

A Survey for Federally Listed Plant Species, Invasive Exotic Plant  
Species, and High Quality Natural Communities on the Beasley Tract,  
Year 2, Apalachicola National Forest, Florida

by

Ann F. Johnson and Amy Jenkins

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Gary R. Knight, Program Director

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## INTRODUCTION

Between January and September 2013 botanists with the Florida Natural Areas Inventory (FNAI) conducted field surveys on three compartments in the Beasley Tract in the Apalachicola District of Apalachicola National Forest (ANF) as a follow-up to surveys performed in 2012 and recommendations for a post-burn survey. A fourth compartment (28) was added to the original area and surveyed during this survey period. The goals of the surveys were to identify locations for Federally-listed plant species, invasive exotic plant species, and sensitive areas of high quality natural communities, prior to a planned timber sale. In 2012, FNAI documented several areas of Godfrey's butterwort (*Pinguicula ionantha*) and a few plants of Florida skullcap (*Scutellaria floridana*) on the Beasley Tract (FNAI 2012). FNAI recommended that the area be burned and then resurveyed mainly so that the Florida skullcap could be more accurately evaluated.

## METHODS

The focus of the survey was to resurvey areas identified in 2012 as having high potential for rare plants, sensitive areas, and revisit some of the sites where we documented federally-listed species in 2012. Surveys were timed to coincide with times when these Federally listed species were best identified. Exotics were recorded as encountered during the survey and searched for along boundary roads and disturbed areas, where they were likely to occur. Natural community points were taken for good quality natural communities (intact ecotones, wiregrass groundcover, and high species diversity). These points were used in combination with interpretation of current aerial photography to outline sensitive areas composed of good quality ground cover and intact natural ecotones between communities. State-listed rare plant species were documented whenever encountered.

GPS location and data on rare plants, natural communities, and invasive exotic plant species were recorded with a Trimble Nomad datalogger with 3m accuracy. Also recorded were GPS survey track points showing the track followed in the survey. The FNAI natural community classification (FNAI 2010) was used for recording field data. The historical natural community map also uses this classification, except it collapses all forested wetland communities into one category and all flatwoods communities into one as well (FNAI 2012).

## RESULTS

Description. The Beasley Tract of about 6,695 acres is located on the west-central border of the Apalachicola District of ANF near the floodplain of the Apalachicola River and includes Compartments 25, 26, 27 and 28 (Figure 1). It is delimited on the north and west by National Forest boundaries, on the south by FR 189, CR 379, and FR 113 and on the east by FR 174. Gregory Mill Creek, a tributary of the Apalachicola River, traverses it from northeast to southwest. In 2012, FNAI completed an Historic Natural Communities Map of the ANF based on 1937 and 1952 historic aerials, present day aerial photography, LiDAR elevation data, soils

maps, rare species locations, and ground-truthing (FNAI 2012). Based on those findings, the Beasley tract was dominated by flatwoods, wet prairie, and freshwater forested wetlands (Table 1, Figure 1). The central portion east of CR 379 in Compartments 26 and 27 was historically a large wet prairie with flatwoods on the edges and scattered within the wet prairie as higher land inclusions (Figures 1 and 2; based on the 2012 Historic Natural Communities Map of the ANF). Much of the wet prairie is now in pine plantation, but some large areas remain (Figure 3). The portion west of CR 379 in Compartment 25 was historically and is currently dominated by the upland pine community, which occurs on soils with higher clay content originating from old alluvial river deposits. This is the dominant area of this community type on the ANF and is characterized by its clay soils and diverse hardwood midstory of species such as red oak (*Quercus falcata*) and flowering dogwood (*Cornus florida*). Much of what was historically flatwoods on this Compartment is now in pine plantation. A small portion of the Apalachicola River floodplain is included in the northwest corner of this compartment with mature floodplain swamp and alluvial forest communities. The eastern portion of the tract (Compartment 28) was historically dominated by the lowland swamp associated with a tributary of the Apalachicola River and uplands dominated by mesic flatwoods with a few high sandy areas of sandhill. Narrow wet prairies often serve as the ecotone between the flatwoods and forested wetlands in this eastern portion. Compartments 25 and 27 last burned on 18 February 2013; Compartment 26 on 15 March 2013, and Compartment 28 on 24 June 2012.

Table 1. Acres of historic natural communities mapped on the Beasley Tract.

<b>Historic Natural Community</b>	<b>Acres</b>	<b>Percentage</b>
Flatwoods (wet and mesic combined)	2,625.1	39.2%
Wet prairie	1,727.3	25.8%
Upland pine	716.8	10.7%
Sandhill	103.7	1.5%
Freshwater forested wetlands	1,520.2	22.7%
Marsh/Lake/Sinkhole	2.1	0.03%

Rare plants. No occurrences of the four Federally-listed species were on the Beasley Tract in the FNAI database at the start of surveys in 2012, but adjacent compartments had occurrences of Godfrey’s butterwort, white birds-in-a-nest, and Florida skullcap. In 2012 two new occurrences of Florida skullcap were found in the recently burned Compartment 28, causing surveys for this species on the remainder of the Beasley Tract to be intensified, with one flowering plant found in Compartment 27, along with vegetative plants in this compartment and in Compartment 26. In May 2013 these locations were re-surveyed after burns in February and March of that year. A large population of Florida skullcap was found in flower at the Compartment 27 location, but not in Compartment 26. The vegetative stems seen in this compartment in 2012 turned out to be a species of meadowbeauty (*Rhexia* sp.). This highlights why surveys for Florida skullcap can only reliably be done following a prescribed fire. Comparison of flowering dates for Florida skullcap and time of burn for compartments in which they occurred (Table 2) showed that the

time to flowering shortens as the growing season progresses, information which will be helpful in timing future surveys after fires.

Table 2. Flowering times post-burn of Florida skullcap.

<b>Time of burn</b>	<b>Time of flowering</b>	<b>Months post- burn to flowering</b>
24 Jan	8 Apr	~3
15 Feb	3 May	~2.5
24 Apr	11 Jun	~1.5
6 May	11 June	~1.0

In Compartment 27, surveys for Florida skullcap during its flowering period two months after the compartment was burned in February 2013 netted close to 2000 plants at 4 locations within a roughly 2 square km area in the center of the compartment. Plants were found not only in open wet prairies but also in light shade under shrubs and scattered pines at their edges.

Surveys for the three other Federally-listed species were conducted in 2012 and 2013 during their flowering periods in March, April and May, on sites that appeared open on current aerial photographs within the historical area of the wet prairie in Compartments 26 and 27. No occurrences of white birds-in-a-nest or Harper’s beauty were found. In 2012, one occurrence of Godfrey’s butterwort consisting of 10 plants was found in Compartment 26 and one of 21 plants in Compartment 27. In 2013, 80 plants of Godfrey’s butterwort were found in the northwest corner of Compartment 28 along the narrow grassy borders of swamps.

In 2012 six state-listed plant species were found on the Beasley Tract in the course of the survey, two in the upland pine community on compartment 25, mock pennyroyal (*Hedeoma graveolens*) and narrow-leaved phoebanthus (*Phoebanthus tenuifolia*); two in wet prairie in Compartment 27, Chapman’s crownbeard (*Verbesina chapmanii*) and Apalachicola dragon-head (*Physostegia godfreyi*); one scare-weed (*Baptisia simplicifolia*) in mesic flatwoods in Compartment 27, and one, greenfly orchid (*Epidendrum conopseum*), in a dome swamp in Compartment 27. In 2013 a second larger population of mock pennyroyal, consisting of about 350 plants, was found in Compartment 25, also in upland pine community near the western boundary of the Forest.

Invasive exotics. Japanese climbing fern (*Lygodium japonicum*) was the only invasive exotic species noted in the Beasley Tract, except for one occurrence of chinaberry (*Melia azedarach*) at junction of a forest road and CR 379. Most climbing fern occurrences were single plants or scattered clumps. Dense patches were noted however in Compartment 25 in the portion of Apalachicola River floodplain in the northwest corner and along a border with a residential area in the southwest corner. In the northwest section the densest parts are not in the river floodplain but along the woods road leading to it and on the bluffs above it. Along CR 379 it is growing in the bahia grass (*Paspalum notatum*) along the roadside right-of-way. The grass is being mowed which may serve to disperse the fern to other areas.

Sensitive Areas. In 2013 some sensitive areas that were delineated in the Beasley Tract in 2012 were re-shaped in light of more recent surveys, thus the 2012 shapes should be replaced with the 2013 set of shapes for the Beasley Tract. Sensitive area 4 was merged with sensitive area 1.

In 2013 a total of twenty-four sensitive areas were delineated in Compartments 25, 26, 27, and 28 (Figure 3; see shapefile USFS\_Sensitive\_areas\_Beasley\_2013 for descriptions of each). In Compartments 26, 27, and 28, sensitive areas 2, 3, 5, 6, 11, 12, 13, 26, 27, 28, and 29 consisted of wet prairie with intact ecotones to dome swamp, as well as to mesic or wet flatwoods with longleaf pine canopy and wiregrass ground layer. Sensitive area 9 in Compartment 26 is a longleaf pine/wiregrass flatwoods with diverse ground layer which may extend north and west of the area observed. Sensitive area 7 in Compartment 25 is a mature floodplain swamp with very large trees of Ogeechee tupelo (*Nyssa ogeche*), water tupelo (*Nyssa aquatica*), water hickory (*Carya aquatica*) and bald cypress (*Taxodium distichum*). Sensitive areas 10 and 31 in this compartment are upland pine communities of longleaf pine and wiregrass, with scattered red oak (*Quercus falcata*) and black gum (*Nyssa sylvatica*) in the subcanopy and coppicing sweetgum (*Liquidambar styraciflua*) in the understory. Density of sweetgum probably increased in the absence of frequent fire and is now being reduced. Continued prescribed fire in this upland pine area will help reduce the woody understory. This western edge of the forest is the only extensive area of upland pine on the ANF, and probably derives from ancient alluvial clay deposits from the river floodplain. This area is likely similar to the upland pine community in the rest of the compartment and to the south along the east side of the river. Sensitive area 31 was designated primarily because it supports a good population of state-listed mock pennyroyal.

In Compartments 27 and 28, six sensitive areas (21, 23, 24, 25, 30 and 32) consisted of wet prairies with intact ecotones to wetlands and bordered by pine plantation on their upland edges. Sensitive area 22 in Compartment 27 is a wet prairie that included patches of wet flatwoods within it, but also had pine plantation on its upland borders, the edges of which harbored Florida skullcap. Sensitive areas 1 and 8 in Compartment 27 also included natural ecotones between wet prairie and longleaf pine/wiregrass flatwoods with pine plantation harboring Florida skullcap.

## DISCUSSION AND RECOMMENDATIONS

FNAI recommends that if silvicultural activities must occur within the areas designated as sensitive areas or where rare species have been documented, it be carefully planned and executed. Careful timber thinning has been shown to be successful and benefit Florida skullcap in compartments 4 and 72. Florida skullcap has also been found in pine plantations bordering wet prairies in previous surveys (e.g. Compartment 72 in 2009), and this habitat should also be searched following a prescribed fire.

The sensitive areas identified during this survey should be carefully considered when planning silvicultural activities in these tracts. These areas represent high quality, intact natural

communities and should be avoided when using heavy equipment. Additionally, continued prescribed fire application in these sensitive areas will help maintain their high quality.

Much of the historic wet prairie in this tract currently has a slash pine canopy that was planted in the past. Removing as many of these trees as possible, of course abiding by the limitations due to other endangered species habitat requirements (i.e., Red-cockaded woodpecker), should be a priority in the restoration of this area. This will improve the habitat for the suite of rare plants species that thrive in the wet prairie habitat.

#### REFERENCES

FNAI. 2010. Guide to the natural communities of Florida: 2010 edition. Florida Natural Areas Inventory, Tallahassee, FL.

FNAI. 2012. A Survey for Federally Listed Plant Species, Invasive Exotic Plant Species, and High Quality Natural Communities on the Telogia and Beasley Tracts, Apalachicola National Forest, Florida. Final Report submitted to the United States Forest Service. Tallahassee, FL.

Florida Natural Areas Inventory (FNAI). 2012. USFS Ecological Inventory 2011-2012. Report submitted to United States Forest Service, Tallahassee, FL.

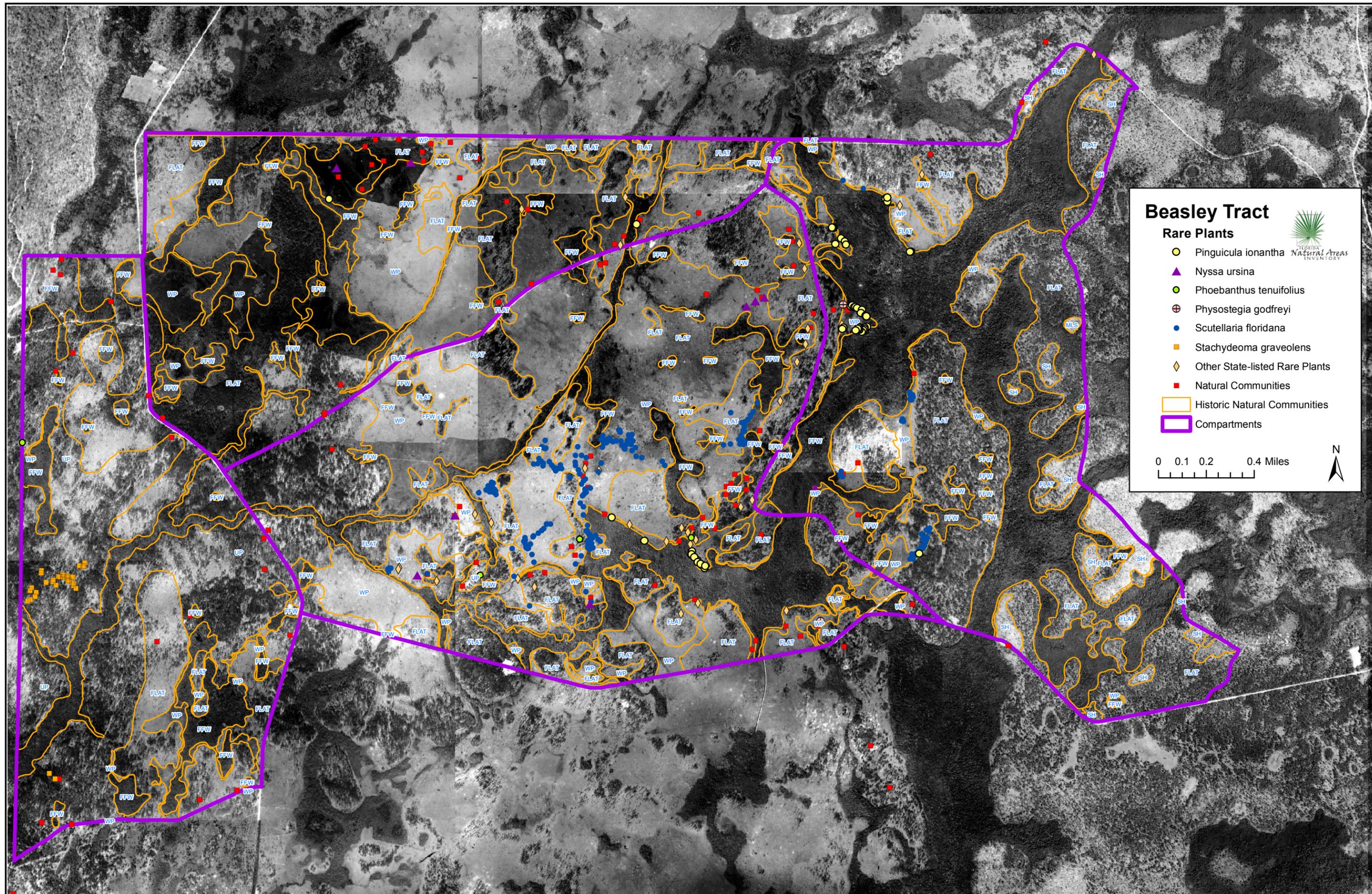


Figure 1. Historic natural community polygons (FLAT=flatwoods, SH=sandhill, UP=upland pine, WP=wet prairie, FFW=freshwater forested wetlands, and MLS=marshes, lakes and sinkholes), rare plant locations, and natural community ground-truthing points on the Beasley Tract. Aerial photography is from 1952.

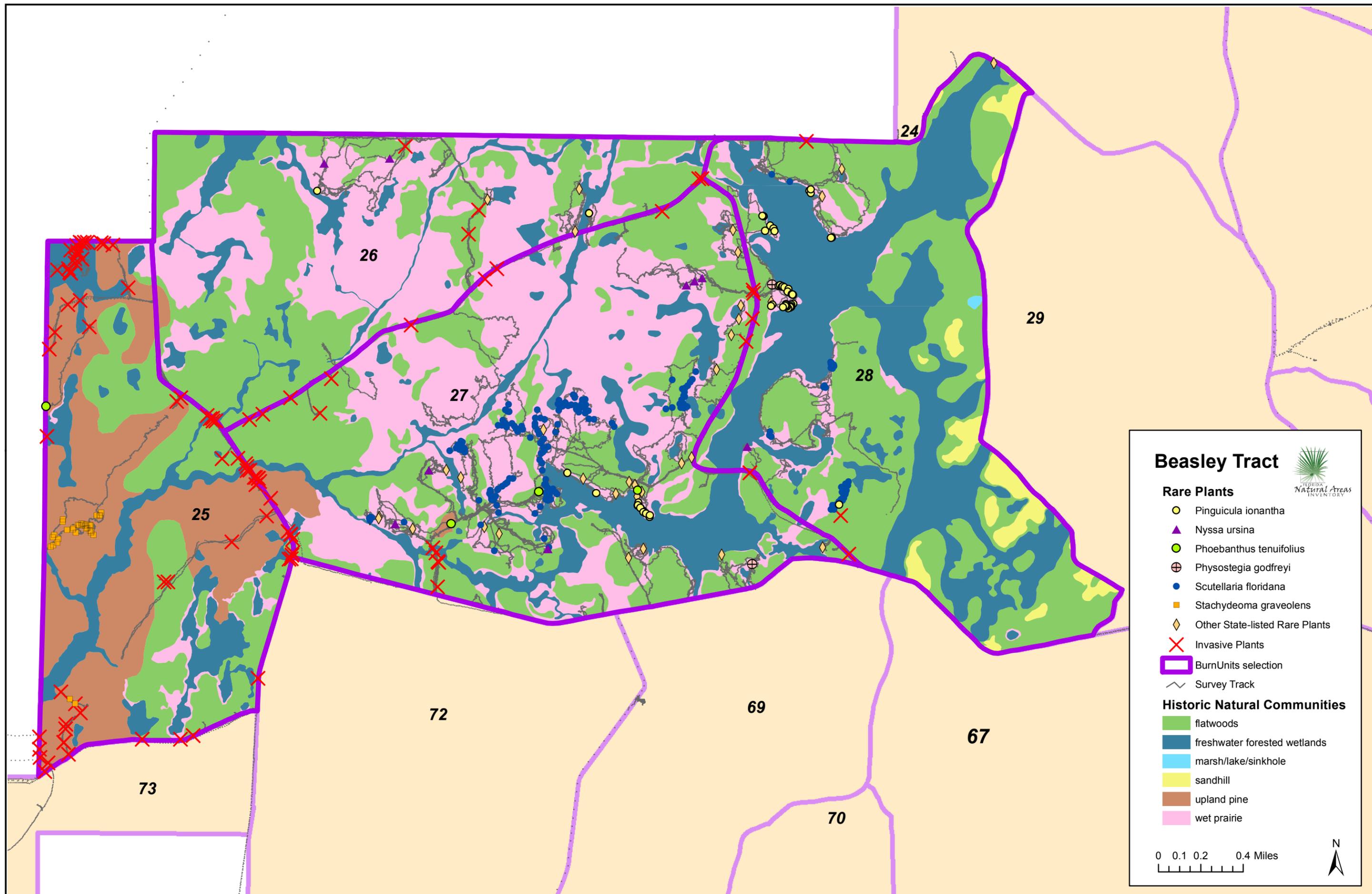


Figure 2. Rare plants, invasives plants, survey track, and historic natural communities on the Beasley Tract.

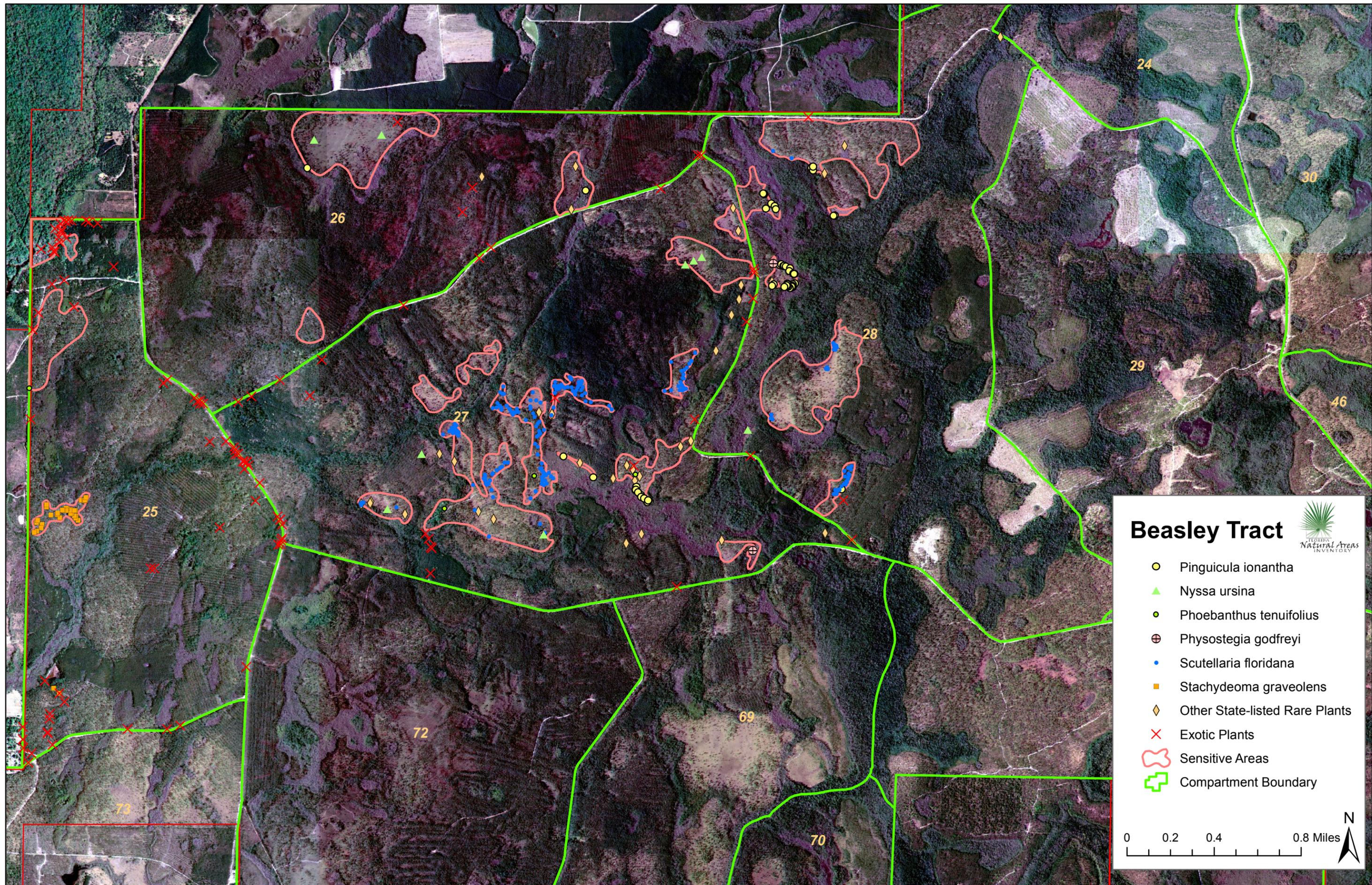


Figure 3. Sensitive areas identified during field surveys of the Beasley Tract.