

**Vegetation Monitoring at Sacred Heart
Northwest Florida Water Management District
Non-FDOT Mitigation Site**

Fall 2023

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Sacred Heart Mitigation Site
Bay County
USACE Permit #SAJ-1998-4720 IP-RVH
Qualitative and Quantitative Monitoring
November 2023

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. The site is adjacent to the Bayport Mitigation Site which was monitored at the same time (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 baseline monitoring (August 2017), shrub and tree density reduction, prescribed fire, repeat panoramic photography, herbicide treatments to reduce shrub regrowth, and post-baseline quantitative vegetation monitoring.

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 2022.

METHODS

Percent vegetation cover was measured in 1-m² quadrats at 10-foot intervals along four 150-foot transects in October 2022 (Figure 2). 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 up to 2 m tall. Plant cover estimates were converted to mid-point values and averaged across each transect. Relative cover (in which all plant cover and bare ground is given as a proportion of 100 percent cover) was also calculated and is reported in separate pie charts.

Rooted shrub stem density was monitored using five 1 m² quadrats established at random (Table 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, Kelly Anderson, and Ethan Hughes on November 15, 28, and 29, 2023.

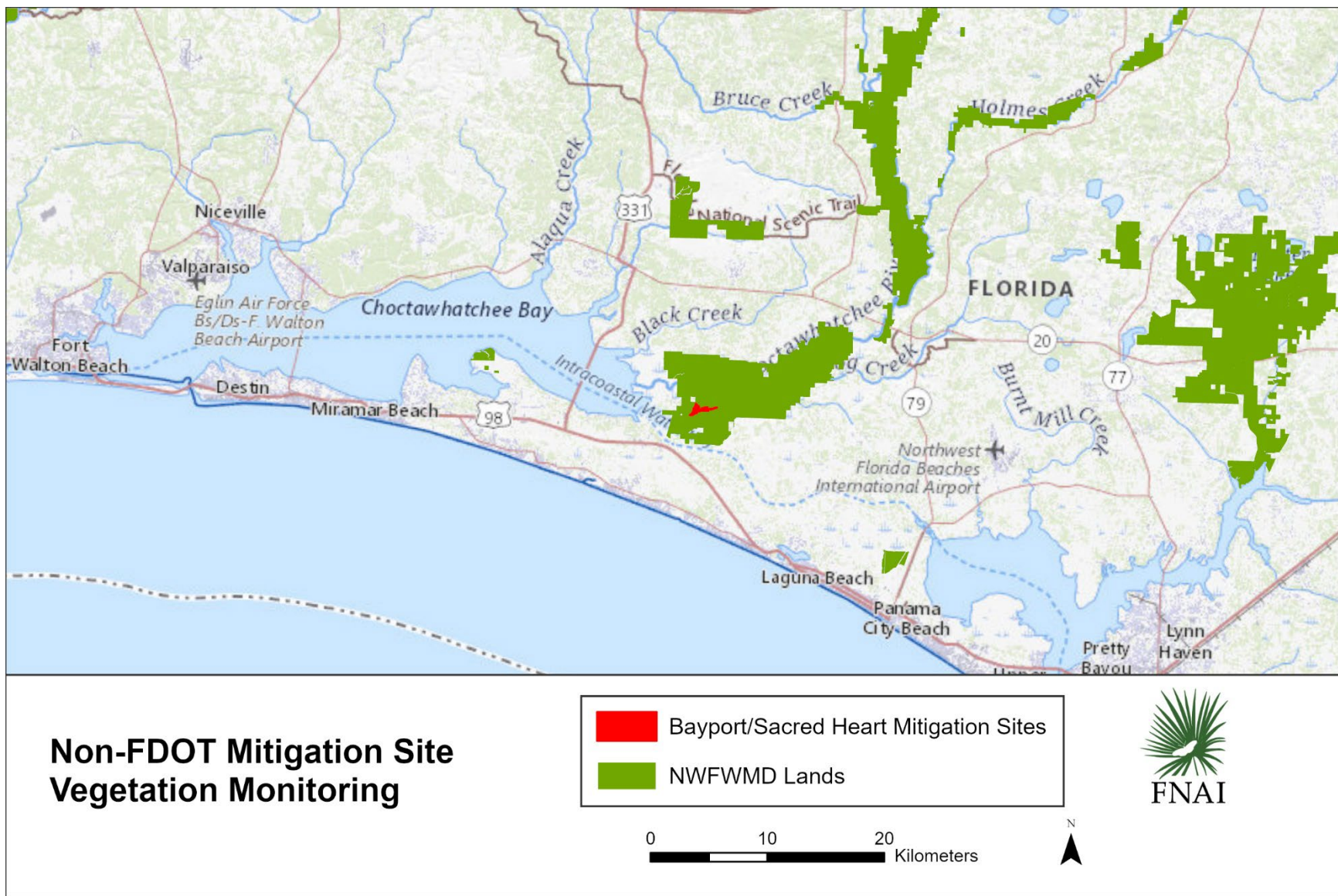
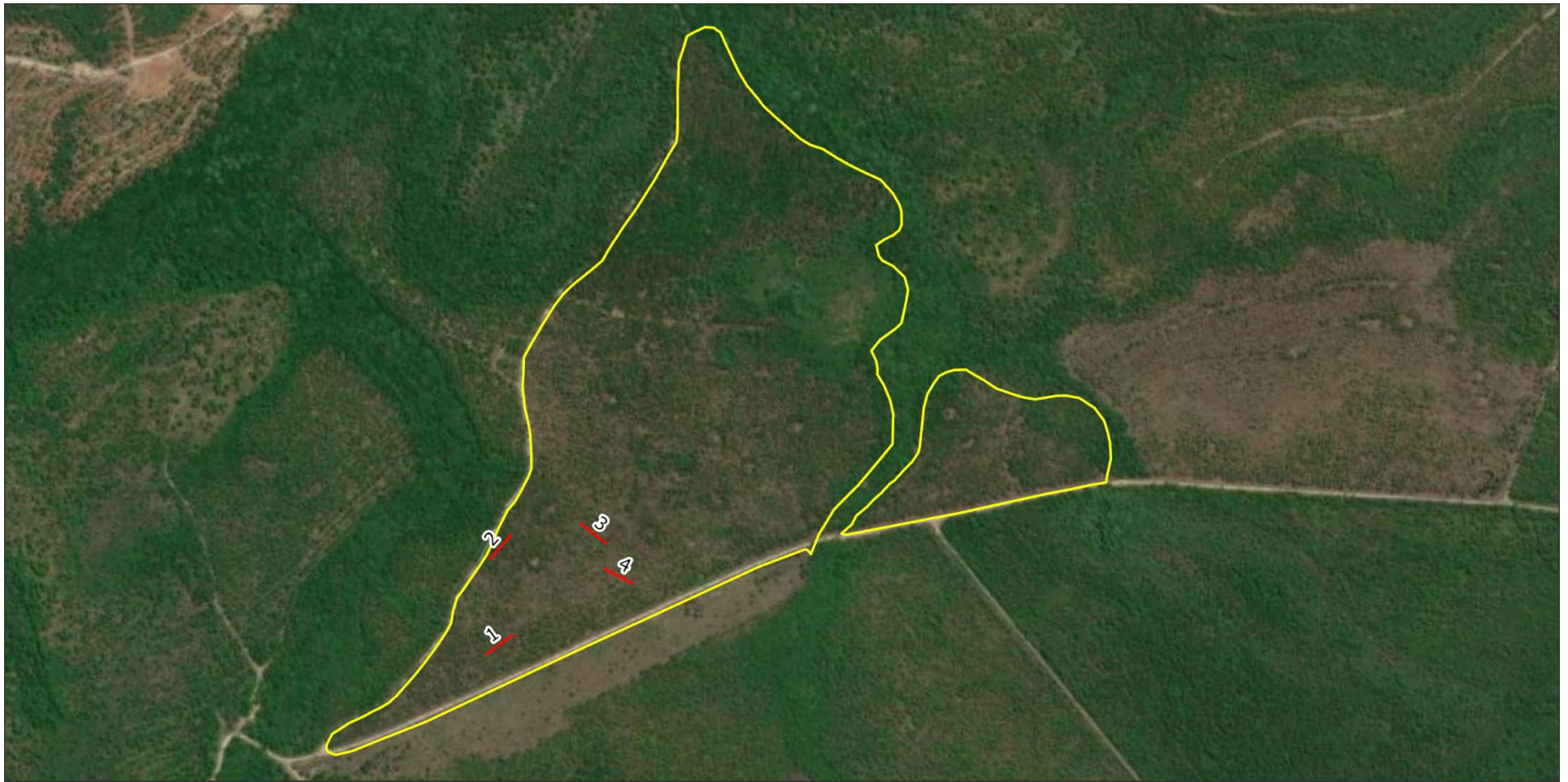


Figure 1. Location map of Devils Swamp non-FDOT NFWMD mitigation sites monitored by FNAI.



Sacred Heart Mitigation Site Vegetation Monitoring

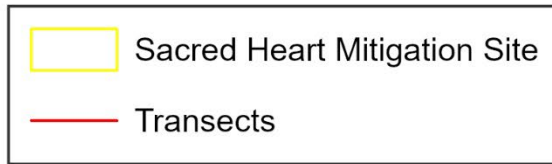


Figure 2. Location of transects at Sacred Heart Mitigation Site.

RESULTS AND DISCUSSION

A total of 132 plant taxa were recorded in the surveyed area of Sacred Heart Mitigation Site during the 2023 monitoring period (Table 1). Thirty-nine new taxa were found during the 2023 monitoring (i.e., species or varieties not observed during 2021 or 2022 site visits). 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.

Table 1. Species observed at Sacred Heart Mitigation Site, November 15, 28, and 29, 2023 (bold name = new species, * = state-listed threatened or endangered, † = non-native invasive).

Scientific Name	Common Name
<i>*Andropogon arctatus</i>	pinewoods bluestem
<i>Andropogon glomeratus</i> var. <i>glaucoptis</i>	purple bluestem
<i>Andropogon virginicus</i>	broomsedge bluestem
<i>Andropogon virginicus</i> var. <i>glaucus</i>	chalky bluestem
<i>Anthrenanthera rufa</i>	purple silkyscale
<i>Aristida palustris</i>	longleaf threeawn
<i>Aristida purpurascens</i>	arrowfeather threeawn
<i>Aristida stricta</i>	wiregrass
<i>Aronia arbutifolia</i>	red chokeberry
<i>Balduina uniflora</i>	oneflower honeycomb-head
<i>Bartonia paniculata</i>	twining screwstem
<i>*Calamovilfa curtissii</i>	Curtiss' sandgrass
<i>Callicarpa americana</i>	American beautyberry
<i>Carphephorus pseudoliatris</i>	bristleleaf chaffhead
<i>Chasmanthium laxum</i>	slender woodoats
<i>Clethra alnifolia</i>	sweet pepperbush
<i>Cliftonia monophylla</i>	black titi
<i>Coleataenia anceps</i>	beaked panicum
<i>Coleataenia longifolia</i>	ciliate redtop panicum
<i>Ctenium aromaticum</i>	toothache grass
<i>Cyrilla racemiflora</i>	titi
<i>Dichantherium aciculare</i>	needleleaf witchgrass
<i>Dichantherium acuminatum</i>	tapered witchgrass
<i>Dichantherium ensifolium</i>	cypress witchgrass
<i>Dichantherium ensifolium</i> var. <i>unciphillum</i>	cypress witchgrass
<i>Dichantherium laxiflorum</i>	openflower witchgrass
<i>Dichantherium leucothrix</i>	rough witchgrass
<i>Dichantherium ovale</i>	eggleaf witchgrass
<i>Dichantherium scabriusculum</i>	woolly witchgrass
<i>Dichantherium sphaerocarpon</i>	roundseed witchgrass
<i>Dichantherium strigosum</i>	roughhair witchgrass
<i>Diodia teres</i>	poor joe

Scientific Name	Common Name
<i>Diospyros virginiana</i>	common persimmon
<i>Drosera capillaris</i>	pink sundew
<i>Elephantopus elatus</i>	tall elephantsfoot
<i>Eriocaulon compressum</i>	flattened pipewort
<i>Eriocaulon decangulare</i>	tenangle pipewort
<i>Eupatorium compositifolium</i>	yankeeweed
<i>Eupatorium mohrii</i>	Mohr's thoroughwort
<i>Eupatorium rotundifolium</i>	roundleaf thoroughwort
<i>Eupatorium semiserratum</i>	smallflower thoroughwort
<i>Euphorbia</i> sp.	spurge
<i>Euthamia caroliniana</i>	slender flattop goldenrod
<i>Fuirena breviseta</i>	saltmarsh umbrellasedge
<i>Gaylussacia dumosa</i>	dwarf huckleberry
<i>Gaylussacia frondosa</i> var. <i>tomentosa</i>	blue huckleberry
<i>Gaylussacia mosieri</i>	woolly huckleberry
<i>Gelsemium sempervirens</i>	yellow jessamine
<i>Hypericum brachyphyllum</i>	coastalplain St. John's wort
<i>Hypericum cistifolium</i>	roundpod St. John's wort
<i>Hypericum crux-andreae</i>	St. Peter's wort
<i>Hypericum fasciculatum</i>	peelbark St. John's wort
<i>Hypericum microsepalum</i>	flatwoods St. John's wort
<i>Ilex coriacea</i>	large gallberry
<i>Ilex glabra</i>	gallberry
<i>Ilex cassine</i> var. <i>myrtifolia</i>	myrtle-leaved holly
<i>Ilex vomitoria</i>	yaupon
<i>Juncus repens</i>	lesser creeping rush
<i>Juncus scirpoides</i>	needlepod rush
<i>Kelloggloa verrucosa</i>	warty panicgrass
<i>Lachnanthes caroliniana</i>	Carolina redroot
<i>Lachnocaulon anceps</i>	whitehead bogbutton
<i>Liatris gracilis</i>	slender gayfeather
<i>Liquidambar styraciflua</i>	sweetgum
<i>Lobelia brevifolia</i>	shortleaf lobelia
<i>Lophiola aurea</i>	golden crest
<i>Lycopodiella appressa</i>	southern club-moss
<i>Lycopodiella caroliniana</i>	slender club-moss
<i>Lycopodiella cernua</i>	nodding club-moss
<i>Magnolia virginiana</i>	sweetbay
<i>Nyssa biflora</i>	swamp tupelo
<i>Nyssa sylvatica</i>	blackgum
<i>Oldenlandia uniflora</i>	clustered mille grains
<i>Osmunda regalis</i> var. <i>spectabilis</i>	royal fern
<i>Oxypolis denticulata</i>	Piedmont cowbane

Scientific Name	Common Name
<i>Paspalum plicatulum</i>	brownseed paspalum
<i>Pinus elliotii</i>	slash pine
<i>Pinus taeda</i>	loblolly pine
<i>Pityopsis graminifolia</i>	narrowleaf silkgrass
<i>Polygala grandiflora</i>	showy milkwort
<i>Polygala lutea</i>	orange milkwort
<i>Polygala nana</i>	candyroot
<i>Polypremum procumbens</i>	rustweed
<i>Pseudognaphalium obtusifolium</i>	sweet everlasting
<i>Pteridium aquilinum</i>	bracken fern
<i>Quercus hemisphaerica</i>	laurel oak
<i>Quercus minima</i>	dwarf live oak
<i>Quercus nigra</i>	water oak
<i>Quercus virginiana</i>	live oak
<i>Rhexia alifanus</i>	savannah meadowbeauty
<i>Rhexia petiolata</i>	fringed meadowbeauty
<i>Rhus copallinum</i>	winged sumac
<i>Rhynchospora baldwinii</i>	Baldwin's beaksedge
<i>Rhynchospora cephalantha</i>	bunched beaksedge
<i>Rhynchospora chalarocephala</i>	loosehead beaksedge
<i>Rhynchospora chapmanii</i>	Chapman's beaksedge
<i>Rhynchospora ciliaris</i>	fringed beaksedge
<i>Rhynchospora debilis</i>	savannah beaksedge
<i>Rhynchospora fascicularis</i>	fascicled beaksedge
<i>Rhynchospora glomerata</i>	clustered beaksedge
<i>Rhynchospora plumosa</i>	plumed beaksedge
<i>Rubus cuneifolius</i>	sand blackberry
<i>Rubus flagellaris</i>	northern dewberry
<i>Saccharum giganteum</i>	sugarcane plumegrass
<i>Sarracenia flava</i>	yellow pitcherplant
<i>Schizachyrium stoloniferum</i>	creeping little bluestem
<i>Scleria ciliata</i>	fringed nutrush
<i>Scleria reticularis</i>	netted nutrush
<i>Scleria triglomerata</i>	whip nutrush
<i>Serenoa repens</i>	saw palmetto
<i>Smilax auriculata</i>	earleaf greenbrier
<i>Smilax bona-nox</i>	saw greenbrier
<i>Smilax glauca</i>	cat greenbrier
<i>Smilax laurifolia</i>	laurel greenbrier
<i>Solidago odora</i>	sweet goldenrod
<i>Solidago stricta</i>	wand goldenrod
<i>Sophronanthe hispida</i>	rough hedgehyssop
<i>Symphotrichum adnatum</i>	scaleleaf aster

Scientific Name	Common Name
<i>Symphyotrichum chapmanii</i>	savannah aster
<i>Symphyotrichum dumosum</i>	rice button aster
<i>Tephrosia florida</i>	Florida hoary-pea
<i>Toxicodendron radicans</i>	eastern poison ivy
<i>Vaccinium arboreum</i>	sparkleberry
<i>Vaccinium myrsinites</i>	shiny blueberry
<i>Vernonia angustifolia</i>	tall ironweed
<i>Viola lanceolata</i>	bog white violet
<i>Vitis rotundifolia</i>	muscadine
<i>Xyris ambigua</i>	coastalplain yellow-eyed grass
<i>Xyris brevifolia</i>	shortleaf yellow-eyed grass
<i>Xyris flabelliformis</i>	savannah yellow-eyed grass
<i>Xyris serotina</i>	acid swamp yellow-eyed grass
<i>Xyris</i> sp.	yellow-eyed grass
Total number of taxa: 132	

Qualitative sampling. A total of 132 plant taxa were identified at this site in 2022 (Table 1). Species include two state-listed threatened species (Curtiss’ sandgrass and pinewoods bluestem). No non-native invasive species were observed. 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 3, Table 2) had a total of 35 taxa with 28% average bare ground cover. Woody species made up around 13% average cover per quadrat. Compared to 2022, this represents little change in species diversity (34 in 2022), a little change in bare ground (30% in 2022) and a small decrease in woody cover (24% in 2022).
- Transect 2 (Figure 4, Table 3) had a total of 44 taxa with 40% average bare ground cover. Woody species made up around 22% average cover per quadrat. Compared to 2022, this represents a small decrease in species diversity (49 in 2022), a small decrease in bare ground (51% in 2022) and little change in woody cover (21% in 2022).
- Transect 3 (Figure 5, Table 4) had a total of 35 taxa with 29% average bare ground cover. Woody species made up around 18% average cover per quadrat. Compared to 2022, this represents a small decrease in species diversity (40 in 2022), a small increase in bare ground (17% in 2022) and a decrease in woody cover (46% in 2022).

- Transect 4 (Figure 6, Table 5) had a total of 29 taxa with 17% average bare ground cover. Woody species made up around 8% average cover per quadrat. Compared to 2022, this represents a decrease in species diversity (41 in 2022), a small decrease in bare ground (15% in 2022) and a decrease in woody cover (28% in 2022).

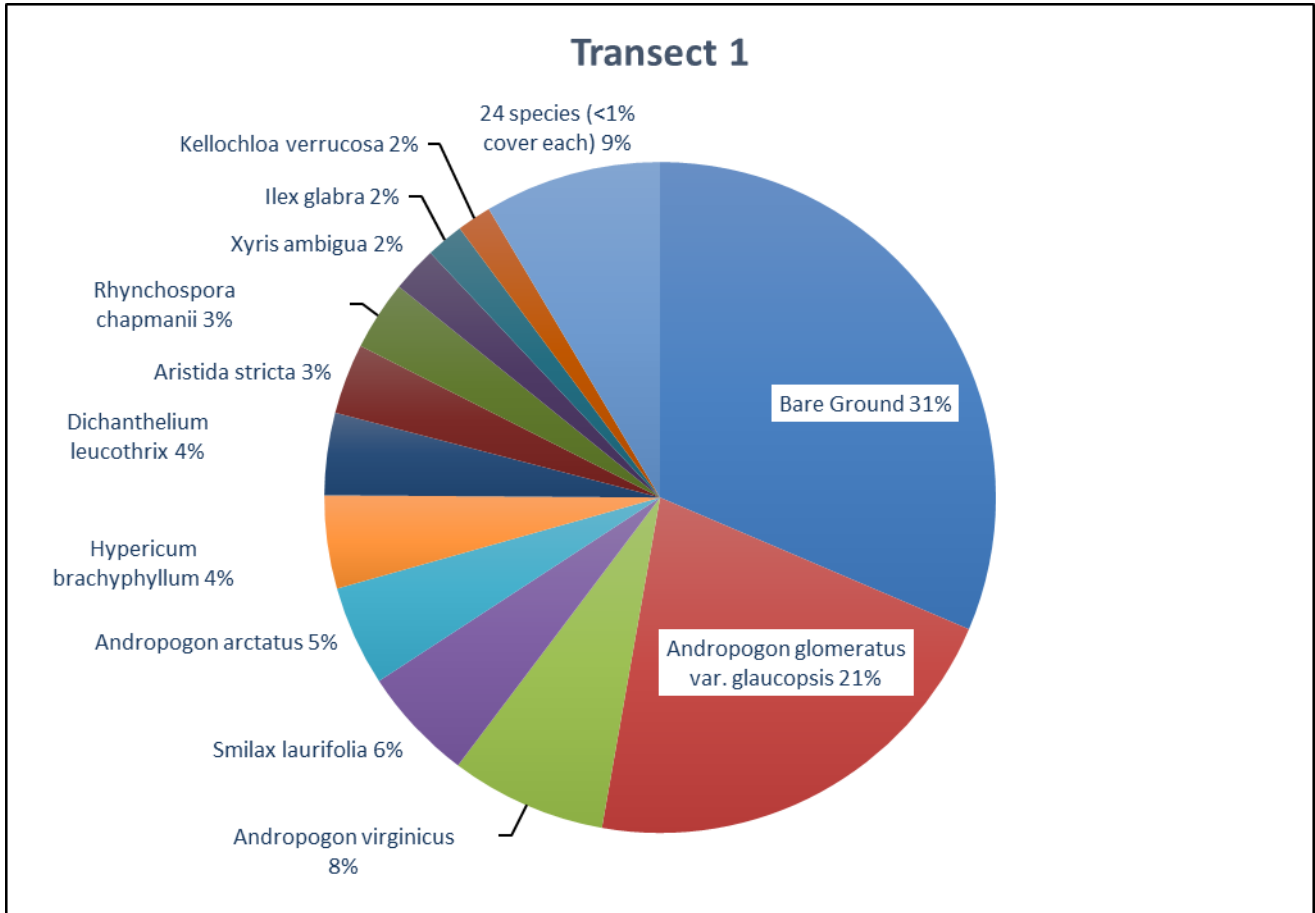


Figure 3. Percent relative cover of plant species in Transect 1.

Table 2. Percent cover of plant species in Transect 1 sampled on November 28, 2023.

Scientific name	Common name	Average percent cover per quadrat
<i>Andropogon arctatus</i>	pinewoods bluestem	4.27
<i>Andropogon glomeratus</i> var. <i>glaucopsis</i>	purple bluestem	18.87
<i>Andropogon</i> sp.	bluestem	0.50
<i>Andropogon virginicus</i>	broomsedge bluestem	6.63
<i>Aristida stricta</i>	wiregrass	3.00
<i>Clethra alnifolia</i>	sweet pepperbush	0.03
<i>Cliftonia monophylla</i>	black titi	0.03
<i>Cyrilla racemiflora</i>	titi	0.73
<i>Dichanthelium leucothrix</i>	rough witchgrass	3.50
<i>Dichanthelium</i> sp.	witchgrass	0.27

Scientific name	Common name	Average percent cover per quadrat
<i>Eriocaulon decangulare</i>	tenangle pipewort	0.70
<i>Gaylussacia dumosa</i>	dwarf huckleberry	0.47
<i>Gaylussacia mosieri</i>	woolly huckleberry	0.27
<i>Hypericum brachyphyllum</i>	coastalplain St. John's wort	3.97
<i>Hypericum microsepalum</i>	flatwoods St. John's wort	0.50
<i>Ilex cassine</i> var. <i>myrtifolia</i>	myrtle-leaved holly	0.23
<i>Ilex coriacea</i>	large gallberry	0.23
<i>Ilex glabra</i>	gallberry	1.60
<i>Kellochloa verrucosa</i>	warty panicgrass	1.47
<i>Lachnocaulon anceps</i>	whitehead bogbutton	0.13
<i>Lophiola aurea</i>	golden crest	0.60
<i>Lycopodiella alopecuroides</i>	foxtail club-moss	0.33
<i>Pinus elliotii</i>	slash pine	0.03
<i>Polygala lutea</i>	orange milkwort	0.10
<i>Quercus hemisphaerica</i>	laurel oak	0.03
<i>Rhexia alifanus</i>	savannah meadowbeauty	0.10
<i>Rhynchospora chapmanii</i>	Chapman's beaksedge	2.97
<i>Rhynchospora ciliaris</i>	fringed beaksedge	0.27
<i>Rhynchospora debilis</i>	savannah beaksedge	0.50
<i>Rhynchospora plumosa</i>	plumed beaksedge	0.33
<i>Rhynchospora</i> sp.	beaksedge	0.27
<i>Scleria</i> sp.	nutrush	0.83
<i>Smilax laurifolia</i>	laurel greenbrier	4.87
<i>Xyris ambigua</i>	coastalplain yellow-eyed grass	1.93
<i>Xyris</i> sp.	yellow-eyed grass	0.03
Bare Ground		27.77

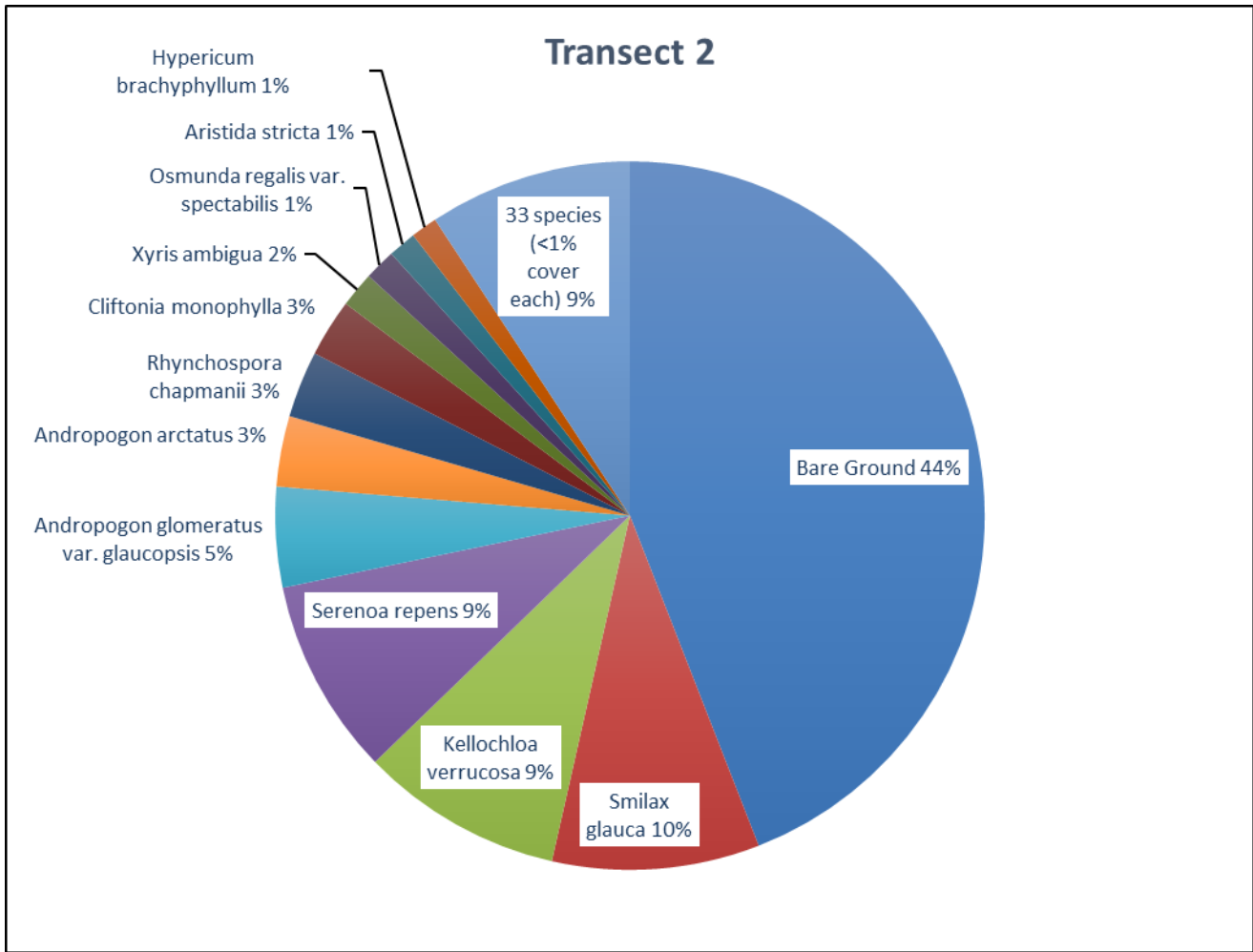


Figure 4. Percent relative cover of plant species in Transect 2.

Table 3. Percent cover of plant species in Transect 2 sampled on November 29, 2023.

Scientific name	Common name	Average percent cover per quadrat
<i>Andropogon arctatus</i>	pinewoods bluestem	2.93
<i>Andropogon glomeratus var. glaucopsis</i>	purple bluestem	4.17
<i>Andropogon sp.</i>	bluestem	0.03
<i>Andropogon virginicus</i>	broomsedge bluestem	0.73
<i>Aristida palustris</i>	longleaf threeawn	0.03
<i>Aristida stricta</i>	wiregrass	1.17
<i>Cliftonia monophylla</i>	black titi	2.40
<i>Coleataenia longifolia</i>	ciliate redtop panicum	0.47
<i>Dichantherium ensifolium</i>	cypress witchgrass	0.47
<i>Dichantherium sp.</i>	witchgrass	0.03
<i>Dichantherium strigosum</i>	roughhair witchgrass	0.10
<i>Eriocaulon decangulare</i>	tenangle pipewort	0.33
<i>Eupatorium compositifolium</i>	yankeeweed	0.03
<i>Eupatorium rotundifolium</i>	roundleaf thoroughwort	0.23

Scientific name	Common name	Average percent cover per quadrat
<i>Euthamia caroliniana</i>	slender flattop goldenrod	0.03
<i>Fuirena breviseta</i>	saltmarsh umbrellasedge	0.27
<i>Gaylussacia mosieri</i>	woolly huckleberry	0.10
<i>Gelsemium sempervirens</i>	yellow jessamine	0.03
<i>Hypericum brachyphyllum</i>	coastalplain St. John's wort	1.10
<i>Hypericum cistifolium</i>	roundpod St. John's wort	0.17
<i>Hypericum crux-andreae</i>	St. Peter's wort	0.33
<i>Ilex glabra</i>	gallberry	0.17
<i>Juncus scirpoides</i>	needlepod rush	0.50
<i>Kellochloa verrucosa</i>	warty panicgrass	8.50
<i>Lachnanthes caroliniana</i>	Carolina redroot	0.13
<i>Lachnocaulon anceps</i>	whitehead bogbutton	0.77
<i>Oldenlandia uniflora</i>	clustered mille grains	0.07
<i>Osmunda regalis</i> var. <i>spectabilis</i>	royal fern	1.30
<i>Pinus elliotii</i>	slash pine	0.70
<i>Quercus minima</i>	dwarf live oak	0.13
<i>Rhexia petiolata</i>	fringed meadowbeauty	0.33
<i>Rhynchospora baldwinii</i>	Baldwin's beaksedge	0.23
<i>Rhynchospora cephalantha</i>	bunched beaksedge	0.50
<i>Rhynchospora chapmanii</i>	Chapman's beaksedge	2.77
<i>Rhynchospora</i> sp.	beaksedge	0.53
<i>Scleria reticularis</i>	netted nutrush	0.10
<i>Serenoa repens</i>	saw palmetto	8.17
<i>Smilax glauca</i>	cat greenbrier	8.70
<i>Smilax laurifolia</i>	laurel greenbrier	0.37
<i>Toxicodendron radicans</i>	eastern poison ivy	0.03
<i>Viola lanceolata</i>	bog white violet	0.10
<i>Xyris ambigua</i>	coastalplain yellow-eyed grass	1.47
<i>Xyris brevifolia</i>	shortleaf yellow-eyed grass	0.10
<i>Xyris</i> sp.	yellow-eyed grass	0.27
Bare Ground		40.13

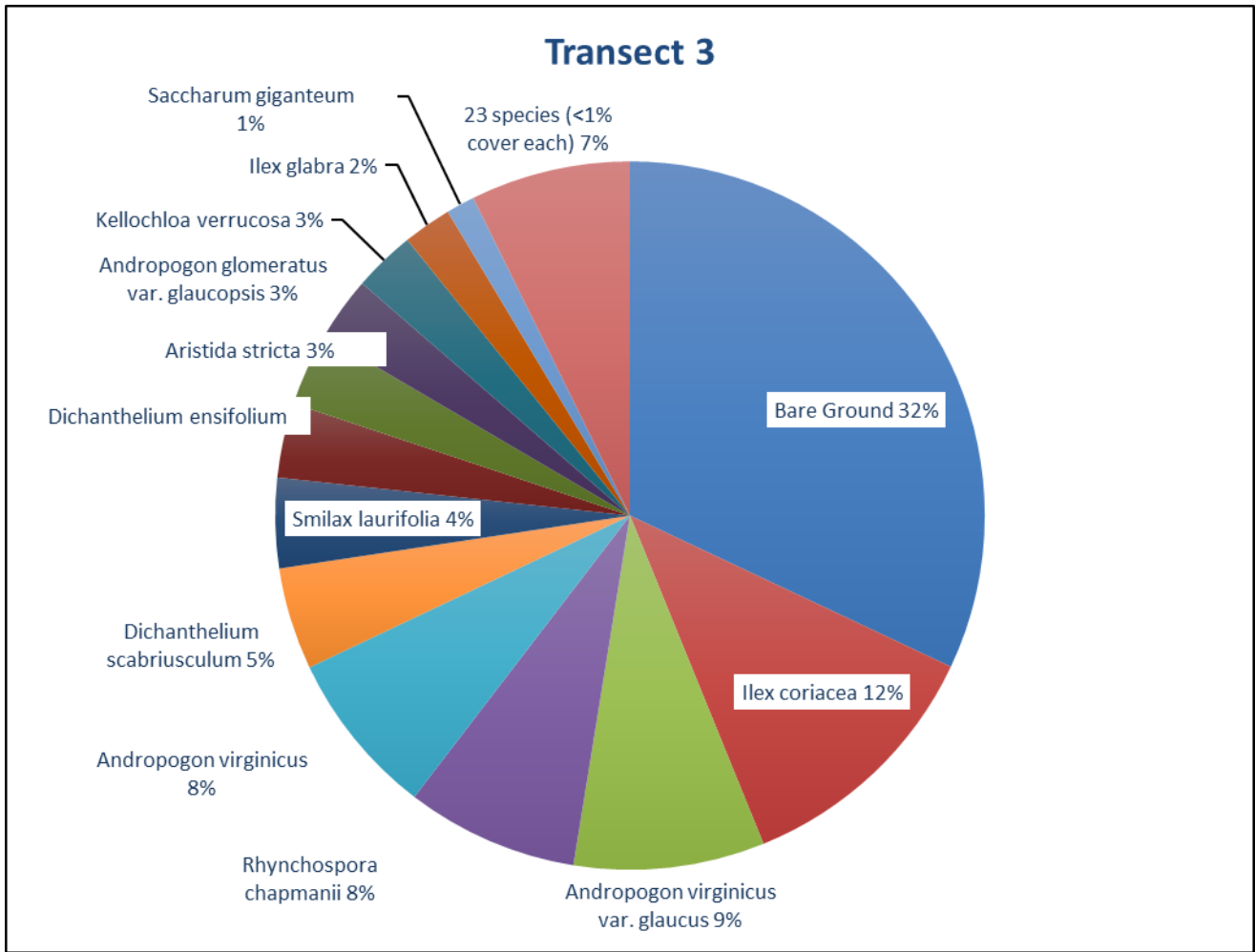


Figure 5. Percent relative cover of plant species in Transect 3.

Table 4. Percent cover of plant species in Transect 3 sampled on November 28, 2023.

Scientific name	Common name	Average percent cover per quadrat
<i>Andropogon arctatus</i>	pinewoods bluestem	0.33
<i>Andropogon glomeratus</i> var. <i>glaucopsis</i>	purple bluestem	2.63
<i>Andropogon</i> sp.	bluestem	0.43
<i>Andropogon virginicus</i>	broomsedge bluestem	6.80
<i>Andropogon virginicus</i> var. <i>glaucus</i>	chalky bluestem	7.83
<i>Aristida palustris</i>	longleaf threeawn	0.53
<i>Aristida stricta</i>	wiregrass	3.00
<i>Clethra alnifolia</i>	sweet pepperbush	0.03
<i>Cliftonia monophylla</i>	black titi	0.03
<i>Coleataenia longifolia</i>	ciliate redtop panicum	0.47
<i>Dichanthelium ensifolium</i>	cypress witchgrass	3.07
<i>Dichanthelium scabriusculum</i>	woolly witchgrass	4.20
<i>Dichanthelium</i> sp.	witchgrass	0.70
<i>Gaylussacia dumosa</i>	dwarf huckleberry	0.07

Scientific name	Common name	Average percent cover per quadrat
<i>Gaylussacia mosieri</i>	woolly huckleberry	0.10
<i>Hypericum brachyphyllum</i>	coastalplain St. John's wort	0.50
<i>Hypericum crux-andreae</i>	St. Peter's wort	0.50
<i>Hypericum microsepalum</i>	flatwoods St. John's wort	0.03
<i>Ilex coriacea</i>	large gallberry	10.67
<i>Ilex glabra</i>	gallberry	2.00
<i>Kelochloa verrucosa</i>	warty panicgrass	2.53
<i>Lachnocaulon anceps</i>	whitehead bogbutton	0.43
<i>Lophiola aurea</i>	golden crest	0.23
<i>Lycopodiella alopecuroides</i>	foxtail club-moss	0.83
<i>Pinus taeda</i>	loblolly pine	0.10
<i>Rhexia petiolata</i>	fringed meadowbeauty	0.03
<i>Rhynchospora chapmanii</i>	Chapman's beaksedge	7.07
<i>Rhynchospora ciliaris</i>	fringed beaksedge	0.37
<i>Rhynchospora fascicularis</i>	fascicled beaksedge	0.13
<i>Saccharum giganteum</i>	sugarcane plumegrass	1.17
<i>Serenoa repens</i>	saw palmetto	0.23
<i>Smilax glauca</i>	cat greenbrier	0.07
<i>Smilax laurifolia</i>	laurel greenbrier	3.70
<i>Xyris ambigua</i>	coastalplain yellow-eyed grass	0.37
<i>Xyris</i> sp.	yellow-eyed grass	0.03
Bare Ground		28.83

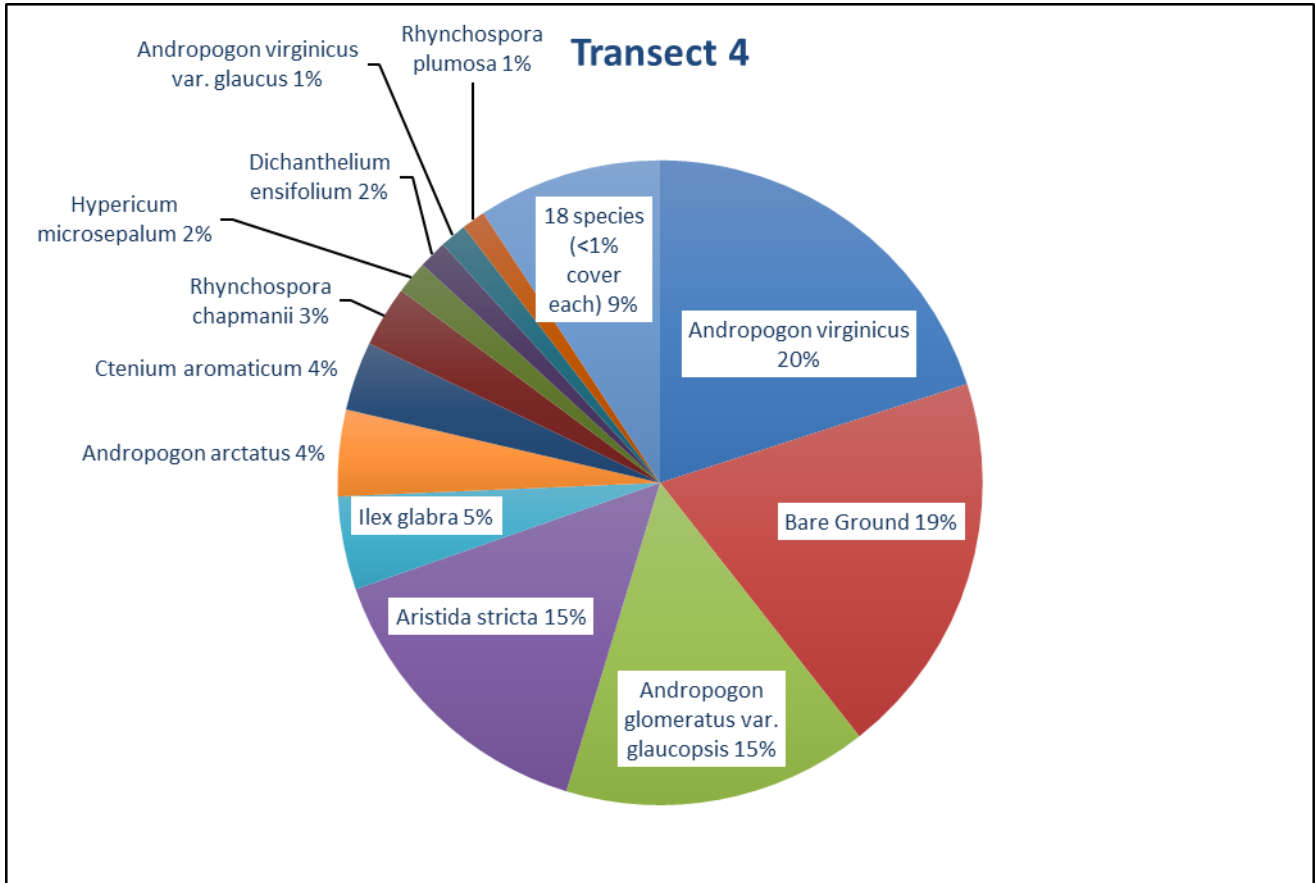


Figure 6. Percent relative cover of plant species in Transect 4.

Table 5. Percent cover of plant species in Transect 4 sampled on November 28, 2023.

Scientific name	Common name	Average percent cover per quadrat
<i>Andropogon arctatus</i>	pinewoods bluestem	3.77
<i>Andropogon glomeratus var. glaucopsis</i>	purple bluestem	13.30
<i>Andropogon virginicus</i>	broomsedge bluestem	17.43
<i>Andropogon virginicus var. glaucus</i>	chalky bluestem	1.17
<i>Aristida palustris</i>	longleaf threeawn	0.03
<i>Aristida stricta</i>	wiregrass	13.00
<i>Aronia arbutifolia</i>	red chokeberry	0.13
<i>Ctenium aromaticum</i>	toothache grass	3.00
<i>Dichanthelium ensifolium</i>	cypress witchgrass	1.23
<i>Dichanthelium sp.</i>	witchgrass	0.23
<i>Dichanthelium strigosum</i>	roughhair witchgrass	0.13
<i>Gaylussacia dumosa</i>	dwarf huckleberry	0.73
<i>Gaylussacia mosieri</i>	woolly huckleberry	0.63
<i>Hypericum brachyphyllum</i>	coastalplain St. John's wort	0.03
<i>Hypericum microsepalum</i>	flatwoods St. John's wort	1.43
<i>Ilex coriacea</i>	large gallberry	0.40

Scientific name	Common name	Average percent cover per quadrat
<i>Ilex glabra</i>	gallberry	4.07
<i>Kelochloa verrucosa</i>	warty panicgrass	0.80
<i>Lachnocaulon anceps</i>	whitehead bogbutton	0.83
<i>Lycopodiella alopecuroides</i>	foxtail club-moss	0.87
<i>Rhynchospora chapmanii</i>	Chapman's beaksedge	2.67
<i>Rhynchospora ciliaris</i>	fringed beaksedge	0.90
<i>Rhynchospora fascicularis</i>	fascicled beaksedge	0.40
<i>Rhynchospora glomerata</i>	clustered beaksedge	0.33
<i>Rhynchospora plumosa</i>	plumed beaksedge	1.03
<i>Rhynchospora sp.</i>	beaksedge	0.97
<i>Smilax glauca</i>	cat greenbrier	0.17
<i>Smilax laurifolia</i>	laurel greenbrier	0.30
<i>Xyris ambigua</i>	coastalplain yellow-eyed grass	0.13
Bare Ground		16.83

Shrub Quadrats

Table 6. Rooted Shrub Stems per Square Meter (Fall 2023)

Shrub Quadrat	Shrub Stems per m²
1	7
2	24
3	14
4	12
5	8
AVG Stems per m ²	13.0