Circle B Bar Reserve
FDOT Mitigation Parcel Invasive Plant Mapping
Fall 2024

Introduction

Water & Air Research, Inc. (Water & Air) mapped invasive exotic and nuisance plant species within the Circle B Bar Reserve Florida Department of Transportation (FDOT) mitigation parcel. Southwest Florida Water Management District (SWFWMD) contracted (TWA NO. 24TW0004576) Water & Air to conduct the mapping in support of Chapter D Environmental Monitoring and Assessments of Natural Systems (submerged, emergent, wetland, and riparian vegetation surveys and monitoring). Circle B Bar Reserve is located at 4399 Winter Lake Road, Lakeland, Polk County, Florida along the northwest portion of Lake Hancock. The mitigation area totals approximately 508 acres of freshwater marsh and upland buffer divided into five sites labeled A through E (Figure 1). Permits were issued to FDOT for roadway construction impacts that included mitigation to be conducted at the Circle B Bar Reserve mitigation parcel. Coverage by nuisance and invasive exotic Category I and II plant species listed by the Florida Invasive Species Council (FISC) are required to not exceed five percent cover at any one location in the mitigation sites. The results of this survey will help to target the invasive exotic plant species present and focal areas for treatment, and aid in budgeting future control efforts.

Methods

Nonnative, nuisance, and invasive exotic plant species were field surveyed for and mapped within accessible portions of wetlands and uplands within Sites A-E of the Circle B Bar Reserve Mitigation Area. The plant species mapped included Category I and II invasive exotic plant species listed on the current Florida Invasive Species Council's (FISC) Invasive Plant List (2023). Additionally, the site-specific exotic species requested to be mapped in the RFQ John Charles weed (*Condea verticillata*) and the nuisance plant (undesirable native species that threaten the survival, growth or spread of other native plant species) cattail (*Typha* spp.).

On October 15, 16, and 17 and November 12, 13, and 14, 2024, two Water & Air Senior Ecologists inspected the property with pedestrian surveys in accessible areas while using binoculars to search open water and marsh habitats (Figure 1). The SWFWMD supplied an airboat and operator for four days to assist Water & Air with access to many of the interior marshes. A Marshmaster was used briefly one of the days but deep-water conditions following Hurricane Milton limited the ability to utilize this vehicle.

Occurrences of target species were recorded using a global positioning system unit on an iPad operating the ESRI Field Maps app. Mapping data included species, location, extent, and density. Infestations of < 10 woody stems/1,000 square feet (ft^2) and patches of herbaceous/grass species < 20 ft^2 were marked with a point. Infestations of >10 woody stems/1,000 ft^2 and patches of

herbaceous/grass species >20 ft^2 were mapped using a polygon. When there was a clear photographic signature of a ground truthed target species infestation the boundaries were expanded using a desktop computer (Google Earth Pro and ArcMap 10.6). Similarly, in a few areas that were not ground truthed assessed but there was a clear signature, polygons were added to the map. The method used to digitize each polygon is indicated in the attribute table of each shapefile.

Results and Comments

Figure 1 shows the locations inspected (tracks) by the Water & Air ecologists during this effort. The tracks in the figure generally are the areas covered, however, there were some technical difficulties where tracks failed to record, or the location tracking was inadvertently not turned on within the application. There are a few gaps in the coverage of the site apparent in Figure 1 where specific areas were not visited due to time constraints, but more often due to limitations in accessing areas where an airboat, Marshmaster, or walking was not possible during the conditions at that time. Areas of inaccessible marsh were in Sites D and E and to a lesser extent in Sites C and B, Figure 1.

Rainfall from Hurricane Milton caused very high-water levels in and around Circle B Bar Reserve, including upstream in the Green Swamp. Data from the United States Geological Survey gauge (Banana-Hancock Canal Nr Highland City, Florida, 02294405) recorded peak water levels around the start of the study on October 15, 2024. By November 14 during the second site visit, water levels had receded 3.3 feet. Similarly, a nearby SWFWMD gauge on Lake Hancock (SID 24532) recorded a water level decrease of 3.26 feet for the same period. The high-water levels hindered site access and flooded conditions may have impacted the visibility of certain species.

Species observed and abundance notes are in Table 1, and Table 2 depicts the target species mapped acreage in order of magnitude for the five site locations. For discussion purposes, species were considered abundant when the combined point and polygon mapped areas were greater than 2 acres, and uncommon species with less than 2 acres documented. Figures 2 through 7 depict the most abundant grass/herbaceous, Figures 8 through 10 depict the most abundant woody species, and Figures 11 through 14 are the uncommon species. The discussion and figures depict species in descending order of mapped acreage abundance (Table 2).

ABUNDANT GRASS AND HERBACEOUS SPECIES

There were over 37 acres of shallow marsh dominated by paragrass (*Urochloa mutica*), mostly in the northern half of Site B and 28 acres of West Indian marsh grass (*Hymenachne amplexicaulis*), primarily in the center and along the north boundary of Site C (Figures 2 and 3, Table 2). These are the largest infestations observed and occupy 18 and 17 percent of Sites B and C, respectively.

The third most abundant grass (13 mapped acres) was Cuban bulrush (*Cyperus blepharoleptos*), was occasionally encountered and often along the edges of open water areas, mapped primarily in Sites B and C. There is a depression marsh in the southwestern portion of the property (southeast corner of Site E) that has approximately 25 percent Cuban bulrush cover (Figure 4, Table 2).

Figure 5 depicts nearly 14 acres of Caesar's weed (*Urena lobata*) that is abundant along disturbed upland edges, roads, and berms. The native cattail (likely *T. latifolia*) with a mapped area of almost 13-acres is scattered and disjunct in Sites B, C and D with the larger areas of scattered plants in Site D (Figure 6, Table 2). John Charles (Figure 7, Table 2) was often abundant in the same areas as Casear's weed, along road and berm edges, ruderal places and around hog rooting. Caesar's weed appears to be slightly more tolerant of flooding and occurred farther into the wetland edge than John Charles.

Figure 7 also shows the mapped areas of water-hyacinth (*Eichhornia crassipes*), wild taro (*Colocasia esculenta*) and alligatorweed (*Alternanthera philoxeroides*). These species had the fewest mapped acreages and occurrences of the abundant species (species with > 2 mapped acres), varying from just over 2 acres of alligatorweed to almost 3 acres of water-hyacinth. Water-hyacinth is infrequent along edges of open water, wild taro is mostly encountered in Site D along the edges of the creek and in some dense patches in the southeast corner of Site D. Alligatorweed was nearly throughout in very sparse quantities intermixed with numerous native species and had signs of possible biological control damage.

ABUNDANT WOODY SPECIES

Peruvian primrosewillow (*Ludwiga peruviana)* was the second most abundantly mapped invasive exotic species with over 29 acres documented (Figure 8, Table 2). It was commonly encountered nearly throughout and abundant in the forested areas of Sites D and E. In most areas the plants were typically scattered and were frequently growing intermixed with native primrosewillows (e.g., *L. leptocarpa, L. octovalvis*).

Chinese tallow-tree (*Triadica sebifera*) trees and shrubs were mapped at 22 acres and are occasional in the open marsh of Sites B and C and large trees are very abundant along the northern boundary of Site D (Figure 9).

Brazilian pepper (*Schinus terebinthifolia*) shrubs and some large multitrunked trees were mapped at 15 acres and occasionally encountered along levees and within forested wetlands. Large dense fruiting Brazilian pepper shrubs are common along the south canal bank adjacent to the Alligator Alley Trail, near the two isolated depression marshes in Site A and E, in the red maple (*Acer*

rubrum) forest in the southwestern portion of the property and along the northern boundary of Site D (Figure 10).

UNCOMMON SPECIES

Locations of an additional 20 invasive exotic plant species were recorded and included in Figures 11 through 14. These species only accounted for 5 of the 186 total acres of species that were mapped, and they occurred predominantly in Sites D and E (Table 2).

The most common of these species was tuberous sword fern (*Nephrolepis cordifolia*) which was rarely seen on the bases of cabbage palm (*Sabal palmetto*) in open marsh of Site D, but the largest infestations totaled 1 acre in Site D in the densely forested bay swamp west of the creek. West Indian dropseed (*Sporobolus jacquemontii*) was largely confined to roadways and disturbed uplands and was most common in Site D. Relatively small patches of cogongrass (*Imperata cylindrica*) were occasionally encountered, primarily in Sites E and D, usually along upland edges, and it may be beneficial to control these occurrences before they spread more. Balsam-apple (*Momordica charantia*) totaled a half-acre along the northern part of the creek in Site D.

The remaining herbaceous invasive species occur in low numbers and mainly in Sites D and E (Figures 12 and 13, Table 2). They include small patches of Japanese climbing fern (*Lygodium japonicum*) and old-world climbing fern (*L. microphyllum*) encountered in the forested wetlands of D and E and at this time no large infestations were encountered. Controlling these sporadic occurrences now may help to prevent these species expanding within the parcel.

Figure 14 depicts the mapped areas of the uncommon woody species such as camphor tree (*Cinnamomum camphora*) which occurred in Sites D and E primarily in the forested areas. Some of the camphor trees were large and in dense patches for a total of almost one acre. The rest of the uncommon woody species occurred in very small or trace amounts.

INFESTATION DETAILS SITES A, B, C, D, and E

A summary of percent infestation for all target species per individual mitigation site is included in Table 3.

Site A is most impacted by invasive species by area, in a large part due to the relatively small size of the site (4 acres), the number of species (nine) and layering of multiple polygons with multiple target species in the same areas (Table 2). Seven acres of invasive species were mapped in the 4-acre wetland. Several abundant species occurred nearly throughout, paragrass occupied almost half of the site, primarily in the center area with the longest inundation, and Peruvian primrosewillow was nearly throughout at the higher elevations in moderate densities.

Site D is the next most infested site with 60 percent of the 112-acre site mapped with target species, primarily Chinese tallow-tree (16 percent of the site), Peruvian primrosewillow (13 percent), Caesar's weed (8 percent), Brazilian pepper (6 percent), cattail and John Charles. It also has the most target species with 26 (Table 2). A large portion of the open marsh within this site was not accessible but using aerial photographs, binoculars and a discussion with contractors familiar with the area it had few infestations of target species. Most mapped species occurred in the forested areas along the northern and southern boundaries and along the creek in the northwest section. These areas are only accessible by walking.

Site B was mapped with 32 percent of the 168-acre site containing 18 target species. The most abundant being paragrass (18 percent, 31 acres) and Cuban bullrush (5 percent, 8 acres) in the open marsh. This area was actively being treated for target species, mainly the grasses, by a contractor during the second mapping visit conducted in November.

Site C was mapped with 27 percent of the 142-acre site containing target species. By far the most dominant species was West Indian marshgrass mapped over 17 percent (24 acres) of the site. This species occurred primarily in vast dense monocultures in the open marsh. There are also many scattered small dense patches of Cuban bullrush within the open marsh. Along the southern boundary of Site C, there was historically an active bald eagle nest within the mitigation parcel prior to Hurricane Milton. The nest tree was reported to have fallen over during the storm. Eagles are still active in the vicinity, and it is possible that a second nest will be constructed. Access to areas adjacent to any second nest attempt may be limited during the breeding/nesting season, late September through approximately May 15, 2024.

The site with the lowest cover of target species was Site E, with 24 percent cover, 20 acres of the 82-acre site. The open marsh of Site E was not accessible but using aerial photographs, binoculars and a discussion with contractors familiar with the area it had few infestations of target species. The mapped infestations primarily occurred in the dense forested northeast and southeast portions of the site, accessible only by foot. Despite the lower mapped acreage of infestation, the site contained the second most diverse assemblage of mapped species with 23. The mapped acreage of species was relatively low with the most common being Peruvian primrosewillow (Table 2).

References

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Wunderlin, R. P., B. F. Hansen, A. R. Franck, and F. B. Essig. 2024. Atlas of Florida Plants (http://florida.plantatlas.usf.edu/). (S. M. Landry and K. N. Campbell [application development], USF Water Institute.) Institute for Systematic Botany, University of South Florida, Tampa.

Table 1. The species mapped within the Circle B Bar Reserve mitigation parcel with a brief note on abundance, Polk County, Florida, 2024

Scientific Name	Common Name	Level	Parcel Abundance
Alternanthera philoxeroides	alligatorweed	FISC Category 2	Occasional, often growing intermixed with native species, likely throughout frequently inundated areas
Cinnamomum camphora	camphor-tree	FISC Category 1	Occasional, large trees, multi-stemed trees and saplings
Colocasia esculenta	wild taro	FISC Category 1	Common along canals and locally within marshes
Condea verticillata	John Charles	nonnative nuisance	Abundant along upland ecotones, road edges and berms, ruderal areas and hog rootings
Cyperus blepharoleptos	Cuban bulrush	FISC Category 1	Scattered dense patches usually along open water areas within marshes, primarily in Sites B and C
Dactyloctenium aegyptium	Durban crowfootgrass	FISC Category 2	Infrequent along trails and roadways
Eichhornia crassipes	water-hyacinth	FISC Category 1	Infrequent along edges of open water, mostly in Sites D and B
*Hemarthria altissima**	limpograss	FISC Category 2	Dense small patches observed along Heron Hideout trail only in 2021 and during the prebid meeting
Hydrilla verticillata	hydrilla	FISC Category 1	Only documented within the stream in the northwest corner of the property
Hymenachne amplexicaulis	West Indian marsh grass	FISC Category 1	Large dense populations along with small isolated patches are common, 29 acres mapped mostly in Site C
Imperata cylindrica	cogongrass	FISC Category 1	Small dense patches are common along upland edges
Lantana strigocamara	lantana	FISC Category 1	Infrequent on upland edges
Ludwigia peruviana	Peruvian primrosewillow	FISC Category 1	Common throughout Site A, large infestations in the forested areas of D and southern C boundary, scattered in C and B
Lygodium japonicum	Japanese climbing fern	FISC Category 1	Occasional small patches
Lygodium microphyllum	old world climbing fern	FISC Category 1	Occasional small patches
Macroptilium lathyroides	wild bushbean	FISC Category 2	Occasional along trails and roadways
Melia azedarach	Chinaberry	FISC Category 2	Two saplings
Melinis repens	rose natalgrass	FISC Category 1	Rare within the mitigation parcel boundary, in dry open uplands
Momordica charantia	balsam-apple	FISC Category 1	Occasional along trails and roadways, and disturbed uplands
Nephrolepis cordifolia	tuberous sword fern	FISC Category 1	A few large and some small dense patches
Paederia foetida	skunk vine	FISC Category 1	Infrequent in northwest
*Panicum repens**	torpedograss	FISC Category 1	Not documented during the current inspection
Phoenix reclinata	Senegal date palm	FISC Category 2	Two small shrubs observed
Pistia stratiotes	water-lettuce	FISC Category 1	Widely scattered small patches
Psidium guajava	guava	FISC Category 1	A few shrubs
Salvinia minima	water spangles	FISC Category 1	Widely scattered small floating patches
Schinus terebinthifolia	Brazilian pepper	FISC Category 1	Scattered shrubs throughout, abundant in southwest portion and northwest boundary
Sphagneticola trilobata	wedelia	FISC Category 2	One patch documented along a roadway
Sporobolus jacquemontii	West Indian dropseed	FISC Category 1	Abundant along trails and in some disturbed uplands
Triadica sebifera	Chinese tallow-tree	FISC Category 1	Commonly encountered within marshes and abundant along the northwest boundary
Typha sp.	cattail	native nuisance	Scattered patches, few to no large infestations, some large areas of scattered cattail in Sites D and B
Urena lobata	Caesar's weed	FISC Category 1	Abundant in upland ecotones and within short hydroperiod wetlands, road and berm edges, nearly throughout
Urochloa maximus	Guinea grass	FISC Category 2	Occasional along trails and roadways, and disturbed uplands
Urochloa mutica	paragrass	FISC Category 1	Large dense populations are common, 34 acres mapped in the shallow marsh of Site B

NOTES: *only documented during the 2020-2021 Water & Air invasive exotic plant inspections

Table 2. The mapped species cover (acres) within each site on the Circle B Bar Reserve mitigation parcel, Polk County, Florida, 2024.

Scientific Name	Common Name	Site A 4 ac	Site B 168 ac	Site C 142 ac	Site D 112 ac	Site E 82 ac	Species Total
Urochloa mutica	paragrass	1.97	30.89	0.72	0.89	0.17	**34.64**
Ludwigia peruviana	Peruvian primrosewillow	3.59	2.97	4.87	14.15	4.03	**29.62**
Hymenachne amplexicaulis	West Indian marsh grass		3.40	23.71	0.51	0.13	**27.75**
Triadica sebifera	Chinese tallow-tree	0.14	0.90	2.12	17.74	1.14	**22.04**
Schinus terebinthifolia	Brazilian pepper	1.15	2.59	0.29	6.40	4.18	**14.61**
Urena lobata	Caesar's weed	0.25	0.07	0.19	8.68	4.68	**13.87**
Cyperus blepharoleptos	Cuban bulrush		7.92	2.05	0.22	2.72	**12.91**
Typha sp.	cattail		4.90	0.18	7.64	0.03	**12.75**
Condea verticillata	John Charles	0.13	0.26	0.39	4.75	0.84	**6.37**
Eichhornia crassipes	water-hyacinth	0.01		1.85	0.77		**2.63**
Colocasia esculenta	wild taro		T	0.23	1.95	0.22	**2.40**
Alternanthera philoxeroides	alligatorweed		T	1.18	0.37	0.56	**2.11**
Nephrolepis cordifolia	tuberous sword fern		T		0.97	0.01	**0.98**
Cinnamomum camphora	camphor-tree				0.47	0.37	**0.84**
Sporobolus jacquemontii	West Indian dropseed		T	T	0.65	T	**0.65**
Imperata cylindrica	cogongrass	T	T		0.34	0.30	**0.65**
Momordica charantia	balsam-apple		T		0.50		**0.50**
Lygodium microphyllum	old world climbing fern				0.06	0.26	**0.32**
Macroptilium lathyroides	wild bushbean				0.28	T	**0.28**
Lantana strigocamara	lantana				T	0.14	**0.14**
Lygodium japonicum	Japanese climbing fern				0.08	0.05	**0.13**
Psidium guajava	guava	0.05	0.05				**0.10**
Urochloa maximus	Guinea grass				0.08		**0.08**
Paederia foetida	skunk vine				0.08		**0.08**
Phoenix reclinata	Senegal date palm					0.05	**0.05**
Melinis repens	rose natalgrass				0.01	T	**0.01**
Sphagneticola trilobata	wedelia					T	**T**
Dactyloctenium aegyptium	Durban crowfootgrass		T				**T**
Hydrilla verticillata	hydrilla				T		**T**
Melia azedarach	Chinaberry				T		**T**
Pistia stratiotes	water-lettuce		T	T			**T**
Salvinia minima	water spangles					T	**T**
Site Totals		**7.29**	**53.95**	**37.76**	**67.60**	**19.89**	**186.4994**

NOTES: T = trace amount

182%	32%	27%	60%	24%	

Table 3. The total mapped acres of invasive species combined by site on the Circle B Bar Reserve mitigation parcel, Polk County, Florida, 2024.

Site	Site Acres	Total Mapped Acres	Species Percents Totaled
A	4	7.3	182%
B	168	54.0	32%
C	142	37.8	27%
D	112	67.6	60%
E	82	19.9	24%
Mitigation Parcel Total	**508**	**186.5**	**37%**

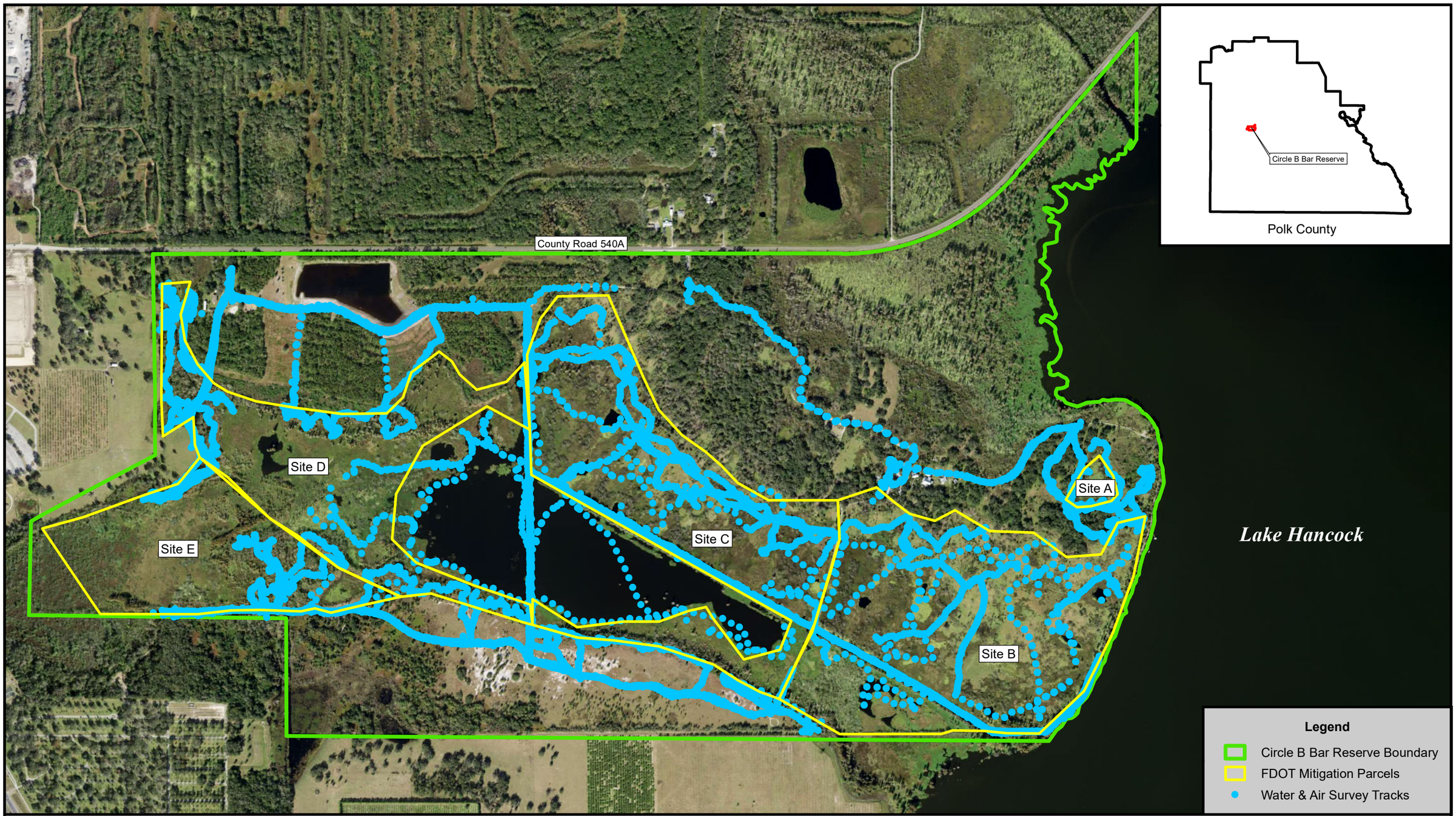

Figure 1.
The Tracks of the Water & Air Ecologists Surveying for Invasive Plant Species within the Circle B Bar Reserve FDOT Mitigation Parcel Sites during the October and November 2024 Field Surveys

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

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water & air RESEARCH, INC.

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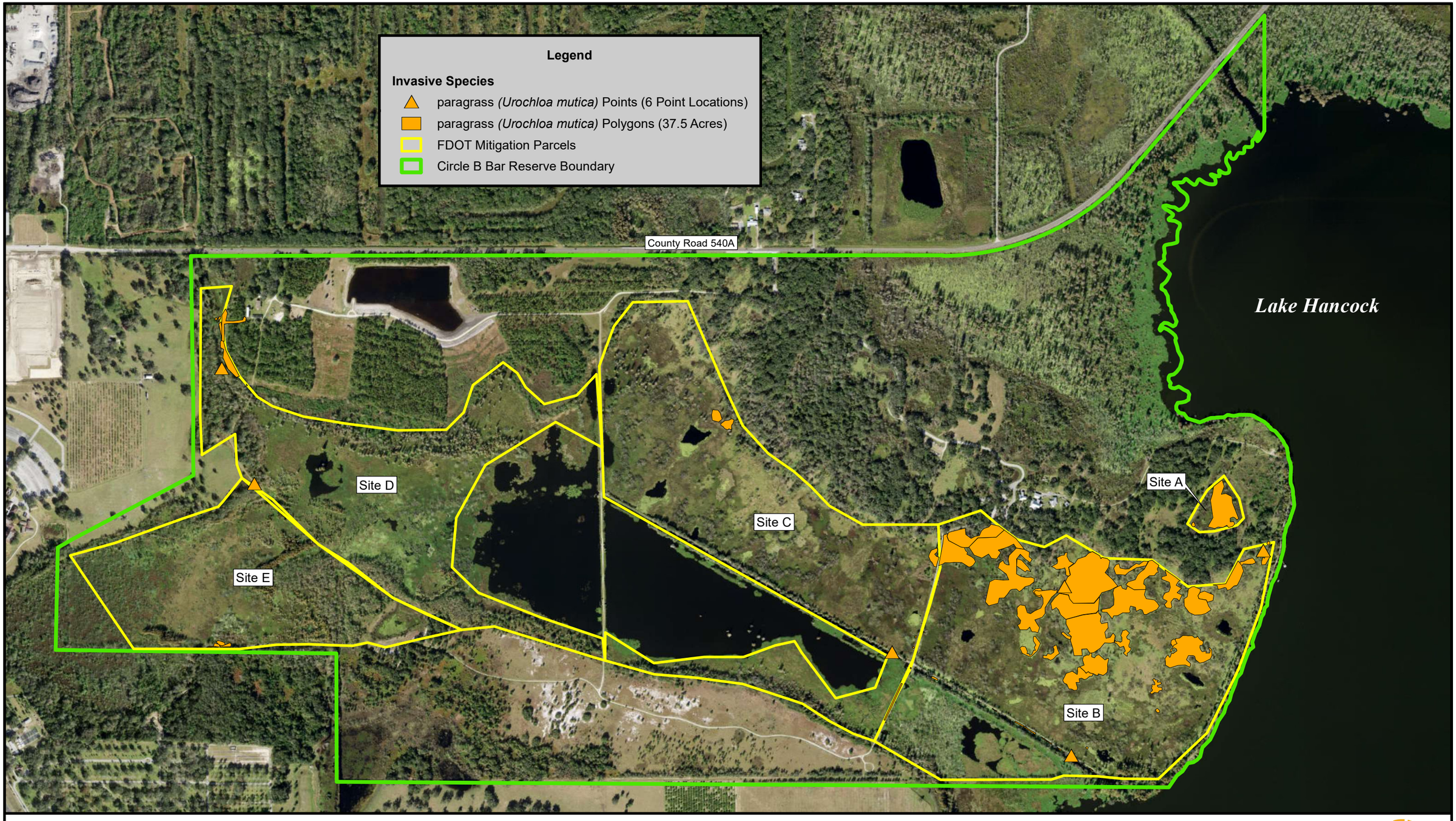

Figure 2.
The Points and Polygons of Paragrass *(Urochloa mutica)*
Documented within the Circle B Bar Reserve Mitigation Parcel Sites in the Fall of 2024

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water & air RESEARCH, INC.

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

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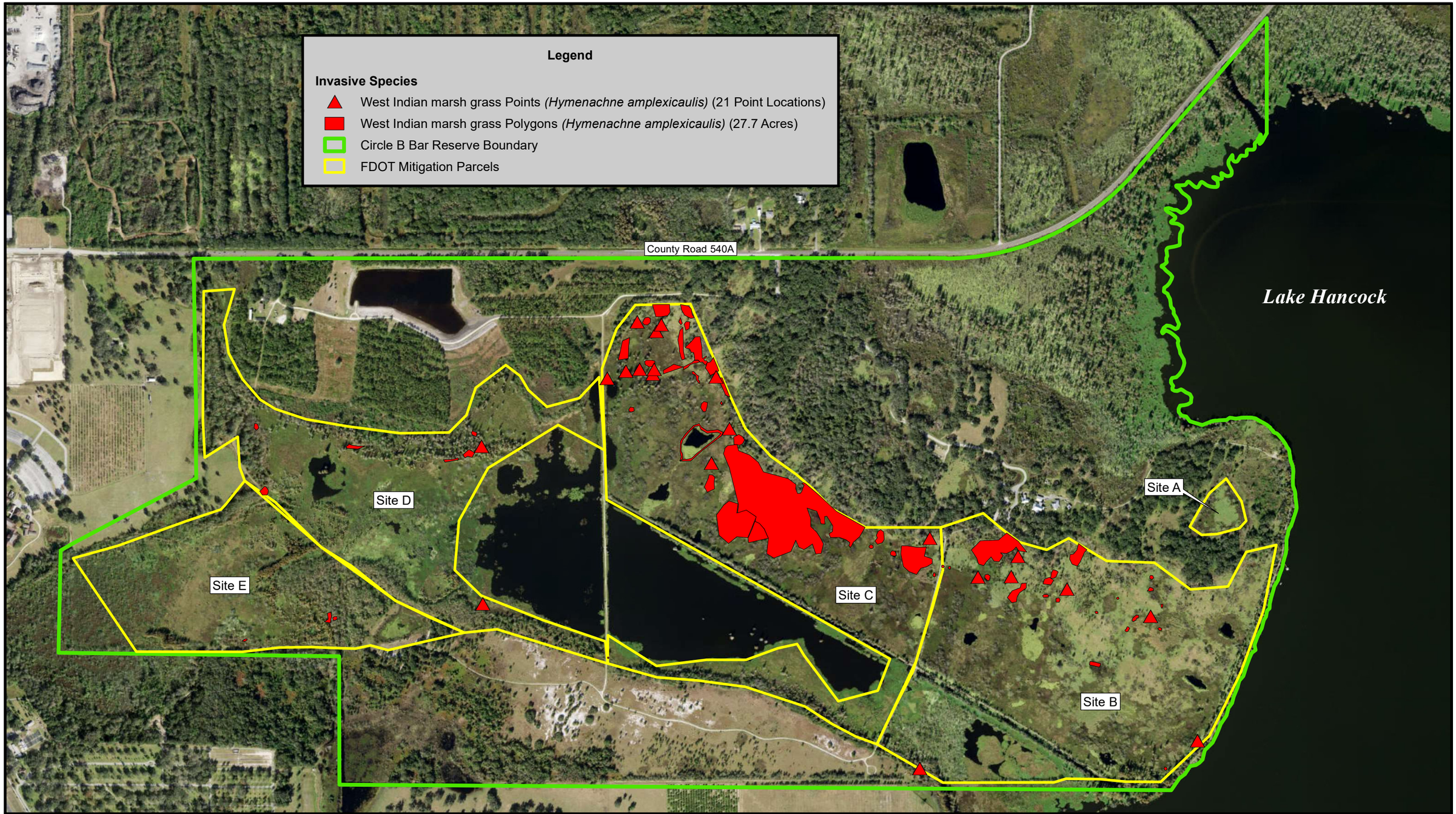

Figure 3.
The Points and Polygons of West Indian Marsh Grass *(Hymenachne amplexicaulis)*
Documented within the Circle B Bar Reserve Mitigation Parcel Sites in the Fall of 2024

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

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Legend

Invasive Species

- Cuban bulrush Points (*Cyperus blepharoleptos*) (43 Point Locations)
- Cuban bulrush (*Cyperus blepharoleptos*) (13.2 Acres)
- Circle B Bar Reserve Boundary
- FDOT Mitigation Parcels

County Road 540A

Lake Hancock

Site A

Site B

Site C

Site D

Site E

Figure 4.
The Points and Polygons of Cuban Bulrush *(Cyperus blepharoleptos)*
Documented within the Circle B Bar Reserve Mitigation Parcel Sites in the Fall of 2024

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

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Figure 5.
The Points and Polygons of Caesar's Weed *(Urena lobata)*
Documented within the Circle B Bar Reserve Mitigation Parcel Sites in the Fall of 2024

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

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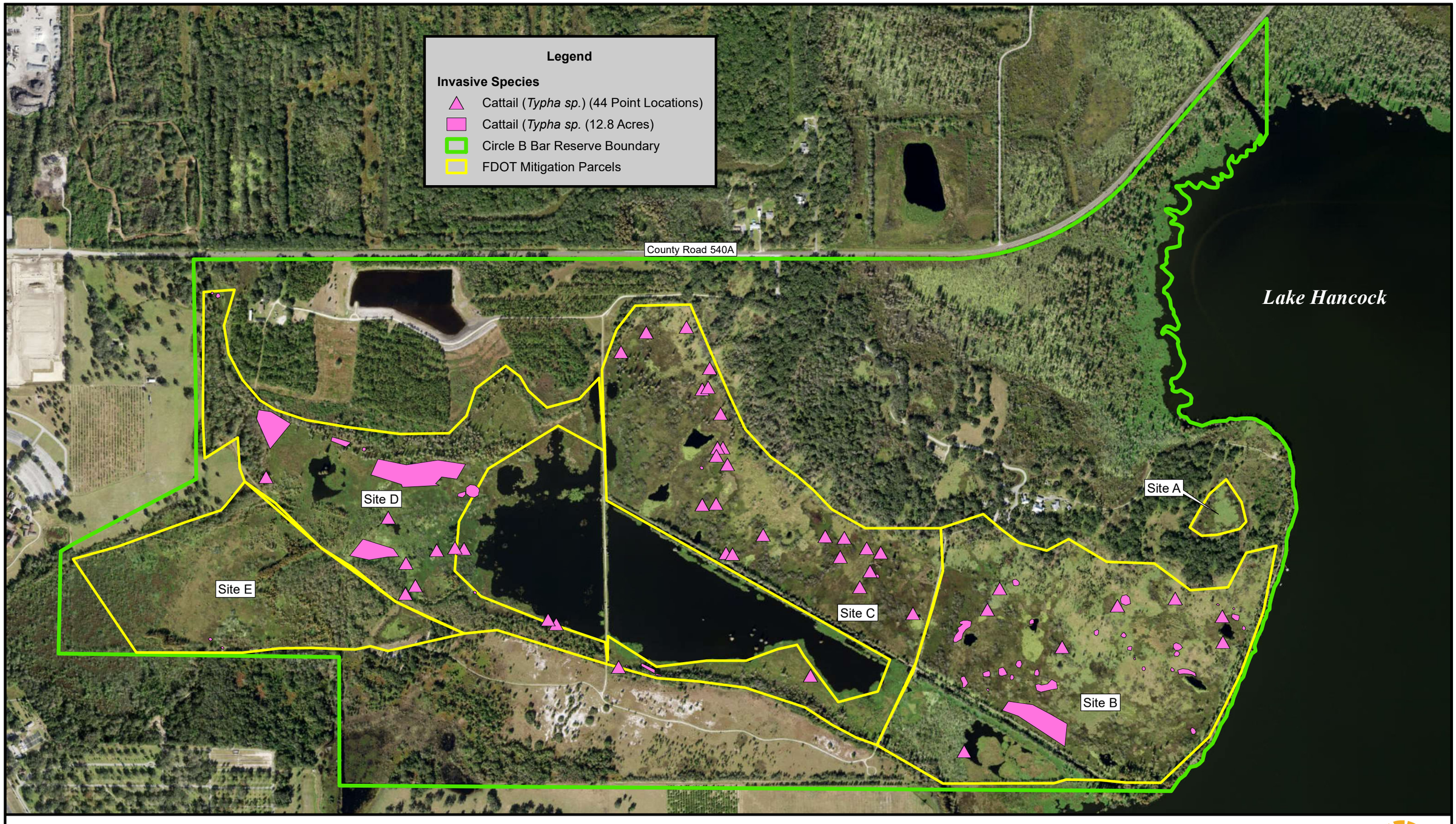

Figure 6.
The Points and Polygons of Cattail *(Typha sp.)*
Documented within the Circle B Bar Reserve Mitigation Parcel Sites in the Fall of 2024

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

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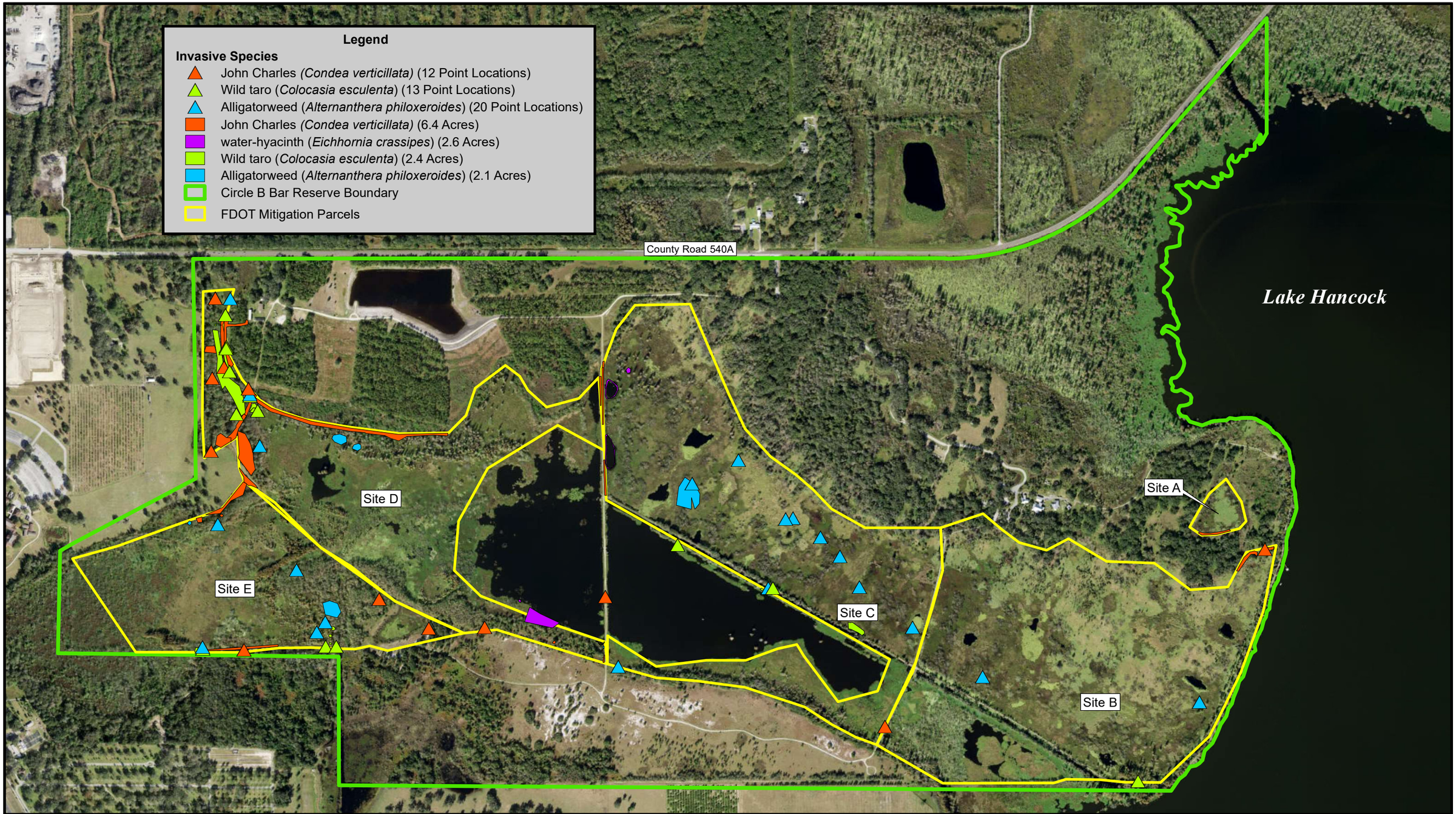

Figure 7.
The Points and Polygons of John Charles *(Condea verticillata)*, water-hyacinth (*Eichhornia crassipes*), Wild taro (*Colocasia esculenta*), and Alligatorweed (*Alternanthera philoxeroides*) Documented within the Circle B Bar Reserve Mitigation Parcel Sites in the Fall of 2024

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

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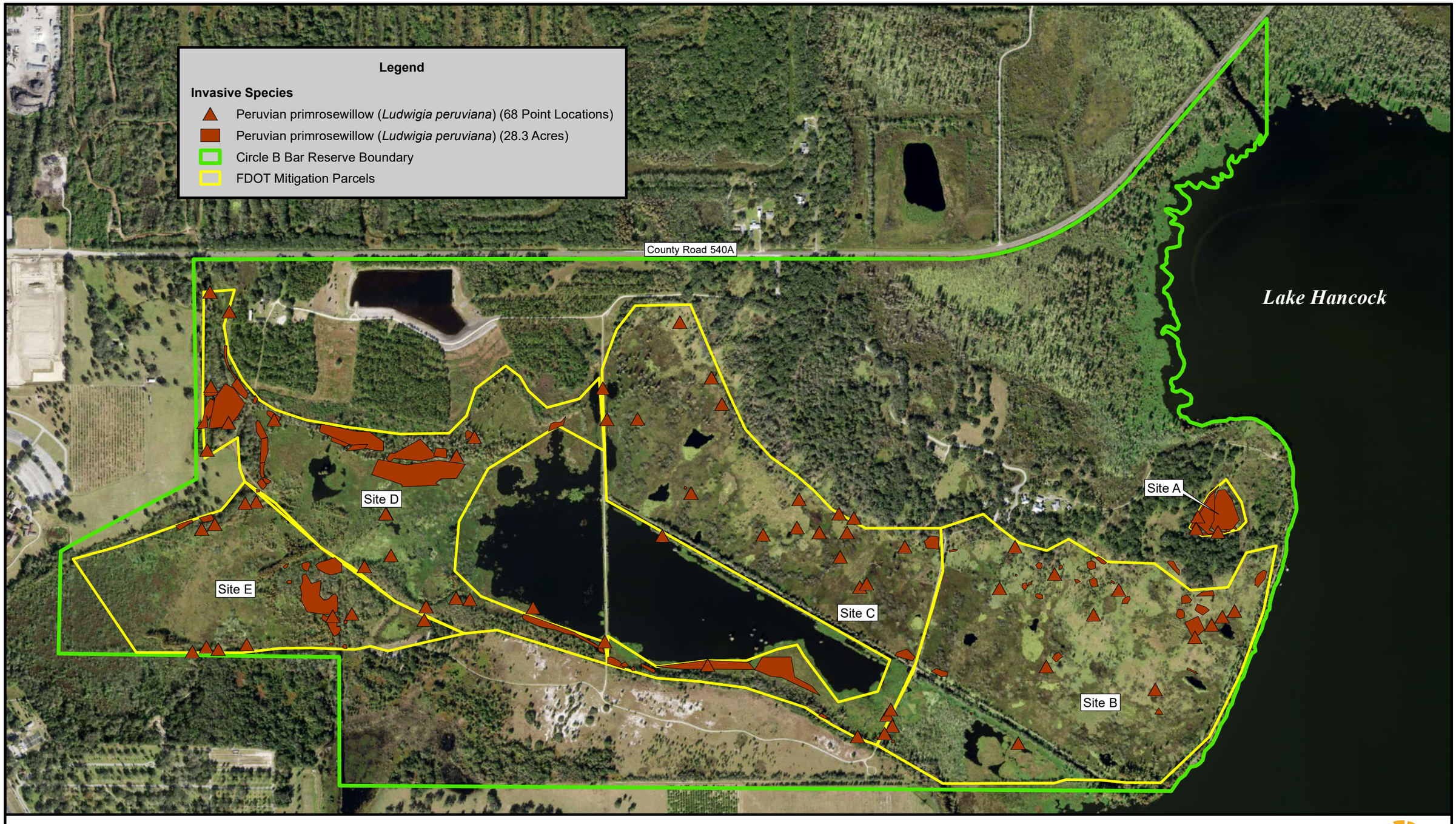

Figure 8.
The Points and Polygons of Peruvian primrosewillow (*Ludwigia peruviana*)
Documented within the Circle B Bar Reserve Mitigation Parcel Sites in the Fall of 2024

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

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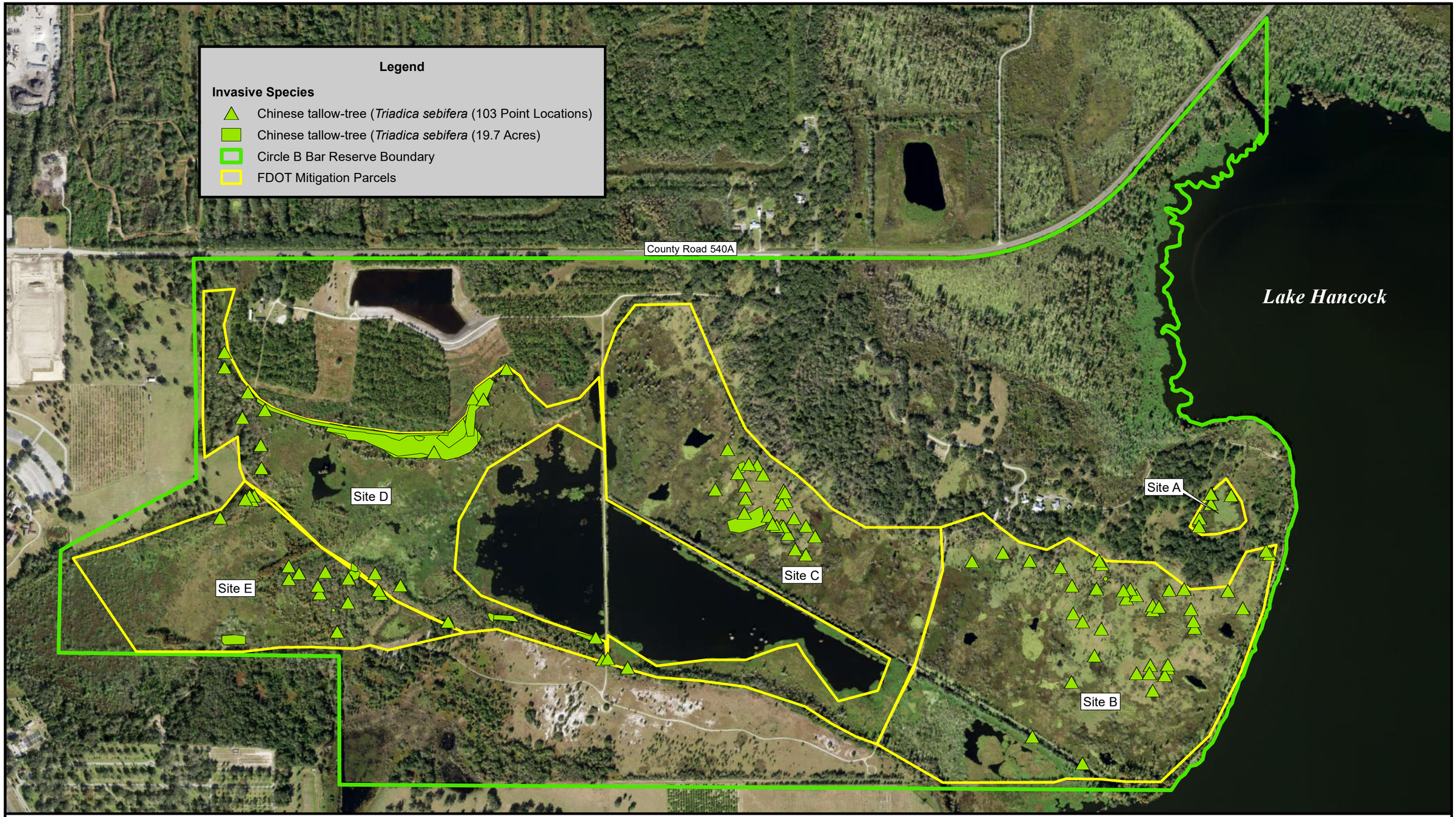

Figure 9.
The Points and Polygons of Chinese tallow-tree (*Triadica sebifera*)
Documented within the Circle B Bar Reserve Mitigation Parcel Sites in the Fall of 2024

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

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water & air RESEARCH, INC.

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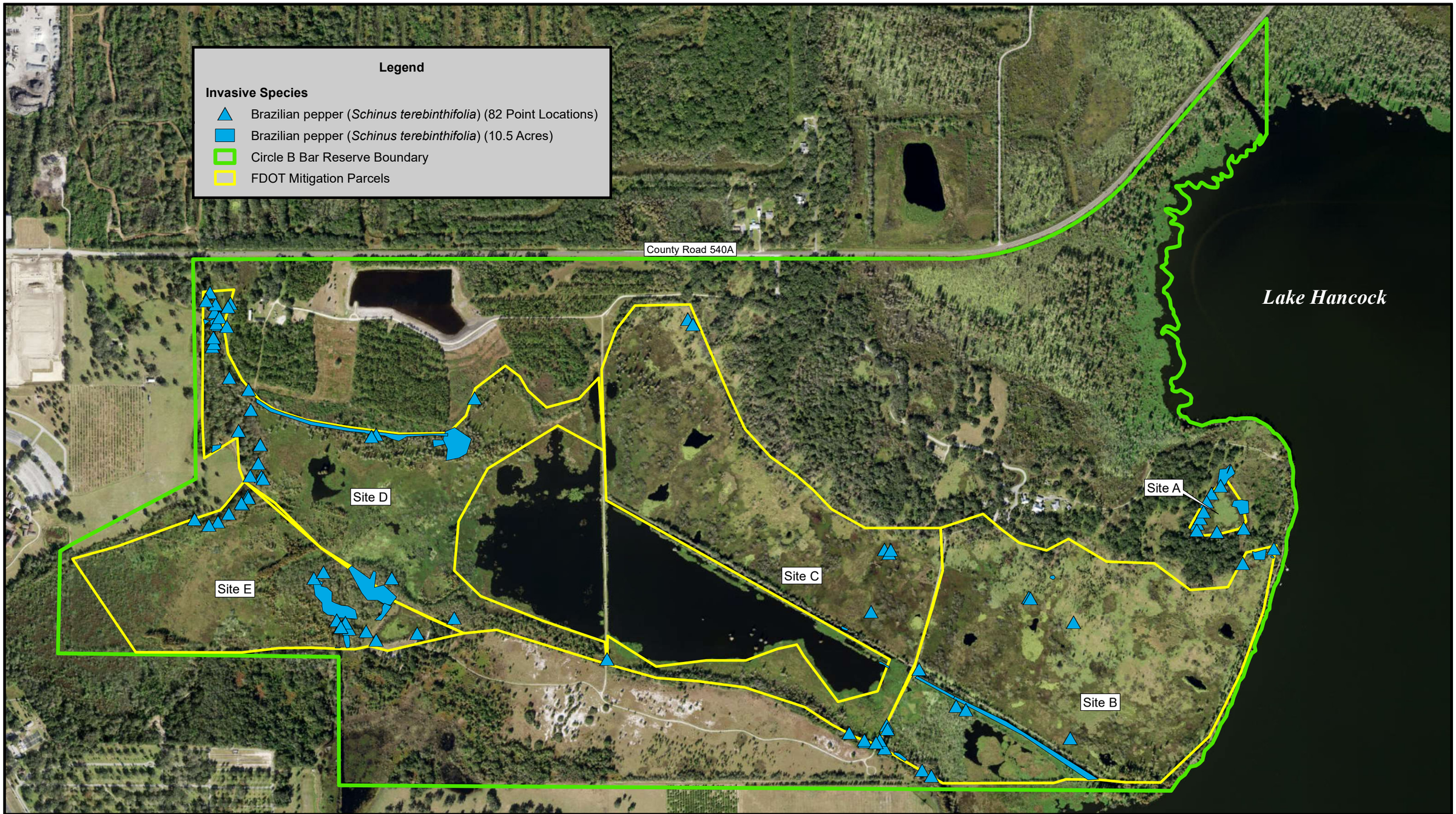

Figure 10.
The Points and Polygons of Brazilian pepper (*Schinus terebinthifolia*)
Documented within the Circle B Bar Reserve Mitigation Parcel Sites in the Fall of 2024

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

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Legend

Invasive Species

- tuberous sword fern (*Nephrolepis cordifolia* (5 Point Locations)
- West Indian Dropseed (*Sporobolus jacquemontii*) (5 Point Locations)
- cogongrass (*Imperata cylindrica* (20 Point Locations)
- balsam-apple (*Momordica charantia*) (2 Point Locations)
- tuberous sword fern (*Nephrolepis cordifolia* (1.0 Acres)
- West Indian Dropseed (*Sporobolus jacquemontii*) (0.7 Acres)
- cogongrass (*Imperata cylindrica* (0.6 Acres)
- balsam-apple (*Momordica charantia*) (0.5 Acres)
- Circle B Bar Reserve Boundary
- FDOT Mitigation Parcels

County Road 540A

Lake Hancock

Site A

Site B

Site C

Site D

Site E

Figure 11.
The Points and Polygons of tuberous sword fern (*Nephrolepis cordifolia*),
West Indian dropseed (*Sporobolus jacquemontii*), cogongrass (*Imperata cylindrica*),
and balsam-apple (*Momordica charantia*)
Documented within the Circle B Bar Reserve Mitigation Parcel Sites in the Fall of 2024
Source: ESRI, DigitalGlobe Imagery, 2023; Water & Air Research, Inc., 2024.

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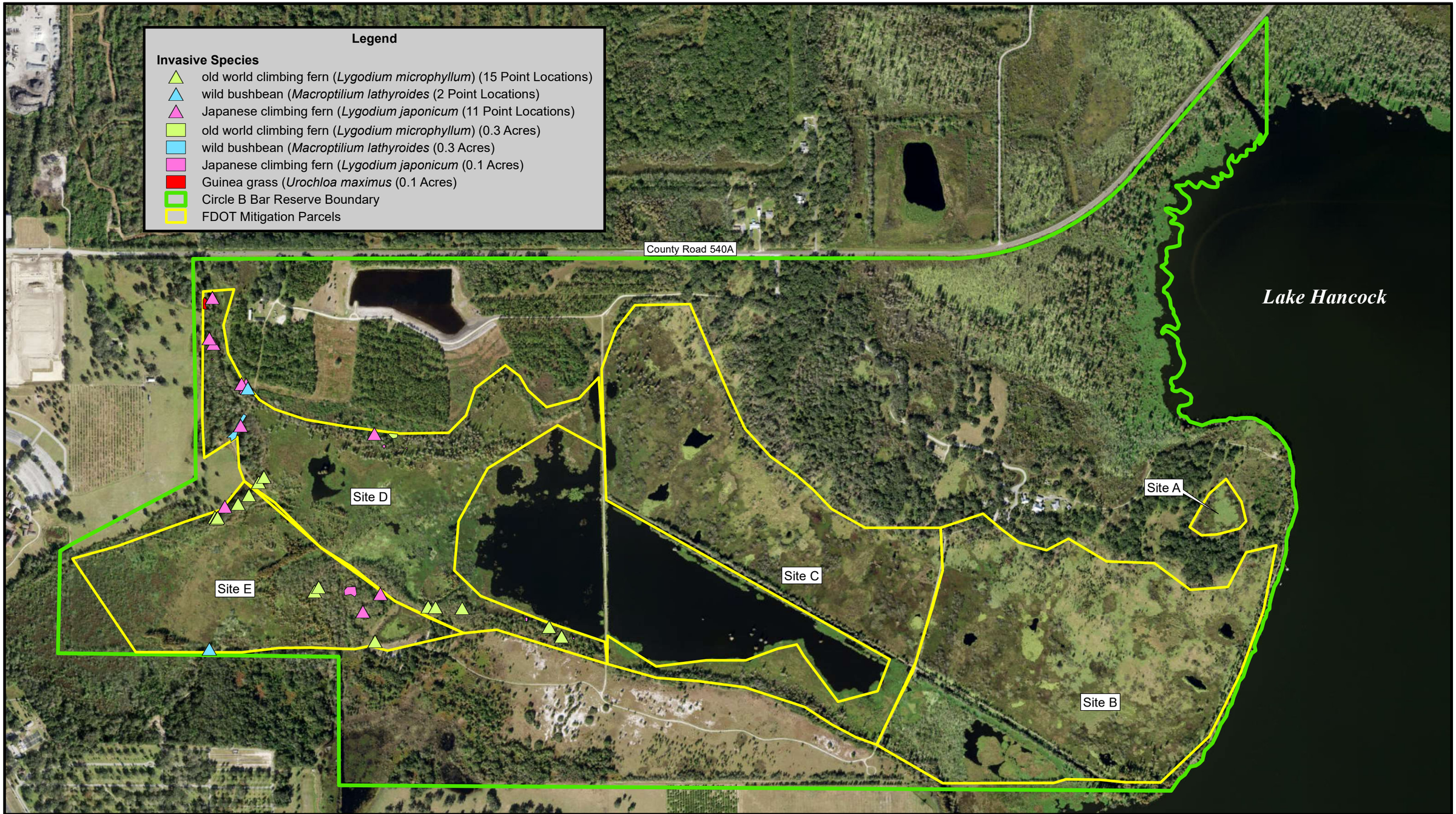

Figure 12.
The Points and Polygons of oldworld climbing fern (*Lygodium microphyllum*),
wild bushbean (*Macroptilium lathyroides*), Japanese climbing fern (*Lygodium japonicum*),
and Guinea grass (*Urochloa maximus*)
Documented within the Circle B Bar Reserve Mitigation Parcel Sites in the Fall of 2024
Source: ESRI, DigitalGlobe Imagery, 2023; Water & Air Research, Inc., 2024.

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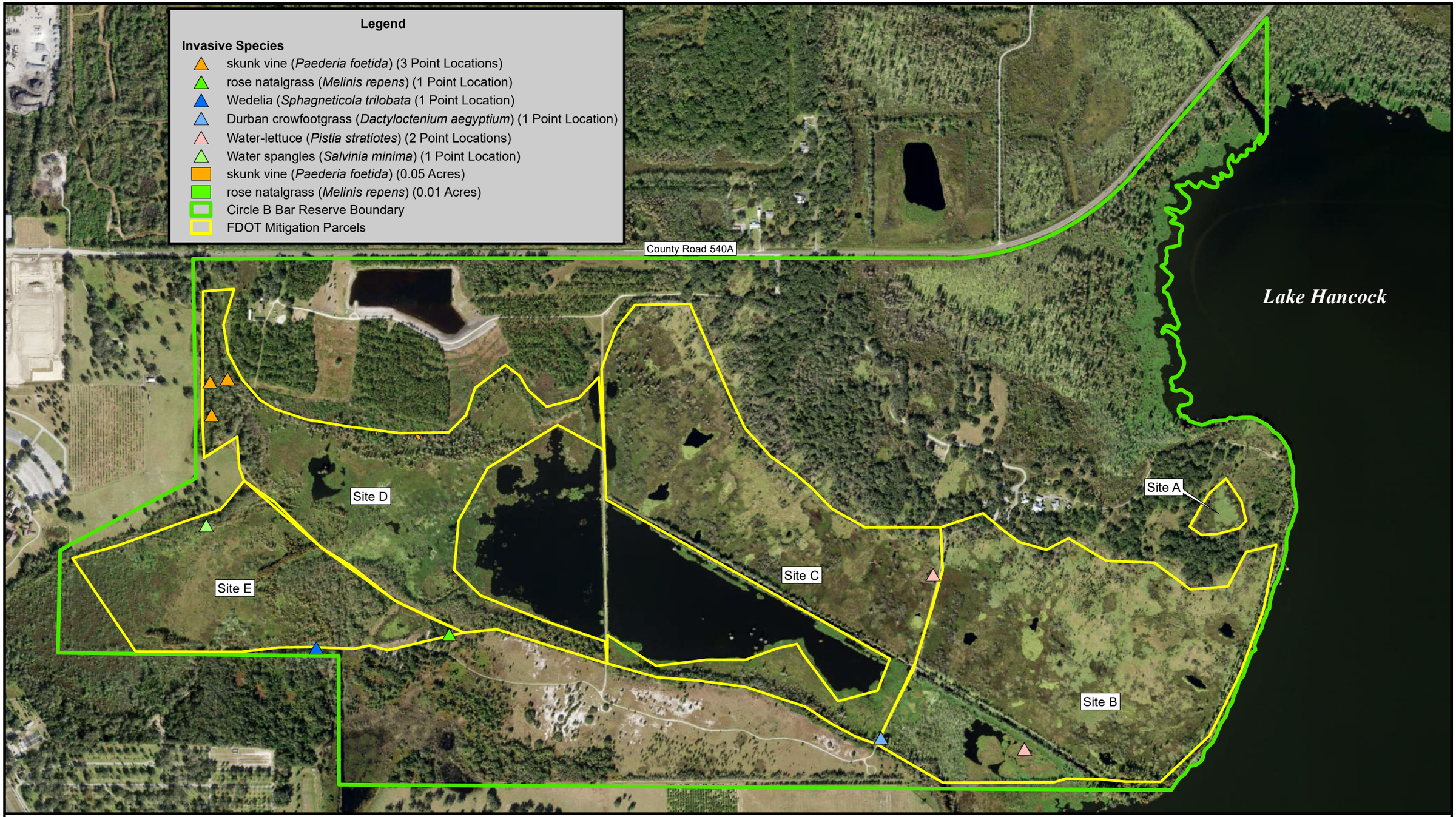

Figure 13.
The Points and Polygons of skunk vine (*Paederia foetida*), rose natalgrass (*Melinis repens*), wedelia (*Sphagneticola trilobata*), Durban crowfootgrass (*Dactyloctenium aegyptium*, Water-lettuce (*Pistia stratiotes*), and Water spangles (*Salvinia minima*) Documented within the Circle B Bar Reserve Mitigation Parcel Sites in the Fall of 2024
Source: ESRI, DigitalGlobe Imagery, 2023; Water & Air Research, Inc., 2024.

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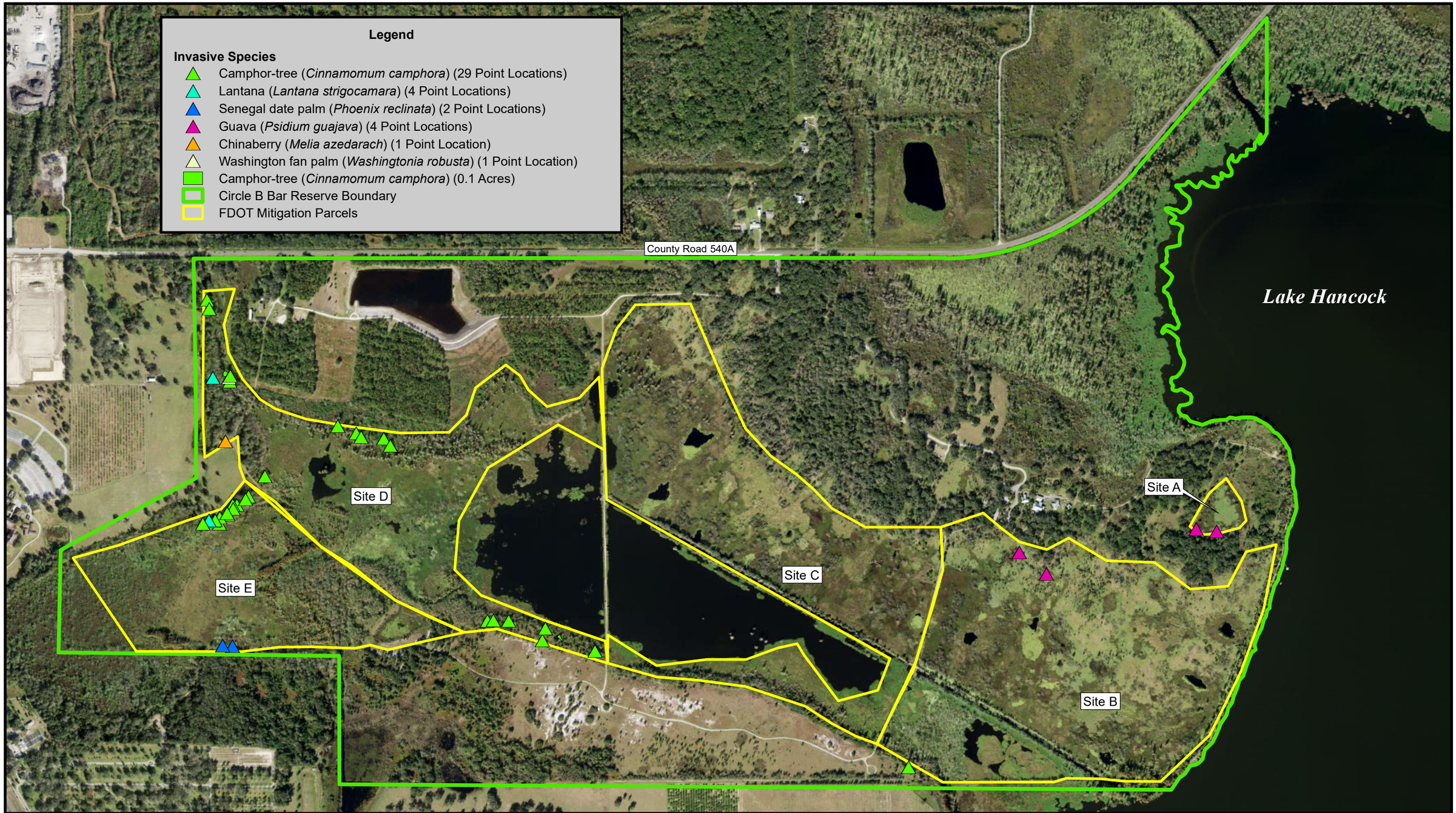

Figure 14.
The Points and Polygons of Camphor-tree (*Cinnamomum camphora*), Lantana (*Lantana strigocamara*), Senegal date palm (*Phoenix reclinata*), Guava (*Psidium guajava*), Chinaberry (*Melia azedarach*), and Washington Fan Palm (*Washington robusta*) Documented within the Circle B Bar Reserve Mitigation Parcel Sites in the Fall of 2024

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

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