

**Vegetation Monitoring at Ward Creek West  
Northwest Florida Water Management District  
Mitigation Site**

Fall 2025

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Funding for this project was provided by the Northwest Florida Water Management District under the  
Purchase Order #00260037-000 with the Florida Natural Areas Inventory  
Florida State University

# Ward Creek West Mitigation Site Qualitative and Quantitative Monitoring October 2025

## INTRODUCTION

The Ward Creek West Mitigation Site consists of 724 acres in Bay County managed by the Northwest Florida Water Management District. It is located 0.5 mile west of SR 79 and 2.5 miles north of the junction of SR 79 and US 98 (Figure 1). The Ward Creek West Mitigation Project aims to restore hydric pine flatwoods (HPF) and hydric pine savanna (HPS) which had been converted to slash pine plantation, as well as to convert portions of the mixed forested wetlands to cypress (CY; Figure 2). FNAI used quantitative and qualitative monitoring to document the current plant species composition and vegetation structure of these targeted communities. FNAI biologists have previously monitored the site's vegetation during the fall from 2012 through 2024.

## METHODS

We conducted quantitative monitoring using 300-foot-long permanent transect lines that were marked during the 2012 survey. In 2013, FNAI installed metal T-posts at the ends of each transect to provide permanent reference points. There are 2 transects in the Hydric Pine Flatwoods target community, and 2 in Hydric Pine Savanna (Figure 2). We placed fifteen 1m x 1m quadrats along the left side of each transect line, spaced every 20 feet, beginning at 0 and ending at 280 feet.

In each quadrat, we visually estimated the 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. We converted plant cover estimates to mid-point values and averaged them across each transect. We also calculated relative cover (in which all plant cover and open ground is given as a proportion of the total plant cover); this is reported in separate pie charts.

In addition to cover by species, cover was also estimated as a whole number for all plants, all herbs, and all shrubs. Relative covers for each plant species were calculated as a portion of the total plant cover.

For each quad, the height of shrubs was recorded in centimeters. The observer used a measuring pole marked in decimeters and estimated the average height over the quad. Woody vines and tree species were omitted from this measurement.

We carried out qualitative monitoring by walking meandering transects through both of the target communities plus the Cypress area. On these transects we recorded all species observed as well as descriptions of vegetation structure. FNAI botanists Kim Alexander, Jenna Annis, and Amy Jenkins conducted all field surveys on October 15-16 and 29, 2025.



Figure 1. Location map of Ward Creek West Mitigation Site monitored by FNAI.

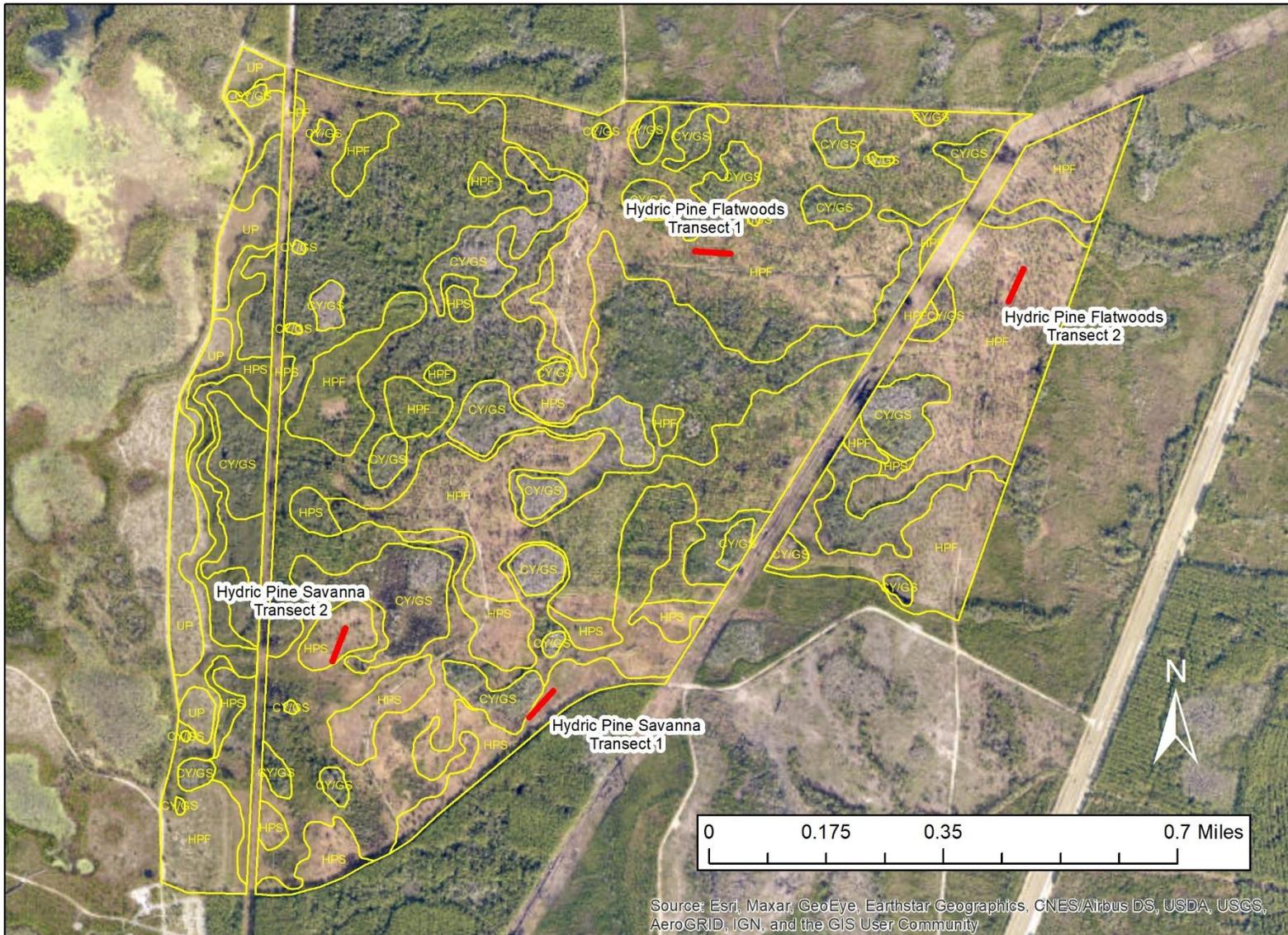


Figure 2. Location of permanent transects at Ward Creek West Mitigation Site. CY=Cypress, UP=Upland Pine, HPF=Hydrich Pine Flatwoods, HPS=Hydrich Pine Savanna, GS=Gum Swamp.

## RESULTS AND DISCUSSION

We recorded a total of 187 plant taxa during the 2025 monitoring period in the target communities at Ward Creek West (Table 1). This included 8 new taxa that were not recorded prior to the 2025 monitoring. Taxonomy follows Weakley, A.S., and Southeastern Flora Team. 2023. Flora of the southeastern United States: Florida. University of North Carolina Herbarium, North Carolina Botanical Garden, Chapel Hill, U.S.A.

Table 1. Plant species observed in the target communities at Ward Creek West Mitigation Site on October 15-16 and 29, 2025. (bold name = new species; bold X = new observation in community type; \* = state-listed endangered or threatened; † = non-native invasive)

Scientific Name	Common Name	Cypress	Hydric Pine Flatwoods	Hydric Pine Savanna	Grand Total
<i>Agalinis fasciculata</i>	beach false foxglove		X		1
<i>Amphicarpum muehlenbergianum</i>	blue maidencane			X	1
<i>Anchistea virginica</i>	Virginia chain fern	X	X	X	3
<i>Andropogon campbellii</i>	deceptive bluestem		X		1
<i>Andropogon capillipes</i>	dryland white bluestem		X		1
<i>Andropogon cretaceus</i>	purple bluestem	X	X	X	3
<i>Andropogon dealbatus</i>	wetland white bluestem			X	1
<i>Andropogon glomeratus</i>	bushy bluestem			X	1
<i>Andropogon gyrans</i>	Elliott's bluestem		X		1
<i>Andropogon perangustatus</i>	narrowleaf bluestem			X	1
<i>Andropogon</i> sp.	bluestem		X		1
<i>Andropogon virginicus</i>	broomsedge bluestem		X	X	2
<i>Andropogon virginicus</i> var. 1	smooth bluestem			X	1
<i>Anthenantia rufa</i>	purple silkyscale		X		1
<i>Aristida beyrichiana</i>	Southern wiregrass		X	X	2
<i>Aristida palustris</i>	longleaf threeawn			X	1
<i>Aristida spiciformis</i> var. <i>spiciformis</i>	bottlebrush threeawn		X	X	2
<i>Aronia arbutifolia</i>	red chokeberry		X	X	2
<i>Asclepias</i> sp.	milkweed		X		1
<i>Baccharis halimifolia</i>	groundsel tree		X		1
<i>Balduina uniflora</i>	oneflower honeycomb-head		X		1
<i>Bidens mitis</i>	smallfruit beggarticks	X	X		2
<i>Bigelovia nudata</i>	pineland rayless goldenrod			X	1
<i>Bulbostylis ciliatifolia</i>	capillary hairsedge		X		1
* <i>Calamovilfa curtissii</i>	Curtiss' sandgrass			X	1
<i>Carex glaucescens</i>	clustered sedge	X			1
<i>Centella erecta</i>	spadeleaf		X	X	2
<i>Cephalanthus occidentalis</i>	common buttonbush	X			1
<i>Chamaecrista fasciculata</i>	partridge pea		X		1
<i>Clethra alnifolia</i>	sweet pepperbush	X	X		2
<i>Cliftonia monophylla</i>	black titi	X	X	X	3
<i>Coleataenia longifolia</i>	ciliate redtop panicum		X		1

Scientific Name	Common Name	Cypress	Hydric Pine Flatwoods	Hydric Pine Savanna	Grand Total
<i>Ctenium aromaticum</i>	toothache grass		X	X	2
<i>Cyperus haspan</i>	haspan flatsedge			X	1
<i>Cyperus retrorsus</i>	pineland flatsedge		X	X	2
<i>Cyrilla parvifolia</i>	littleleaf titi		X	X	2
<i>Cyrilla racemiflora</i>	titi	X	X	X	3
<i>Dichantherium ensifolium</i>	small-leaved witchgrass		X	X	2
<i>Dichantherium leucothrix</i>	rough witchgrass		X		1
<i>Dichantherium longiligulatum</i>	long-ligule witchgrass			X	1
<i>Dichantherium portoricense</i>	Puerto Rican witchgrass		X	X	2
<i>Dichantherium scabriusculum</i>	woolly witchgrass		X	X	2
<i>Dichantherium</i> sp.	witchgrass		X		1
<i>Dichantherium sphaerocarpon</i>	roundseed witchgrass		X		1
<i>Dichantherium tenue</i>	white-edged witchgrass		X	X	2
<i>Diodia virginiana</i>	Virginia buttonweed		X	X	2
<i>Drosera capillaris</i>	pink sundew			X	1
<i>Edrastima uniflora</i>	oldenlandia		X	X	2
<i>Eriocaulon compressum</i>	flattened pipewort			X	1
<i>Eriocaulon decangulare</i>	tenangle pipewort			X	1
<i>Eupatorium capillifolium</i>	dogfennel		X	X	2
<i>Eupatorium mohrii</i>	Mohr's thoroughwort	X	X	X	3
<i>Eupatorium pilosum</i>	rough boneset			X	1
<b><i>Eupatorium rotundifolium</i></b>	<b>roundleaf thoroughwort</b>			X	1
<b><i>Euphorbia inundata</i></b>	<b>Florida pineland spurge</b>		X		1
<b><i>Eurybia eryngiifolia</i></b>	<b>thistleleaf aster</b>		X		1
<i>Euthamia caroliniana</i>	slender flattop goldenrod	X	X	X	3
<i>Fuirena breviseta</i>	saltmarsh umbrellasedge		X	X	2
<i>Fuirena scirpoidea</i>	Southern umbrellasedge		X		1
<i>Gaylussacia dumosa</i>	dwarf huckleberry		X	X	2
<i>Gaylussacia mosieri</i>	woolly huckleberry		X	X	2
<i>Gaylussacia nana</i>	dwarf dangleberry		X		1
<i>Gelsemium rankinii</i>	swamp jessamine	X			1
<i>Gelsemium sempervirens</i>	yellow jessamine		X		1
<i>Helianthus angustifolius</i>	narrowleaf sunflower			X	1
<i>Helianthus heterophyllus</i>	variableleaf sunflower		X		1
<i>Hypericum brachyphyllum</i>	coastalplain St. John's wort		X	X	2
<i>Hypericum chapmanii</i>	Chapman's St. John's wort	X			1
<i>Hypericum cistifolium</i>	roundpod St. John's wort	X		X	2
<i>Hypericum exile</i>	Florida sands St. John's wort			X	1
<i>Hypericum fasciculatum</i>	peelbark St. John's wort		X	X	2
<i>Hypericum microsepalum</i>	flatwoods St. John's wort		X	X	2
<i>Hypericum tetrapetalum</i>	fourpetal St. John's wort		X	X	2
<i>Ilex coriacea</i>	large gallberry	X	X	X	3
<i>Ilex glabra</i>	gallberry		X	X	2
<i>Ilex myrtifolia</i>	myrtle-leaved holly	X		X	2

Scientific Name	Common Name	Cypress	Hydric Pine Flatwoods	Hydric Pine Savanna	Grand Total
<i>Ilex vomitoria</i>	yaupon			X	1
<i>Juncus scirpoides</i>	needlepod rush		X		1
<i>Kalmia hirsuta</i>	hairy wicky		X	X	2
<i>Kelochloa verrucosa</i>	warty panicgrass	X	X	X	3
<i>Lachnanthes caroliniana</i>	Carolina redroot	X	X	X	3
<i>Lachnocaulon anceps</i>	whitehead bogbutton		X	X	2
<i>Lechea pulchella</i> var. <i>ramosissima</i>	Leggett's pinweed		X		1
<i>Lechea</i> sp.	pinweed		X		1
<i>Liatris elegantula</i>	grassleaf gayfeather			X	1
<i>Liatris gracilis</i>	slender gayfeather		X	X	2
<i>Liatris resinosa</i>	dense gayfeather		X	X	2
<i>Lobelia brevifolia</i>	shortleaf lobelia			X	1
<i>Lophiola aurea</i>	golden crest		X	X	2
<i>Lorinseria areolata</i>	netted chain fern	X	X	X	3
<i>Ludwigia linearis</i>	narrowleaf primrosewillow		X		1
<i>Ludwigia linifolia</i>	Southeastern primrosewillow			X	1
<i>Ludwigia maritima</i>	seaside primrosewillow		X		1
<i>Ludwigia pilosa</i>	hairy primrosewillow	X		X	2
<i>Lycopodiella alopecuroides</i>	foxtail club-moss		X	X	2
<i>Lycopodiella appressa</i>	Southern club-moss		X		1
† <i>Lygodium japonicum</i>	<b>Japanese climbing fern</b>		X		1
<i>Lyonia ferruginea</i>	rusty staggerbush		X		1
<i>Lyonia fruticosa</i>	coastalplain staggerbush		X		1
<i>Lyonia lucida</i>	fetterbush	X	X	X	3
<i>Magnolia virginiana</i> var. <i>australis</i>	sweetbay	X	X	X	3
<i>Mitreola sessilifolia</i>	swamp hornpod			X	1
<i>Morella caroliniensis</i>	evergreen bayberry	X			1
<i>Morella cerifera</i>	Southern bayberry	X	X	X	3
<i>Morella inodora</i>	odorless bayberry	X			1
moss			X		1
<i>Muhlenbergia expansa</i>	cutover muhly			X	1
<i>Muscadinia rotundifolia</i>	muscadine	X	X	X	3
<i>Nyssa biflora</i>	swamp tupelo	X			1
<i>Nyssa ogeche</i>	ogeechee tupelo	X			1
<i>Osmunda spectabilis</i>	royal fern			X	1
<i>Osmundastrum cinnamomeum</i>	cinnamon fern			X	1
† <i>Panicum repens</i>	torpedo grass	X	X	X	3
<i>Paspalum setaceum</i>	thin paspalum		X		1
<i>Pieris phillyreifolia</i>	climbing fetterbush	X			1
<i>Pinus elliotii</i>	slash pine	X	X	X	3
<i>Pityopsis graminifolia</i>	narrowleaf silkgrass		X		1
<i>Pityopsis nervosa</i>	silkgrass		X		1
<i>Polygala cruciata</i>	drumheads			X	1
<i>Polygala lutea</i>	orange milkwort			X	1

Scientific Name	Common Name	Cypress	Hydric Pine Flatwoods	Hydric Pine Savanna	Grand Total
<i>Polygala nana</i>	candyroot		X		1
<i>Polygonella gracilis</i>	tall jointweed		X		1
<i>Proserpinaca pectinata</i>	combleaf mermaidweed			X	1
<i>Pseudolycopodiella caroliniana</i>	slender club-moss			X	1
<i>Pteridium pseudocaudatum</i>	tailed bracken		X	X	2
<i>Pterocaulon pycnostachyum</i>	blackroot		X	X	2
<i>Quercus geminata</i>	sand live oak			X	1
<i>Quercus minima</i>	dwarf live oak		X	X	2
<i>Quercus virginiana</i>	live oak			X	1
<i>Rhexia alifanus</i>	savannah meadowbeauty		X	X	2
<i>Rhexia mariana</i>	pale meadowbeauty		X	X	2
<i>Rhexia petiolata</i>	fringed meadowbeauty		X	X	2
<i>Rhexia virginica</i>	handsome harry	X	X	X	3
<i>Rhus copallinum</i> var. <i>copallinum</i>	winged sumac		X		1
<i>Rhynchospora careyana</i>	Cary's horned beaksedge			X	1
<i>Rhynchospora cephalantha</i> var. <i>cephalantha</i>	bunched beaksedge	X		X	2
<i>Rhynchospora chalarocephala</i>	loosehead beaksedge			X	1
<i>Rhynchospora chapmanii</i>	Chapman's beaksedge		X	X	2
<i>Rhynchospora ciliaris</i>	fringed beaksedge			X	1
<i>Rhynchospora corniculata</i>	shortbristle horned beaksedge	X			1
<i>Rhynchospora debilis</i>	savannah beaksedge		X		1
<i>Rhynchospora fascicularis</i>	fascicled beaksedge	X	X	X	3
<i>Rhynchospora fernaldii</i>	Fernald's beaksedge			X	1
<i>Rhynchospora filifolia</i>	threadleaf beaksedge			X	1
<i>Rhynchospora gracilentia</i>	slender beaksedge			X	1
<i>Rhynchospora inundata</i>	narrowfruit horned beaksedge			X	1
<i>Rhynchospora plumosa</i>	plumed beaksedge	X	X	X	3
<i>Rhynchospora</i> sp.	beaksedge	X			1
<b><i>Rhynchospora galeana</i></b>	<b>shortbristle beaksedge</b>			<b>X</b>	<b>1</b>
<i>Rubus pensilvanicus</i>	sawtooth blackberry		X	X	2
<i>Sabatia brevifolia</i>	shortleaf rosegentian			X	1
<i>Sarracenia flava</i>	yellow pitcherplant			X	1
<i>Schizachyrium stoloniferum</i>	creeping little bluestem		X		1
<i>Scleria baldwinii</i>	Baldwin's nutrush			X	1
<i>Scleria ciliata</i>	fringed nutrush		X		1
<i>Scleria reticularis</i>	netted nutrush			X	1
<i>Serenoa repens</i>	saw palmetto		X	X	2
<i>Smilax auriculata</i>	earleaf greenbriar		X	X	2
<i>Smilax glauca</i>	cat greenbriar		X		1
<i>Smilax laurifolia</i>	laurel greenbriar	X	X	X	3
<i>Smilax pumila</i>	sarsaparilla vine		X	X	2
<i>Solidago fistulosa</i>	pinebarren goldenrod	X	X	X	3
<i>Solidago odora</i>	sweet goldenrod		X	X	2
<i>Sphagnum</i> sp.	sphagnum moss	X	X	X	3

Scientific Name	Common Name	Cypress	Hydric Pine Flatwoods	Hydric Pine Savanna	Grand Total
<i>Tamala palustris</i>	swamp bay	X	X		2
<i>Taxodium ascendens</i>	pond cypress	X		X	2
<b><i>Tephrosia hispida</i></b>	<b>sprawling hoary-pea</b>		<b>X</b>		1
<i>Tiedemannia filiformis</i> ssp. <i>filiformis</i>	water cowbane			X	1
<b><i>Toxicodendron radicans</i> var. <i>radicans</i></b>	<b>Eastern poison ivy</b>	<b>X</b>			1
<i>Trilisa odoratissima</i>	vanillaleaf		X	X	2
<i>Utricularia cornuta</i>	horned bladderwort			X	1
<i>Utricularia juncea</i>	Southern bladderwort			X	1
<i>Vaccinium darrowii</i>	Darrow's blueberry		X		1
<b><i>Vaccinium elliotii</i></b>	<b>Elliott's blueberry</b>		<b>X</b>		1
<i>Vaccinium fuscatum</i>	hairy highbush blueberry	X	X		2
<i>Vaccinium myrsinites</i>	shiny blueberry		X	X	2
<i>Viola vittata</i>	Southern water violet			<b>X</b>	1
<i>Xyris ambigua</i>	coastalplain yellow-eyed grass		X	X	2
<i>Xyris brevifolia</i>	shortleaf yellow-eyed grass		X	X	2
<i>Xyris caroliniana</i>	Carolina yellow-eyed grass		X		1
<i>Xyris elliotii</i>	Elliott's yellow-eyed grass	X	X	X	3
<i>Xyris fimbriata</i>	fringed yellow-eyed grass	X	X	X	3
<i>Xyris flabelliformis</i>	savannah yellow-eyed grass			X	1
<i>Xyris platylepis</i>	tall 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	1
<b>Total number of taxa: 187</b>		46	121	124	

## Hydric Pine Flatwoods

**Qualitative sampling.** The hydric pine flatwoods areas had been disturbed in the past few years by the thinning of mature planted slash pines. The open canopy of mature slash pines covered a variously dense shrub layer. The area near Transect 1 (western transect) had been bedded years ago when the pines were planted. This area had a fairly dense shrub stratum that had been gaining in height in recent years and an herbaceous layer composed primarily of purple bluestem. In the past, the eastern section near Transect 2 had more saw palmetto and gallberry and a diverse herbaceous cover with scattered patches of wiregrass and beaksedges. Recent shrub reduction efforts (chopping and chemical treatment) seem to have drastically altered this area, with less saw palmetto and runner oak, and an increase in weedy purple bluestem. At the time of the 2025 field sampling, most of the Ward Creek site had been burned very recently.

The state-endangered Fernald's pogonia was detected in hydric pine flatwoods for the first time in 2021 but has not been seen in recent years. We found the non-native invasive climbing fern for the first time this year in hydric pine flatwoods. FNAI observed a total of 121 species in this community (Table 1).

**Quantitative sampling.** The western Transect 1 (Figure 3, Table 2) had a total of 22 species with only 7% total plant cover, a drastic reduction from last year due to the very recent prescribed burn. Numerous

slash pines had fallen in the area of the transect due to past storms. The detectable vegetation along the transect was mainly shrubs (6%) averaging only around 20 cm in height. Large gallberry, saw palmetto, and sweet pepperbush contributed the most cover, but most large shrubs of these have been killed by fire. Total herb cover was less than 1%. While species composition is similar to last year, the recent fire has dramatically altered the 2025 sample.

The eastern Transect 2 (

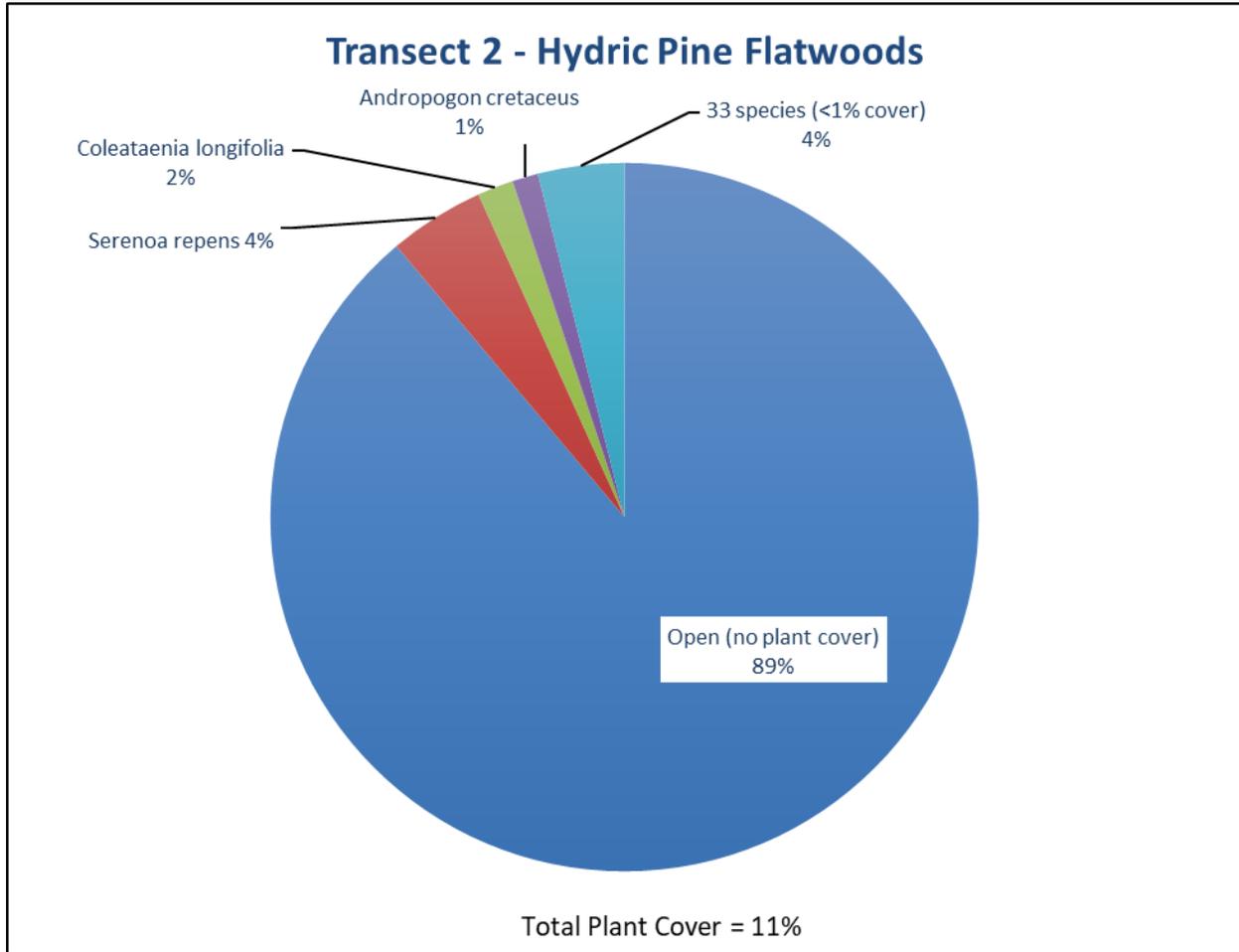


Figure 4, Table 3) had a total of 36 species with only 11% total plant cover split somewhat evenly between shrubs and herbs. Saw palmetto contributed the most cover, and average shrub height was very low at around 15 cm average. Since 2018, dwarf live oak and shortleaf yellow-eyed grass, once dominants, are now only trace components, at most, while weedy purple bluestem is now the most abundant herbaceous species.

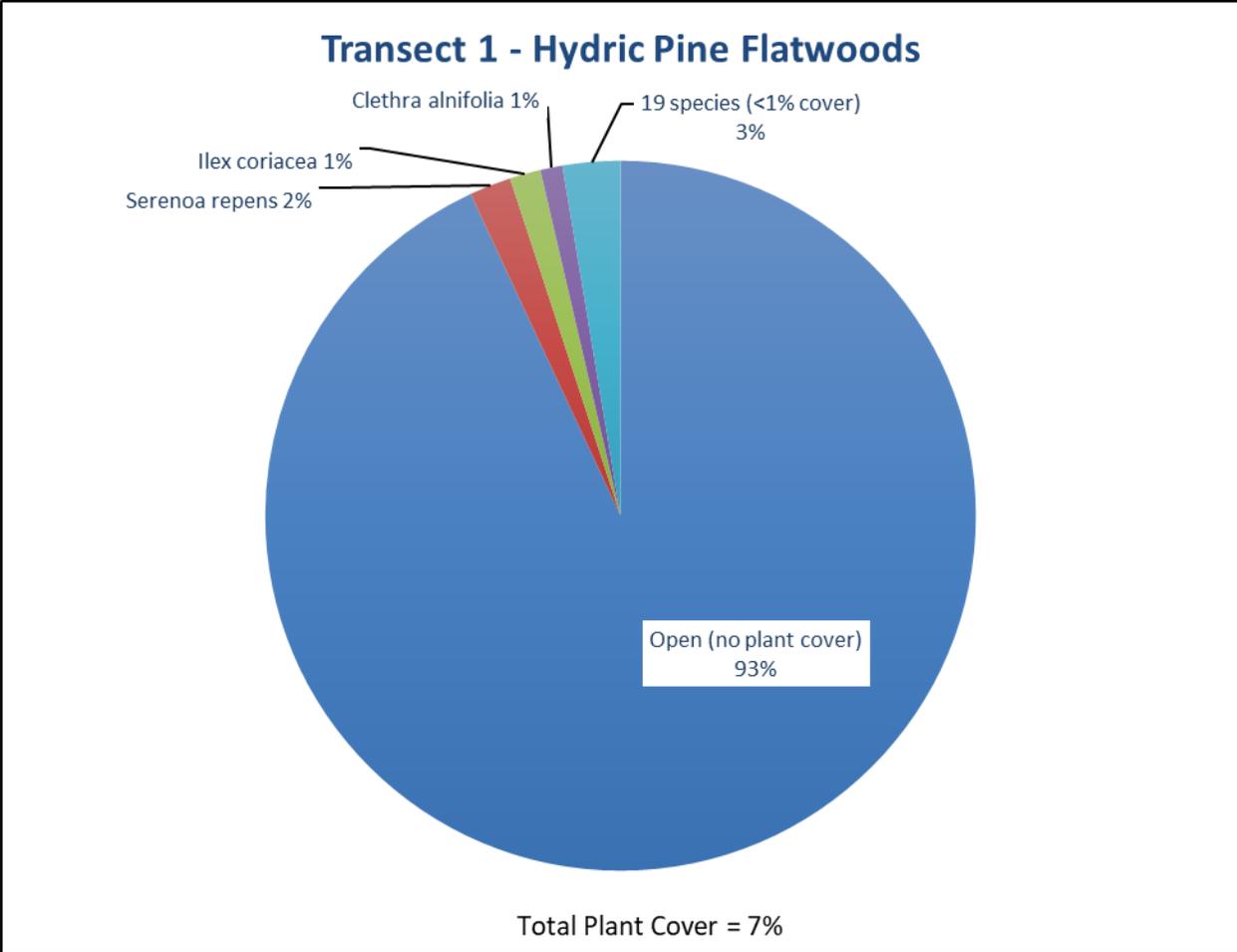


Figure 3. Percent relative cover of plant species in Hydric Pine Flatwoods Transect 1.

Table 2. Percent cover of plant species in Hydric Pine Flatwoods Transect 1 sampled on October 16, 2025.

Scientific name	Common name	Average percent cover per quadrat
<i>Andropogon cretaceus</i>	purple bluestem	0.10
<i>Andropogon sp.</i>	bluestem	0.03
<i>Aronia arbutifolia</i>	red chokeberry	0.10
<i>Clethra alnifolia</i>	sweet pepperbush	1.17
<i>Cliftonia monophylla</i>	black titi	0.93
<i>Coleataenia longifolia</i>	ciliate redtop panicum	0.03
<i>Dichantherium ensifolium</i>	small-leaved witchgrass	0.07
<i>Dichantherium sphaerocarpon</i>	roundseed witchgrass	0.07
<i>Eupatorium mohrii</i>	Mohr's thoroughwort	0.10
<i>Hypericum microsepalum</i>	flatwoods St. John's wort	0.03
<i>Ilex coriacea</i>	large gallberry	1.63
<i>Kalmia hirsuta</i>	hairy wicky	0.03
<i>Lachnanthes caroliniana</i>	Carolina redroot	0.20

Scientific name	Common name	Average percent cover per quadrat
<i>Lyonia fruticosa</i>	coastalplain staggerbush	0.03
<i>Muscadinia rotundifolia</i>	muscadine	0.03
<i>Pinus elliotii</i>	slash pine	0.07
<i>Rhexia petiolata</i>	fringed meadowbeauty	0.10
<i>Rhynchospora fascicularis</i>	fascicled beaksedge	0.43
<i>Rhynchospora plumosa</i>	plumed beaksedge	0.03
<i>Serenoa repens</i>	saw palmetto	2.20
<i>Smilax laurifolia</i>	laurel greenbriar	0.10
<i>Vaccinium fuscatum</i>	hairy highbush blueberry	0.53
Open (no plant cover)		93.07

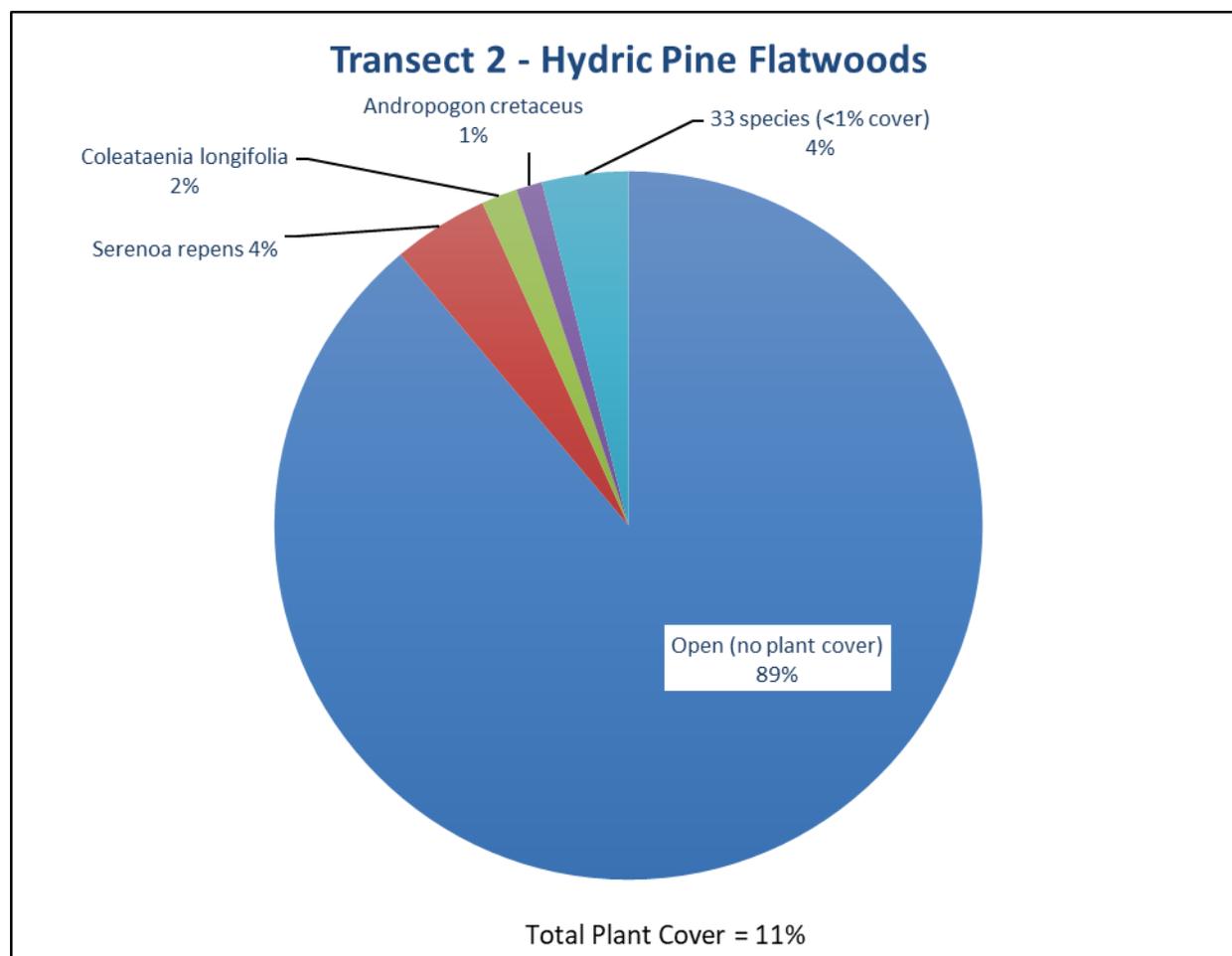


Figure 4. Percent relative cover of plant species in Hydric Pine Flatwoods Transect 2.

Table 3. Percent cover of plant species in Hydric Pine Flatwoods Transect 2 sampled on October 16, 2025.

Scientific name	Common name	Average percent cover per quadrat
<i>Anchistea virginica</i>	Virginia chain fern	0.03
<i>Andropogon campbellii</i>	deceptive bluestem	0.27
<i>Andropogon capillipes</i>	dryland white bluestem	0.67
<i>Andropogon cretaceus</i>	purple bluestem	1.37
<i>Andropogon</i> sp.	bluestem	0.03
<i>Andropogon virginicus</i>	broomsedge bluestem	0.13
<i>Coleataenia longifolia</i>	ciliate redtop panicum	1.90
<i>Cyrilla parvifolia</i>	littleleaf titi	0.27
<i>Dichantherium portoricense</i>	Puerto Rican witchgrass	0.03
<i>Eupatorium mohrii</i>	Mohr's thoroughwort	0.20
<i>Euphorbia inundata</i> var. <i>inundata</i>	Florida pineland spurge	0.03
<i>Euthamia caroliniana</i>	slender flattop goldenrod	0.30
<i>Hypericum microsepalum</i>	flatwoods St. John's wort	0.03
<i>Ilex glabra</i>	gallberry	0.30
<i>Juncus</i> sp.	rush	0.07
<i>Kalmia hirsuta</i>	hairy wicky	0.03
<i>Lachnocaulon anceps</i>	whitehead bogbutton	0.07
moss	moss	0.03
<i>Pinus elliotii</i>	slash pine	0.10
<i>Pteridium pseudocaudatum</i>	tailed bracken	0.03
<i>Quercus minima</i>	dwarf live oak	0.07
<i>Rhexia petiolata</i>	fringed meadowbeauty	0.07
<i>Rhexia virginica</i>	handsome harry	0.03
<i>Rhynchospora debilis</i>	savannah beaksedge	0.03
<i>Rhynchospora plumosa</i>	plumed beaksedge	0.03
<i>Rhynchospora</i> sp.	beaksedge	0.33
<i>Rubus pensilvanicus</i>	sawtooth blackberry	0.60
<i>Schizachyrium stoloniferum</i>	creeping little bluestem	0.10
<i>Serenoa repens</i>	saw palmetto	5.03
<i>Smilax auriculata</i>	earleaf greenbriar	0.07
<i>Solidago fistulosa</i>	pinebarren goldenrod	0.07
<i>Sphagnum</i> sp.	sphagnum moss	0.20
<i>Trilisa odoratissima</i>	vanillaleaf	0.10
<i>Xyris brevifolia</i>	shortleaf yellow-eyed grass	0.03
<i>Xyris caroliniana</i>	Carolina yellow-eyed grass	0.07
<i>Xyris</i> sp.	yellow-eyed grass	0.10
Open (no plant cover)		88.87

### Hydric Pine Savanna

**Qualitative sampling.** The hydric pine savanna restoration area was highly disturbed by past silviculture operations. The pines have been harvested and recently the vegetative cover consisted of mostly weedy species intermixed with widely scattered clumps of wiregrass. Widely scattered young slash pine and pond cypress and shrubby clumps of fetterbush, titi, black titi, and laurel greenbrier occurred

throughout. During the 2025 field sampling, much of the site had been recently burned, and standing dead shrubs and greenbrier thickets were abundant.

In prior years, four state-listed species have been found in this community, the threatened pinewoods bluestem (*Andropogon arctatus*), Curtiss' sandgrass (*Calamovilfa curtissii*), and red-flowered pitcher plant (*Sarracenia rubra*), plus the endangered Fernald's pogonia (*Cleistesiopsis oricamporum*), referenced in prior reports as "upland spreading pogonia." In 2025, only Curtiss' sandgrass was observed. The non-native invasive torpedo grass was noted in the ditch near the interior gate on the site and was starting to spread into the adjacent savanna. We documented a total of 124 plant species in this community (Table 1).

**Quantitative sampling.** Transect 1 (Figure 5, Table 4) had a total of 37 species and only 17% total plant cover due to the recent fire. Since 2023, black titi had been increasing along purple bluestem. Shrubs were dramatically reduced in this sample, making up around 7% cover, while herbs averaged 10% cover. Shrub height was only around 29 cm, although the abundant standing dead shrubs were over 2 m tall.

Transect 2 (Figure 6, Table 5) had a total of 33 species and 63% total plant cover. The transect was partially burned with the central portion receiving fire, leaving a thicket of dead shrubs. Shrub cover was around 35%, reduced from last year but still dominated by black titi and fetterbush. Because the area only partially burned, the average shrub height was taller than on the other transects at around 84 cm. Herb cover was 30%, with tenangle pipewort, wiregrass, and purple bluestem dominant.

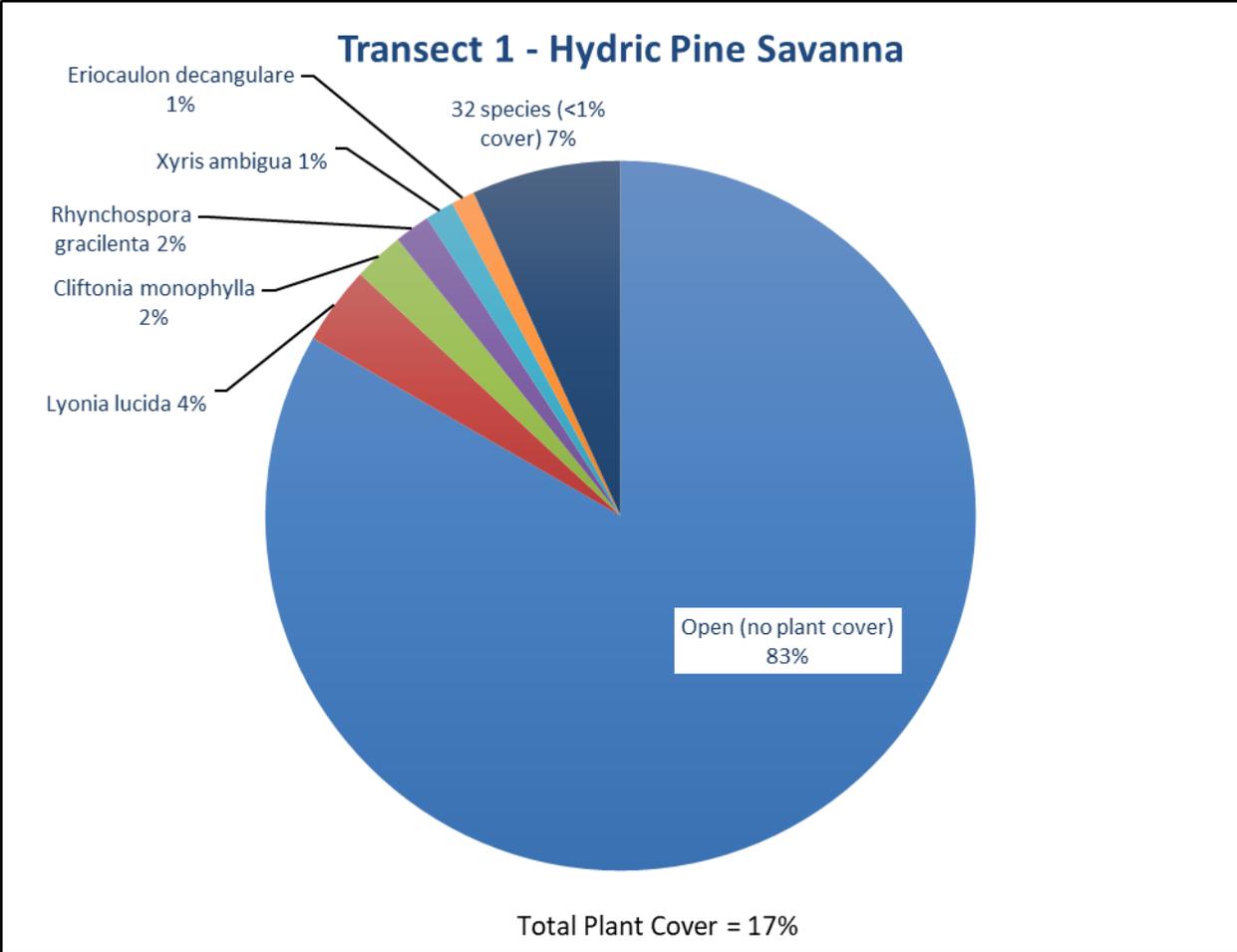


Figure 5. Percent relative cover of plant species in Hydric Pine Savanna Transect 1.

Table 4. Percent cover of plant species in Hydric Pine Savanna Transect 1 sampled on October 15, 2025.

Scientific name	Common name	Average percent cover per quadrat
<i>Andropogon cretaceus</i>	purple bluestem	0.77
<i>Andropogon sp.</i>	bluestem	0.07
<i>Andropogon virginicus</i>	broomsedge bluestem	0.10
<i>Aristida beyrichiana</i>	Southern wiregrass	0.53
<i>Cliftonia monophylla</i>	black titi	2.50
<i>Ctenium aromaticum</i>	toothache grass	0.10
<i>Cyrilla racemiflora</i>	titi	0.10
<i>Dichantherium ensifolium</i>	small-leaved witchgrass	0.03
<i>Dichantherium sp.</i>	witchgrass	0.10
<i>Drosera capillaris</i>	pink sundew	0.13
<i>Eriocaulon compressum</i>	flattened pipewort	0.23
<i>Eriocaulon decangulare</i>	tenangle pipewort	1.17
<i>Eupatorium mohrii</i>	Mohr's thoroughwort	0.30
<i>Eupatorium pilosum</i>	rough boneset	0.27
<i>Eupatorium rotundifolium</i>	roundleaf thoroughwort	0.13

Scientific name	Common name	Average percent cover per quadrat
<i>Eupatorium</i> sp.	thoroughwort	0.03
<i>Euthamia caroliniana</i>	slender flattop goldenrod	0.03
<i>Gaylussacia mosieri</i>	woolly huckleberry	0.07
<i>Hypericum fasciculatum</i>	peelbark St. John's wort	0.77
<i>Ilex coriacea</i>	large gallberry	0.07
<i>Lachnanthes caroliniana</i>	Carolina redroot	0.13
<i>Lycopodiella alopecuroides</i>	foxtail club-moss	0.03
<i>Lyonia lucida</i>	fetterbush	3.90
<i>Rhexia petiolata</i>	fringed meadowbeauty	0.50
<i>Rhynchospora cephalantha</i> var. <i>cephalantha</i>	bunched beaksedge	0.07
<i>Rhynchospora ciliaris</i>	fringed beaksedge	0.90
<i>Rhynchospora fascicularis</i>	fascicled beaksedge	0.53
<i>Rhynchospora gracilentata</i>	slender beaksedge	1.77
<i>Rhynchospora</i> sp.	beaksedge	0.03
<i>Sarracenia flava</i>	yellow pitcherplant	0.03
<i>Smilax laurifolia</i>	laurel greenbriar	0.20
<i>Sphagnum</i> sp.	sphagnum moss	0.13
<i>Xyris ambigua</i>	coastalplain yellow-eyed grass	1.43
<i>Xyris brevifolia</i>	shortleaf yellow-eyed grass	0.90
<i>Xyris elliotii</i>	Elliott's yellow-eyed grass	0.03
<i>Xyris flabelliformis</i>	savannah yellow-eyed grass	0.03
<i>Xyris</i> sp.	yellow-eyed grass	0.03
Open (no plant cover)		83.33

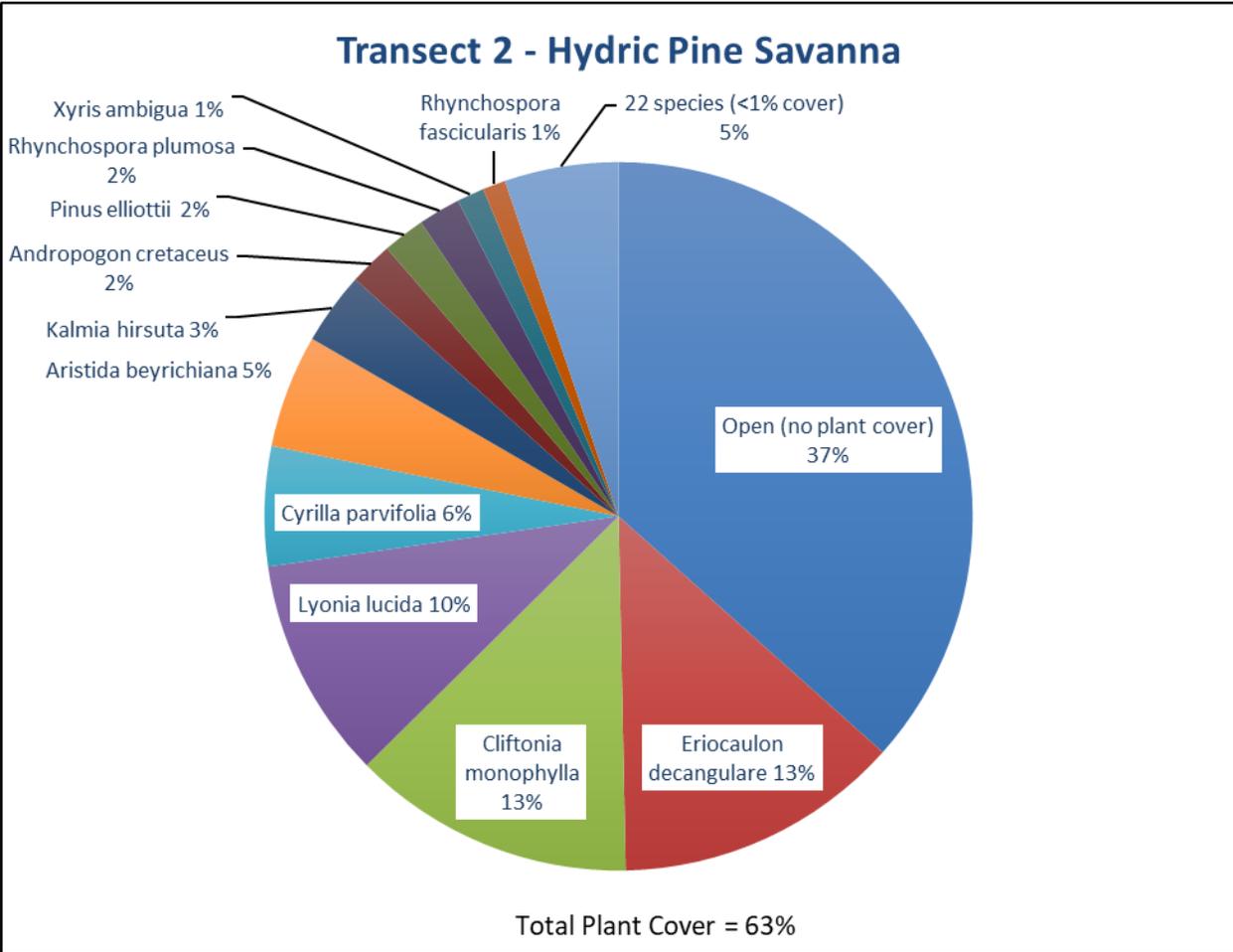


Figure 6. Percent relative cover of plant species in Hydric Pine Savanna Transect 2.

Table 5. Percent cover of plant species in Hydric Pine Savanna Transect 2 sampled on October 16, 2025.

Scientific name	Common name	Average percent cover per quadrat
<i>Andropogon cretaceus</i>	purple bluestem	2.03
<i>Aristida beyrichiana</i>	Southern wiregrass	5.27
<i>Aristida spiciformis</i> var. <i>spiciformis</i>	bottlebrush threeawn	0.23
<i>Cliftonia monophylla</i>	black titi	13.17
<i>Cyrilla parvifolia</i>	littleleaf titi	5.57
<i>Dichanthelium</i> sp.	witchgrass	0.07
<i>Drosera capillaris</i>	pink sundew	0.07
<i>Eriocaulon decangulare</i>	tenangle pipewort	13.33
<i>Eupatorium mohrii</i>	Mohr's thoroughwort	0.20
<i>Hypericum exile</i>	Florida sands St. John's wort	0.03
<i>Hypericum microsepalum</i>	flatwoods St. John's wort	0.13
<i>Ilex glabra</i>	gallberry	0.47
<i>Kalmia hirsuta</i>	hairy wicky	3.37

Scientific name	Common name	Average percent cover per quadrat
<i>Kelochloa verrucosa</i>	warty panicgrass	0.07
<i>Lachnanthes caroliniana</i>	Carolina redroot	0.67
<i>Lycopodiella alopecuroides</i>	foxtail club-moss	0.23
<i>Lyonia lucida</i>	fetterbush	10.33
<i>Pinus elliotii</i>	slash pine	1.97
<i>Polygala cruciata</i>	drumheads	0.03
<i>Pteridium pseudocaudatum</i>	tailed bracken	0.33
<i>Rhexia petiolata</i>	fringed meadowbeauty	0.17
<i>Rhynchospora chalarocephala</i>	loosehead beaksedge	0.07
<i>Rhynchospora chapmanii</i>	Chapman's beaksedge	0.03
<i>Rhynchospora fascicularis</i>	fascicled beaksedge	1.07
<i>Rhynchospora gracilentia</i>	slender beaksedge	0.60
<i>Rhynchospora plumosa</i>	plumed beaksedge	1.97
<i>Rhynchospora</i> sp.	beaksedge	0.17
<i>Smilax laurifolia</i>	laurel greenbriar	0.80
<i>Sphagnum</i> sp.	sphagnum moss	0.33
<i>Xyris ambigua</i>	coastalplain yellow-eyed grass	1.27
<i>Xyris brevifolia</i>	shortleaf yellow-eyed grass	0.50
<i>Xyris flabelliformis</i>	savannah yellow-eyed grass	0.07
<i>Xyris</i> sp.	yellow-eyed grass	0.03
Open (no plant cover)		36.60

## Cypress

**Qualitative sampling.** FNAI visited several sites in the cypress target community in 2025 (Figure 1). The canopy was around 45-60 feet tall and dominated by pond cypress and sweetbay, with smaller sweetbay, titi, and swamp bay in the subcanopy and tall shrub layers. Shorter shrubs included sweet pepperbush, swamp bay, sweetbay, and climbing fetterbush. A dense perimeter of shrubs and vines limited access to swamps somewhat. The non-native invasive Chinese tallow tree was observed in this community for the first time in 2023 but was not observed this year. However, torpedo grass was found in the Cypress community this year. FNAI observed a total of 46 species in this community in 2025 (Table 1).