

**Vegetation Monitoring at Non-FDOT Northwest
Florida Water Management District Mitigation Sites:
Bayport and Sacred Heart**

Fall 2022

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This document contains separate qualitative and quantitative vegetation monitoring reports for two mitigation sites (Figure 1) managed by the Northwest Florida Water Management District:

- 1) Bayport Mitigation Site in Bay County
- 2) Sacred Heart Mitigation Site in Bay County

Taxonomy follows Wunderlin, R. P., B.F. Hansen, A.R. Franck, and F.B. Essig. 2017. Atlas of Florida Plants (<http://florida.plantatlas.usf.edu/>), Institute for Systematic Botany, University of South Florida, Tampa.

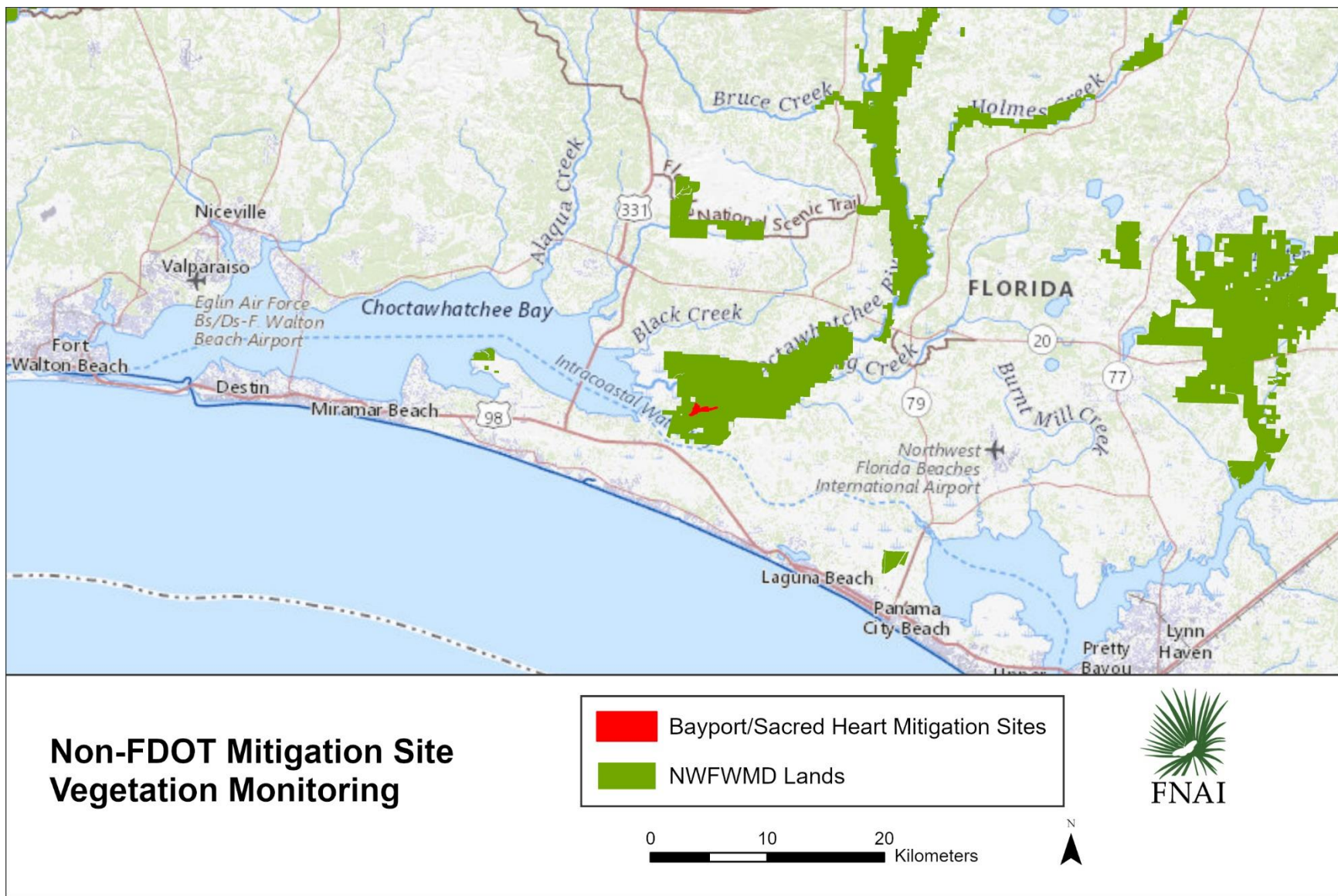


Figure 1. Location map of two non-FDOT NFWMD mitigation sites monitored by FNAI.

BAYPORT MITIGATION SITE

Qualitative and Quantitative Monitoring

October 2022

Bayport Mitigation Site
USACE Permit #SAJ-1997-07427 (SP-SWA)
Qualitative and Quantitative Monitoring
October 2022

INTRODUCTION

The Bayport Mitigation Site project compensates for impacts to 6.55 acres of jurisdictional wetlands (hydric pine flatwoods) associated with a commercial development on CR 3280 in Freeport, Florida (DJFO, Inc.). The goal of this mitigation is to restore 55.6 acres of hydric pine flatwoods / mixed forested wetlands at Devils Swamp, an area that is owned and managed for ecological integrity by the Northwest Florida Water Management District (NFWFMD) and is part of the Choctawhatchee River Water Management Area. The offsite mitigation area is located approximately six miles southeast of the impact along an unnamed dirt road east of the unincorporated community of Bunker. Prior to NFWFMD acquisition in 1992, the Devils Swamp site had been converted to slash pine plantation.

As described in the USACE permit, the mitigation area is divided into four management polygons (A – D). The permit describes Polygons A, C and D as wet prairie, and Polygon B as hydric pine flatwoods. However, NFWFMD considers the correct community composition to be hydric pine flatwoods for Polygons A, B and D; mixed forested wetlands with hydric pine flatwood inclusions for Polygon C. During field visits in 2021 and 2022, FNAI found wet prairie remnant vegetation in Polygon A. Polygon B appeared to be a mix of mesic and hydric pine flatwoods.

According to NFWFMD, mitigation activities implemented-to-date include 1) baseline monitoring (August 2017); 2) shrub and tree density reduction (October 2017); 3) prescribed fire (February 2018); 4) repeat panoramic photography (August 2017, March 2018, September 2018, September 2019, October 2020); 5) herbicide treatments (September 2019) to reduce shrub regrowth; and 6) post-baseline quantitative vegetation monitoring (April 2018, December 2018 / January 2019, September / October 2019, October / November 2020, October 2021).

Quantitative and qualitative monitoring was used to document the current plant species composition and vegetation structure of these targeted areas. The site vegetation was previously monitored by FNAI biologists in Fall 2021. Data that year were given directly to NFWFMD for analysis.

METHODS

Percent vegetation cover was measured in 1 m² quadrats (10-foot intervals) along eight 150-foot transects in October 2022. Two transects were set up in each area of the mitigation site (Figure BP-1). Along each transect line, eight 1m x 1m quadrats were placed along the left side, beginning at 10 feet and then spaced every 10 feet thereafter. Data recorded in each quadrat consisted of the visually estimated percent cover of each plant species, including individuals rooted in the quadrat as well as overhanging. Canopy over 2 m in height was excluded from cover estimates. Only the lower 2 m

portions of larger individuals were counted as cover, including the lower portions of tree trunks rooted in quadrats. Bare ground was estimated in each quadrat as a percentage of ground not obscured by plant cover or large woody debris.

Rooted shrub stem density was monitored within each mitigation polygon using five 1 m² quadrats established at random (Figure BP-10, Table BP-10).

The qualitative monitoring consisted of recording the species and vegetation structure observed along meandering pedestrian transects through each of the four target areas. Field surveys were performed by FNAI botanists Kim Alexander, Kelly Anderson, Jenna Annis, and Camille Eckel on October 4-5, 2022.

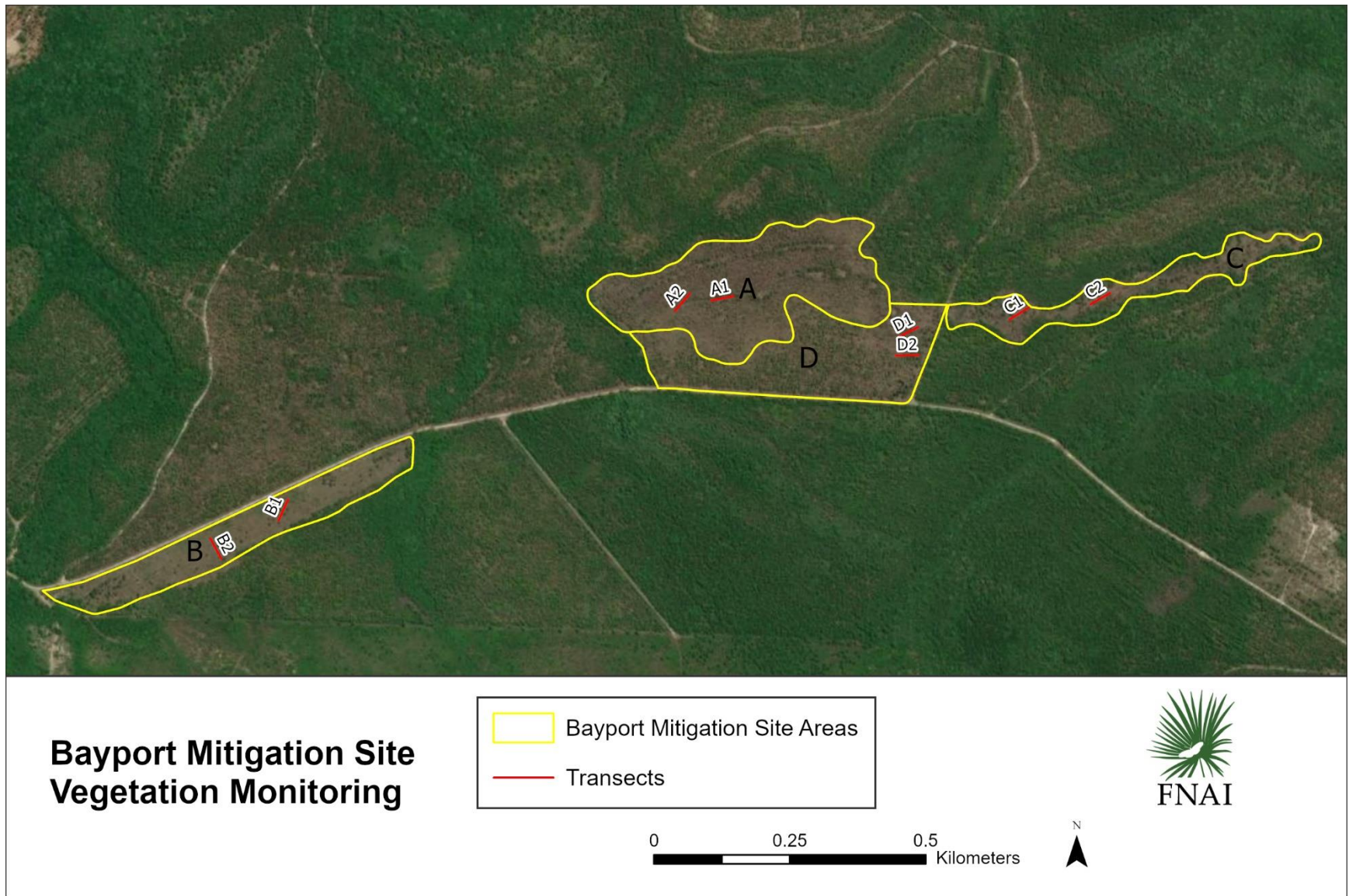


Figure BP-1. Location of transects at Bayport Mitigation Site.

RESULTS AND DISCUSSION

A total of 177 plant taxa were observed during the 2022 monitoring of all four sections of the Bayport Mitigation Site (Table BP-1). Seventy new taxa were noted, i.e., species or varieties not observed during a quantitative survey in Fall 2021.

Table BP-1. Species observed in target communities at Bayport Mitigation Site on October 4-5, 2022. (bold name = new species; bold X = new observation in section)

Scientific Name	Common Name	Section A	Section B	Section C	Section D	Grand Total
<i>Aletris lutea</i>	yellow colic-root		X			1
<i>Agalinis sp.</i>	false foxglove				X	1
<i>Andropogon arctatus</i>	pinewoods bluestem	X	X		X	3
<i>Andropogon glomeratus</i>	bushy bluestem				X	1
<i>Andropogon glomeratus var. glaucopsis</i>	purple bluestem	X	X	X	X	4
<i>Andropogon gyrans var. stenophyllus</i>	Elliott's bluestem				X	1
<i>Andropogon sp.</i>	bluestem	X	X		X	3
<i>Andropogon virginicus</i>	broomsedge bluestem	X	X	X	X	4
<i>Andropogon virginicus var. glaucus</i>	chalky bluestem	X	X			2
<i>Anthraenantia rufa</i>	purple silkscale	X			X	2
<i>Aristida palustris</i>	longleaf threeawn	X		X		2
<i>Aristida spiciformis</i>	bottlebrush threeawn		X			1
<i>Aristida stricta</i>	wiregrass	X	X	X	X	4
<i>Arundinaria gigantea</i>	switchcane				X	1
<i>Aronia arbutifolia</i>	red chokeberry		X		X	2
<i>Baccharis halimifolia</i>	groundsel tree				X	1
<i>Balduina uniflora</i>	oneflower honeycomb-head	X	X	X	X	4
<i>Bartonia paniculata</i>	twining screwstem	X			X	2
<i>Bidens laevis</i>	smooth beggarticks	X				1
<i>Bidens mitis</i>	smallfruit beggarticks	X	X		X	3
<i>Bigelovia nudata ssp. nudata</i>	pineland rayless goldenrod	X	X		X	3
<i>Burmannia capitata</i>	southern bluethread	X			X	2
<i>Calamovilfa curtissii</i>	Curtiss' sandgrass		X	X	X	3
<i>Carex glaucescens</i>	clustered sedge			X		1
<i>Carphephorus odoratissimus</i>	vanillaleaf		X		X	2
<i>Carphephorus pseudoliatris</i>	bristleleaf chaffhead	X	X			2
<i>Carphephorus sp.</i>	chaffhead				X	1
<i>Clethra alnifolia</i>	sweet pepperbush	X		X	X	3
<i>Cliftonia monophylla</i>	black titi	X	X	X	X	4
<i>Coleataenia longifolia</i>	ciliate redtop panicum	X		X	X	3
<i>Coleataenia tenera</i>	bluejoint panicum	X				1
<i>Coreopsis floridana</i>	Florida tickseed		X			1
<i>Ctenium aromaticum</i>	toothache grass	X	X		X	3
<i>Cyrilla racemiflora</i>	titi		X	X	X	3

Scientific Name	Common Name	Section A	Section B	Section C	Section D	Grand Total
<i>Dichanthelium ensifolium</i>	cypress witchgrass			X		1
<i>Dichanthelium ensifolium</i> var. <i>ensifolium</i>	cypress witchgrass	X	X	X	X	4
<i>Dichanthelium leucothrix</i>	rough witchgrass	X	X		X	3
<i>Dichanthelium portoricense</i>	hemlock witchgrass		X			1
<i>Dichanthelium scabriusculum</i>	woolly witchgrass	X	X	X	X	4
<i>Dichanthelium</i> sp.	witchgrass			X	X	2
<i>Dichanthelium strigosum</i>	roughhair witchgrass		X		X	2
<i>Drosera capillaris</i>	pink sundew		X	X	X	3
<i>Eragrostis pectinacea</i> var. <i>pectinacea</i>	tufted lovegrass	X				1
<i>Eragrostis</i> sp.	lovegrass		X			1
<i>Eriocaulon compressum</i>	flattened pipewort	X		X	X	3
<i>Eriocaulon decangulare</i>	tenangle pipewort	X		X	X	3
<i>Eupatorium capillifolium</i>	dogfennel		X	X	X	3
<i>Eupatorium mohrii</i>	Mohr's thoroughwort	X	X		X	3
<i>Eupatorium pilosum</i>	rough boneset		X			1
<i>Eupatorium rotundifolium</i>	roundleaf thoroughwort				X	1
<i>Euphorbia discoidalis</i>	summer spurge				X	1
<i>Eurybia eryngiifolia</i>	thistleleaf aster		X			1
<i>Euthamia caroliniana</i>	slender flattop goldenrod		X	X		2
<i>Fuirena breviseta</i>	saltmarsh umbrellasedge	X	X	X	X	4
<i>Gaylussacia dumosa</i>	dwarf huckleberry		X			1
<i>Gaylussacia frondosa</i> var. <i>tomentosa</i>	blue huckleberry				X	1
<i>Gaylussacia mosieri</i>	woolly huckleberry		X		X	2
<i>Geobalanus oblongifolius</i>	gopher apple				X	1
<i>Helianthus heterophyllus</i>	variableleaf sunflower	X	X			2
<i>Helianthus radula</i>	stiff sunflower		X			1
<i>Hypericum brachyphyllum</i>	coastalplain St. John's wort	X	X	X	X	4
<i>Hypericum cistifolium</i>	roundpod St. John's wort	X	X	X	X	4
<i>Hypericum crux-andreae</i>	St. Peter's wort	X	X	X	X	4
<i>Hypericum fasciculatum</i>	peelbark St. John's wort	X	X	X	X	4
<i>Hypericum gentianoides</i>	orangegrass				X	1
<i>Hypericum hypericoides</i>	St. Andrew's cross				X	1
<i>Hypericum microsepalum</i>	flatwoods St. John's wort		X	X	X	3
<i>Hypericum mutilum</i>	dwarf St. John's wort		X		X	2
<i>Hypericum myrtifolium</i>	myrtleleaf St. John's wort		X	X		2
<i>Hypericum tetrapetalum</i>	fourpetal St. John's wort		X			1
<i>Ilex cassine</i>	dahoon	X				1
<i>Ilex cassine</i> var. <i>myrtifolia</i>	myrtle-leaved holly	X	X	X	X	4
<i>Ilex coriacea</i>	large gallberry	X	X	X	X	4
<i>Ilex glabra</i>	gallberry	X	X	X	X	4
<i>Ilex vomitoria</i>	yaupon		X		X	2
<i>Iris</i> sp.	iris		X			1
<i>Iva microcephala</i>	Piedmont marshelder			X	X	2

Scientific Name	Common Name	Section A	Section B	Section C	Section D	Grand Total
<i>Juncus marginatus</i>	grassleaf rush				X	1
<i>Juncus scirpoides</i>	needlepod rush		X	X	X	3
<i>Kelochloa verrucosa</i>	warty panicgrass	X	X	X	X	4
<i>Lachnanthes caroliniana</i>	Carolina redroot	X	X	X	X	4
<i>Lachnocaulon anceps</i>	whitehead bogbutton		X		X	2
<i>Lechea sp.</i>	pinweed		X		X	2
<i>Liatris sp.</i>	blazing star		X		X	2
<i>Liatris spicata</i>	dense gayfeather	X	X		X	3
<i>Lobelia brevifolia</i>	shortleaf lobelia	X	X		X	3
<i>Lophiola aurea</i>	golden crest	X	X	X	X	4
<i>Ludwigia linearis</i>	narrowleaf primrosewillow				X	1
<i>Ludwigia maritima</i>	seaside primrosewillow				X	1
<i>Lycopodiella alopecuroides</i>	foxtail club-moss	X	X	X	X	4
<i>Lycopodiella appressa</i>	southern club-moss		X			1
<i>Lycopodiella caroliniana</i>	slender club-moss	X	X		X	3
<i>Magnolia virginiana</i>	sweetbay		X	X	X	3
<i>Morella caroliniensis</i>	evergreen bayberry				X	1
<i>Nyssa biflora</i>	swamp tupelo	X		X	X	3
<i>Oldenlandia uniflora</i>	clustered mille grains		X		X	2
<i>Osmunda cinnamomea</i>	cinnamon fern		X			1
<i>Osmunda regalis var. spectabilis</i>	royal fern	X			X	2
<i>Oxypolis ternata</i>	Piedmont cowbane	X				1
<i>Panicum hemitomon</i>	maidencane			X		1
<i>Panicum virgatum</i>	switchgrass				X	1
<i>Pinus elliotii</i>	slash pine	X	X	X	X	4
<i>Pluchea foetida</i>	stinking camphorweed				X	1
<i>Polygala cruciata</i>	drumheads	X				1
<i>Polygala cymosa</i>	tall pinebarren milkwort		X			1
<i>Polygala hookeri</i>	Hooker's milkwort		X			1
<i>Polygala lutea</i>	orange milkwort	X	X		X	3
<i>Polygala ramosa</i>	low pinebarren milkwort	X	X		X	3
<i>Polypremum procumbens</i>	rustweed				X	1
<i>Proserpinaca pectinata</i>	combleaf mermaidweed	X	X	X	X	4
<i>Pseudognaphalium obtusifolium</i>	sweet everlasting		X			1
<i>Pteridium aquilinum</i>	bracken fern		X		X	2
<i>Quercus hemisphaerica</i>	laurel oak		X			1
<i>Quercus minima</i>	dwarf live oak		X		X	2
<i>Quercus nigra</i>	water oak		X			1
<i>Quercus pumila</i>	runner oak		X			1
<i>Quercus virginiana</i>	live oak			X		1
<i>Rhexia alifanus</i>	savannah meadowbeauty	X	X	X	X	4
<i>Rhexia lutea</i>	yellow meadowbeauty	X	X			2
<i>Rhexia mariana</i>	pale meadowbeauty	X	X	X	X	4

Scientific Name	Common Name	Section A	Section B	Section C	Section D	Grand Total
<i>Rhexia petiolata</i>	fringed meadowbeauty	X	X		X	3
<i>Rhus copallinum</i>	winged sumac			X	X	2
<i>Rhynchospora baldwinii</i>	Baldwin's beaksedge		X			1
<i>Rhynchospora cephalantha</i>	bunched beaksedge	X		X	X	3
<i>Rhynchospora chalarocephala</i>	loosehead beaksedge	X				1
<i>Rhynchospora chapmanii</i>	Chapman's beaksedge	X	X	X	X	4
<i>Rhynchospora ciliaris</i>	fringed beaksedge				X	1
<i>Rhynchospora fascicularis</i>	fascicled beaksedge		X	X	X	3
<i>Rhynchospora filifolia</i>	threadleaf beaksedge	X		X		2
<i>Rhynchospora glomerata</i>	clustered beaksedge			X		1
<i>Rhynchospora gracilentia</i>	slender beaksedge	X		X	X	3
<i>Rhynchospora harperi</i>	Harper's beaksedge	X		X		2
<i>Rhynchospora inundata</i>	narrowfruit horned beaksedge			X		1
<i>Rhynchospora latifolia</i>	white-top sedge	X	X			2
<i>Rhynchospora microcarpa</i>	southern beaksedge			X		1
<i>Rhynchospora plumosa</i>	plumed beaksedge	X	X			2
<i>Rhynchospora pusilla</i>	fairy beaksedge		X			1
<i>Rhynchospora rariflora</i>	fewflower beaksedge	X				1
<i>Rhynchospora sp.</i>	beaksedge			X		1
<i>Sabatia brevifolia</i>	shortleaf rosegentian		X	X	X	3
<i>Saccharum giganteum</i>	sugarcane plumegrass	X		X		2
<i>Sarracenia flava</i>	yellow pitcherplant	X		X		2
<i>Sarracenia leucophylla</i>	white-top pitcherplant				X	1
<i>Schizachyrium sp.</i>	bluestem				X	1
<i>Scleria baldwinii</i>	Baldwin's nutrush			X		1
<i>Scleria ciliata</i>	fringed nutrush			X	X	2
<i>Scleria reticularis</i>	netted nutrush	X		X	X	3
<i>Scoparia dulcis</i>	licoriceweed		X	X		2
<i>Serenoa repens</i>	saw palmetto		X		X	2
<i>Seymeria cassioides</i>	yaupon blacksen				X	1
<i>Seymeria pectinata</i>	Piedmont blacksen		X			1
<i>Smilax auriculata</i>	earleaf greenbrier		X			1
<i>Smilax bona-nox</i>	saw greenbrier				X	1
<i>Smilax glauca</i>	cat greenbrier	X	X		X	3
<i>Smilax laurifolia</i>	laurel greenbrier	X	X	X	X	4
<i>Smilax pumila</i>	sarsaparilla vine		X			1
<i>Smilax tamnoides</i>	bristly greenbrier	X				1
<i>Smilax walteri</i>	coral greenbrier	X	X	X		3
<i>Solidago fistulosa</i>	pinebarren goldenrod				X	1
<i>Sphagnum sp.</i>	sphagnum moss	X	X	X	X	4
<i>Sporobolus floridanus</i>	Florida dropseed		X			1
<i>Symphotrichum chapmanii</i>	savannah aster	X		X		2
<i>Symphotrichum sp.</i>	aster	X				1

Scientific Name	Common Name	Section A	Section B	Section C	Section D	Grand Total
<i>Taxodium ascendens</i>	pond cypress			X		1
<i>Tiedemannia filiformis ssp. filiformis</i>	water cowbane	X				1
<i>Utricularia juncea</i>	southern bladderwort	X		X	X	3
<i>Vaccinium corymbosum</i>	highbush blueberry			X	X	2
<i>Vaccinium myrsinites</i>	shiny blueberry		X		X	2
<i>Viola lanceolata</i>	bog white violet		X		X	2
<i>Vitis rotundifolia</i>	muscadine				X	1
<i>Xyris ambigua</i>	coastalplain yellow-eyed grass	X	X	X	X	4
<i>Xyris brevifolia</i>	shortleaf yellow-eyed grass		X		X	2
<i>Xyris caroliniana</i>	Carolina yellow-eyed grass	X	X		X	3
<i>Xyris flabelliformis</i>	savannah yellow-eyed grass		X			1
<i>Xyris serotina</i>	acid swamp yellow-eyed grass	X	X		X	3
<i>Xyris stricta</i>	pineland yellow-eyed grass	X	X	X	X	4
<i>Xyris sp.</i>	yellow-eyed grass	X		X	X	3
Total number of taxa: 177		82	105	72	114	373

Section A

Qualitative sampling. Section A (Figure BP-1) had a total of 82 observed plant taxa (Table BP-1). This is a thinned pine plantation dominated by slash pines with a basal area of around 50 ft² per acre. Much of the groundcover is open and herbaceous, but large areas are covered by abundant titi shrubs and laurel greenbrier. Most shrubs are low, but with scattered individuals over 2 meter tall. Coarse woody debris is abundant. This section has areas of remnant wet prairie vegetation. In Fall 2021, the rare state-endangered wiregrass gentian (*Gentiana pennelliana*) was observed just south of Transect A1 but was not detected this year.

Quantitative sampling.

- Transect A1 (Table BP-2, Figure BP-2) had a total of 47 taxa with 42% average bare ground cover. Woody species made up around 13% average cover per quadrat.
- Transect A2 (Table BP-3, Figure BP-3) had a total of 51 taxa with 20% average bare ground cover. Woody species made up around 21% average cover per quadrat.

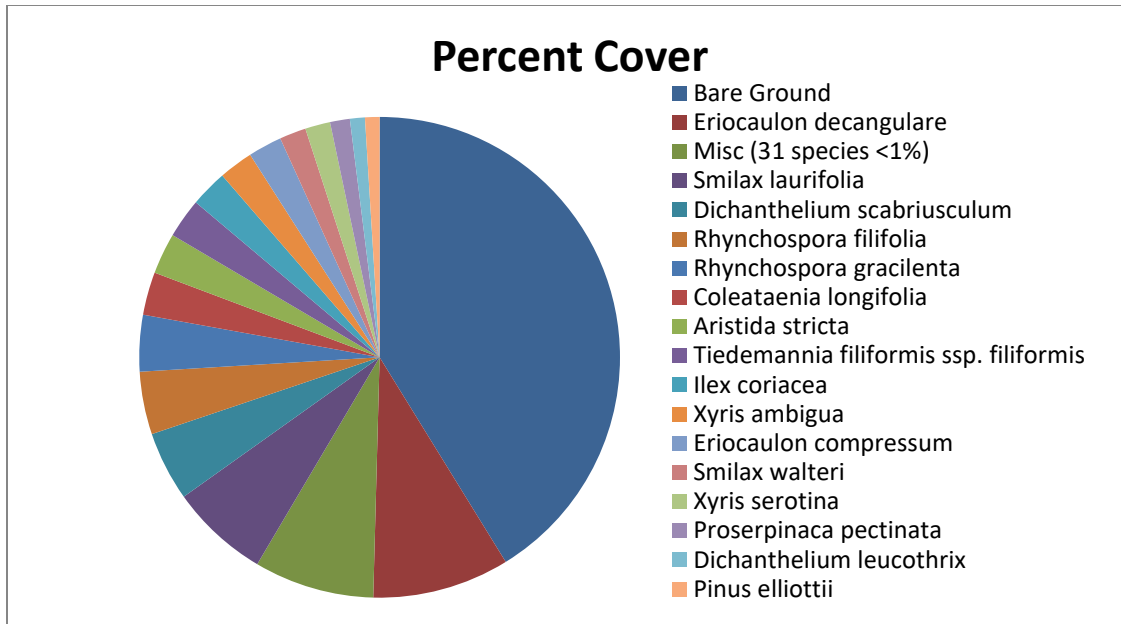


Figure BP-2. Percent of total vegetative cover for plant species in Transect A1.

Table BP-2. Percent total vegetative cover of plant species in Transect A1 sampled on October 5, 2022.

Scientific name	Common name	Average percent cover per quadrat
<i>Eriocaulon decangulare</i>	tenangle pipewort	9.47
<i>Smilax laurifolia</i>	laurel greenbrier	6.83
<i>Dichanthelium scabriusculum</i>	woolly witchgrass	4.80
<i>Rhynchospora filifolia</i>	threadleaf beaksedge	4.33
<i>Rhynchospora gracilentia</i>	slender beaksedge	3.90
<i>Coleataenia longifolia</i>	ciliate redtop panicum	2.97
<i>Aristida stricta</i>	wiregrass	2.83
<i>Tiedemannia filiformis ssp. filiformis</i>	water cowbane	2.73
<i>Ilex coriacea</i>	large gallberry	2.57
<i>Xyris ambigua</i>	coastalplain yellow-eyed grass	2.37
<i>Eriocaulon compressum</i>	flattened pipewort	2.33
<i>Smilax walteri</i>	coral greenbrier	1.83
<i>Xyris serotina</i>	acid swamp yellow-eyed grass	1.73
<i>Proserpinaca pectinata</i>	combleaf mermaidweed	1.37
<i>Dichanthelium leucothrix</i>	rough witchgrass	1.03
<i>Pinus elliotii</i>	slash pine	1.00
<i>Rhynchospora chalarocephala</i>	loosehead beaksedge	0.97
<i>Andropogon virginicus</i>	broomsedge bluestem	0.80
<i>Anthraenantia rufa</i>	purple silkscale	0.70
<i>Rhynchospora harperi</i>	Harper's beaksedge	0.63
<i>Ilex glabra</i>	gallberry	0.47
<i>Lophiola aurea</i>	golden crest	0.47
<i>Carphephorus pseudoliatris</i>	bristleleaf chaffhead	0.43
<i>Andropogon glomeratus var. glaucopsis</i>	purple bluestem	0.40

<i>Hypericum brachyphyllum</i>	coastalplain St. John's wort	0.40
<i>Dichantherium ensifolium</i>	cypress witchgrass	0.37
<i>Andropogon virginicus var. glaucus</i>	chalky bluestem	0.33
<i>Xyris stricta</i>	pineland yellow-eyed grass	0.30
<i>Andropogon sp.</i>	bluestem	0.23
<i>Rhynchospora cephalantha</i>	bunched beaksedge	0.23
<i>Aristida palustris</i>	longleaf threeawn	0.20
<i>Xyris caroliniana</i>	Carolina yellow-eyed grass	0.20
<i>Hypericum fasciculatum</i>	peelbark St. John's wort	0.17
<i>Andropogon arctatus</i>	pinewoods bluestem	0.13
<i>Rhexia mariana</i>	pale meadowbeauty	0.13
<i>Fuirena breviseta</i>	saltmarsh umbrellasedge	0.10
<i>Kelochloa verrucosa</i>	warty panicgrass	0.10
<i>Lachnanthes caroliniana</i>	Carolina redroot	0.10
<i>Rhynchospora chapmanii</i>	Chapman's beaksedge	0.10
<i>Rhynchospora plumosa</i>	plumed beaksedge	0.10
<i>Bartonia paniculata</i>	twining screwstem	0.03
<i>Cliftonia monophylla</i>	black titi	0.03
<i>Coleataenia tenera</i>	bluejoint panicum	0.03
<i>Eragrostis pectinacea var. pectinacea</i>	tufted lovegrass	0.03
<i>Rhexia alifanus</i>	savannah meadowbeauty	0.03
<i>Rhexia lutea</i>	yellow meadowbeauty	0.03
<i>Scleria reticularis</i>	netted nutrush	0.03
Bare Ground		42.33

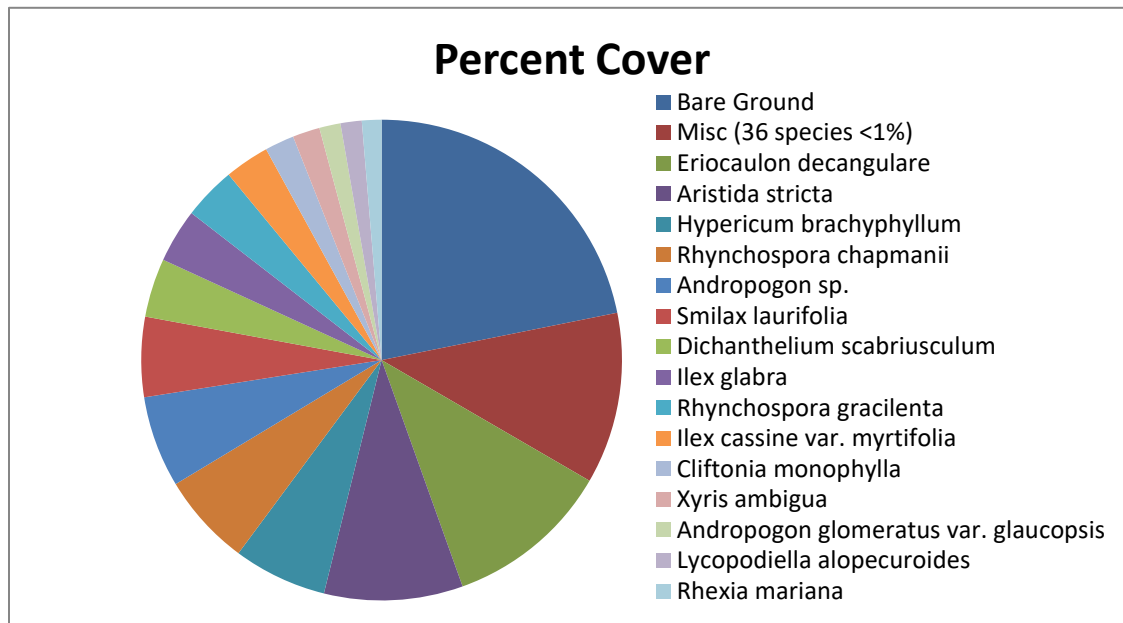


Figure BP-3. Percent of total vegetative cover for plant taxa in Transect A2.

Table BP-3. Percent cover of plant taxa in Transect A2 sampled on October 5, 2022.

Scientific name	Common name	Average percent cover per quadrat
<i>Eriocaulon decangulare</i>	tenangle pipewort	10.17
<i>Aristida stricta</i>	wiregrass	8.50
<i>Hypericum brachyphyllum</i>	coastalplain St. John's wort	5.73
<i>Rhynchospora chapmanii</i>	Chapman's beaksedge	5.67
<i>Andropogon sp.</i>	bluestem	5.60
<i>Smilax laurifolia</i>	laurel greenbrier	4.90
<i>Dichantherium scabriusculum</i>	woolly witchgrass	3.60
<i>Ilex glabra</i>	gallberry	3.30
<i>Rhynchospora gracilentia</i>	slender beaksedge	3.23
<i>Ilex cassine var. myrtifolia</i>	myrtle-leaved holly	2.73
<i>Cliftonia monophylla</i>	black titi	1.80
<i>Xyris ambigua</i>	coastalplain yellow-eyed grass	1.67
<i>Andropogon glomeratus var. glaucopsis</i>	purple bluestem	1.30
<i>Lycopodiella alopecuroides</i>	foxtail club-moss	1.30
<i>Rhexia mariana</i>	pale meadowbeauty	1.20
<i>Hypericum fasciculatum</i>	peelbark St. John's wort	0.93
<i>Dichantherium leucothrix</i>	rough witchgrass	0.73
<i>Xyris serotina</i>	acid swamp yellow-eyed grass	0.73
<i>Clethra alnifolia</i>	sweet pepperbush	0.63
<i>Dichantherium ensifolium</i>	cypress witchgrass	0.60
<i>Bidens laevis</i>	smooth beggarticks	0.50
<i>Eriocaulon compressum</i>	flattened pipewort	0.50
<i>Lophiola aurea</i>	golden crest	0.50
<i>Saccharum giganteum</i>	sugarcane plumegrass	0.50
<i>Smilax walteri</i>	coral greenbrier	0.47
<i>Xyris sp.</i>	yellow-eyed grass	0.47
<i>Coleataenia longifolia</i>	ciliate redtop panicum	0.43
<i>Fuirena breviseta</i>	saltmarsh umbrellasedge	0.37
<i>Symphyotrichum chapmanii</i>	savannah aster	0.37
<i>Tiedemannia filiformis ssp. filiformis</i>	water cowbane	0.33
<i>Kellochloa verrucosa</i>	warty panicgrass	0.30
<i>Eragrostis pectinacea var. pectinacea</i>	tufted lovegrass	0.23
<i>Rhexia alifanus</i>	savannah meadowbeauty	0.23
<i>Rhynchospora rariflora</i>	fewflower beaksedge	0.23
<i>Andropogon arctatus</i>	pinewoods bluestem	0.20
<i>Anthaenantia rufa</i>	purple silkyscale	0.20
<i>Liatris spicata</i>	dense gayfeather	0.17
<i>Rhexia petiolata</i>	fringed meadowbeauty	0.13
<i>Andropogon virginicus</i>	broomsedge bluestem	0.10
<i>Ilex cassine</i>	dahoon	0.10
<i>Sarracenia flava</i>	yellow pitcherplant	0.10
<i>Xyris stricta</i>	pineland yellow-eyed grass	0.10
<i>Lachnanthes caroliana</i>	Carolina redroot	0.07
<i>Bartonia paniculata</i>	twining screwstem	0.03
<i>Burmanna capitata</i>	southern bluethead	0.03
<i>Hypericum cistifolium</i>	roundpod St. John's wort	0.03

<i>Lobelia brevifolia</i>	shortleaf lobelia	0.03
<i>Lycopodiella caroliniana</i>	slender club-moss	0.03
<i>Scleria reticularis</i>	netted nutrush	0.03
<i>Smilax tamnoides</i>	bristly greenbrier	0.03
<i>Utricularia juncea</i>	southern bladderwort	0.03
<i>Bartonia paniculata</i>	twining screwstem	0.03
<i>Burmannia capitata</i>	southern bluethread	0.03
Bare Ground		19.90

Section B

Qualitative sampling. Section B (Figure BP-1) had a total of 105 observed plant taxa (Table BP-1). The area is a thinned pine plantation dominated by young slash pines with a basal area of around 10 ft² per acre, although a few mature trees are scattered. The shrubby understory is made up mostly of gallberry with St. Johns wort and saw palmetto common. Shrubs are around 1 meter tall. Herbs are mostly weedy bluestems, but with wiry sedges and some wiregrass. Prior bedding from silviculture activities is still apparent, with the soil disturbances creating alternating wet and dry habitats throughout the area. The area has components of both hydric and mesic pine flatwoods.

Quantitative sampling.

- Transect B1 (Table BP-4, Figure BP-4) had a total of 59 taxa with 19% average bare ground cover. Woody species made up around 23% average cover per quadrat.
- Transect B2 (Table BP-5, Figure BP-5) had a total of 30 taxa with 18% average bare ground cover. Woody species made up around 43% average cover per quadrat.

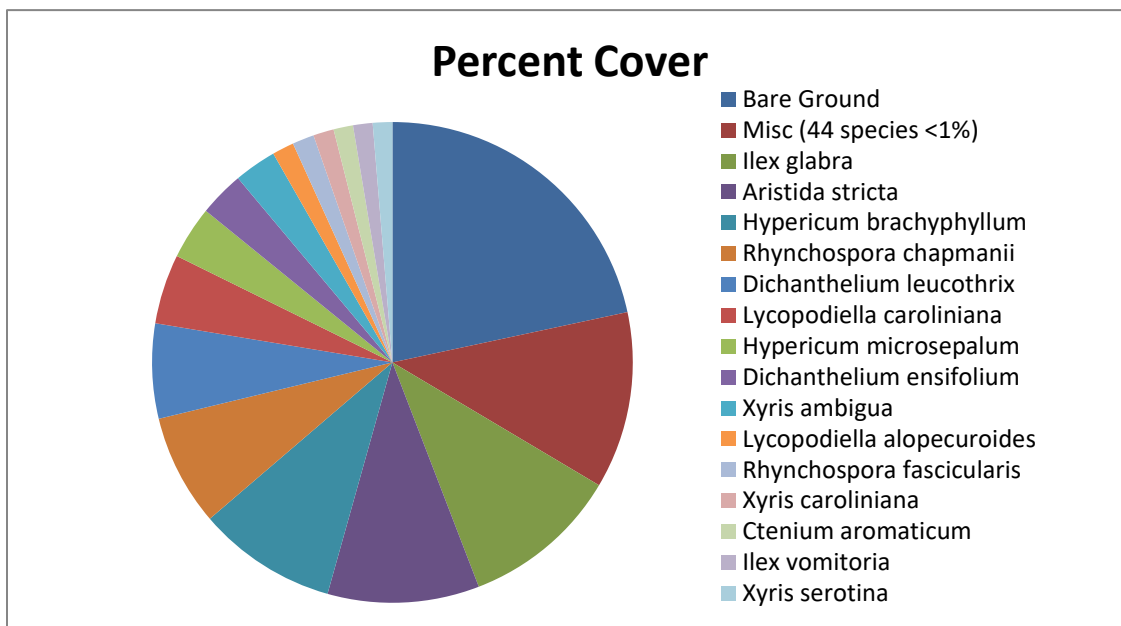


Figure BP-4. Percent of total vegetative cover for taxa in Transect B1.

Table BP-4. Percent cover of plant taxa in Transect B1 sampled on October 5, 2022.

Scientific name	Common name	Average percent cover per quadrat
<i>Ilex glabra</i>	gallberry	9.43
<i>Aristida stricta</i>	wiregrass	9.07
<i>Hypericum brachyphyllum</i>	coastalplain St. John's wort	8.33
<i>Rhynchospora chapmanii</i>	Chapman's beaksedge	6.67
<i>Dichanthelium leucothrix</i>	rough witchgrass	5.67
<i>Lycopodiella caroliniana</i>	slender club-moss	4.17
<i>Hypericum microsepalum</i>	flatwoods St. John's wort	3.17
<i>Dichanthelium ensifolium</i>	cypress witchgrass	2.70
<i>Xyris ambigua</i>	coastalplain yellow-eyed grass	2.53
<i>Lycopodiella alopecuroides</i>	foxtail club-moss	1.30
<i>Rhynchospora fascicularis</i>	fascicled beaksedge	1.30
<i>Xyris caroliniana</i>	Carolina yellow-eyed grass	1.23
<i>Ctenium aromaticum</i>	toothache grass	1.17
<i>Ilex vomitoria</i>	yaupon	1.17
<i>Xyris serotina</i>	acid swamp yellow-eyed grass	1.17
<i>Lophiola aurea</i>	golden crest	0.90
<i>Andropogon virginicus</i>	broomsedge bluestem	0.87
<i>Carphephorus pseudoliatris</i>	bristleleaf chaffhead	0.80
<i>Hypericum mutilum</i>	dwarf St. John's wort	0.73
<i>Xyris sp.</i>	yellow-eyed grass	0.57
<i>Rhynchospora plumosa</i>	plumed beaksedge	0.53
<i>Andropogon glomeratus var. glaucopsis</i>	purple bluestem	0.50
<i>Lycopodiella appressa</i>	southern club-moss	0.50
<i>Polygala ramosa</i>	low pinebarren milkwort	0.47
<i>Andropogon sp.</i>	bluestem	0.43
<i>Kelochloa verrucosa</i>	warty panicgrass	0.40
<i>Lachnanthes caroliniana</i>	Carolina redroot	0.37
<i>Helianthus radula</i>	stiff sunflower	0.33
<i>Rhexia petiolata</i>	fringed meadowbeauty	0.33
<i>Rhynchospora pusilla</i>	fairy beaksedge	0.33
<i>Quercus minima</i>	dwarf live oak	0.23
<i>Rhynchospora baldwinii</i>	Baldwin's beaksedge	0.23
<i>Sphagnum sp.</i>	sphagnum moss	0.23
<i>Helianthus heterophyllus</i>	variableleaf sunflower	0.20
<i>Dichanthelium scabriusculum</i>	woolly witchgrass	0.13
<i>Xyris flabelliformis</i>	savannah yellow-eyed grass	0.13
<i>Andropogon arctatus</i>	pinewoods bluestem	0.10
<i>Bidens mitis</i>	smallfruit beggarticks	0.10
<i>Eurybia eryngiifolia</i>	thistleleaf aster	0.10
<i>Hypericum crux-andreae</i>	St. Peter's wort	0.10
<i>Hypericum fasciculatum</i>	peelbark St. John's wort	0.10
moss		0.10
<i>Proserpinaca pectinata</i>	combleaf mermaidweed	0.10
<i>Pteridium aquilinum</i>	bracken	0.10
<i>Rhexia lutea</i>	yellow meadowbeauty	0.07
<i>Bigelovia nudata</i>	pineland rayless goldenrod	0.03

Scientific name	Common name	Average percent cover per quadrat
<i>Dichanthelium strigosum</i>	roughhair witchgrass	0.03
<i>Drosera capillaris</i>	pink sundew	0.03
<i>Eragrostis sp.</i>	lovegrass	0.03
<i>Ilex coriacea</i>	large gallberry	0.03
<i>Lachnocaulon anceps</i>	whitehead bogbutton	0.03
<i>Liatris sp.</i>	gayfeather	0.03
<i>Liatris spicata</i>	dense gayfeather	0.03
<i>Polygala hookeri</i>	Hooker's milkwort	0.03
<i>Rhexia alifanus</i>	savannah meadowbeauty	0.03
<i>Smilax walteri</i>	coral greenbrier	0.03
<i>Vaccinium myrsinites</i>	shiny blueberry	0.03
<i>Viola lanceolata</i>	bog white violet	0.03
<i>Xyris brevifolia</i>	shortleaf yellow-eyed grass	0.03
Bare Ground		19.23

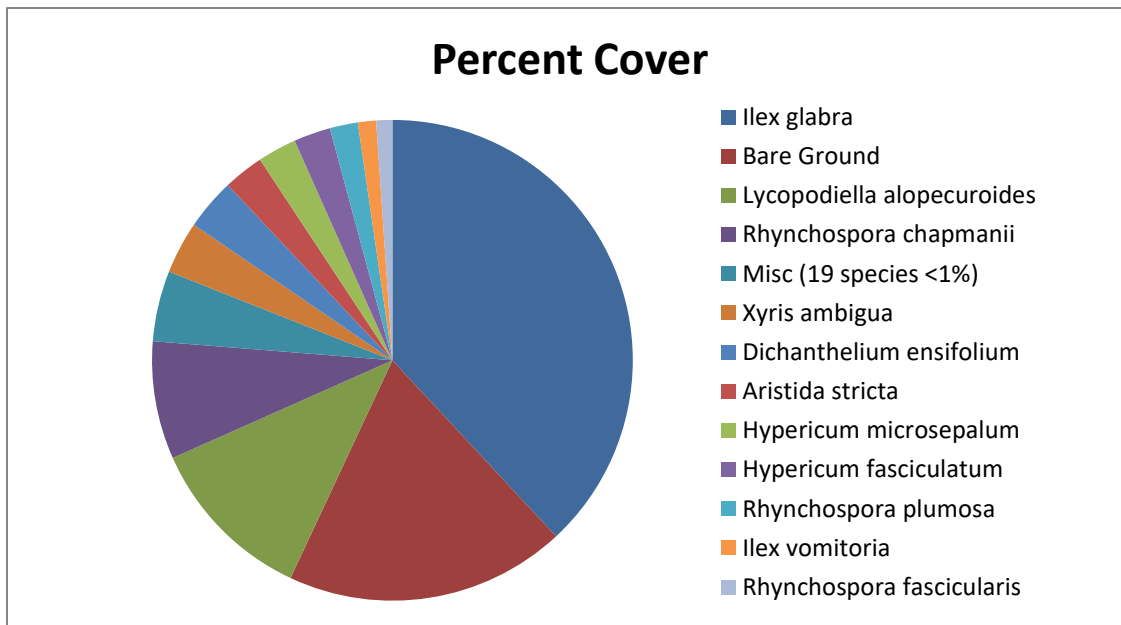


Figure BP-5. Percent of total vegetative cover for plant taxa in Transect B2.

Table BP-5. Percent cover of plant taxa in Transect B2 sampled on October 5, 2022.

Scientific name	Common name	Average percent cover per quadrat
<i>Ilex glabra</i>	gallberry	36.37
<i>Lycopodiella alopecuroides</i>	foxtail club-moss	10.87
<i>Rhynchospora chapmanii</i>	Chapman's beaksedge	7.57
<i>Xyris ambigua</i>	coastalplain yellow-eyed grass	3.37
<i>Dichanthelium ensifolium</i>	cypress witchgrass	3.30
<i>Aristida stricta</i>	wiregrass	2.60
<i>Hypericum microsepalum</i>	flatwoods St. John's wort	2.50

Scientific name	Common name	Average percent cover per quadrat
<i>Hypericum fasciculatum</i>	peelbark St. John's wort	2.37
<i>Rhynchospora plumosa</i>	plumed beaksedge	1.80
<i>Ilex vomitoria</i>	yaupon	1.17
<i>Rhynchospora fascicularis</i>	fascicled beaksedge	1.03
<i>Andropogon sp.</i>	bluestem	0.80
<i>Andropogon glomeratus var. glaucopsis</i>	purple bluestem	0.63
<i>Kelochloa verrucosa</i>	warty panicgrass	0.60
<i>Smilax laurifolia</i>	laurel greenbrier	0.37
<i>Rhynchospora baldwinii</i>	Baldwin's beaksedge	0.33
<i>Cliftonia monophylla</i>	black titi	0.23
<i>Dichantherium leucothrix</i>	rough witchgrass	0.23
<i>Hypericum cistifolium</i>	roundpod St. John's wort	0.23
<i>Lachnocaulon anceps</i>	whitehead bogbutton	0.23
moss		0.23
<i>Andropogon arctatus</i>	pinewoods bluestem	0.10
<i>Dichantherium portoricense</i>	hemlock witchgrass	0.10
<i>Gaylussacia mosieri</i>	woolly huckleberry	0.10
<i>Quercus pumila</i>	runner oak	0.10
<i>Rhexia petiolata</i>	fringed meadowbeauty	0.10
<i>Carphephorus pseudoliatris</i>	bristleleaf chaffhead	0.03
<i>Eupatorium pilosum</i>	rough boneset	0.03
<i>Liatris spicata</i>	dense gayfeather	0.03
<i>Rhexia mariana</i>	pale meadowbeauty	0.03
Bare Ground		18.03

Section C

Qualitative monitoring. Section C had a total of 72 plant taxa (Table BP-1). This area is a mix of dense grassy areas and thickets of dense titi and laurel greenbrier under a 30 to 40-foot tall canopy of young, planted slash pines that have been thinned in recent years. A few taller live oaks, myrtle-leaved hollies, swamp tupelos, and sweetbays are scattered throughout. Coarse woody debris is abundant. The rare state-threatened Curtiss' sandgrass is a dominant grass in parts of this area.

Quantitative monitoring.

- Transect C1 (Figure BP-6, Table BP-6) had a total of 40 taxa with 30% average bare ground cover. Woody species made up around 10% average cover per quadrat.
- Transect C2 (Figure BP-7, Table BP-7) had a total of 34 taxa with 35% average bare ground cover. Woody species made up around 8% average cover per quadrat.

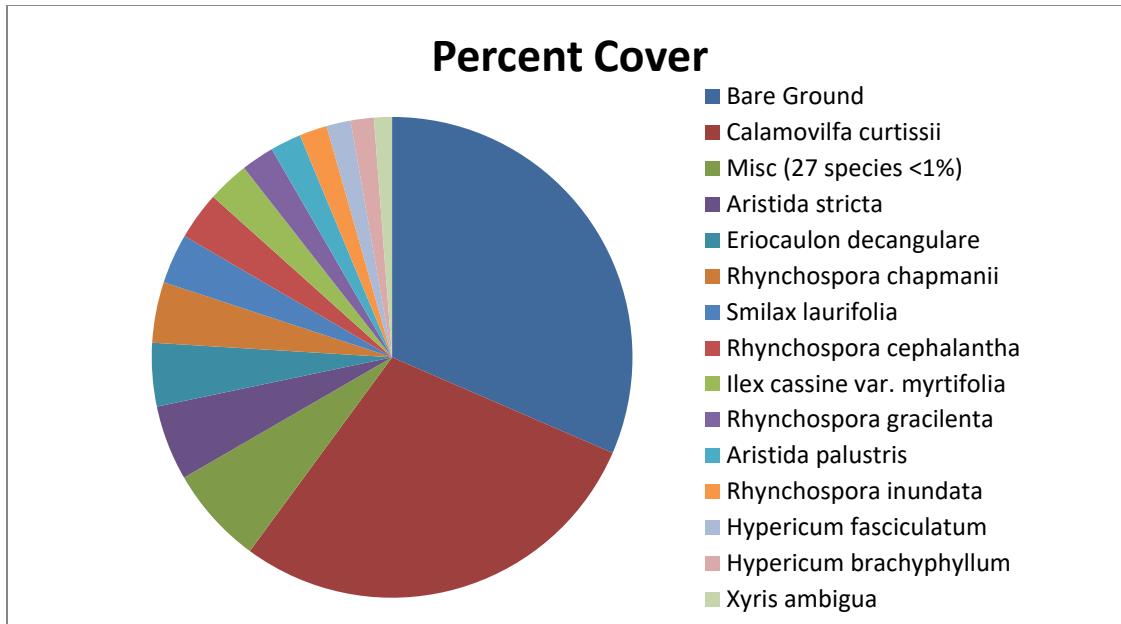


Figure BP-6. Percent cover of plant taxa in Transect C1.

Table BP-6. Percent cover of taxa in Transect C1 sampled on October 4, 2022.

Scientific name	Common name	Average percent cover per quadrat
<i>Calamovilfa curtissii</i>	Curtiss' sandgrass	27.50
<i>Aristida stricta</i>	wiregrass	4.87
<i>Eriocaulon decangulare</i>	tenangle pipewort	4.10
<i>Rhynchospora chapmanii</i>	Chapman's beaksedge	3.93
<i>Smilax laurifolia</i>	laurel greenbrier	3.23
<i>Rhynchospora cephalantha</i>	bunched beaksedge	3.10
<i>Ilex cassine var. myrtifolia</i>	myrtle-leaved holly	2.70
<i>Rhynchospora gracilentia</i>	slender beaksedge	2.13
<i>Aristida palustris</i>	longleaf threeawn	2.00
<i>Rhynchospora inundata</i>	narrowfruit horned beaksedge	1.80
<i>Hypericum fasciculatum</i>	peelbark St. John's wort	1.57
<i>Hypericum brachyphyllum</i>	coastalplain St. John's wort	1.50
<i>Xyris ambigua</i>	coastalplain yellow-eyed grass	1.17
<i>Cyrilla racemiflora</i>	titi	0.67
<i>Eriocaulon compressum</i>	flattened pipewort	0.57
<i>Andropogon glomeratus var. glaucopsis</i>	purple bluestem	0.50
<i>Clethra alnifolia</i>	sweet pepperbush	0.50
<i>Rhynchospora filifolia</i>	threadleaf beaksedge	0.50
<i>Coleataenia longifolia</i>	ciliate redtop panicum	0.47
<i>Lophiola aurea</i>	golden crest	0.40
<i>Lycopodiella alopecuroides</i>	foxtail club-moss	0.37
<i>Dichantherium ensifolium</i>	cypress witchgrass	0.30
<i>Scleria baldwinii</i>	Baldwin's nutrush	0.27
<i>Andropogon virginicus</i>	broomsedge bluestem	0.23
<i>Vaccinium corymbosum</i>	highbush blueberry	0.23

Scientific name	Common name	Average percent cover per quadrat
<i>Dichanthelium scabriusculum</i>	woolly witchgrass	0.20
<i>Lachnanthes caroliana</i>	Carolina redroot	0.20
<i>Balduina uniflora</i>	oneflower honeycomb-head	0.10
<i>Rhynchospora glomerata</i>	clustered beaksedge	0.10
<i>Rhynchospora microcarpa</i>	southern beaksedge	0.10
<i>Rhynchospora sp.</i>	beaksedge	0.10
<i>Scleria ciliata</i>	fringed nutrush	0.10
<i>Scleria reticularis</i>	netted nutrush	0.10
<i>Drosera capillaris</i>	pink sundew	0.07
<i>Pinus elliotii</i>	slash pine	0.07
<i>Taxodium ascendens</i>	pond cypress	0.07
<i>Dichanthelium sp.</i>	witchgrass	0.03
<i>Juncus scirpoides</i>	needlepod rush	0.03
<i>Kellochloa verrucosa</i>	warty panicgrass	0.03
<i>Utricularia juncea</i>	southern bladderwort	0.03
Bare Ground		30.33

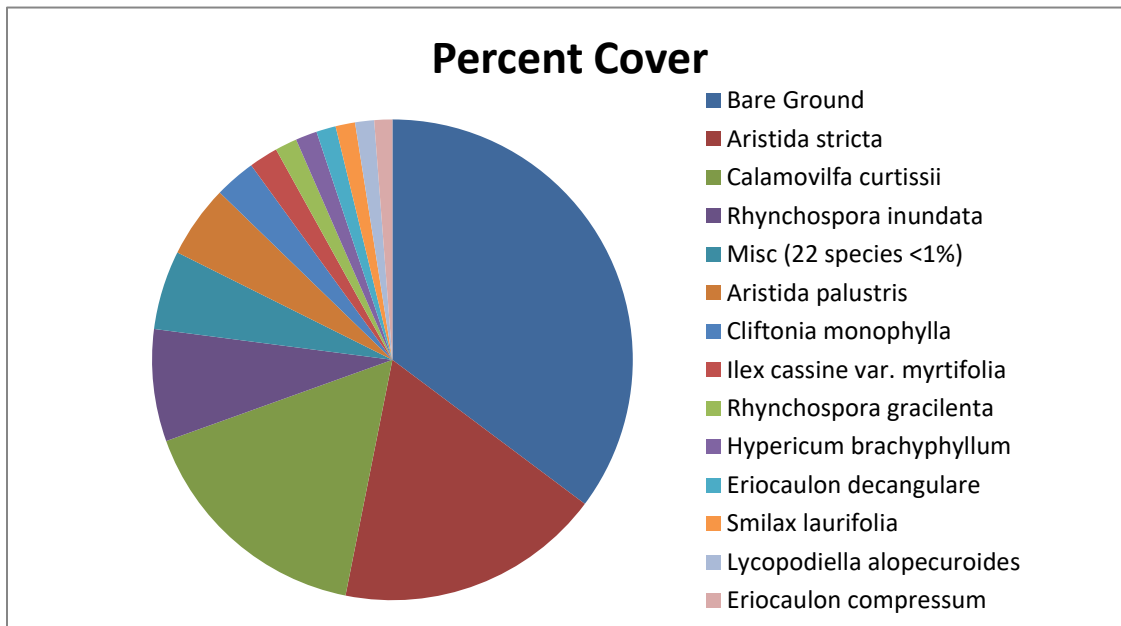


Figure BP-7. Percent cover of plant taxa in Transect C2.

Table BP-7. Percent cover of plant taxa in Transect C2 sampled on October 4, 2022.

Scientific name	Common name	Average percent cover per quadrat
<i>Aristida stricta</i>	wiregrass	17.73
<i>Calamovilfa curtissii</i>	Curtiss' sandgrass	16.23
<i>Rhynchospora inundata</i>	narrowfruit horned beaksedge	7.47
<i>Aristida palustris</i>	longleaf threeawn	4.83
<i>Cliftonia monophylla</i>	black titi	2.73
<i>Ilex cassine</i> var. <i>myrtifolia</i>	myrtle-leaved holly	1.93
<i>Rhynchospora gracilentia</i>	slender beaksedge	1.47
<i>Hypericum brachyphyllum</i>	coastalplain St. John's wort	1.43
<i>Eriocaulon decangulare</i>	tenangle pipewort	1.30
<i>Smilax laurifolia</i>	laurel greenbrier	1.30
<i>Lycopodiella alopecuroides</i>	foxtail club-moss	1.27
<i>Eriocaulon compressum</i>	flattened pipewort	1.20
<i>Rhynchospora cephalantha</i>	bunched beaksedge	0.70
<i>Rhynchospora chapmanii</i>	Chapman's beaksedge	0.70
<i>Coleataenia longifolia</i>	ciliate redtop panicum	0.67
<i>Dichantherium scabriusculum</i>	woolly witchgrass	0.60
<i>Andropogon virginicus</i>	broomsedge bluestem	0.53
<i>Lophiola aurea</i>	golden crest	0.37
<i>Xyris stricta</i>	pineland yellow-eyed grass	0.27
<i>Cyrilla racemiflora</i>	titi	0.23
<i>Hypericum fasciculatum</i>	peelbark St. John's wort	0.23
<i>Scleria reticularis</i>	netted nutrush	0.17
<i>Rhynchospora filifolia</i>	threadleaf beaksedge	0.13
<i>Hypericum myrtifolium</i>	myrtleleaf St. John's wort	0.10
<i>Rhexia alifanus</i>	savannah meadowbeauty	0.10
<i>Xyris</i> sp.	yellow-eyed grass	0.10
<i>Lachnanthes caroliana</i>	Carolina redroot	0.07
<i>Panicum hemitomom</i>	maidencane	0.07
<i>Xyris ambigua</i>	coastalplain yellow-eyed grass	0.07
<i>Rhynchospora fascicularis</i>	fascicled beaksedge	0.03
<i>Rhynchospora glomerata</i>	clustered beaksedge	0.03
<i>Rhynchospora harperi</i>	Harper's beaksedge	0.03
<i>Scleria baldwinii</i>	Baldwin's nutrush	0.03
<i>Symphyotrichum chapmanii</i>	savannah aster	0.03
Bare Ground		34.90

Section D

Qualitative monitoring. Section d had a total of 114 plant taxa (Table BP-1). This is a thinned pine plantation dominated by slash pines with a basal area of around 50 ft² per acre. Much of the groundcover is open and herbaceous, but large areas are covered by abundant titi shrubs and laurel greenbrier. Most shrubs are low, but with scattered individuals over 2 meter tall. Coarse woody debris is abundant. Vegetation is mostly remnant hydric pine flatwoods indicators, but plants typical of more mesic flatwoods are found near the road along the south side of the area.

Quantitative monitoring.

- Transect D1 (Figure BP-8, Table BP-8) had a total of 41 taxa with 18% average bare ground cover. Woody species made up around 38% average cover per quadrat.
- Transect D2 (Figure BP-9, Table BP-9) had a total of 37 taxa with 18% average bare ground cover. Woody species made up around 43% average cover per quadrat.

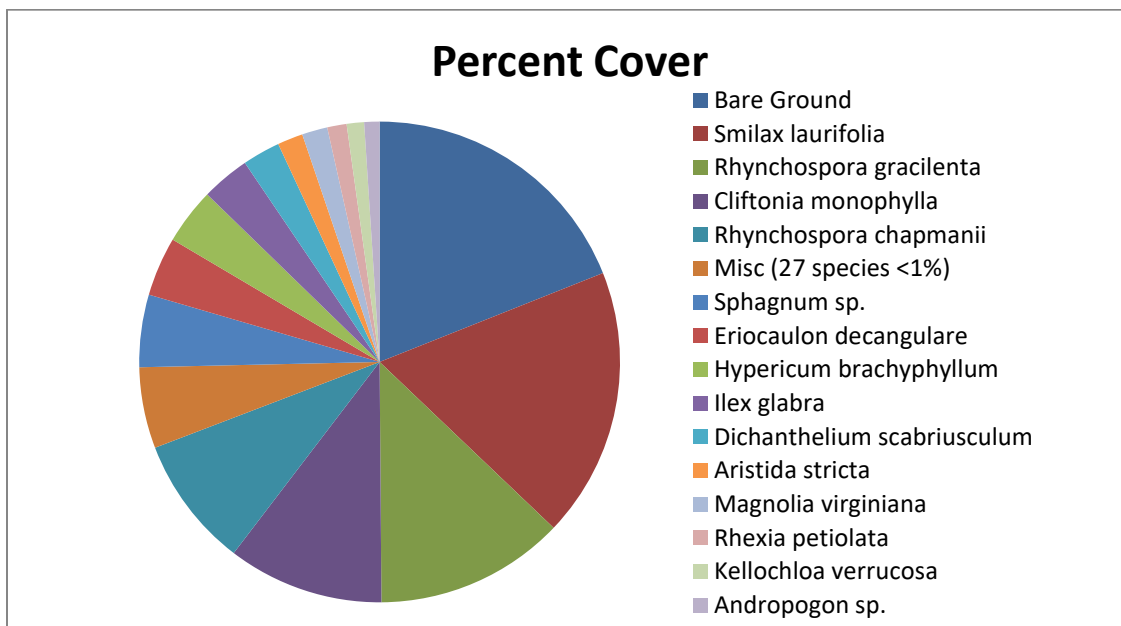


Figure BP-8. Percent cover of plant taxa in Transect D1.

Table BP-8. Percent cover of taxa in Transect D1 sampled on October 5, 2022.

Scientific name	Common name	Average percent cover per quadrat
<i>Smilax laurifolia</i>	laurel greenbrier	17.63
<i>Rhynchospora gracilentata</i>	slender beaksedge	12.40
<i>Cliftonia monophylla</i>	black titi	10.20
<i>Rhynchospora chapmanii</i>	Chapman's beaksedge	8.57
<i>Sphagnum sp.</i>	sphagnum moss	4.73
<i>Eriocaulon decangulare</i>	tenangle pipewort	3.87
<i>Hypericum brachyphyllum</i>	coastalplain St. John's wort	3.67
<i>Ilex glabra</i>	gallberry	3.17

Scientific name	Common name	Average percent cover per quadrat
<i>Dichanthelium scabriusculum</i>	woolly witchgrass	2.47
<i>Aristida stricta</i>	wiregrass	1.67
<i>Magnolia virginiana</i>	sweetbay	1.67
<i>Rhexia petiolata</i>	fringed meadowbeauty	1.27
<i>Kelochloa verrucosa</i>	warty panicgrass	1.13
<i>Andropogon sp.</i>	bluestem	1.00
<i>Rhynchospora cephalantha</i>	bunched beaksedge	0.63
<i>Eriocaulon compressum</i>	flattened pipewort	0.57
<i>Ilex coriacea</i>	large gallberry	0.57
<i>Lycopodiella caroliniana</i>	slender club-moss	0.50
<i>Andropogon glomeratus var. glaucopsis</i>	purple bluestem	0.47
<i>Lophiola aurea</i>	golden crest	0.33
<i>Anthaenantia rufa</i>	purple silkscale	0.23
<i>Gaylussacia mosieri</i>	woolly huckleberry	0.23
<i>Hypericum fasciculatum</i>	peelbark St. John's wort	0.23
<i>Morella caroliniensis</i>	evergreen bayberry	0.23
<i>Xyris serotina</i>	acid swamp yellow-eyed grass	0.20
<i>Andropogon gyrans var. stenophyllus</i>	Elliott's bluestem	0.10
<i>Andropogon virginicus</i>	broomsedge bluestem	0.10
<i>Dichanthelium sp.</i>	witchgrass	0.10
<i>Ilex cassine var. myrtifolia</i>	myrtle-leaved holly	0.10
<i>Oldenlandia uniflora</i>	clustered mille grains	0.10
<i>Scleria reticularis</i>	netted nutrush	0.10
<i>Xyris brevifolia</i>	shortleaf yellow-eyed grass	0.10
<i>Xyris stricta</i>	pineland yellow-eyed grass	0.10
<i>Bartonia paniculata</i>	twining screwstem	0.07
<i>Andropogon glomeratus</i>	bushy bluestem	0.03
<i>Dichanthelium ensifolium</i>	cypress witchgrass	0.03
<i>Drosera capillaris</i>	pink sundew	0.03
<i>Fuirena breviseta</i>	saltmarsh umbrellasedge	0.03
<i>Lachnanthes caroliana</i>	Carolina redroot	0.03
<i>Pinus elliotii</i>	slash pine	0.03
<i>Polygala lutea</i>	orange milkwort	0.03
Bare Ground		18.43

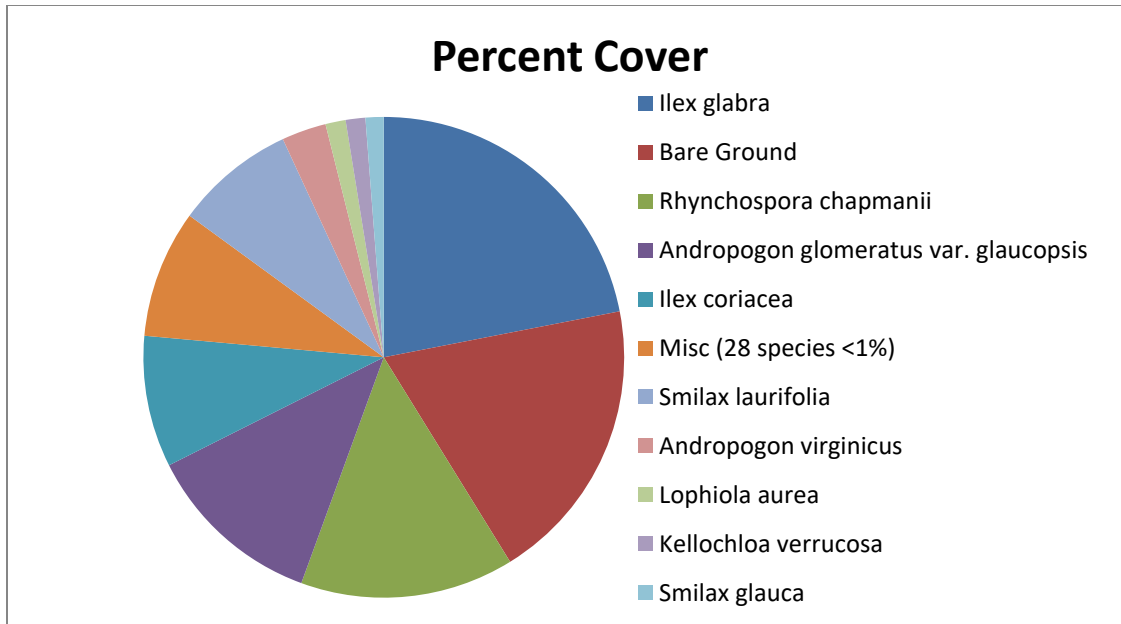


Figure BP-9. Percent cover of plant taxa in Transect D2.

Table BP-9. Percent cover of plant taxa in Transect D2 sampled on October 5, 2022.

Scientific name	Common name	Average percent cover per quadrat
<i>Ilex glabra</i>	gallberry	21.00
<i>Rhynchospora chapmanii</i>	Chapman's beaksedge	13.77
<i>Andropogon glomeratus var. glaucopsis</i>	purple bluestem	11.50
<i>Ilex coriacea</i>	large gallberry	8.47
<i>Smilax laurifolia</i>	laurel greenbrier	7.73
<i>Andropogon virginicus</i>	broomsedge bluestem	2.87
<i>Lophiola aurea</i>	golden crest	1.30
<i>Kellochloa verrucosa</i>	warty panicgrass	1.27
<i>Smilax glauca</i>	cat greenbrier	1.17
<i>Rhexia petiolata</i>	fringed meadowbeauty	0.90
<i>Hypericum cistifolium</i>	roundpod St. John's wort	0.87
<i>Morella caroliniensis</i>	evergreen bayberry	0.57
<i>Ilex cassine var. myrtifolia</i>	myrtle-leaved holly	0.53
<i>Aristida stricta</i>	wiregrass	0.50
<i>Andropogon arctatus</i>	pinewoods bluestem	0.47
<i>Clethra alnifolia</i>	sweet pepperbush	0.47
<i>Hypericum hypericoides</i>	St. Andrew's cross	0.33
<i>Hypericum mutilum</i>	dwarf St. John's wort	0.33
<i>Lachnanthes caroliana</i>	Carolina redroot	0.33
<i>Scleria ciliata</i>	fringed nutrush	0.33
<i>Andropogon glomeratus</i>	bushy bluestem	0.23
<i>Cyrilla racemiflora</i>	titi	0.23
<i>Gaylussacia mosieri</i>	woolly huckleberry	0.23
<i>Hypericum fasciculatum</i>	peelbark St. John's wort	0.23
<i>Oldenlandia uniflora</i>	clustered mille grains	0.23

<i>Pinus elliotii</i>	slash pine	0.23
<i>Smilax auriculata</i>	earleaf greenbrier	0.23
<i>Hypericum brachyphyllum</i>	coastalplain St. John's wort	0.20
<i>Pteridium aquilinum</i>	bracken	0.13
<i>Rhynchospora ciliaris</i>	fringed beaksedge	0.13
<i>Aronia arbutifolia</i>	red chokeberry	0.10
<i>Dichantherium ensifolium</i>	cypress witchgrass	0.10
<i>Eriocaulon compressum</i>	flattened pipewort	0.10
<i>Scleria reticularis</i>	netted nutrush	0.10
<i>Hypericum microsepalum</i>	flatwoods St. John's wort	0.03
<i>Vitis rotundifolia</i>	muscadine	0.03
<i>Xyris ambigua</i>	coastalplain yellow-eyed grass	0.03
Bare Ground		18.43

Shrub Quadrats

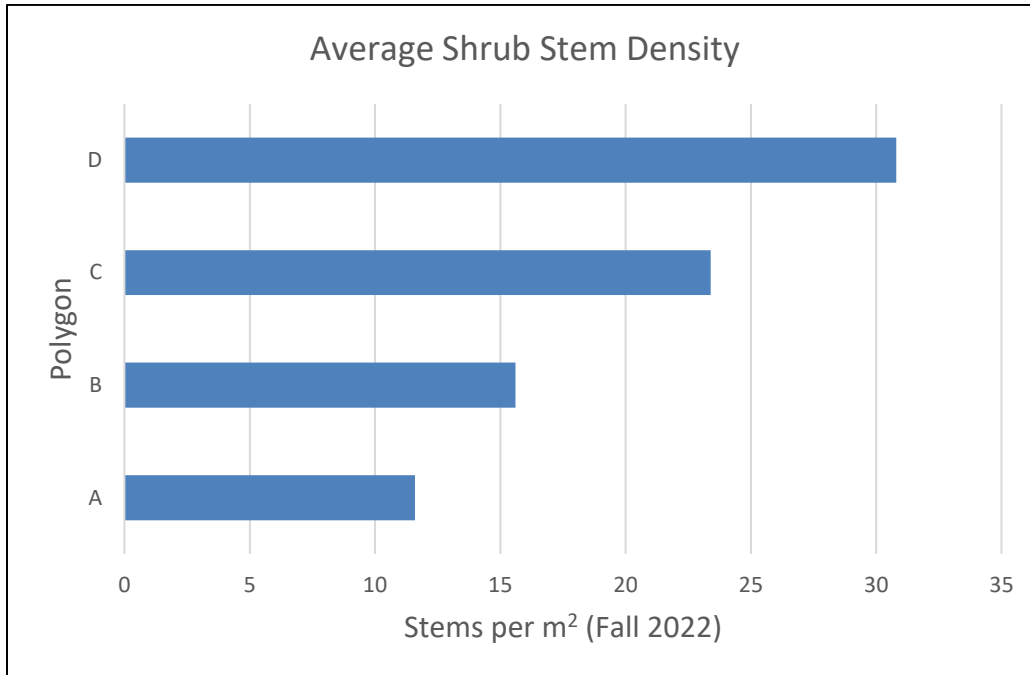


Figure BP-10. Average Rooted Shrub Stems per Square Meter (Fall 2022)

Table BP-10. Rooted Shrub Stems per Square Meter (Fall 2022)

Polygon A		Polygon B		Polygon C		Polygon D	
Shrub Quadrat	Shrub Stems per m ²	Shrub Quadrat	Shrub Stems per m ²	Shrub Quadrat	Shrub Stems per m ²	Shrub Quadrat	Shrub Stems per m ²
1	15	1	16	1	32	1	48
2	5	2	18	2	9	2	40
3	8	3	26	3	43	3	19
4	18	4	7	4	0	4	23
5	12	5	11	5	33	5	24
AVG Stems per m ²	11.6	AVG Stems per m ²	15.6	AVG Stems per m ²	23.4	AVG Stems per m ²	30.8

SACRED HEART MITIGATION SITE

Qualitative and Quantitative Monitoring

October 2022

Sacred Heart Mitigation Site
USACE Permit #SAJ-1998-4720 IP-RVH
Qualitative and Quantitative Monitoring
October 2022

INTRODUCTION

The Sacred Heart Mitigation Site project compensates for impacts to jurisdictional wetlands associated with the construction of Sacred Heart Hospital near the intersection of US 98 and Mack Bayou Road in Walton County. The goal of this mitigation is to restore 82 acres of hydric pine flatwoods at Devils Swamp, an area that is owned and managed for ecological integrity by the Northwest Florida Water Management District (NFWFMD) and is part of the Choctawhatchee River Water Management Area. The offsite mitigation area is located approximately 15 miles east of the impact along an unnamed dirt road east of the unincorporated community of Bunker (Figure 1). Prior to NFWFMD acquisition in 1992, the Devils Swamp site had been converted to slash pine plantation.

The mitigation area is divided into two polygons. According to NFWFMD, mitigation activities implemented-to-date include 1) baseline monitoring (November 2017), 2) prescribed fire (February 2018), 3) herbicide treatment of shrubs (September 2019), 4) repeat panoramic photography (March 2018, September 2018, September 2019, October 2020), and 5) post-baseline quantitative vegetation monitoring (April 2018, March 2019, October 2019, November 2020, October 2021).

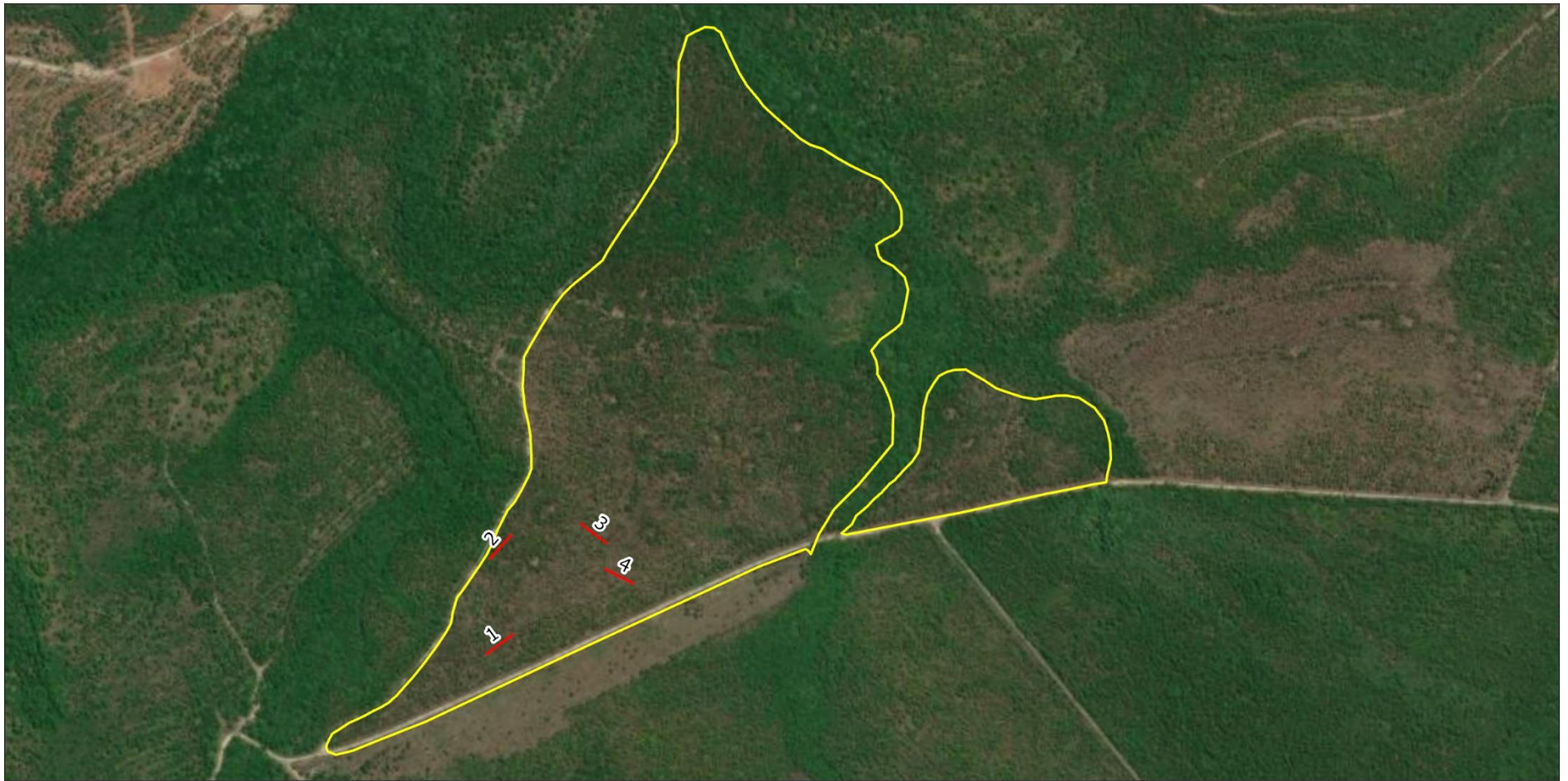
Quantitative and qualitative monitoring was used to document the current plant species composition and vegetation structure of these targeted areas. The site vegetation was previously monitored by FNAI biologists in Fall 2021. Data that year were given directly to NFWFMD for analysis.

METHODS

Percent vegetation cover was measured in 1 m² quadrats (10-foot intervals) along four 150-foot transects in October 2022 (Figure SH-1). Along each transect line, eight 1m x 1m quadrats were placed along the left side, beginning at 10 feet and then spaced every 10 feet thereafter. Data recorded in each quadrat consisted of the visually estimated percent cover of each plant species, including individuals rooted in the quadrat as well as overhanging. Canopy over 2 m in height was excluded from cover estimates. Only the lower 2 m portions of larger individuals were counted as cover, including the lower portions of tree trunks rooted in quadrats. Bare ground was estimated in each quadrat as a percentage of ground not obscured by plant cover or large woody debris.

Rooted shrub stem density was monitored using five 1 m² quadrats established at random (Table SH-6).

The qualitative monitoring consisted of recording the species and vegetation structure observed along meandering pedestrian transects throughout the mitigation site. Field surveys were performed by FNAI botanists Jenna Annis and Camille Eckel on October 5, 2022.



Sacred Heart Mitigation Site Vegetation Monitoring

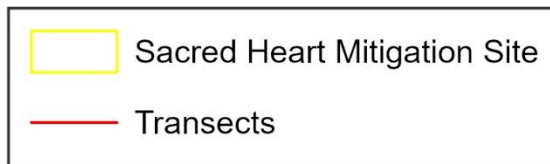


Figure SH-1. Location of transects at Sacred Heart Mitigation Site.

RESULTS AND DISCUSSION

A total of 124 plant taxa were recorded in the surveyed area of Sacred Heart Mitigation Site during the 2022 monitoring period (Table SH-1). Twelve new taxa were found during the 2022 monitoring, i.e., species or varieties not observed during a quantitative survey in Fall 2021.

Table SH-1. Species observed at Sacred Heart Mitigation Site, October 5, 2022. (bold name = new species)

Scientific Name	Common Name	
<i>Andropogon arctatus</i>	pinewoods bluestem	X
<i>Andropogon glomeratus</i> var. <i>glaucoptis</i>	purple bluestem	X
<i>Andropogon</i> sp.	bluestem	X
<i>Andropogon virginicus</i>	broomsedge bluestem	X
<i>Andropogon virginicus</i> var. <i>glaucus</i>	chalky bluestem	X
<i>Aristida palustris</i>	longleaf threeawn	X
<i>Aristida spiciformis</i>	bottlebrush threeawn	X
<i>Aristida stricta</i>	wiregrass	X
<i>Aronia arbutifolia</i>	red chokeberry	X
<i>Balduina uniflora</i>	oneflower honeycomb-head	X
<i>Calamovilfa curtissii</i>	Curtiss' sandgrass	X
<i>Callicarpa americana</i>	American beautyberry	X
<i>Clethra alnifolia</i>	sweet pepperbush	X
<i>Cliftonia monophylla</i>	black titi	X
<i>Coleataenia anceps</i>	beaked panicum	X
<i>Coleataenia longifolia</i>	ciliate redtop panicum	X
<i>Conyza canadensis</i>	Canadian horseweed	X
<i>Ctenium aromaticum</i>	toothache grass	X
<i>Cyrilla racemiflora</i>	titi	X
<i>Dichanthelium ensifolium</i>	cypress witchgrass	X
<i>Dichanthelium leucothrix</i>	rough witchgrass	X
<i>Dichanthelium ovale</i>	eggleaf witchgrass	X
<i>Dichanthelium portoricense</i>	hemlock witchgrass	X
<i>Dichanthelium scabriusculum</i>	woolly witchgrass	X
<i>Dichanthelium strigosum</i>	roughhair witchgrass	X
<i>Diodia teres</i>	poor joe	X
<i>Diospyros virginiana</i>	common persimmon	X
<i>Drosera capillaris</i>	pink sundew	X
<i>Elephantopus elatus</i>	tall elephantsfoot	X
<i>Eragrostis elliotii</i>	Elliott's lovegrass	X
<i>Erechtites hieraciifolius</i>	fireweed	X
<i>Eriocaulon decangulare</i>	tenangle pipewort	X
<i>Eupatorium capillifolium</i>	dogfennel	X
<i>Eupatorium compositifolium</i>	yankeeweed	X

Scientific Name	Common Name	
<i>Eupatorium mohrii</i>	Mohr's thoroughwort	X
<i>Eupatorium pilosum</i>	rough boneset	X
<i>Eupatorium rotundifolium</i>	roundleaf thoroughwort	X
<i>Euthamia caroliniana</i>	slender flattop goldenrod	X
<i>Fuirena breviseta</i>	saltmarsh umbrellasedge	X
<i>Gaylussacia dumosa</i>	dwarf huckleberry	X
<i>Gaylussacia frondosa</i> var. <i>tomentosa</i>	blue huckleberry	X
<i>Gaylussacia mosieri</i>	woolly huckleberry	X
<i>Hypericum brachyphyllum</i>	coastalplain St. John's wort	X
<i>Hypericum cistifolium</i>	roundpod St. John's wort	X
<i>Hypericum fasciculatum</i>	peelbark St. John's wort	X
<i>Hypericum gentianoides</i>	orangegrass	X
<i>Hypericum microsepalum</i>	flatwoods St. John's wort	X
<i>Hypericum tetrapetalum</i>	fourpetal St. John's wort	X
<i>Ilex coriacea</i>	large gallberry	X
<i>Ilex glabra</i>	gallberry	X
<i>Ilex cassine</i> var. <i>myrtifolia</i>	myrtle-leaved holly	X
<i>Ilex vomitoria</i>	yaupon	X
<i>Juncus scirpoides</i>	needlepod rush	X
<i>Kelloggloa verrucosa</i>	warty panicgrass	X
<i>Lachnanthes caroliniana</i>	Carolina redroot	X
<i>Lachnocaulon anceps</i>	whitehead bogbutton	X
<i>Liatis gracilis</i>	slender gayfeather	X
<i>Lilium</i> sp.	lily	X
<i>Liquidambar styraciflua</i>	sweetgum	X
<i>Lobelia brevifolia</i>	shortleaf lobelia	X
<i>Lophiola aurea</i>	golden crest	X
<i>Ludwigia</i> sp.	primrosewillow	X
<i>Lycopodiella alopecuroides</i>	foxtail club-moss	X
<i>Lycopodiella appressa</i>	southern club-moss	X
<i>Lycopodiella caroliniana</i>	slender club-moss	X
<i>Magnolia virginiana</i>	sweetbay	X
<i>Mitreola sessilifolia</i>	swamp hornpod	X
<i>Morella cerifera</i>	southern bayberry	X
<i>Nyssa biflora</i>	swamp tupelo	X
<i>Oldenlandia uniflora</i>	clustered mille grains	X
<i>Osmunda cinnamomea</i>	cinnamon fern	X
<i>Osmunda regalis</i> var. <i>spectabilis</i>	royal fern	X
<i>Persea palustris</i>	swamp bay	X
<i>Pinus elliotii</i>	slash pine	X
<i>Polygala brevifolia</i>	littleleaf milkwort	X
<i>Polygala cruciata</i>	drumheads	X
<i>Polygala cymosa</i>	tall pinebarren milkwort	X

Scientific Name	Common Name	
<i>Polygala lutea</i>	orange milkwort	X
<i>Polypremum procumbens</i>	rustweed	X
<i>Proserpinaca pectinata</i>	combleaf mermaidweed	X
<i>Pseudognaphalium obtusifolium</i>	sweet everlasting	X
<i>Pteridium aquilinum</i>	bracken fern	X
<i>Quercus hemisphaerica</i>	laurel oak	X
<i>Quercus minima</i>	dwarf live oak	X
<i>Quercus nigra</i>	water oak	X
<i>Quercus pumila</i>	runner oak	X
<i>Quercus virginiana</i>	live oak	X
<i>Rhexia alifanus</i>	savannah meadowbeauty	X
<i>Rhexia mariana</i>	pale meadowbeauty	X
<i>Rhexia petiolata</i>	fringed meadowbeauty	X
<i>Rhexia virginica</i>	handsome harry	X
<i>Rhus copallinum</i>	winged sumac	X
<i>Rhynchospora baldwinii</i>	Baldwin's beaksedge	X
<i>Rhynchospora cephalantha</i>	bunched beaksedge	X
<i>Rhynchospora chalarocephala</i>	loosehead beaksedge	X
<i>Rhynchospora chapmanii</i>	Chapman's beaksedge	X
<i>Rhynchospora ciliaris</i>	fringed beaksedge	X
<i>Rhynchospora fascicularis</i>	fascicled beaksedge	X
<i>Rhynchospora gracilentia</i>	slender beaksedge	X
<i>Rhynchospora plumosa</i>	plumed beaksedge	X
<i>Rubus cuneifolius</i>	sand blackberry	X
<i>Rubus pensilvanicus</i>	sawtooth blackberry	X
<i>Sabatia brevifolia</i>	shortleaf rosegentian	X
<i>Sarracenia flava</i>	yellow pitcherplant	X
<i>Scleria reticularis</i>	netted nutrush	X
<i>Scleria triglomerata</i>	whip nutrush	X
<i>Serenoa repens</i>	saw palmetto	X
<i>Setaria parviflora</i>	knotroot foxtail	X
<i>Seymeria cassioides</i>	yaupon blacksenna	X
<i>Smilax auriculata</i>	earleaf greenbrier	X
<i>Smilax glauca</i>	cat greenbrier	X
<i>Smilax laurifolia</i>	laurel greenbrier	X
<i>Smilax pumila</i>	sarsaparilla vine	X
<i>Sophronanthe hispida</i>	rough hedgehyssop	X
<i>Utricularia juncea</i>	southern bladderwort	X
<i>Vaccinium corymbosum</i>	highbush blueberry	X
<i>Vaccinium elliotii</i>	Elliott's blueberry	X
<i>Vaccinium myrsinites</i>	shiny blueberry	X
<i>Vitis rotundifolia</i>	muscadine	X
<i>Xyris ambigua</i>	coastalplain yellow-eyed grass	X

Scientific Name	Common Name	
<i>Xyris baldwiniana</i>	Baldwin's yellow-eyed grass	X
<i>Xyris brevifolia</i>	shortleaf yellow-eyed grass	X
<i>Xyris flabelliformis</i>	savannah yellow-eyed grass	X
<i>Xyris sp.</i>	yellow-eyed grass	X
Total number of taxa: 124		

Qualitative sampling. A total of 124 plant taxa were identified at this site in 2022 (Table SH-1). This is a pine plantation in various stages of thinning. Slash pines are young with basal areas ranging from 10-30 ft² per acre up to 150-200 ft² per acre, depending on how much canopy reduction has taken place. There is heavy soil disturbance from past bedding plus scattered low artificial mounds. There are patches of dense, tall titi shrubs, but otherwise, shrubs are around 1 meter or shorter, mostly gallberry, black tit, and woolly huckleberry. Herbs are primarily weedy bluestems with a mix of other mostly graminoids. Laurel greenbrier is found throughout, forming some thick patches.

Quantitative sampling.

- Transect 1 (Figure SH-2, Table SH-2) had a total of 34 taxa with 30% average bare ground cover. Woody species made up around 24% average cover per quadrat.
- Transect 2 (Table SH-3, Figure SH-3) had a total of 49 taxa with 51% average bare ground cover. Woody species made up around 21% average cover per quadrat.
- Transect 3 (Table SH-4, Figure SH-4) had a total of 40 taxa with 17% average bare ground cover. Woody species made up around 46% average cover per quadrat.
- Transect 4 (Table SH-5, Figure SH-5) had a total of 41 taxa with 15% average bare ground cover. Woody species made up around 28% average cover per quadrat.

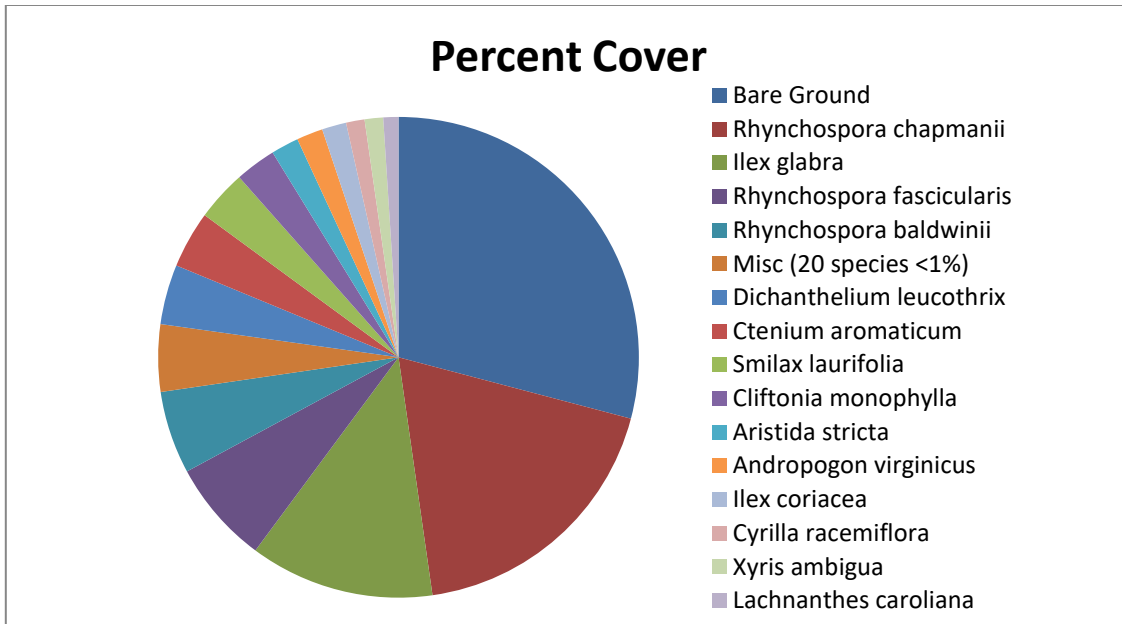


Figure SH-2. Percent cover of plant taxa in Transect 1.

Table SH-2. Percent cover of plant taxa in Transect 1 sampled on October 5, 2022.

Scientific name	Common name	Average percent cover per quadrat
<i>Rhynchospora chapmanii</i>	Chapman's beaksedge	18.97
<i>Ilex glabra</i>	gallberry	12.63
<i>Rhynchospora fascicularis</i>	fascicled beaksedge	7.10
<i>Rhynchospora baldwinii</i>	Baldwin's beaksedge	5.67
<i>Dichanthelium leucothrix</i>	rough witchgrass	4.10
<i>Ctenium aromaticum</i>	toothache grass	3.90
<i>Smilax laurifolia</i>	laurel greenbrier	3.47
<i>Cliftonia monophylla</i>	black titi	2.80
<i>Aristida stricta</i>	wiregrass	1.90
<i>Andropogon virginicus</i>	broomsedge bluestem	1.80
<i>Ilex coriacea</i>	large gallberry	1.67
<i>Cyrilla racemiflora</i>	titi	1.27
<i>Xyris ambigua</i>	coastalplain yellow-eyed grass	1.27
<i>Lachnanthes caroliana</i>	Carolina redroot	1.03
<i>Hypericum brachyphyllum</i>	coastalplain St. John's wort	0.97
<i>Andropogon glomeratus var. glaucopsis</i>	purple bluestem	0.73
<i>Hypericum microsepalum</i>	flatwoods St. John's wort	0.60
<i>Gaylussacia dumosa</i>	dwarf huckleberry	0.50
<i>Dichanthelium scabriusculum</i>	woolly witchgrass	0.30
<i>Gaylussacia mosieri</i>	woolly huckleberry	0.23
<i>Xyris brevifolia</i>	shortleaf yellow-eyed grass	0.23
<i>Eriocaulon decangulare</i>	tenangle pipewort	0.20
<i>Rhexia petiolata</i>	fringed meadowbeauty	0.13
<i>Hypericum cistifolium</i>	roundpod St. John's wort	0.10
<i>Lycopodiella alopecuroides</i>	foxtail club-moss	0.10

Scientific name	Common name	Average percent cover per quadrat
<i>Rhexia alifanus</i>	savannah meadowbeauty	0.10
<i>Smilax glauca</i>	cat greenbrier	0.10
<i>Xyris baldwiniana</i>	Baldwin's yellow-eyed grass	0.10
<i>Andropogon sp.</i>	bluestem	0.03
<i>Coleataenia longifolia</i>	ciliate redtop panicum	0.03
<i>Drosera capillaris</i>	pink sundew	0.03
<i>Kelochloa verrucosa</i>	warty panicgrass	0.03
<i>Lophiola aurea</i>	golden crest	0.03
<i>Oldenlandia uniflora</i>	clustered mille grains	0.03
Bare Ground		29.63

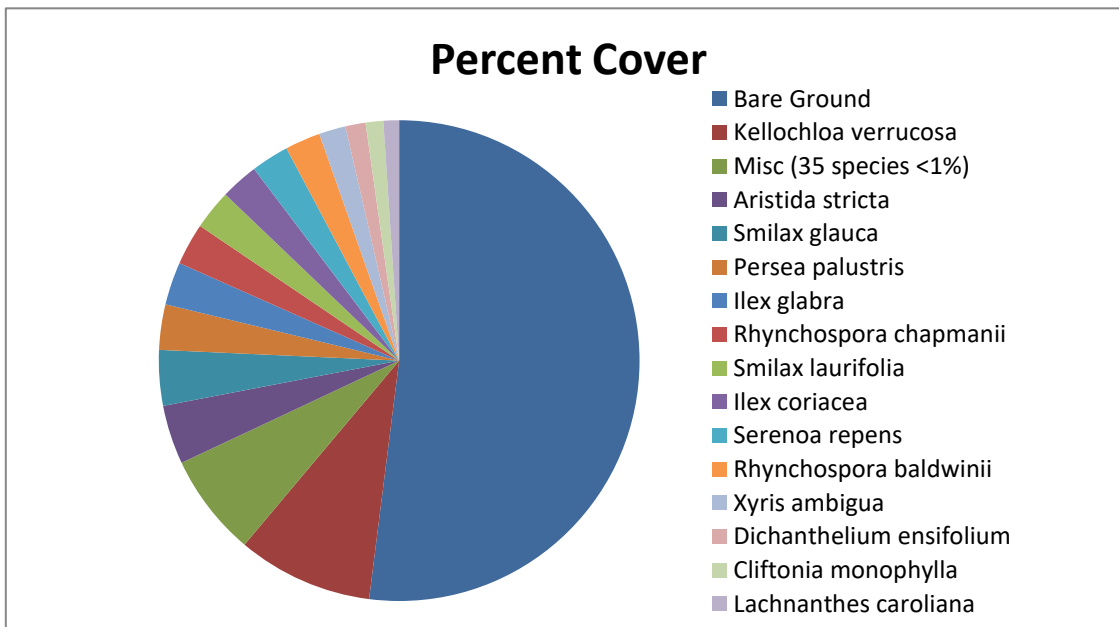


Figure SH-3. Percent cover of plant taxa in Transect 2.

Table SH-3. Percent cover of plant taxa in Transect 2 sampled on October 5, 2022.

Scientific name	Common name	Average percent cover per quadrat
<i>Kelochloa verrucosa</i>	warty panicgrass	8.97
<i>Aristida stricta</i>	wiregrass	3.90
<i>Smilax glauca</i>	cat greenbrier	3.67
<i>Persea palustris</i>	swamp bay	3.00
<i>Ilex glabra</i>	gallberry	2.83
<i>Rhynchospora chapmanii</i>	Chapman's beaksedge	2.77
<i>Smilax laurifolia</i>	laurel greenbrier	2.63
<i>Ilex coriacea</i>	large gallberry	2.50
<i>Serenoa repens</i>	saw palmetto	2.50
<i>Rhynchospora baldwinii</i>	Baldwin's beaksedge	2.33
<i>Xyris ambigua</i>	coastalplain yellow-eyed grass	1.77

Scientific name	Common name	Average percent cover per quadrat
<i>Dichanthelium ensifolium</i>	cypress witchgrass	1.33
<i>Cliftonia monophylla</i>	black titi	1.17
<i>Lachnanthes caroliniana</i>	Carolina redroot	1.03
<i>Lachnocaulon anceps</i>	whitehead bogbutton	0.80
<i>Dichanthelium portoricense</i>	hemlock witchgrass	0.50
<i>Rhynchospora cephalantha</i>	bunched beaksedge	0.47
<i>Andropogon glomeratus var. glaucopsis</i>	purple bluestem	0.33
<i>Dichanthelium leucothrix</i>	rough witchgrass	0.33
<i>Hypericum tetrapetalum</i>	fourpetal St. John's wort	0.33
<i>Hypericum brachyphyllum</i>	coastalplain St. John's wort	0.27
<i>Rhexia petiolata</i>	fringed meadowbeauty	0.27
<i>Ctenium aromaticum</i>	toothache grass	0.23
<i>Dichanthelium scabriusculum</i>	woolly witchgrass	0.23
<i>Gaylussacia dumosa</i>	dwarf huckleberry	0.23
<i>Quercus minima</i>	dwarf live oak	0.23
<i>Rhexia mariana</i>	pale meadowbeauty	0.23
<i>Smilax pumila</i>	sarsaparilla vine	0.23
<i>Hypericum cistifolium</i>	roundpod St. John's wort	0.20
<i>Oldenlandia uniflora</i>	clustered mille grains	0.20
<i>Xyris sp.</i>	yellow-eyed grass	0.17
<i>Andropogon arctatus</i>	pinewoods bluestem	0.13
<i>Aronia arbutifolia</i>	red chokeberry	0.10
<i>Balduina uniflora</i>	oneflower honeycomb-head	0.10
<i>Eriocaulon decangulare</i>	tenangle pipewort	0.10
<i>Hypericum microsepalum</i>	flatwoods St. John's wort	0.10
<i>Ilex vomitoria</i>	yaupon	0.10
<i>Quercus hemisphaerica</i>	laurel oak	0.10
<i>Rhynchospora fascicularis</i>	fascicled beaksedge	0.10
<i>Rubus pensilvanicus</i>	sawtooth blackberry	0.10
<i>Scleria reticularis</i>	netted nutrush	0.10
<i>Vaccinium elliotii</i>	Elliott's blueberry	0.10
<i>Coleataenia anceps</i>	beaked panicum	0.07
<i>Hypericum myrtifolium</i>	myrtleleaf St. John's wort	0.07
<i>Pinus elliotii</i>	slash pine	0.07
<i>Rhexia alifanus</i>	savannah meadowbeauty	0.07
<i>Eupatorium mohrii</i>	Mohr's thoroughwort	0.03
<i>Gaylussacia mosieri</i>	woolly huckleberry	0.03
<i>Ludwigia sp.</i>	primrosewillow	0.03
Bare Ground		51.10

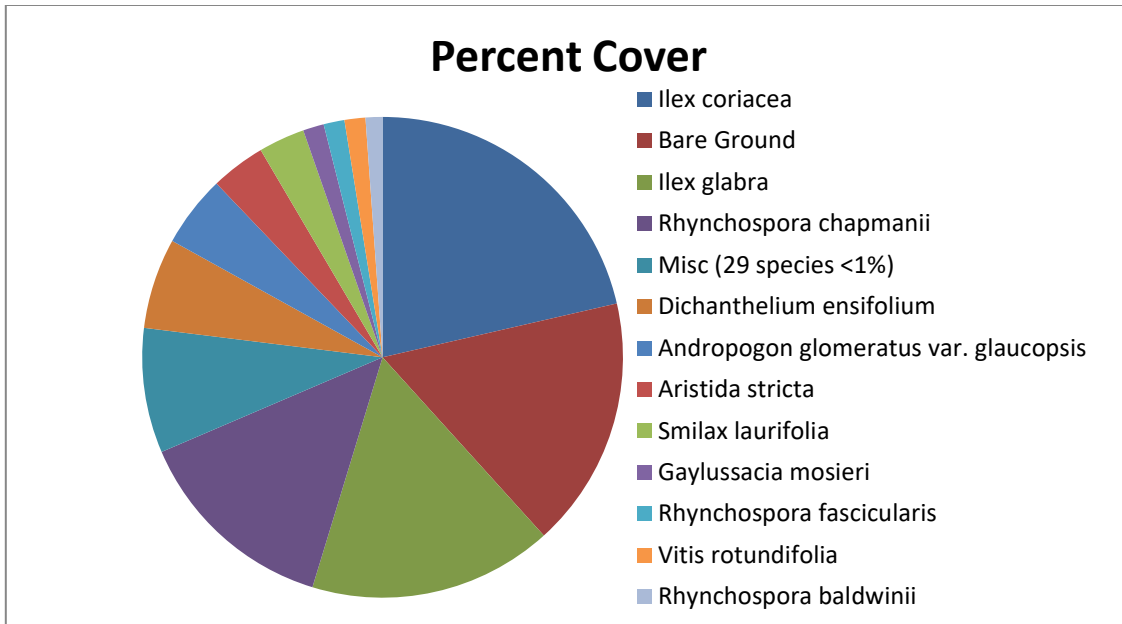


Figure SH-4. Percent cover of plant species in Transect 3.

Table SH-4. Percent cover of plant species in Transect 3 sampled on October 5, 2022.

Scientific name	Common name	Average percent cover per quadrat
<i>Ilex coriacea</i>	large gallberry	21.33
<i>Ilex glabra</i>	gallberry	16.37
<i>Rhynchospora chapmanii</i>	Chapman's beaksedge	13.80
<i>Dichanthelium ensifolium</i>	cypress witchgrass	6.07
<i>Andropogon glomeratus var. glaucopsis</i>	purple bluestem	4.80
<i>Aristida stricta</i>	wiregrass	3.67
<i>Smilax laurifolia</i>	laurel greenbrier	3.10
<i>Gaylussacia mosieri</i>	woolly huckleberry	1.40
<i>Rhynchospora fascicularis</i>	fascicled beaksedge	1.40
<i>Vitis rotundifolia</i>	muscadine	1.40
<i>Rhynchospora baldwinii</i>	Baldwin's beaksedge	1.13
<i>Xyris ambigua</i>	coastalplain yellow-eyed grass	0.93
<i>Lycopodiella alopecuroides</i>	foxtail club-moss	0.73
<i>Smilax glauca</i>	cat greenbrier	0.67
<i>Lachnanthes carolina</i>	Carolina redroot	0.63
<i>Andropogon virginicus</i>	broomsedge bluestem	0.60
<i>Eragrostis elliottii</i>	Elliott's lovegrass	0.50
<i>Serenoa repens</i>	saw palmetto	0.50
<i>Dichanthelium scabriusculum</i>	woolly witchgrass	0.47
<i>Kelochloa verrucosa</i>	warty panicgrass	0.47
<i>Lachnocaulon anceps</i>	whitehead bogbutton	0.33
<i>Smilax pumila</i>	sarsaparilla vine	0.27
<i>Andropogon virginicus var. glaucus</i>	chalky bluestem	0.23
<i>Coleataenia longifolia</i>	ciliate redtop panicum	0.23
<i>Eriocaulon decangulare</i>	tenangle pipewort	0.23

Scientific name	Common name	Average percent cover per quadrat
<i>Hypericum fasciculatum</i>	peelbark St. John's wort	0.23
<i>Xyris baldwiniana</i>	Baldwin's yellow-eyed grass	0.23
<i>Hypericum microsepalum</i>	flatwoods St. John's wort	0.17
<i>Rhexia alifanus</i>	savannah meadowbeauty	0.17
<i>Coleataenia anceps</i>	beaked panicum	0.10
<i>Dichantherium leucothrix</i>	rough witchgrass	0.10
<i>Dichantherium portoricense</i>	hemlock witchgrass	0.10
<i>Dichantherium strigosum</i>	roughhair witchgrass	0.10
<i>Hypericum brachyphyllum</i>	coastalplain St. John's wort	0.10
<i>Lophiola aurea</i>	golden crest	0.10
<i>Andropogon sp.</i>	bluestem	0.03
<i>Ctenium aromaticum</i>	toothache grass	0.03
<i>Juncus scirpoides</i>	needlepod rush	0.03
<i>Pinus elliotii</i>	slash pine	0.03
<i>Rhexia petiolata</i>	fringed meadowbeauty	0.03
Bare Ground		16.83

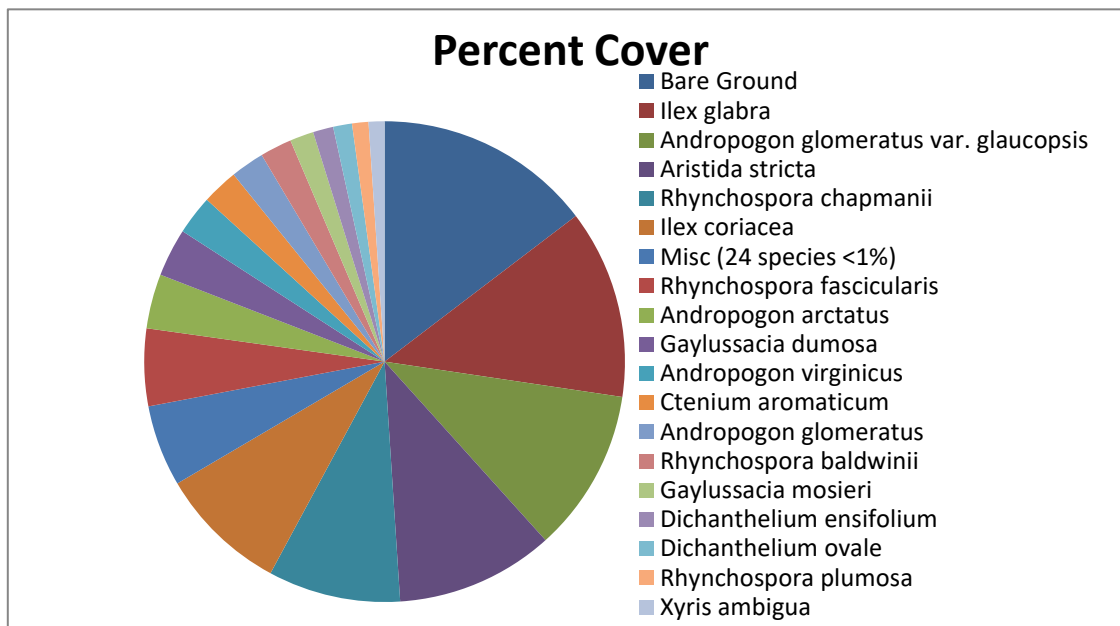


Figure SH-5. Percent cover of plant species in Transect 4.

Table SH-5. Percent cover of plant species in Transect 4 sampled on October 5, 2022.

Scientific name	Common name	Average percent cover per quadrat
<i>Ilex glabra</i>	gallberry	12.70
<i>Andropogon glomeratus var. glaucopsis</i>	purple bluestem	10.97
<i>Aristida stricta</i>	wiregrass	10.63
<i>Rhynchospora chapmanii</i>	Chapman's beaksedge	8.90
<i>Ilex coriacea</i>	large gallberry	8.67

Scientific name	Common name	Average percent cover per quadrat
<i>Rhynchospora fascicularis</i>	fascicled beaksedge	5.20
<i>Andropogon arctatus</i>	pinewoods bluestem	3.67
<i>Gaylussacia dumosa</i>	dwarf huckleberry	3.23
<i>Andropogon virginicus</i>	broomsedge bluestem	2.63
<i>Ctenium aromaticum</i>	toothache grass	2.43
<i>Andropogon glomeratus</i>	bushy bluestem	2.27
<i>Rhynchospora baldwinii</i>	Baldwin's beaksedge	2.13
<i>Gaylussacia mosieri</i>	woolly huckleberry	1.60
<i>Dichantherium ensifolium</i>	cypress witchgrass	1.37
<i>Dichantherium ovale</i>	eggleaf witchgrass	1.27
<i>Rhynchospora plumosa</i>	plumed beaksedge	1.10
<i>Xyris ambigua</i>	coastalplain yellow-eyed grass	1.07
<i>Rhynchospora gracilentia</i>	slender beaksedge	0.70
<i>Smilax laurifolia</i>	laurel greenbrier	0.70
<i>Dichantherium strigosum</i>	roughhair witchgrass	0.57
<i>Kelochloa verrucosa</i>	warty panicgrass	0.43
<i>Lycopodiella alopecuroides</i>	foxtail club-moss	0.40
<i>Dichantherium leucothrix</i>	rough witchgrass	0.33
<i>Hypericum microsepalum</i>	flatwoods St. John's wort	0.30
<i>Lachnanthes caroliniana</i>	Carolina redroot	0.27
<i>Lachnocaulon anceps</i>	whitehead bogbutton	0.23
<i>Lophiola aurea</i>	golden crest	0.23
<i>Aronia arbutifolia</i>	red chokeberry	0.20
<i>Scleria triglomerata</i>	whip nutrush	0.13
<i>Xyris brevifolia</i>	shortleaf yellow-eyed grass	0.13
<i>Gaylussacia frondosa var. tomentosa</i>	blue huckleberry	0.10
<i>Lycopodiella caroliniana</i>	slender club-moss	0.10
<i>Quercus minima</i>	dwarf live oak	0.10
<i>Rhynchospora cephalantha</i>	bunched beaksedge	0.10
<i>Smilax glauca</i>	cat greenbrier	0.10
<i>Oldenlandia uniflora</i>	clustered mille grains	0.07
<i>Rhexia alifanus</i>	savannah meadowbeauty	0.07
<i>Rhexia virginica</i>	handsome harry	0.07
<i>Sabatia brevifolia</i>	shortleaf rosegentian	0.07
<i>Aristida palustris</i>	longleaf threeawn	0.03
<i>Sophronanthe hispida</i>	rough hedgehyssop	0.03
Bare Ground		14.63

Shrub Quadrats

Table SH-6. Rooted Shrub Stems per Square Meter (Fall 2022)

Shrub Quadrat	Shrub Stems per m²
1	29
2	8
3	38
4	7
5	21
AVG Stems per m ²	20.6