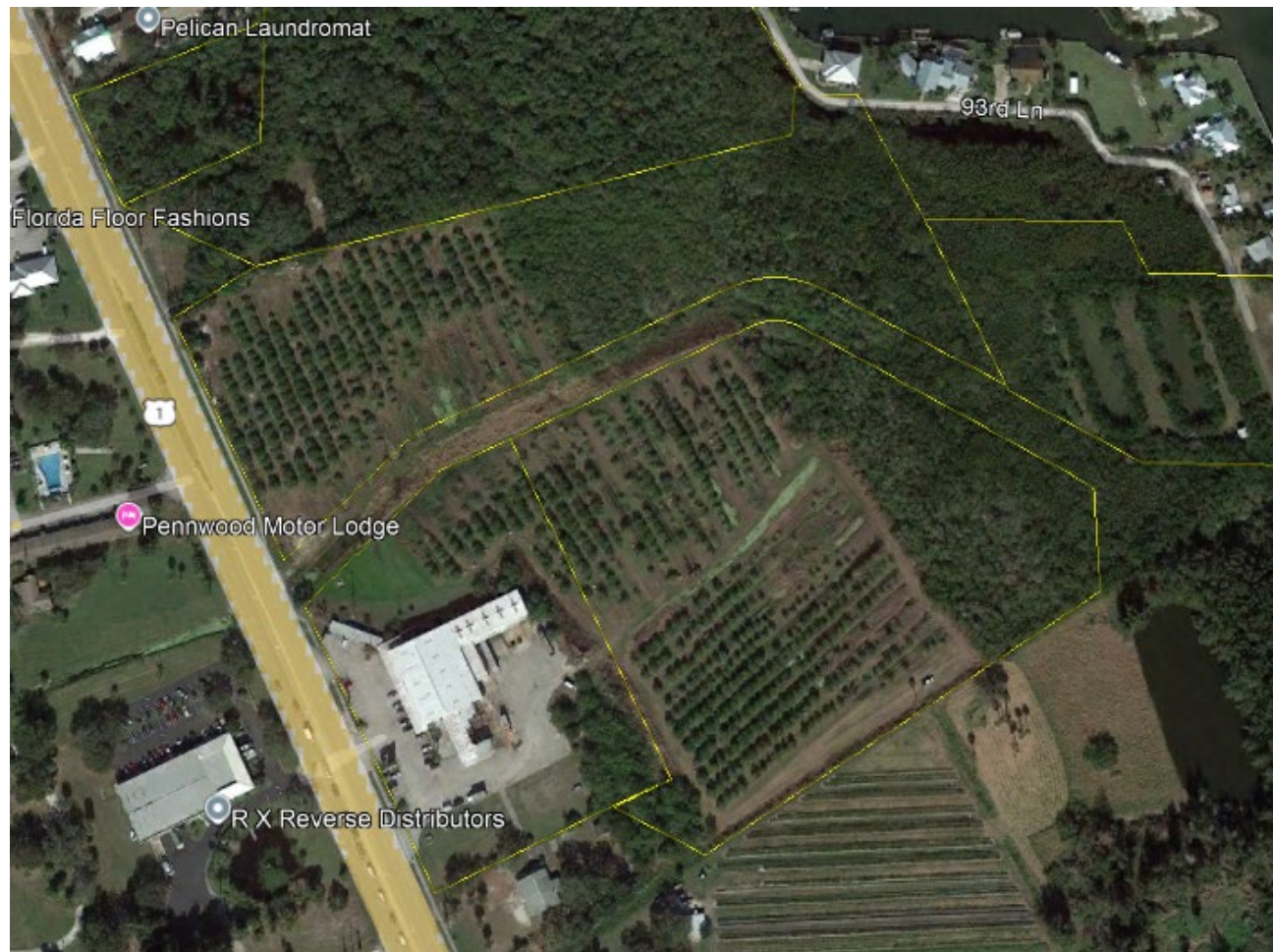
1999 Aerial Photograph



2003 Aerial Photograph



2008 Aerial Photograph



2017 Aerial Photograph



2020 Aerial Photograph



2021 Aerial Photograph



2023 Aerial Photograph



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Scientists, & Planners***