

SACRED HEART MITIGATION

Winter 2019 Monitoring Report

USACE Permit No.: SAJ-1998-4720 IP-RVH

Permittee: Sacred Heart Hospital of Pensacola
C/o Mr. Patrick J. Madden – President
5151 north 9th Avenue
Pensacola, FL 32504

Responsible Party for Monitoring: Northwest Florida Water Management District
81 Water Management Drive
Havana, FL 32333

Dates of Inspection: 3/19/2019

Summary

This project (Sacred Heart Mitigation) compensates for impacts to jurisdictional wetlands associated with construction of the Sacred Heart Hospital near the intersection of US 98 and Mack Bayou Road in Walton County. It consists of restoring 82 acres of hydric pine flatwoods within the Devils Swamp area of the Northwest Florida Water Management District (NFWFMD) 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. Prior to NFWFMD acquisition in 1992, the site had been converted to slash pine plantation.

The mitigation area is divided into two management polygons. Mitigation activities implemented-to-date include 1) baseline monitoring (November 2017), 2) prescribed fire (February 2018), 3) repeat panoramic photography (March 2018, September 2018), and 4) post-baseline quantitative vegetation monitoring (April 2018 and March 2019).

Exotic and invasive plant species are not present. Thinning of tree density to less than 200 trees per acre and reduction of shrub cover to less than 5% are anticipated to be implemented in 2019.

Performance Standards

Standard	Status
Reduce tree density to less than 200 trees per acre.	Pending (Anticipated 2019)
Reduce shrub cover to less than 5%.	Pending (Anticipated 2019)
Implement prescribed fire on a 2 to 3-year cycle.	Met—Prescribed fire implemented in February 2018.
Conduct annual monitoring for a minimum of five years.	Met—Annual monitoring is being conducted. Hurricane Michael recovery operations delayed Fall 2018 monitoring until Winter 2019.
Cover of Category I and II invasive exotic plant species, pursuant to the most current list established by the Florida Exotic Pest Plant Council at http://www.fleppc.org , less than 1%.	Met—Cover of Category I & II invasive exotic plant species less than 1%.

Quantitative Monitoring Methodology and Results

Percent vegetation cover was measured in 1 m² quadrats (10-foot intervals) along four randomly placed 150-foot transects. The percent cover for each species and bare ground was determined by adding all quadrat observations together and dividing the total coverage by the cover of each species within each transect. This represents a modified Daubenmire cover scale where vegetation species statistics are used to determine the percent cover by bare ground, water and plant species.

Shrub density was monitored using five 1 m² quadrats established at random. Within each quadrat, the number of rooted shrub stems were counted.

Transect 1 (Hydric Pine Flatwoods Restoration)

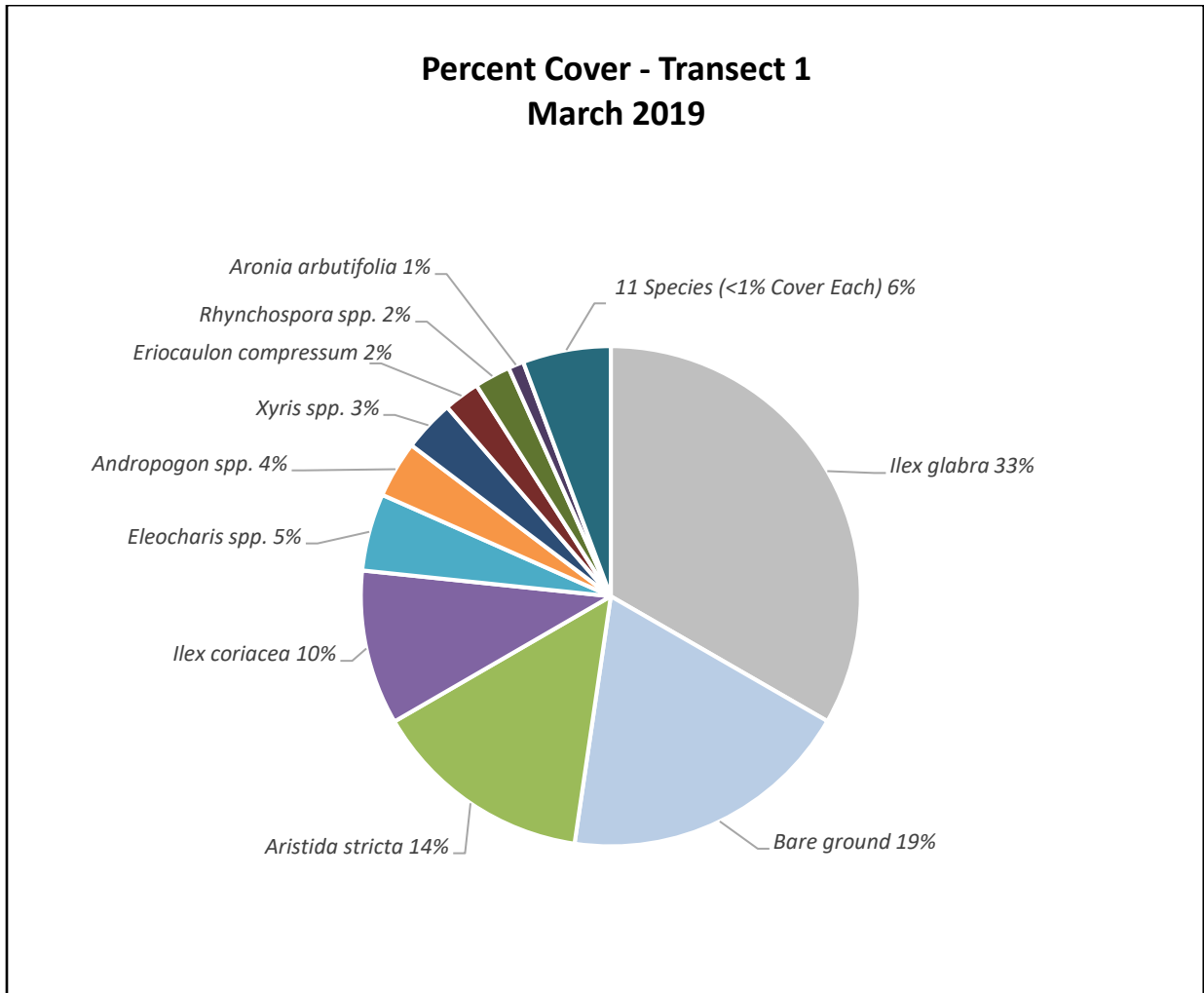


Figure 1. Sacred Heart Mitigation - Transect 1 (March 2019)¹

¹Because of rounding, percentages may not add up to exactly 100%.

Table 1. Sacred Heart Mitigation - Transect 1 (March 2019)

Scientific Name	Common Name	Percent Cover Across Transect
<i>Andropogon spp.</i>	Bluestem	3.7
<i>Aristida stricta</i>	Wiregrass	14.3
<i>Aronia arbutifolia</i>	Red Chokeberry	1.0
<i>Carex tenax</i>	Wire Sedge	0.3
<i>Cyperus spp.</i>	Flatsedge	0.7
<i>Dichanthelium spp.</i>	Witchgrass	0.3
<i>Eleocharis spp.</i>	Spikerush	5.0
<i>Eriocaulon compressum</i>	Flattened Pipewort	2.3
<i>Gaylussacia mosieri</i>	Huckleberry	0.7
<i>Hypericum spp.</i>	St. John's-wort	0.7
<i>Ilex coriacea</i>	Sweet Gallberry	10.0
<i>Ilex glabra</i>	Gallberry	33.3
<i>Lycopodiella alopecuroides</i>	Foxtail Club-moss	0.3
<i>Lycopodiella spp.</i>	Club-moss	0.7
<i>Pinus elliotii</i>	Slash Pine	0.3
<i>Quercus hemisphaerica</i>	Laurel Oak	0.3
<i>Quercus pumila</i>	Running Oak	0.7
<i>Rhynchospora spp.</i>	Beaksedge	2.3
<i>Smilax laurifolia</i>	Laurel Greenbrier	0.7
<i>Xyris spp.</i>	Yelloweyed Grass	3.3
Bare ground	Bare Ground	19.0
Total		100²

² Because of rounding, percentages may not add up to exactly 100%.

Transect 2 (Hydric Pine Flatwoods Restoration)

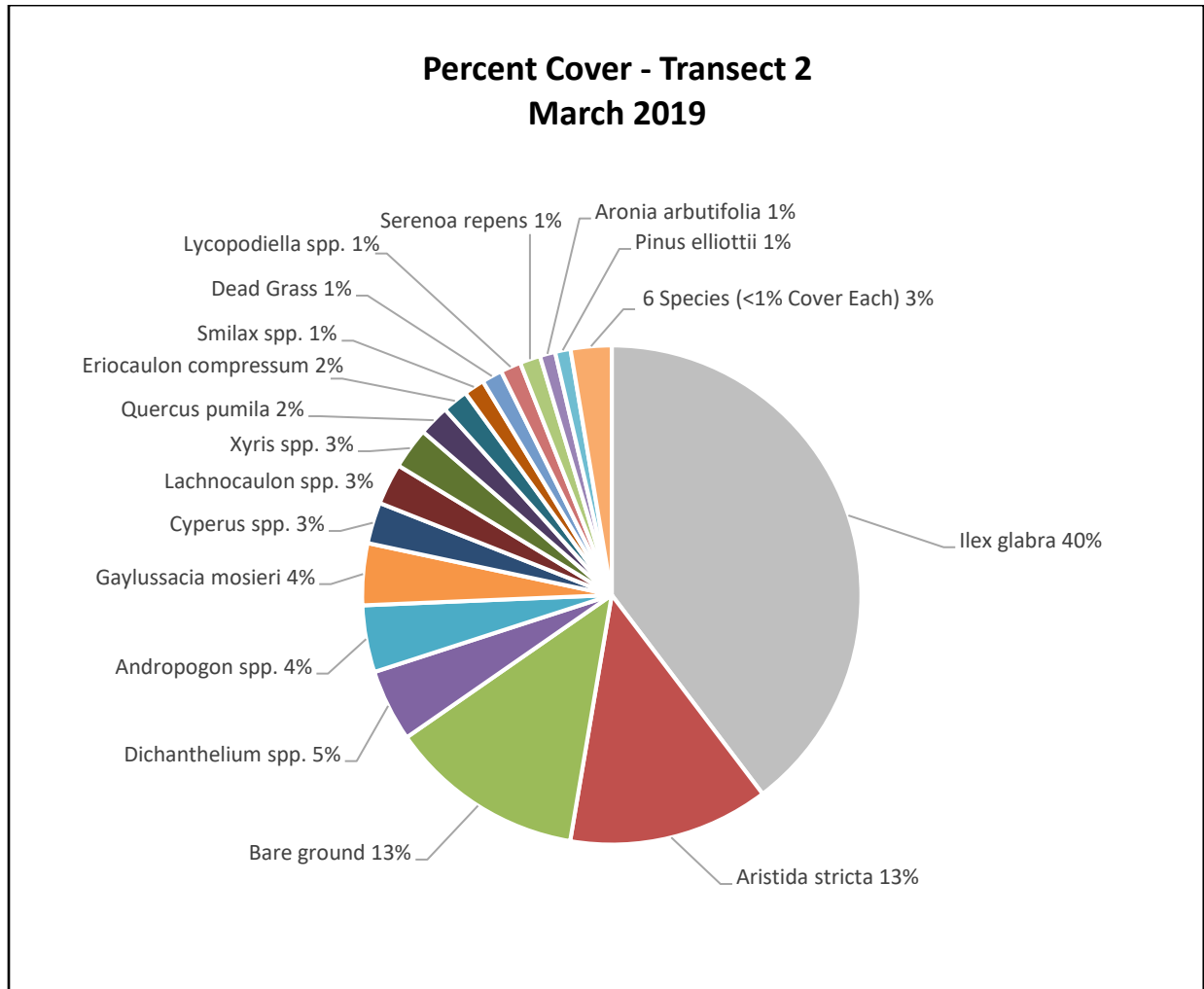


Figure 2. Sacred Heart Mitigation - Transect 2 (March 2019)³

³Because of rounding, percentages may not add up to exactly 100%.

Table 2. Sacred Heart Mitigation - Transect 2 (March 2019)

Scientific Name	Common Name	Percent Cover Across Transect
<i>Andropogon spp.</i>	Bluestem	4.3
<i>Aristida stricta</i>	Wiregrass	13.0
<i>Aronia arbutifolia</i>	Red Chokeberry	1.0
<i>Carex baltzellii</i>	Baltzell's Sedge	0.3
<i>Carex spp.</i>	Sedge	0.3
<i>Cyperus spp.</i>	Flatsedge	2.7
Dead Grass	Dead Grass	1.3
<i>Dichanthelium spp.</i>	Witchgrass	4.7
<i>Eleocharis spp.</i>	Spikerush	0.3
<i>Eriocaulon compressum</i>	Flattened Pipewort	1.7
<i>Gaylussacia mosieri</i>	Huckleberry	4.0
<i>Hypericum spp.</i>	St. John's-wort	0.3
<i>Ilex glabra</i>	Gallberry	39.7
<i>Ilex vomitoria</i>	Yaupon	0.7
<i>Lachnocaulon spp.</i>	Bogbutton	2.7
<i>Lycopodiella spp.</i>	Club-moss	1.3
<i>Pinus elliotii</i>	Slash Pine	1.0
<i>Polygala lutea</i>	Orange Milkweed	0.3
<i>Quercus pumila</i>	Running Oak	2.0
<i>Serenoa repens</i>	Saw Palmetto	1.3
<i>Smilax laurifolia</i>	Laurel Greenbrier	0.7
<i>Smilax spp.</i>	Greenbrier	0.7
<i>Vaccinium myrsinites</i>	Shiny Blueberry	0.3
<i>Xyris spp.</i>	Yelloweyed Grass	2.7
Bare ground	Bare Ground	12.7
Total		100 ⁴

⁴Because of rounding, percentages may not add up to exactly 100%.

Transect 3 (Hydric Pine Flatwoods Restoration)

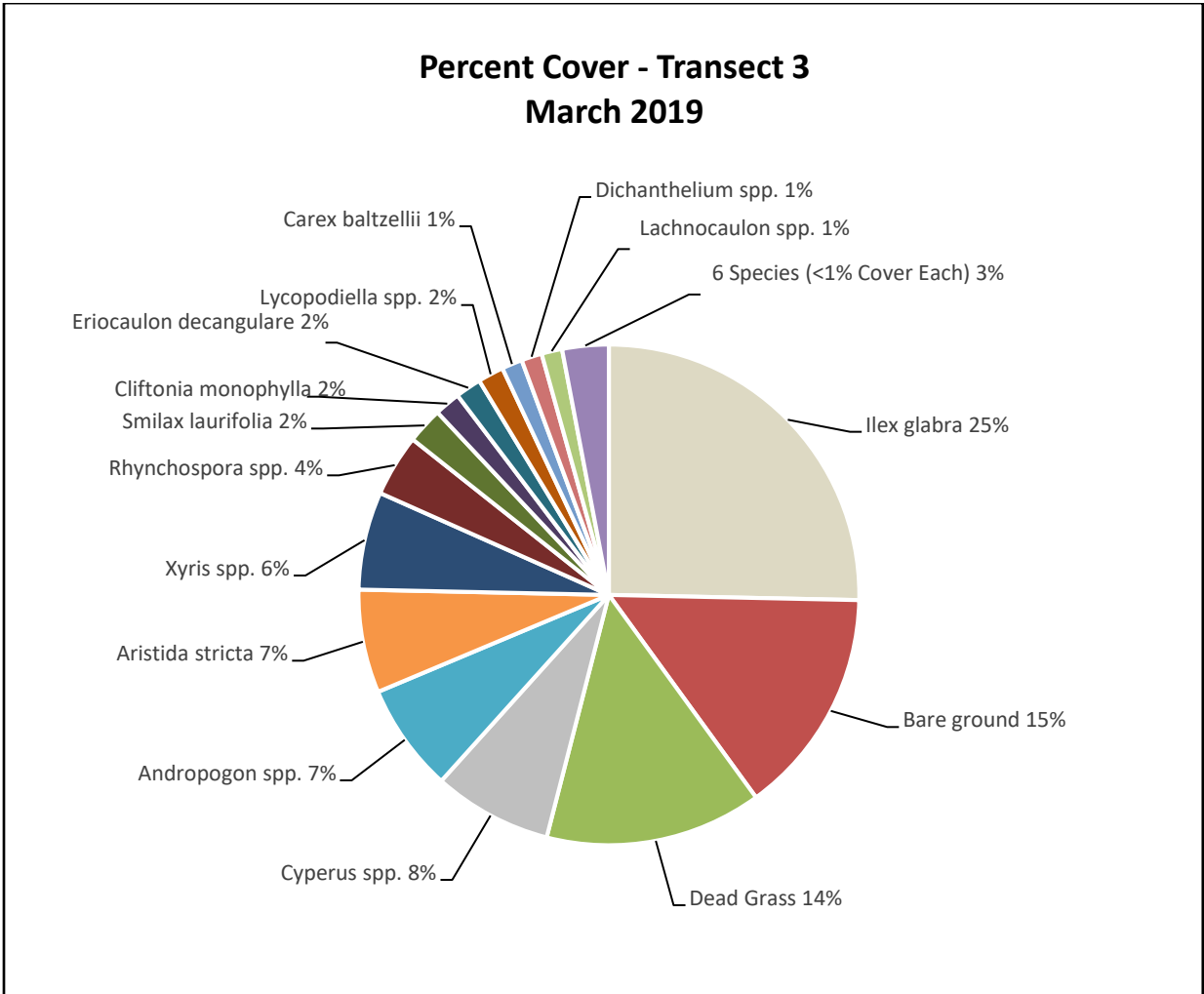


Figure 3. Sacred Heart Mitigation - Transect 3 (March 2019)⁵

⁵Because of rounding, percentages may not add up to exactly 100%.

Table 3. Sacred Heart Mitigation - Transect 3 (March 2019)

Scientific Name	Common Name	Percent Cover Across Transect
<i>Andropogon spp.</i>	Bluestem	7.0
<i>Aristida stricta</i>	Wiregrass	6.7
<i>Aronia arbutifolia</i>	Red Chokeberry	0.3
<i>Carex baltzellii</i>	Baltzell's Sedge	1.3
<i>Cliftonia monophylla</i>	Black Titi	1.7
<i>Cyperus spp.</i>	Flatsedge	7.7
<i>Dead Grass</i>	Dead Grass	14.0
<i>Dichanthelium spp.</i>	Witchgrass	1.3
<i>Eriocaulon compressum</i>	Flattened Pipewort	0.7
<i>Eriocaulon decangulare</i>	Tenangle Pipewort	1.7
<i>Gaylussacia mosieri</i>	Huckleberry	0.7
<i>Hypericum spp.</i>	St. John's-wort	0.3
<i>Ilex glabra</i>	Gallberry	25.3
<i>Ilex myrtifolia</i>	Myrtle Dahoon	0.7
<i>Lachnocaulon spp.</i>	Bogbutton	1.3
<i>Lycopodiella spp.</i>	Club-moss	1.7
<i>Rhynchospora spp.</i>	Beaksedge	4.0
<i>Smilax laurifolia</i>	Laurel Greenbrier	2.3
<i>Smilax spp.</i>	Greenbrier	0.3
<i>Xyris spp.</i>	Yelloweyed Grass	6.3
Bare ground	Bare Ground	14.7
		100 ⁶

⁶Because of rounding, percentages may not add up to exactly 100%.

Transect 4 (Hydric Pine Flatwoods Restoration)

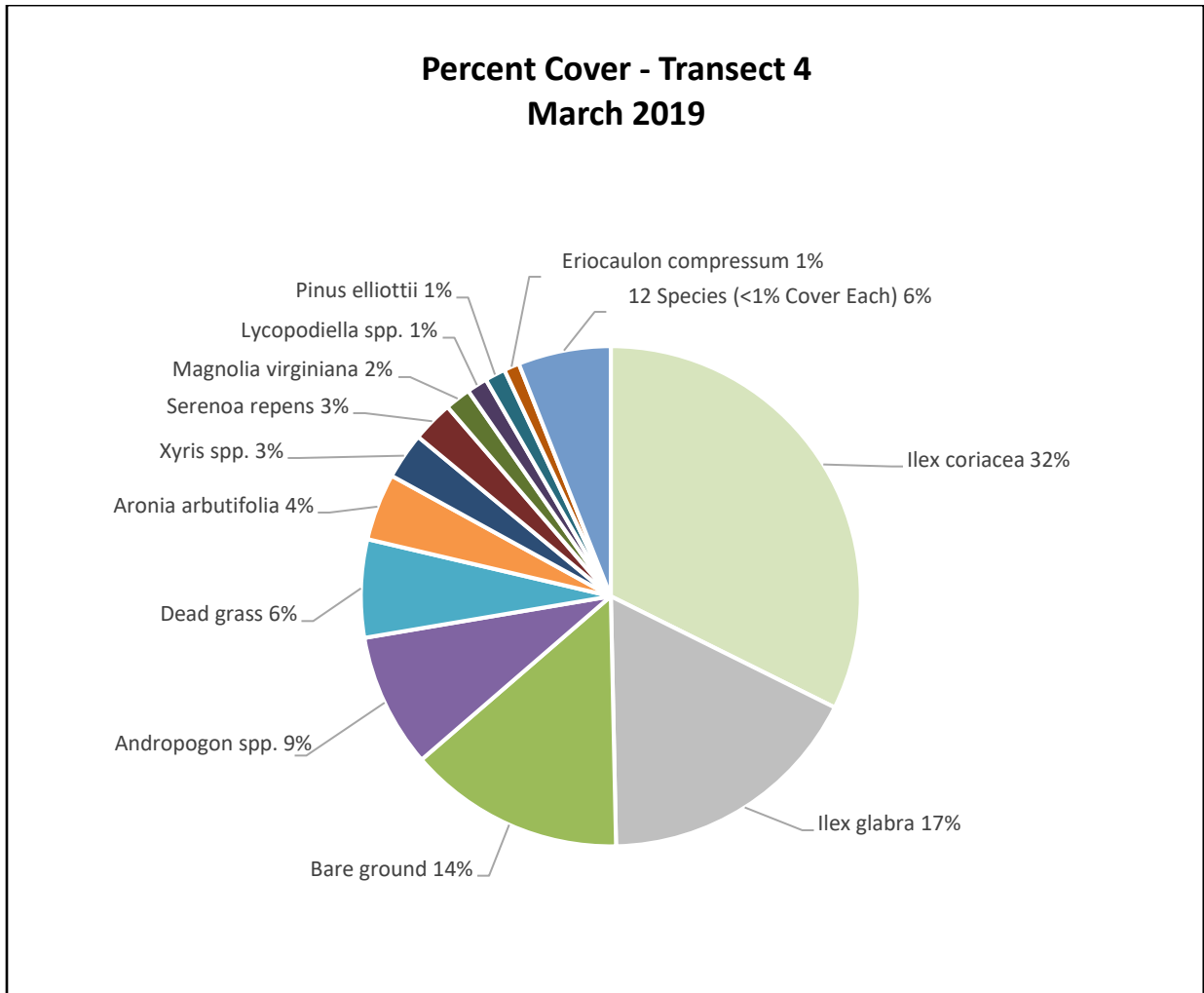


Figure 4. Sacred Heart Mitigation - Transect 4 (March 2019)⁷

⁷Because of rounding, percentages may not add up to exactly 100%.

Table 4. Sacred Heart Mitigation - Transect 4 (March 2019)

Scientific Name	Common Name	Percent Cover Across Transect
<i>Andropogon spp.</i>	Bluestem	8.7
<i>Aristida stricta</i>	Wiregrass	0.7
<i>Aronia arbutifolia</i>	Red Chokeberry	4.3
<i>Carex spp.</i>	Sedge	0.3
<i>Cliftonia monophylla</i>	Black Titi	0.7
<i>Cyperus spp.</i>	Flatsedge	0.7
<i>Dead grass</i>	Dead Grass	6.3
<i>Eriocaulon compressum</i>	Flattened Pipewort	1.0
<i>Gaylussacia mosieri</i>	Huckleberry	0.3
<i>Ilex coriacea</i>	Sweet Gallberry	32.3
<i>Ilex glabra</i>	Gallberry	17.3
<i>Ilex myrtifolia</i>	Myrtle Dahoon	0.3
<i>Lachnocaulon spp.</i>	Bogbutton	0.7
<i>Lycopodiella spp.</i>	Club-moss	1.3
<i>Magnolia virginiana</i>	Sweetbay	1.7
<i>Pinus elliotii</i>	Slash Pine	1.3
<i>Polygala lutea</i>	Orange Milkweed	0.3
<i>Quercus laurifolia</i>	Laurel Oak	0.3
<i>Rhynchospora spp.</i>	Beaksedge	0.3
<i>Serenoa repens</i>	Saw Palmetto	2.7
<i>Smilax spp.</i>	Greenbrier	0.7
<i>Vaccinium elliotii</i>	Elliott's Blueberry	0.7
<i>Xyris spp.</i>	Yelloweyed Grass	3.0
Bare ground	Bare Ground	14.0
		100 ⁸

⁸Because of rounding, percentages may not add up to exactly 100%.

Shrub Density Quadrats

Shrub Quadrat	Shrub Stems per m²
1	18
2	32
3	79
4	27
5	38
Total	194
AVG Stem per m²	38.8

Panoramic Monitoring Photos

**Photo Point 1
(Hydric Pine Flatwoods Restoration)**



Sacred Heart Mitigation Photo Point 1: 3/8/2018



Sacred Heart Mitigation Photo Point 1: 9/18/2018

**Photo Point 2
(Hydric Pine Flatwoods Restoration)**



Sacred Heart Mitigation Photo Point 2: 3/8/2018



Sacred Heart Mitigation Photo Point 2: 9/18/2018

**Photo Point 3
(Hydric Pine Flatwoods Restoration)**



Sacred Heart Mitigation Photo Point 3: 3/8/2018



Sacred Heart Mitigation Photo Point 3: 9/18/2018

**Photo Point 4
(Hydric Pine Flatwoods Restoration)**



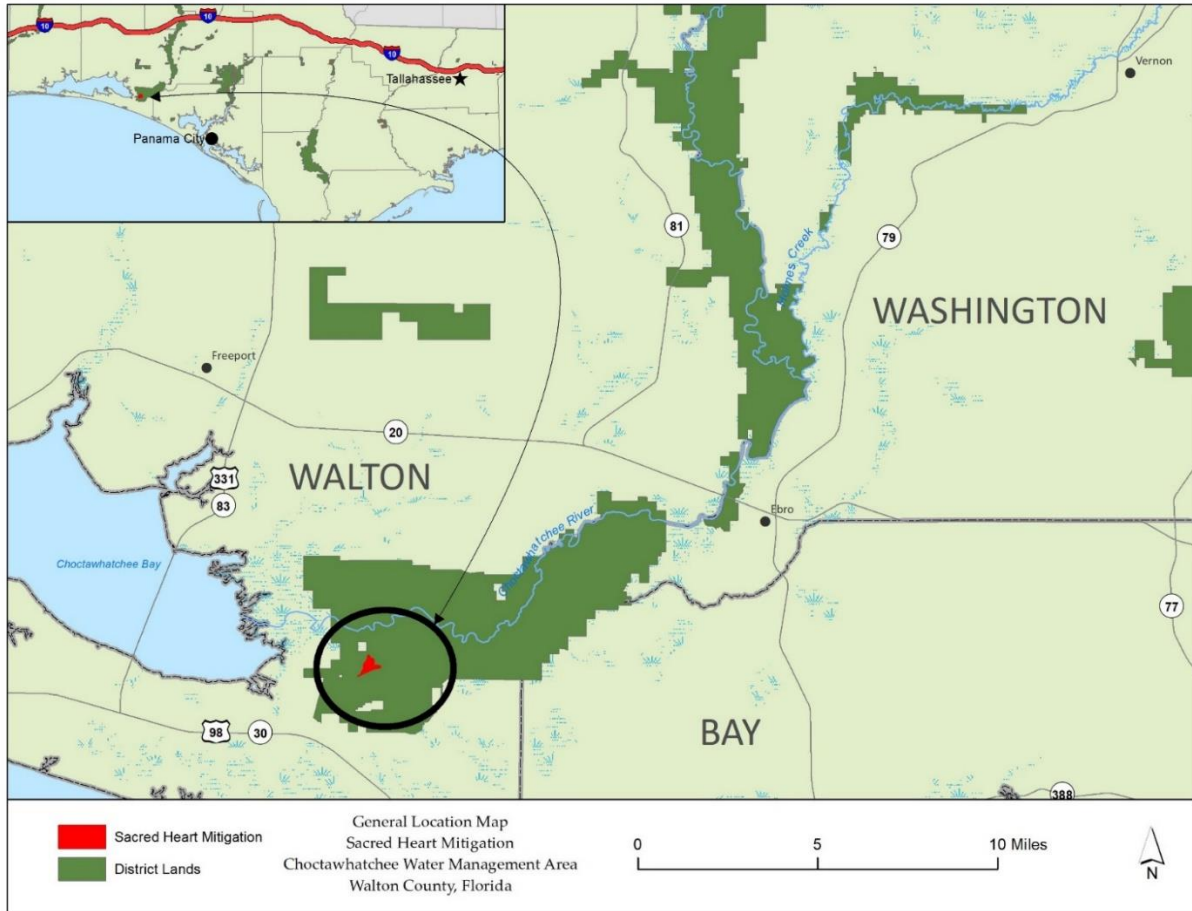
Sacred Heart Mitigation Photo Point 4: 3/8/2018

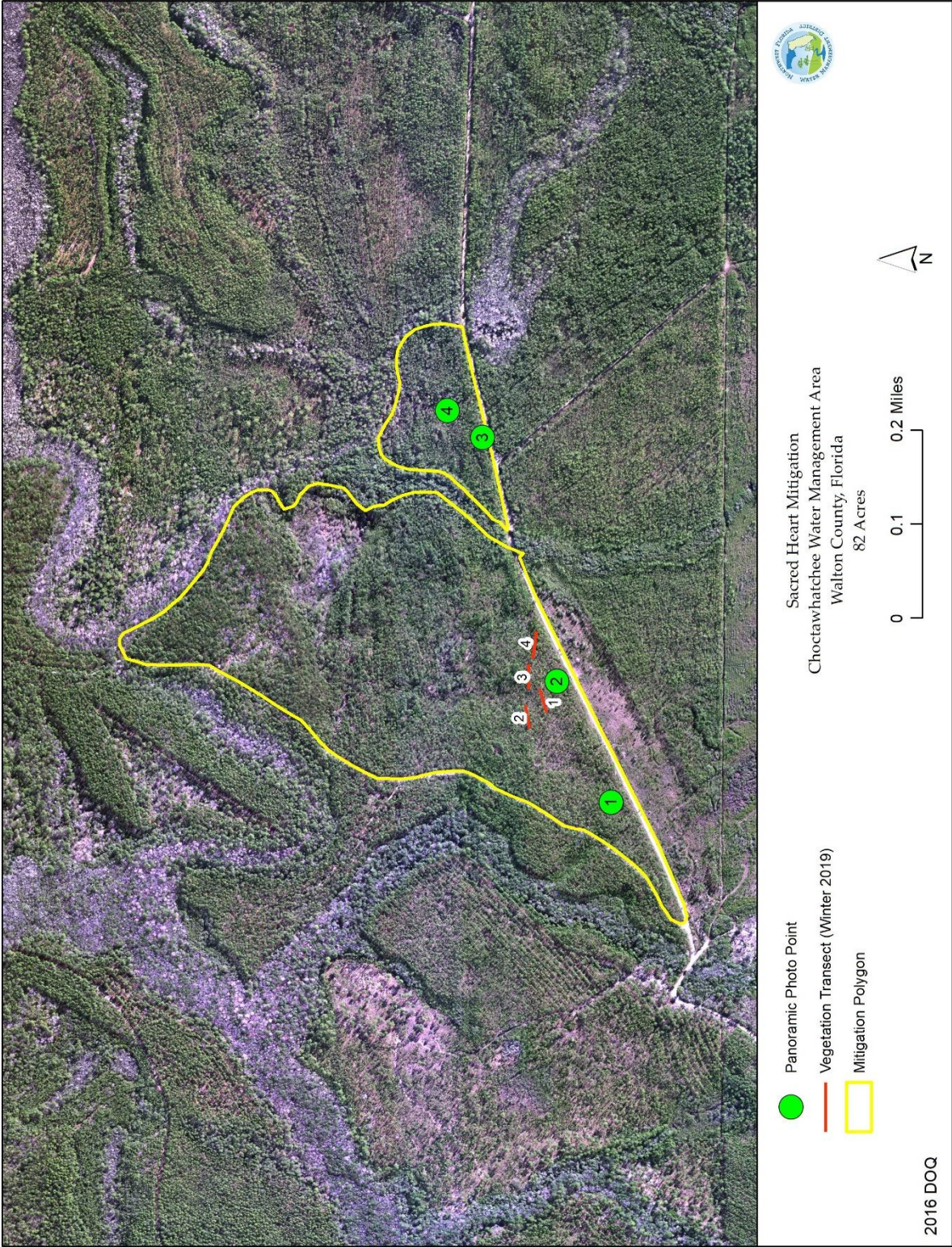


Sacred Heart Mitigation Photo Point 4: 9/18/2018

Conclusions

Mitigation and monitoring are being implemented in accordance with the USACE-approved mitigation plan associated with SAJ-1998-4720 IP-RVH. Performance standards for implementation of prescribed fire, monitoring, and invasive exotic plant species cover are being met. Shrub reduction to less than 5% cover and thinning of pines to less than 200 trees per acre are anticipated for 2019.





2016 DOQ