Landowner Assistance Program



Habitat Conservation Plan

INNERARITY ISLAND

ESCAMBIA COUNTY

NOVEMBER 1, 2024

PREPARED FOR:

INNERARITY ISLAND PRESERVATION FOUNDATION, INC. 5612 North Shore Way Pensacola, FL 32507

PREPARED BY:



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THIS PLAN IS INTENDED TO PROVIDE INITIAL INFORMATION AND HELP YOU MEET YOUR MANAGEMENT OBJECTIVES. WE LOOK FORWARD TO FURTHER ASSISTING YOU AS QUESTIONS ARISE AND YOUR LAND AND GOALS PROGRESS.

STEWARDSHIP AND CONSERVATION PLANNING

The term "stewardship" has been used since the beginning of the conservation movement. Webster defines stewardship as "the individual's responsibility to their life and property with proper regard to the rights of others." In this sense, stewardship implies that landowners view their actions in terms of how they affect their neighbors, their grandchildren, and all those that might be influenced by their production and conservation decisions.

Seen in this light, stewardship is about being responsible. It is about changing attitudes, forging local shared visions of the desired state for private and public natural resources, and facilitating the actions needed to realize the desired future condition. In Aldo Leopold's words, "a system of conservation based solely on economic self-interest is hopelessly lopsided. It tends to ignore, and thus eventually to eliminate, many elements in the land community that lack commercial value, but that are (as far as we know) essential to its healthy functioning. It assumes, falsely, I think, that the economic parts of the biotic clock will function without the uneconomic parts. It tends to relegate to government many functions eventually too large, too complex, or too widely dispersed to be performed by government. An ethical obligation on the part of the private owner is the only visible remedy for these situations." (Aldo Leopold, A Sand County Almanac, 1949).

Conservation planning is a natural resource problem solving and management process. The process integrates economic, social (cultural resources are included with social), and ecological considerations to meet private and public needs. This approach, which emphasizes desired future conditions, helps improve natural resource management, minimize conflict, and address problems and opportunities. As conservation plans are implemented, progress is made toward accomplishing the agreed-upon desired future conditions of the resources and the needs of the people.

The challenge in conservation planning is to balance the short-term demands for production of goods and services with long-term sustainability of a quality environment. Natural resource problems and opportunities are usually expressed in terms of human values. In achieving a desired natural resource condition, human values determine the scope and extent of problems and the associated corrective actions to be taken. This Conservation Plan attempts to consider all resources including soil, water, air, plants, animals and humans and involves as many resource professionals as possible during the planning process.

PROPERTY OVERVIEW

Innerarity Island Conservation Easement covers approximately 103 acres in the southwest corner of Escambia County, Florida and is less than a mile from the Florida-Alabama border. The property is located behind Ono Island, in Perdido Bay, in Section 15, Township 3 South, Range 32 West. The area can be accessed off of Innerarity Point Road. The approximate coordinates for the center of the easement is 30.31584N, -87.491804W.



The Innerarity Island Conservation Easement contains a mixture of both estuarine and upland habitats. The dominant natural community type found on the property is salt marsh, followed by upland types including mesic flatwoods, wet flatwoods (hydric pine flatwoods), and a small sandy ridge containing a scrub community adjacent to a remnant shell mound and open field. There is also a large, protected saltwater lake on the west side of the property. Each of these communities provide important habitat to a variety of local wildlife, including potential habitat for species such as the federally threatened Gulf sturgeon *(Acipenser oxyrinchus desotoi)*, the state threatened Saltmarsh topminnow *(Fundulus jenkinsi),* the Florida clapper rail *(Rallus longirostris scottii)*, the Brown pelican *(Pelecanus occidentalis*), and the Bald eagle *(Haliaeetus leucocephalus)*.

LANDOWNER OBJECTIVES

The Innerarity Island Preservation Foundation is dedicated to preserving and protecting the natural beauty and ecological diversity of this conservation easement for future generations. Through strategic conservation efforts, community engagement, and sustainable management, this foundation strives to safeguard wildlife habitat, promote biodiversity, and ensure the continued health of this conservation easement.

General Recommendations

GENERAL RECOMMENDATIONS

The following recommendations provide general guidance regarding wildlife management practices across the property.

WILDLIFE HABITAT

Wildlife need **food**, **water**, **shelter**, and **space** to survive. These four components make up a **habitat** and differing amounts and types of each of these determine habitat quality. **Habitat diversity** is the key to creating high-quality wildlife habitat. This includes diversity in tree species, stand ages, vegetation heights, scattered and irregular-shaped openings with robust ground cover, scattered thickets, and management practices such as prescribed burn frequency and timing. Management practices that will improve wildlife habitat, such as prescribed burning, invasive species control, forestry practices such as thinning, and rotational mowing programs are recommended for wildlife habitat management.



FNAI NATURAL COMMUNITY DESCRIPTIONS

The following include generic natural community description excerpts from the <u>FNAI Guide to the</u> <u>Natural Communities of Florida 2010 Edition⁵</u>, and have been modified by the FWC for the purposes of this Management Plan. The soils throughout this site maintains and supports a wide range of unique habitat types as outlined below:

Salt Marsh (34.2 acres)

(Stands 6, 7 & 8)

The salt marsh found mainly on the western side of the property is a largely herbaceous community that occurs in the portion of the coastal zone affected by tides and seawater and protected from large



Credit: Peter Stango

waves, either by the broad, gently sloping topography of the shore, by a barrier island, or by location along a bay or estuary. The width of the intertidal zone depends on the slope of the shore and the tidal range. Salt marsh may have distinct zones of vegetation, each dominated by a single species of grass or rush. The salt marsh within Innerarity Island Conservation Easement occurs within Perdido Bay, behind Ono Island. These large marshes are dominated throughout by needle rush *(Juncus*)

roemerianus), and bands of saltmarsh cordgrass *(Spartina alterniflora)* within and on the fringes of the marsh. Shrubs are sparse, and are dominated by groundsel tree *(Baccharis halimifolia),* marsh elder *(Iva frutescens),* holly *(Ilex spp.)* and wax myrtle *(Myrica cerifera)*. This community is bordered by hydric pine flatwoods, estuary, and sandy beach.

Mesic Flatwoods (31.2 acres)

(Stands 1 & 10)

Mesic flatwoods are open canopy forests of widely spaced, uneven-aged longleaf pine (*Pinus palustris*) in xeric/mesic sites and slash pine (*Pinus elliotii*) in hydric and immediately coastal areas. There is little or no subcanopy, and a dense, low ground cover of diverse herbs and shrubs. In the mesic flatwoods at Innerarity Island Conservation Easement, the canopy is primarily slash pine, although in some areas longleaf pine occurs. These pines are widely spaced in most of the mesic flatwoods on the area, with a sparse subcanopy of slash pine and occasional laurel oak or live oak. Tall shrubs are patchy and typically sparse, and include yaupon (*Ilex vomitoria*), sweetbay (*Magnolia virginiana*), wax myrtle (*Myrica cerifera*), and occasionally groundsel tree (*Baccharis halimifolia*) and coastal sweet pepperbush (*Clethra alnifolia*). In dry, scrubby-like flatwood inclusions, scrub oaks such as sand live oak (*Quercus geminate*)

and myrtle oak (Q. myrtifolia) were abundant. Florida rosemary (Ceratiola ericoides) and false rosemary (Conradina canenscens) were also frequently found in these areas. Other typical short shrubs in the mesic flatwoods include woolly huckleberry (Gaylussacia mosieri), gallberry (Ilex glabra), hairy laurel (Kalmia hirsuta), fetterbush (Lyonia lucida), saw palmetto (Serenoa repens), highbush blueberry (Vaccinium corymbosum) and gopher apple (Geobalanus oblongifolius). The herbaceous layer of the mesic flatwoods community is dominated by wiregrass (Aristida stricta) in natural undisturbed sites, but also contains a diversity of other grasses and graminoids, including little bluestem (Schizachyrium scoparium), panic grasses (Panicum spp.), beakrushes (Rhynchospora spp.), and indicators of disturbance such as broomsedge bluestem (Andropogon virginicus var. virginicus) and chalky bluestem (Andropogon virginicus var. glaucus). Bracken fern (Pteridium aguilinum) and less often, Virginia chain fern (Woodwardia virginica), may also be present. A good diversity of fall flowering species can be found, including savannah meadowbeauty (Rhexia alifanus), vanillaleaf (Carphephorus odoratissimus), hairy chaffhead (Carphephorus paniculatus), narrowleaf silkgrass (Pityopsis graminifolia), orange milkwort (Polygala lutea), tall jointweed (Polygonum pinicola), narrowleaf sunflower (Helianthus angustifolius), variable leaf sunflower (Helianthus heterophyllus), and coastal plain yellow-eyed grass (Xyris ambigua). Vines include yellow jessamine (Gelsemium sempervirens), cat greenbrier (Smilax glauca), laurel greenbrier (Smilax laurifolia), and muscadine (Vitis rotundifolia).

Wet Flatwoods (Hydric Pine Flatwoods) (11.1 acres)

(Stands 4 & 5)

Wet flatwoods are characterized by relatively open canopy forests of scattered pine trees. With a thick

shrubby understory and very sparse ground cover, or a fire maintained, sparse understory and dense ground cover of hydrophytic herbs. Wet flatwoods exist on relatively flat, poorly drained land. In the Innerarity Island Conservation Easement, the canopy is dominated by slash pine (*Pinus elliotii*), with a few scattered longleaf pine (*Pinus palustris*). Tall shrubs include yaupon (*Ilex vomitoria*), black titi (*Cliftonia monophyla*), titi (*Cyrilla racemiflora*), large gallberry (*Ilex*



Credit: Peter Stango

coriacea), sweetbay *(Magnolia virginiana)*, and wax myrtle *(Myrica cerifera)*. Common short shrubs include gallberry *(Ilex glabra)*, and fetterbush *(Lyonia lucida)*. Saw palmetto *(Serenoa repens)* is locally present in more mesic understories. Where shrubs are relatively sparse or patchy, the herbaceous layer can be diverse. Graminoids include wiregrass *(Aristida stricta)*, switchcane *(Arundinaria gigantea)*,

sedges (*Carex spp.*), toothache grass (*Ctenium aromaticum*), tapered witchgrass (*Dichanthelium acuminatum*), panic grasses (*Panicum spp.*), Chapman's beaksedge (*Rhynchospora chapmanii*), clustered beaksedge (*Rhynchospora glomerata*), and beakrushes (*Rhynchospora spp.*). Forbs include pink sundew (*Drosera capillaris*), flattened pipewort (*Eriocaulon compressum*), tenangle pipewort (*Eriocaulon decangulare*), coastal plain yellow-eyed grass (*Xyris ambigua*), sphagnum moss (*Sphagnum spp.*), drumheads (*Polygala cruciata*), yellow hatpins (*Syngonanthus flavidulus*), savannah yellow-eyed grass (*Xyris flabelliformis*), and other yellow-eyed grasses (*Xyris spp.*). Ferns may include Virginia chain fern (*Woodwardia virginica*), bracken fern (*Pteridium aquilinum*), and cinnamon fern (*Osmundastrum cinnamomeum*). Weedy species are found in areas that have been subjected to past timbering effort where soil disturbance occurred. These species include broomsedge bluestem (*Andropogon virginicus var. virginicus*), chalky bluestem (*Andropogon virginicus var. glaucus*), dog fennel (*Eupatorium capillifolium*), Carolina redroot (*Lachnanthes caroliana*), and blackberry (*Rubus spp.*). Vines are also common in areas of disturbance. Most common is laurel greenbrier (*Smilax laurifolia*), but yellow jessamine (*Gelsemium sempervirens*) and muscadine (*Vitis rotundifolia*) may also be present.

Lake and Ditches (9.3 acres)

Natural coastal lakes are generally characterized as shallow irregularly shaped or elliptic depressions occurring in coastal communities. They are generally permanent water bodies, although water levels



may fluctuate substantially. They are typically lentic water bodies without significant surface inflows or outflows. Instead, water is largely derived from lateral ground water seepage through the surrounding well-drained coastal sands. Storms occasionally provide large inputs of salt water and salinities vary dramatically over the long term. Vegetation may be largely restricted to a narrow band along the shore, composed of hydrophytic grasses and herbs or a dense shrub thicket, depending on

Credit: Peter Stango

fire frequency and/or water fluctuations. Shallow, gradually sloping shorelines may have much broader bands of emergent vegetation with submersed aquatic plants occasionally dominating much of the surface. Typical plants include rushes, sedges, marsh pennywort *(Hydrocotyle spp.)*, cattail *(Typha spp.)*, sawgrass *(Cladium jamaicense)*, water lilies *(Nymphae spp.)*, water shield *(Brasenia schreberi)*, royal fern *(Osmunda spectabilis)*, marsh fleabane *(Pluchea odorata)*, groundsel tree *(Baccharis halimifolia)*, marsh elder *(Iva frutescens)*, and black willow *(Salix nigra)*. Typical animals include mosquitofish, sailfin molly, alligator, mud turtle, saltmarsh snake, little blue heron, coot, and otter (FNAI 1990). Manmade ditches crisscross this site and connects this coastal lake with Perdido Bay.

Rural Open (2.3 acres)

Old cutover field that the Innerarity Island Preservation Foundation is interested in replanting for

wildlife habitat restoration and for additional wind protection for the island. The landowner is open to replanting longleaf pine back into these stands. Soils at the site are conducive to longleaf pine. The herbaceous layer is currently comprised of a mix of species typical of disturbed sites such as blackberry (*Rubus sp.*), dog fennel (*Eupatorium capillifolium*), slender goldentop (*Euthamia caroliniana*), partridge pea (*Chamaecrista fasciculata*) and field sagewort (*Artemisia campestris*).

Cogongrass (Imperata cylindrica), a notorious invasive grass, is extensive throughout this cutover field.

Scrub (Mixed Hardwood Coniferous) (2.1 acres)

Remnant scrub community found within the Innerarity Island Conservation Easement is generally an open to partially closed woodland dominated by slash pine *(Pinus elliotii)* in the canopy, and diverse understory of hardwoods such as laurel oak *(Quercus laurifolia)*, sand live oak *(Quercus geminata)*, blueberries *(Vaccinium spp.)*, Florida rosemary *(Ceratiola ericoides)*, false rosemary *(Conradina canenscens)* and American beautyberry *(Callicarpa americana)*. Scattered sand pine *(Pinus clausa)* is also frequent throughout the understory. The herbaceous layer is mostly absent due to canopy cover, and thick duff and leaf litter, however various graminoids, forbs and vines are present where conditions allow. This remnant community is found on an old sand ridge bordering salt marsh.

Beach Dune (2.1 acres)

Beach dune is a predominantly herbaceous community of wide-ranging coastal specialist plants on the vegetated upper beach and first dune above the beach (foredune). This community is usually built by sea oats *(Uniola paniculata)*, a perennial rhizomatous grass, whose stems trap the sand grains blown off the beach, building up the dune by growing upward to keep pace with sand burial. Other grasses that can tolerate some sand burial include bitter panicgrass *(Panicum amarum)* and saltmeadow cordgrass *(Spartina patens)*. At the Innerarity Island Conservation Easement, the beach dune occurs as a very

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(Stand 2)

(Stand 11)



(Stand 12)

narrow community that immediately borders Perdido Bay. Common herbaceous indicators include saltmeadow cordgrass and seaside goldenrod *(Solidago sempervirens)*, in addition to southern umbrella sedge *(Fuirena scirpoides)*. Scattered slash pine *(Pinus elliotii)* is present in the canopy and shrubs are commonly sparse. Shrub species include groundsel tree *(Baccharis halimifolia)*, scrub oaks, and swamp bay *(Persea palustris)*. This coastline habitat is continually



Credit: Peter Stango

eroding and often contains slash pine with exposed roots and abrupt transitions where sand has been washed away by wave activity. Woody debris is common within the beach dunes area.

Freshwater Forested Wetland -

Bottomland Forest (Mixed Wetland Hardwood) (1 acre)

(Stand 9)

Bottomland forests are hardwood forests that occur on drier soils at slightly higher elevations than floodplain swamp within river floodplains, and are flooded seasonally. Found in areas intermediate



Credit: Peter Stango

between swamps and uplands, the canopy may be quite diverse with both deciduous and evergreen hydrophytic to mesophytic trees. Bottomland forests along smaller streams are prone to periodic flooding attributable to localized rainfall that increases seepage and runoff from surrounding uplands. In the Innerarity Island Conservation Easement, the bottomland forest is primarily associated with a small intermittent stream that flows when groundwater provides enough

water, or during runoff from a rainfall event. In this bottomland forest the dominant trees in the canopy include swamp tupelo (*Nyssa biflora*), red maple (*Acer rubrum*), and sweetbay (*Magnolia virginiana*).

Shrubs are multi-layered and are dominated by wax myrtle *(Myrica cerifera)* and yaupon *(Ilex vomitoria)*. Other possible shrubs include sapling swamp tupelo, Carolina ash *(Fraxinus caroliniana)*, swamp bay *(Persea palustris)*, large gallberry *(Ilex coriacea)*, fetterbush *(Lyonia lucida)*, red chokeberry *(Aronia arbutifolia)*, odorless bayberry *(Morella inodora)*, and swamp azalea *(Rhododendron viscosum)*. The herbaceous layer in this bottomland forests is patchy, depending upon sunlight availability at the forest floor. There is abundant downed woody debris on the ground as well and leaf litter and thick duff, that combined appears to be suppressing herbaceous vegetation. Scattered patches of largeleaf marsh pennywort *(Hydrocotyle bonariensis)*, switchcane *(Arundinaria gigantea)*, spadeleaf *(Centella asiatica)*, cinnamon fern *(Osmundastrum cinnamomeum)*, and royal fern *(Osmunda spectabilis)* are present. Vines are common and include laurel greenbrier *(Smilax laurifolia)*, coral greenbrier *(Smilax walteri)*, eastern poison ivy *(Toxicodendron radicans)*, trumpet creeper *(Campsis radicans)*, and muscadine *(Vitis rotundifolia)*.

Coastal Interdunal Swale (0.6 acres)

(Stand 3)

Coastal interdunal swales are marshes, moist grasslands, dense shrubs, or damp flats in linear depressions formed between successive dune ridges as sandy barrier islands, capes, or beach plains built seaward. Dominant species are quite variable depending on local hydrology, substrate, and the

age of the swale. Wetter areas are often dominated by sawgrass *(Cladium jamaicense)*, cattail *(Typha spp.)*, or needle rush *(Juncus roemerianus)*, while shallower areas have a diverse mixture of herbs, including southern umbrella sedge *(Fuirena scirpoidea)*, Carolina redroot *(Lachnanthes caroliana)*, spadeleaf *(Centella asiatica)*, and broomsedges *(Andropogon virginicus, A. glomeratus*, Johnson 1997). Shrubby areas are often dominated by wax myrtle (Myrica



Credit: Peter Stango

cerifera); on the Panhandle coast Atlantic St. John's Wort *(Hypericum reductum)* forms clumps on the low flats in the more stable portions of the barrier islands. Moist grasslands may be dominated by hairawn muhly *(Muhlenbergia capillaris)*, lovegrass *(Eragrostis spp.)*, or saltmeadow cordgrass *(Spartina patens)*. Damp sand flats have a sparse cover of such herbs as yellow hatpins *(Syngonanthus flavidulus)*, Le Conte's flatsedge *(Cyperus lecontei)*, and Engler's bogbutton *(Lachnocaulon engleri)*. Nearer the shore, where swales are exposed to occasional saltwater intrusion, they may be dominated by halophytic species such as seashore paspalum *(Paspalum vaginatum)* and marsh fimbry *(Fimbristylis*) *spadicea).* Hurricanes and tropical storms can flood swales with salt water, after which they are colonized for a time by more salt-tolerant species such as needle rush, Gulf Coast spikerush *(Eleocharis cellulosa)*, and yellow spikerush *(Eleocharis flavescens)*. Loose, blowing sand prevalent after storms favors the spread of saltmeadow cordgrass which tolerates burial better than the other grass species (Johnson et al. 2000).

DISTURBANCE

Many ecosystems need periodic "disturbances" in order to exist. Floods, windstorms, and fire are some natural disturbances that maintain habitats like pine savanna, prairie, and herbaceous marsh. The natural processes of flatwoods revolve around fire. Fire is one of the primary environmental factors driving flatwoods ecology, and the majority of plant and animal species have evolved to become dependent on frequent fires. Through tree ring burn scar surveys and historical observations, we learned that this ecosystem experienced fire on a 2 to 4 year interval with the vast majority of these fires occurring between the months of April to July which, in Florida, corresponds to the normal spring drought and the beginning of the usual thunderstorm season. Frequent fires reduce ground litter and prevent hardwood and shrub encroachment into the midstory, thereby allowing ample sunlight to reach the forest floor. This is essential for the regeneration and maintenance of pine canopy and the native grasses, herbs and low shrubs that characterize flatwoods communities. This ecosystem is considered a "fire-climax community" and in the absence of routine and frequent fire, it will succeed to a hardwood-dominated forest with very little, to no understory ground cover.

Most biologists agree that timber thinning and prescribed fires are some of the best wildlife tools around. Where burning opportunities are limited, strategic mechanical brush management can greatly enhance habitat diversity for ground-nesting birds like quail and turkeys, providing many open areas with adjacent cover. Maintaining firelines around the tract will enhance the habitat by providing some browse along the edge for species such as white-tailed deer, wild turkey, and gopher tortoises.

TRANSITIONAL ZONES

Transitional zones between different habitats, or **ecotones**, provide a greater variety of food, water, and cover resources in a smaller space. Ecotones should be protected from major alterations like plowing, ditching, or rutting, but they can benefit from periodic burning or mowing. These practices also reduce the wildfire hazard and may improve timber growth.

SNAGS AND NEST BOXES

Snags (standing dead trees) provide essential habitat for 35 to 40 species of wildlife such as small mammals, birds, reptiles, amphibians, and insects which are a good source of protein and included in the diet of many species. In north central Florida, downy woodpeckers, pileated woodpeckers, southeastern American kestrels, screech owls, brown-headed nuthatches, eastern bluebirds, Carolina

chickadees, great-crested flycatchers, wood ducks, and hooded mergansers nest in tree cavities. Several species of bats, flying squirrels, raccoons, opossums and even Florida black bears also use cavities in snags. Only a small number of animals that use cavities can create them. Woodpeckers, Carolina chickadees and brown-headed nuthatches fall into this category of primary cavity excavators. Wildlife that do not create their own cavities, but use already existing cavities, such as owls, bats, many songbirds and small mammals are secondary cavity users. Leave snags on the property as long as they are far enough from roads, structures, and firelines to not cause safety issues should they fall, especially during prescribed fire events.

Bird and **bat houses** can be added to augment the landscape by providing nesting and roosting habitat for various bird and bat species. If you choose to offer nesting sites for native birds, please clean boxes *annually* in January to prevent the spread of parasites and diseases. For more information on Florida's **cavity nesting birds**, see this <u>UF/IFAS article</u>. Bat houses may remain vacant for three years or more before bats begin to find and use them. Appropriate color, material, shape, and placement of bat houses will influence bat behavior, health, and use of your bat house. For more information on **bat houses**, see this <u>UF/IFAS article</u>.

FOOD PLOTS AND POLLINATOR FIELDS

Keep in mind that food plots should only be a supplement to well-managed forested habitats and should never be considered the primary resource for wildlife. Although these areas can be used to attract wildlife for viewing opportunities, management for wildlife, especially managing for a diversity of native herbaceous plant species in the groundcover as well as structural diversity of vegetation, will create a "natural food plot" and will provide forage *and* cover for wildlife species year-round without needing to rely on food plots for supplemental feeding.

On the other hand, pollinator populations are facing growing threats and challenges; including habitat loss and degradation, habitat fragmentation, pesticide use, climate change, disease, invasive species, and in the case of nocturnal pollinators, artificial lighting. Because of these threats, it is more important than ever to create habitat in our communities to help limit this loss, and research has shown that building pollinator habitat within our urbanized communities can greatly assist pollinator populations in an area by creating corridors of needed habitat. There are more than 4,000 species of native bees in North America and approximately 315 of these are found in Florida. Pollinator diversity contributes to plant diversity, and vice versa. Without pollinators, 85% of the plants in the world would not be able to reproduce.

When establishing food plots or pollinator fields, various factors should be considered such as size, shape, soil, location, and desired species for planting. Disturbed areas with turf grasses are ideal locations for these plantings due to the extensive loss of native ground cover that has already occurred. More information is available at <u>Pollinator-Friendly Native Plant Lists</u>, <u>Plotting with Natives</u>, and <u>Establishing and Maintaining Wildlife Food Sources</u>.

THREATENED OR ENDANGERED SPECIES

GOPHER TORTOISE

Active gopher tortoise burrows were not observed on the property during reconnaissance, however they have been seen on the property in the past by landowners. The <u>gopher tortoise</u> is a moderate-sized, terrestrial turtle, averaging 23-28 cm long. They occur in the southeastern Coastal Plain and are endemic to the United States. Although they remain widely distributed in Florida, the population is declining, primarily due to habitat loss. The burrows of the tortoise <u>provide refuge for 350-400 wildlife</u> <u>species</u> including the Florida pine snake, Eastern indigo snake, gopher frog, and Florida mouse because they provide shelter



from the heat, cold, fire, and predators. Gopher tortoises are state listed as threatened. Protection of the gopher tortoise requires maintaining large, connected tracts of upland habitat in native vegetative communities. This generally requires periodic prescribed fire beneath trees to reduce brush and favor growth of native grasses and forbes. It is important to protect the burrows from mechanical disturbance as much as possible while implementing the recommended practices presented in this plan. More information on gopher tortoises and managing for gopher tortoises is available on the MyFWC website.

EASTERN INDIGO SNAKE

These nonvenomous snakes are bluish-black with red, brown, or white on their cheek and throat area and can grow to 2.4 m (8 ft) in length. They use gopher tortoise burrows for shelter and are among the top predators in fire-maintained upland pine ecosystems. Eastern indigo snakes are federally threatened and protected by the <u>Federal Endangered Species Act</u>. They should not be injured, harassed, or killed while implementing the



practices recommended in this plan. For more information see the <u>eastern indigo snake</u> profile on the MyFWC website, the <u>Standard Protection Measures for the Eastern Indigo Snake</u> from U. S. Fish and Wildlife Service, and share <u>this printable brochure</u> with contractors.

FLORIDA PINE SNAKE

The Florida pine snake is listed as State Threatened. It can be found in a variety of habitats but prefers dry habitats with moderate to open canopies and well drained sandy soils. Pocket gophers are a preferred food source so if mounds are present there is a good chance pine snakes are also present. Management regimes that create suitable habitat for red-cockaded woodpeckers and gopher tortoises therefore should benefit Florida pine snakes. Restoring natural



growing season fire regimes are important for management. Avoid management practices, such as stump removal, that reduce the availability of underground refuges. Actions like root raking and chopping can interfere with the snake's fossorial nature, therefore, low intensity site-preparation techniques like burning should be used whenever possible. Keep heavy equipment at least 25 feet away from known gopher tortoise burrows. For more information: https://myfwc.com/media/11571/florida-pine-snake-guidelines.pdf

LITTLE BLUE HERON, REDDISH EGRET, ROSEATE SPOONBILL AND TRICOLORED HERON

These species of wading birds are all listed as state Threatened. These species are associated with both uplands and forested wetlands and utilize various habitat features in each, particularly for feeding and nest locations (rookeries). The main threats for these threatened species are loss of habitat, degradation due to changes in hydrology or water quality, disturbances at nesting sites, and an increase of nest predators. Avoid practices that may disturb rookeries, such as removal of nest trees, excessive noise, and human presence during nesting season (February-June,



depending on water levels). Avoid heavy equipment operation (more than one day), except for prescribed burning within 490 ft of active or known nests during nesting season. Avoid leaving trash and other matter that can attract nest predators. Create nesting habitat on spoil islands. For more information: https://myfwc.com/media/18634/threatened-wading-birds-guidelines.pdf

BALD EAGLE

A known bald eagle nest exists within the vicinity of the property. <u>Bald eagles</u> represent a conservation success story and have recovered with targeted management and protection, allowing them to be removed from federal and state endangered and threatened species lists. However, they are still protected under federal law and the <u>state eagle rule</u>. For more information see the <u>Bald Eagle Management</u> page on the MyFWC website.



More information regarding threatened and endangered species can be found at <u>MyFWC Imperiled</u> <u>Species List</u>. The <u>Florida Forest Service - Wildlife Best Management Practices</u> will have more information regarding the management practices to protect state listed species.

SOUTHEASTERN AMERICAN KESTREL

<u>Southeastern American kestrels</u> are unique, non-migratory birds. They are the smallest falcon species found in the United States and they are <u>state listed as a threatened species in Florida</u>. They can be easily identified by the black stripe-like markings that start underneath their eyes and extend downward. The males have bluish-gray wings, and the females have brown wings. Historically, kestrels would inhabit open pine savannah habitat maintained by frequent fire. Today, kestrels will inhabit open woodlots and fields if there is suitable nesting and foraging habitat. They hunt open areas where they can easily see and



capture their prey, which is usually lizards, frogs, grasshoppers, small mammals, insects and spiders. Kestrels will typically build their nests in the cavities of large dead trees, but they also readily use <u>nest</u> <u>boxes</u>. Their breeding season is from mid-March to early-June, and the females will lay about 3 to 5 eggs per nest. More information on American kestrels can be found here:

https://myfwc.com/wildlifehabitats/profiles/birds/raptors-and-vultures/american-kestrel/

FOX SQUIRREL

Fox squirrels are rodents that can weigh up to three pounds and can reach up to 27 inches in length. They are habitat specialists within the longleaf pine ecosystem, and their populations are declining primarily due to habitat fragmentation and loss. Fox squirrels are widely distributed throughout eastern North America and are listed as a species of special concern in Florida. They are known to inhabit mature, fire maintained, upland pine ecosystems and often utilize hardwood forests adjacent to the pine habitats. They are opportunistic feeders that eat a wide variety of foods such as



seeds, nuts, acorns, flowers, pine seeds, insects, fungi, twigs, roots, buds, and tubers. Fox squirrels build their nests in trees, and their nests are generally made of Spanish moss, twigs, leaves and pine needles. For additional information on fox squirrels:

https://myfwc.com/wildlifehabitats/profiles/mammals/land/fox-squirrel/

GULF STURGEON

The gulf sturgeon is listed as Federally Threatened. This fish can weigh up to 300 pounds and live to 40 years. The sturgeon is anadromous living in salt water and migrating

up freshwater rivers to spawn. Pollution, sedimentation, altered flow regimes, and channel dredging are some of the major reasons for their decline. If you are working near sturgeon habitat, please help protect these fish by avoiding altering river flow and reduce sedimentation by leaving a buffer strip between the river and any upland activities. For more information please go to: https://myfwc.com/wildlifehabitats/profiles/saltwater/gulf-sturgeon/

SALTMARSH TOPMINNOW

The Saltmarsh Topminnow is listed as state Threatened. This fish is only found in the Perdido Bay, Pensacola and Escambia Bay estuaries. Threats to this fish include changes in salinity, water quality, and quantity, and habitat

alteration. In order to protect this fish, the following should be considered: Avoid creating artificial impoundments, dredging channels or using hardened structures like sea walls, instead use living shorelines. Maintain a minimum buffer of 50 meters between the water and upland activities. Maintain vegetation such as cordgrass and needlerush. Restore natural hydrology and vegetative structure of altered saltmarsh habitat. For more information go to: https://myfwc.com/media/11572/saltmarshtopminnow-guidelines.pdf





INVASIVE OR NON-NATIVE SPECIES

Invasive species can destroy an ecosystem by disrupting nutrient cycles, outcompeting native species, and ultimately decreasing the overall biodiversity of a native ecosystem. Wildlife rely on a diversity of plants and other animals to survive. In the event a disease (like laurel wilt) and/or natural disaster wipes out one or two important species, they have many others to fall back on for food, water, and shelter in a native ecosystem. However, in areas dominated by invasive species, there is only one plant, the invasive, and none of our native species evolved to use it. Invasive species management can be challenging—it requires consistency, diligence, catching problem species early, and following-up treatment regularly, but it will improve the quality of habitat for your wildlife and conserve the biodiversity of your property.

We recommend monitoring for and treating invasive species across the property and staying up to date with current information about invasive species to stop them before they become a problem. The <u>Florida Invasive Species Partnership</u> provides information to landowners and gets them involved in managing invasive species across the state. Information on cost-share opportunities, workshops, and current invasive species issues can be found on their website. A list of invasive species can be found on the <u>Florida Exotic Pest Plant Council</u> website along with current news and more resources. The following are invasive species we found on your property and management recommendations for removing them.

CHINESE PRIVET AND CHINESE TALLOW

<u>Chinese privet</u> and <u>Chinese tallow</u> are both invasive exotic perennial hardwoods from east Asia. The



Florida Pest Plant Council considers both plants category 1 exotics. Plants are placed in category 1 when they are displacing native species and changing community structures and natural ecosystems. Both of these species will

Photo: Chinese privet

Credit: David Stephens

readily displace native species once established. These invasives have the ability to withstand flooding and droughts and has an affinity for growing in dense stands. They both grow in a variety of habitats from fresh to saline waters and in full sun or shade. Both invasive non-native species are prolific seeders and are mostly spread by birds that feed on the fruits. Chinese tallow trees can also be spread by water. Cut trees and shrubs will readily resprout from stumps or roots. Chinese privet is a semi-deciduous shrub or small tree that can grow to about 12 feet tall or more, and Chinese tallow is a small to medium tree that grows to about 20 feet, but some can reach 50 feet tall. See above UF/IFAS links for further information on treatment.



Photo: Chinese tallow Credit: Peter Stango

JAPANESE CLIMBING FERN



Photo: Japanese climbing fern

Credit: Karan Rawlins

Japanese climbing fern is a non-native, invasive vine from east Asia. The Florida Pest Plant Council considers Japanese climbing fern a category 1 exotic. Plants are placed in category 1 when they are displacing native species and changing community structures and natural ecosystems. Japanese climbing fern will readily displace native species once established. This wide-spreading non-native vine occurs is a variety of habitats such as marshes, swamps, along creeks, hammocks and upland woodlands.

It occurs in both sunny and shaded locations, usually in more mesic conditions. Just like other ferns, this species spreads by spores that are extremely numerous, long-lived, and easy dispersed.

Japanese climbing fern can be treated between the months of April and August, before spore maturation. It is recommended that the entire plant be thoroughly wet with 2 to 3% glyphosate plus a 0.25% non-ionic surfactant. Because this species is spread by spores that are easily transported by wind, water, equipment, and animals, it is critical that plants be treated prior to spore production which typically occurs after August. Repeated herbicide application may be needed for total coverage. Avoid intensive management while spores are present to limit further spread. It is important that you talk to a qualified expert in treating Japanese climbing fern to get a site-specific recommendation for your property. See UF/IFAS link for further information on treatment.

SHOWY RATTLEBOX

<u>Showy rattlebox</u> is a fast-growing summer annual that germinates in early spring and flowers in late summer. This plant is toxic to all livestock, including goats. The seeds contain the highest amount of toxins, though all parts of the plant are toxic, even when dried. This noxious non-native plant occurs in extensive patches in both fields, as shown in the table below. While prolific, it is easily controlled with several different herbicides.

In accordance with the recommendation of the IFAS County Extension Herbicide Specialist, or qualified herbicide representative, an herbicide treatment will be applied using an appropriate herbicide for showy rattlebox control. The best time to apply herbicides to showy rattlebox is in the seedling stage. This species should not be treated past September since summer annuals respond poorly to herbicide applications in the fall.



Photo: Showy rattlebox Credit: Peter Stango

It is recommended that the entire plant be thoroughly wet with a chosen herbicide. During the seedling stage, foliar treat plants with 2,4-D or dicamba+2,4-D (2-3 pints per acre), or triclopyr (2 pints per acre). Once this plant becomes larger, foliar treat plants with triclopyr or triclopyr+fluroxypyr (2 pints per acre), or aminopyralid+2,4-D (1.6 to 2 pints per acre).

It is important that you talk to a qualified expert in treating Showy rattlebox *(Crotalaria spectabilis)* to get a site-specific recommendation for your property. See <u>UF/IFAS link</u> for further information on treatment.

COGONGRASS

<u>Cogongrass</u> is a notorious invasive grass that is capable of dominating the landscape if left unchecked. Found within mesic and hydric flatwoods, cogongrass eradication may prove difficult. Mowing large patches of cogongrass may prove beneficial in attempted treatments. Regrowth of above ground plant material requires energy reserves to be exhausted and mowing will therefore result in improved herbicide efficacy and reduce costs via minimization of the amount of herbicide required.



Photo: Cogongrass

Credit: Peter Stango

Cogongrass can be treated between the months of April and October. A fall treatment in September or October is recommended for the best results. There are two main chemicals that are used to treat cogongrass, they are glyphosate and imazapyr. A combination of the two chemicals is typically recommended. For example, spot treatments of cogongrass can include the use of 2 to 3% glyphosate (4 lb/gal product) plus a 1 to 2% solution of imazapyr depending on concentrate (2lb or 4 lb/gal) along with a surfactant if not included in the herbicide.

Imazapyr has consistently been shown to be more effective than glyphosate in controlling cogongrass. Imazapyr has also consistently been shown to be effective without mixing with glyphosate. Imazapyr is typically recommended for older infestations and initial treatments. Imazapyr can move through the soil and can kill hardwoods and can stress pine trees near treatment sites. Therefore, refrain from using Imazapyr in areas where maintaining hardwoods is desired or where pines have been recently stressed.

Glyphosate, though not as effective as imazapyr, has been used to control and even eradicate cogongrass. If glyphosate is the only chemical to be used, there are two options for treatment. One option is repeated fall treatments in September or October. Fall applications of glyphosate have constantly been shown to be effective in treating cogongrass. Another option is a May treatment followed by a Fall treatment. Treating in May and again in the Fall of the same year can be effective in controlling cogongrass.

Cogongrass stands will typically have dead leaf material mixed in with new green growth. It would be beneficial to mow, weed eat, or burn the cogongrass patch in January or February, prior to the following year's treatment, to ensure new leaf material will be treated by a chemical application in the fall. If mowing or using a weed eater, be careful not to disturb the soil by dragging or cutting the ground. Cogongrass roots can potentially be picked up by a mower dragging the soil and transported to other locations. Therefore, be sure to clean all equipment prior to moving from the site. If the stand is to be burned, conduct the burn in winter, preferably on a cold day. Prior to burning, clear cogongrass from around the trees, when possible, by mowing or weeding prior to the burn, burning out around the trees throughout the burn, or a combination of the two.

It is important that you follow all labeled rates for the herbicide used. An herbicide applicator's license is not required by a landowner to use forestry-labeled herbicides on their own property. Follow-up treatments in subsequent years may be needed and will most likely be required for continued control. See <u>UF/IFAS link</u> for further information on treatment.

PASTURE (TURF) GRASSES

<u>Bahiagrass</u> is an introduced pasture grass that does not burn well when green, changing fire behavior and obstructing prescribed fire. Bahiagrass invades natural areas, prevents native species from establishing, and can choke out existing plants. It is important to frequently monitor and manage this

grass with spot treatment of herbicide in areas you plan to plant native species. See above UF/IFAS link for further information on treatment.

<u>Centipedegrass</u> and <u>bermudagrass</u> were observed in patches throughout the property in open areas and on trails. These non-native grasses compete heavily with native species and can make restoration of groundcover difficult. For more information on groundcover restoration start on pages 27 (site-appropriate overstory species and



Photo: Centipedegrass

Credit: Peter Stango

degraded groundcover) and 89 (sandhill community) of the <u>Groundcover Restoration in Forests of the</u> <u>Southeastern United States</u> booklet and view the <u>stand recommendations</u> in this document. See above UF/IFAS link for further information on treatment.

MOWING

Mowing can be conducted in fall or early winter to control undesirable plant species, reducing the competition for nutrients for desirable ground cover and pines. Mowing also increases the availability and palatability of new growth of vegetation which benefits species such as white-tailed deer and gopher tortoises who are dependent on shorter vegetation heights to forage. Mowing areas at a height of 12 inches will reduce the fuel load, reduce understory competition, and improve wildlife habitat. Mowing resets plant succession and increases the diversity of plants available as food and/or cover. Leaving "rough areas" provides nesting and cover habitat for most ground-nesting birds, such as the bobwhite quail and wild turkey.

BOUNDARY LINE ESTABLISHMENT / MAINTENANCE

The boundary lines on the property should be clearly marked which can be done by establishing firelines, roads, fences, or tree blazing. If the lines are not clearly identified they should be surveyed and marked by a professional.

FIRELINES

Firelines need to be established and maintained around the perimeter of any stands that will be burned. Firelines will help contain prescribed burns, protect landowner assets from a wildfire, provide access within the property, create a transitional zone for wildlife species, provide nesting and foraging habitat, and provide travel corridors for wildlife. Firelines should be at least **8 to 15 feet wide** and follow the natural contour of the land.

The landowners should harrow the lines in order to improve access and to help facilitate the growth of herbaceous vegetation. It is important to maintain firebreaks around each stand and the property boundary. Turning the soil stimulates seed production from the existing seed bank and the timing of application dictates the initial plant colonizers.

- Disking in winter (Nov.-Dec.) favors a legume and forbs-dominated herbaceous community that provides seeds and browse for a variety of species.
- Disking in spring (Feb.-Mar.) favors a grass-dominated community that provides cover, insects, and seeds for wildlife.

PRESCRIBED FIRE

Prescribed fire may be conducted (2 to 4-year rotation) in order to reduce fuel load, improve habitat, and improve forest health. Prescribed fire is one of the most effective tools for improving wildlife habitat because it recycles nutrients back into the soil and promotes new vegetation growth (see "<u>Sunlight, Fire, and Quail</u>," a short video). The new vegetation is utilized by game species such as wild turkey and white-tailed deer as well as non-game species such as songbirds and the gopher tortoise which forage on low-growing vegetation. Insect production increases after a burn which provides forage for many wildlife species. The open appearance created by burning may increase the aesthetic and recreational value of the property by benefitting game species (hunting opportunities) and easing hiking access.

The seasonality/timing of the burn event will produce different outcomes on the vegetation structure. A growing season (spring-early summer) burn will promote native herbaceous vegetation and adversely affect the woody vegetation. This type of burn will assist production of a species-rich ground cover (comprised mostly of herbaceous vegetation such as native grasses and forbs), provide new vegetation and ample insects for foraging, create nesting habitat for many ground-nesting birds, and provide fine fuels to help carry fire on the landscape. On the other hand, a dormant season (winter) burn is normally utilized to reduce fuel and control some vegetative competition. Throughout the landscape, these seasonal and temporal burn variations will promote diversity of vegetative structure and composition throughout the property. Creating a diverse vegetative structure on the landscape will ensure all wildlife habitat components are met (e.g. food, water, roosting, cover, and nesting). Before conducting any burn, a detailed burn plan needs to be written that details when, where, and how the burn is to be conducted. Specific operational planning for prescribed fires is the responsibility of the landowner. We recommend that a certified Florida prescribed burner write all burn prescriptions and conduct all burns in order to reduce liability concerns for the property. Authorization for prescribed burning must be obtained from the Florida Forest Service on the day of the planned burn. A written burn prescription should be prepared for all burns (following the guidance in Florida Administrative Code, rule 5I-2.006), and at a minimum should contain the following: 1.) Site description, 2.) Map of the area to be burned, 3.) Number of personnel and equipment available, 4.) Desired weather factors (surface and transport wind speeds and directions, minimum mixing height, minimum relative humidity, maximum temperature, minimum fine fuel moisture) 5.) Desired fire behavior factors (burn technique, flame length, rate of spread), 6.) Time and date that the prescription was prepared, 7.) Authorization date and period of authorization, 8.) Smoke screening evaluation, and 9.) The signature and number of the certified burn manager.

Soils

SOILS

SOILS MAP



Soil Type (Map Unit Number)	Slope	Ecological Community	Drainage	Depth to Water Table
Corolla- Duckston Sands (3)	gently undulating	Sand Beach – Beach Dune / Interdunal Swale / Wet Flatwoods	Somewhat poorly drained	18-36 inches
Pickney Sand (4)	0 – 1%	Mesic Flatwoods	Very poorly drained	0-6 inches
Dirego Muck, Tidal (6)	0 – 1%	Salt Marsh	Very poorly drained	0-6 inches
Kureb Sand (7)	0 – 8%	Salt Marsh, Mesic Flatwoods	Excessively drained	>80 inches
Newhan-Corolla Complex (8)	2 – 15%	Developed	Excessively drained	>80 inches
Leon Sand (9)	0 – 2%	Mesic Flatwoods	Poorly drained	>80 inches
Kureb Sand (17)	8 – 15%	Rural Open/ Scrub	Excessively drained	>80 inches
Pits (18)	0 – 5%	Rural Open/ Scrub	Moderately well drained	>80 inches
Water (99)	0%			
Gulf of Mexico (100)	0%			

Stand Recommendations



SPECIFIC STAND RECOMMENDATIONS

Below are the individual stand recommendations for your property focused primarily on restoring and managing wildlife habitat. Please note the information in the <u>prescribed fire</u> section of this document on the season of burning, and adjust your burns to meet your management objectives.

STAND MAP



Note: This is attached separately in the email for ease of access.

STANDS 1, 5, 10 & 11

These stands are comprised of mature upland longleaf or slash pine-dominated communities (Mesic Flatwoods, Wet Flatwoods, Scrub) with a thick hardwood understory. Sand pine is present but infrequent. Currently, ground cover is present but patchily abundant in more open conditions. Invasives such as cogongrass, Chinese tallow, Chinese privet, and Japanese climbing fern are present and locally abundant. Herbicide treatments will be required to reduce and eradicate invasive species. Continue to monitor these stands for invasives and refer to the <u>invasive species</u> section of this document for specific treatment information for each species.

Brush Management

To restore and manage these upland communities and reduce overall fuel loading, brush management is recommended to reduce understory hardwood shrubs and vines. Use a heavy mower, gyrotrac, or brush cutter to remove and control unwanted hardwoods. Be sure to retain and protect sand pine and Florida rosemary is stand 11, as these species are typical in scrub communities. Following initial application, some regrowth, or reoccurrence of brush should be expected. Maintenance should consist of rotating mowing, prescribed fire, or herbicides to control regrowth. In areas where prescribed fire is not ideal, continue to use rotational mowing and targeted herbicides in place of fire.

Prescribed Fire

Establish firelines around areas that will be maintained with fire. Disk firelines along ditches, and field edges that currently exist, if possible. New firelines are typically established by plowing. The Florida Forest Service offers this service for a reasonable price. Wetland borders should not be plowed so that fire can run into the wetland and be extinguished naturally. If a wetland dries out during the burning season, then consider a disked line along the edge. Once fuel loading is reduced, and cogongrass is under control, burning on a 2-4 year rotation is recommended, starting in 2027.

Wildlife benefit from patchy, "imperfect," burns. Ground nesting birds need brushy patches as escape cover, and "clean" burns may



remove some of these features. Growing season fire promotes the reproduction of native grasses, herbs, and forbs. Some native species, like <u>wiregrass</u>, can only reproduce with growing season fire. Wildlife benefits from a diversity of habitats, and it is not always feasible to burn every stand at the exact timing you would like to. Getting fire on the ground in the dormant season or growing season

within the 2-4 year rotation will benefit native plants and wildlife. **Adjust your burning to suit your management goals**.



Pollinator Fields

In stand 1, six areas were identified (see above map) as possible locations for planting pollinator fields for a total of approximately 0.5 acres. Begin by preparing the site for planting. **Apply an herbicide during the summer of 2025** and make sure that the herbicide is not soil-active or has a residual of more than 60 days. If you use glyphosate, you can apply it multiple times over the summer to get better control of herbaceous competitors. The goal is a clean weed-free seed bed. Do not use herbicides with soil residues that inhibit native forb seed germination. In accordance with the recommendation of the IFAS County Extension Herbicide Specialist or qualified herbicide representative, an herbicide treatment will be applied using an appropriate herbicide for herbaceous weed control.

Plant species and the amount of seed for each species selected for this contract are found in the jobsheet below. **Planting the seed mix should take place in November 2025.** Current recommendations are to plant between 40-60 pure live seed (PLS) per square foot. The seed should have a label that lists percent germination and percent purity from which you can calculate PLS by using the following formula:

Percent PLS = (% purity X % germination)/100

Seed sold on a bulk-pound basis may or may not provide the desired 40-60 seed per square foot. If germination is low, you may need to buy more seed than what is listed in the job sheet, in order to get the amount of pure live seed listed in the job sheet. What is listed in the job sheet is the amount of pure live seed needed per acre.

To prepare the site for planting you will need to disk the site lightly. Try to disturb the soil surface as shallowly as possible to avoid turning up weed seeds. Disk in one direction then disk perpendicular to increase the amount of soil scarified.

Seeding can be done in one of several ways. Hand seeding with a small seeder or one mounted on a tractor or ATV can work well. You will need to mix the seed with a carrier such as sawdust, sand, cat litter, or vermiculite will help distribute the seed better. Mix the seed and carrier (2 parts carrier to 1 part seed) in a tub then scoop out enough for the seeder or the plot you are planting. Plant half the mix in one direction and the other half in a perpendicular direction to get complete coverage. Broadcast seedings should be cultipacked or rolled to ensure good seed/soil contact. A weed-free mulch can add additional protection if the area is subject to erosion. *If possible, irrigate about ¼ inch per day for the first 2 weeks after planting.*

Maintenance of the fields should include mowing 3 weeks after the peak of flowering has occurred. This will probably mean a late fall mowing each year.

See the <u>Schedule of Operations</u> below for timing suggestions.

STAND 4

Stand 4 consists of <u>wet flatwoods - hydric pine flatwoods</u> composed of mature slash pines, oaks, and encroaching hardwoods with mostly intact, but shaded ground cover (see link for Florida Natural Areas Inventory description and species that occur in these ecosystems). A select thinning of some larger oaks as well as brush management of unwanted understory hardwoods, in accessible areas of this stand, would allow more sunlight to reach the ground and benefit native groundcover species. One option to selectively remove trees is a <u>hack-and-squirt</u> herbicide treatment. This will allow the treated tree to continue providing wildlife habitat as a snag while increasing the amount of sunlight that reaches the ground for grasses and other herbaceous plants. Monitor site for invasives.

See the <u>Schedule of Operations</u> below for timing suggestions.

STAND 9

This stand consists of a <u>bottomland forest</u> (see link for Florida Natural Areas Inventory description and species that occur in these ecosystems). Bottomland forests provide corridors for wildlife and are adapted to periodic flooding events. They host many unique plant and wildlife species. Treat <u>Japanese</u> <u>climbing fern</u>, <u>Chinese privet</u>, and <u>Chinese tallow</u> found throughout the understory of this stand. Continue to monitor this stand for invasive species and maintain it as a buffer for the intermittent stream and unique wildlife habitat. Selectively thin hardwoods in this stand and open up the canopy to allow sunlight to reach the ground for native ground cover recovery. Strategically target southern magnolia, sweetgum, red maple, and other understory hardwoods within the center of this stand. Due to past hurricane damage, there is a large amount of woody debris scattered through this stand. While this provides important wildlife habitat, there is an exorbitant amount in this stand, and it has negatively impacted ground-cover diversity. Remove large woody debris from the main wetland bottom to further enhance and restore this habitat.

See the <u>Schedule of Operations</u> below for timing suggestions.

STAND 12

Stand 12 is a clear-cut field that consists of some young resprouting hardwoods mixed with native grasses, and forbs. Historically, this stand was likely a <u>mesic</u> or <u>scrubby flatwoods</u>. There is an old relic shell mound along the southern ridgeline of this stand. A large amount of cogongrass is found throughout this field. Treat this infestation and monitor the site for this and other invasives.

To restore this stand, we recommend treating cogongrass first and then preparing the site for longleaf replanting. Most of the native groundcover species will return on their own while others can be seeded in from other parts of the property. Additional longleaf pine <u>planting guidelines</u> are outlined below.

See the <u>Schedule of Operations</u> below for timing suggestions.

STANDS 2, 3, 6, 7, & 8

These stands consist of <u>beach dune</u>, <u>coastal interdunal swale</u> and <u>salt marsh</u> (see link for Florida Natural Areas Inventory description and species that occur in this ecosystem). These communities provide important wildlife habitat and are adapted to tidal flooding events. They host many unique plant and wildlife species. No additional management recommendations are provided for these stands. Monitor sites for invasives.

ADDITIONAL MANAGEMENT OPTIONS FOR WILDLIFE

One thing that can be done in the early stages of longleaf growth in stand 12 is to construct kestrel nest boxes. Kestrels like open longleaf pine-wiregrass habitat and they are a declining species of hawk. Kestrel boxes should be place on a pole overlooking the open stand but not too close to the edge where squirrels can become nest predators. Plans for a kestrel nest box are included in the appendix.

Bat boxes are another nesting structure that can be used to enhance wildlife presence on the property. It may take some time for bats to begin using an artificial nest box so do not be discouraged if they do not show up for a few years. Boxes should be on poles at least 10 feet above the ground and oriented south-southeast (140° azimuth is optimal). The box should be placed within 1500 feet of permanent water and near a tree line so anywhere around the ponds is good. For more specific information on how to build a bat box or buy a pre-made bat box, see Bat Conservation International's website http://www.batcon.org/. Plans for a two-chambered rocket box are included in the appendix as well.

Whenever possible, snags (standing dead trees) should be left standing on the property. Snags are used by cavity nesting and roosting wildlife species, which includes woodpeckers, chickadees, bats, flycatchers, southeastern American kestrels and owls. Snags should be removed if they have decayed to the point of posing a hazard to structures or falling across firebreaks or roads.

STAND MAP SUMMARY

Stand	Acres	Description	% of Total
1	30.2 ac	Mesic Flatwoods Restoration	35.7%
2	2.1 ac	Beach Dune	2.5%
3	0.6 ac	Coastal Interdunal Swale	0.7%
4	5.7 ac	Wet Flatwoods (Hydric Pine Flatwoods) Restoration	6.7%
5	5.4 ac	Wet Flatwoods (Hydric Pine Flatwoods) Restoration	6.4%

6	31.8 ac	Salt Marsh	37.6%
7	0.8 ac	Salt Marsh	0.9%
8	1.6 ac	Salt Marsh	1.9%
9	1 ac	Freshwater Forested Wetland, Bottomland Forest Restoration	1.2%
10	1 ac	Mesic Flatwoods Restoration	1.2%
11	2.1 ac	Scrub Restoration	2.5%
12	2.3 ac	Rural Open – Longleaf Replanting	2.7%
Total	84.6 ac		

SCHEDULE OF OPERATIONS FOR THIS PROPERTY

Calendar Year	Stands	Total Acres	Month	Treatment	Date Completed
2025	1,5,10,12	variable	by May	Treat non-native, invasive - cogongrass	
2025	1,5,9,10	variable	by Aug	Treat non-native, invasive - Japanese climbing fern	
2025	1	0.5 ac	by Aug	Herbicide areas selected for pollinator fields	
2025	1,5,9,10	variable	by Oct	Treat non-native, invasives – Chinese privet and tallow	
2025	1,5,10,12	variable	by Oct	Treat non-native, invasive - cogongrass	
2025	1	30.2 ac	by Oct	Begin understory brush management	
2025	9	1 ac	by Oct	Begin understory brush management and remove excess woody storm debris	
2025	1	variable	May- Dec	Create trails, roads and firelines	

2025	1	0.5 ac	by Nov	Lightly disk fields and plant pollinator seed mix	
2026	1,4		Jan-Feb	Install kestrel and bat nest boxes	
2026	1,5,10,12	variable	by May	Treat non-native, invasive - cogongrass	
2026	1,5,9,10	variable	by Aug	Treat non-native, invasive - Japanese climbing fern	
2026	1,5,9,10	variable	by Oct	Treat non-native, invasives – Chinese privet and tallow	
2026	1,5,10,12	variable	by Oct	Treat non-native, invasive - cogongrass	
2026	(4),5,10,11	14.2 ac	by Oct	Begin understory brush management (where accessible)	
2026	1	0.5 ac	by Nov	Mow pollinator fields	
2026	(4),5,10,11,12	variable	May- Dec	Create trails, roads and firelines (where accessible)	
2027	1,5,10,12	variable	by May	Treat non-native, invasive - cogongrass	
2027	1,5,9,10	variable	by Aug	Treat non-native, invasive - Japanese climbing fern	
2027	1,5,9,10	variable	by Oct	Treat non-native, invasives – Chinese privet and tallow	
2027	1,5,10,12	variable	by Oct	Treat non-native, invasive - cogongrass	
2027	1,9	31.2 ac	by Oct	Understory brush management – mechanical/chemical, as needed	

				-	
2027	12	2.3 ac	by Oct	Chemical site prep for Longleaf replanting	
2027	1	0.5 ac	by Nov	Mow pollinator fields	
2027	ALL	variable	May- Dec	Maintain trails and roads	
2027	1,11,12	variable	by Dec	Refresh firelines (as needed)	
2027	1,4		by Dec	Monitor and maintain kestrel and bat nest boxes	
2028	1,11,12	34.6 ac	by Feb	Prescribe burn stands	
2028	12	2.3 ac	by Feb	Tree Planting – Longleaf @ 403 TPA (9' x 12' spacing)	
2028	ALL	variable	by May	Monitor for non-native, invasive - cogongrass – treat if needed.	
2028	ALL	variable	by Aug	Monitor non-native, invasive - Japanese climbing fern – treat if needed.	
2028	ALL	variable	by Oct	Monitor non-native, invasives – Chinese privet and tallow – treat if needed	
2028	ALL	variable	by Oct	Monitor for non-native, invasive - cogongrass – treat if needed.	
2028	(4),5,10	12.1 ac	by Oct	Understory brush management – mechanical/chemical, as needed	
2028	1	0.5 ac	by Nov	Mow pollinator fields (add additional seed if needed)	
2028	ALL	variable	May- Dec	Maintain trails and roads	

2028	1,4		by Dec	Monitor and maintain kestrel and bat nest boxes	
2029	ALL	variable	by Aug	Monitor non-native, invasive - Japanese climbing fern – treat if needed.	
2029	ALL	variable	by Oct	Monitor non-native, invasives – Chinese privet and tallow – treat if needed	
2029	ALL	variable	by Oct	Monitor for non-native, invasive - cogongrass – treat if needed.	
2029	1,(4),5,9,10,11	45.4 ac	by Oct	Monitor understory brush – apply mechanical/chemical treatment, as needed	
2029	1	0.5 ac	by Nov	Mow pollinator fields	
2029	ALL	variable	May- Dec	Maintain trails and roads	
2029	1,4		by Dec	Monitor and maintain kestrel and bat nest boxes	
2030	ALL	variable	by Aug	Monitor non-native, invasive - Japanese climbing fern – treat if needed.	
2030	ALL	variable	by Oct	Monitor non-native, invasives – Chinese privet and tallow – treat if needed	
2030	ALL	variable	by Oct	Monitor for non-native, invasive - cogongrass – treat if needed.	
2030	1,11,12	variable	by Jan	Refresh firelines (as needed)	
2030	1,11,12	34.6 ac	by Feb	Prescribe burn stands	

2030	1	0.5 ac	by Nov	Mow pollinator fields	
2030	ALL	variable	May- Dec	Maintain trails and roads	
2030	1,4		by Dec	Monitor and maintain kestrel and bat nest boxes	
2031	ALL	variable	by Aug	Monitor non-native, invasive - Japanese climbing fern – treat if needed.	
2031	ALL	variable	by Oct	Monitor non-native, invasives – Chinese privet and tallow – treat if needed	
2031	ALL	variable	by Oct	Monitor for non-native, invasive - cogongrass – treat if needed.	
2031	1,(4),5,9,10,11,12	45.4 ac	by Oct	Monitor understory brush – apply mechanical/chemical treatment, as needed	
2031	1	0.5 ac	by Nov	Mow pollinator fields	
2031	ALL	variable	May- Dec	Maintain trails and roads	
2031	1,4		by Dec	Monitor and maintain kestrel and bat nest boxes	
2032	ALL	variable	by Aug	Monitor non-native, invasive - Japanese climbing fern – treat if needed.	
2032	ALL	variable	by Oct	Monitor non-native, invasives – Chinese privet and tallow – treat if needed	

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2032	ALL	variable	by Oct	Monitor for non-native, invasive - cogongrass – treat if needed.	
2032	1,11,12	variable	by Jan	Refresh firelines (as needed)	
2032	1,11,12	34.6 ac	by Feb	Prescribe burn stands	
2032	1	0.5 ac	by Nov	Mow pollinator fields (add additional seed if needed)	
2032	ALL	variable	May- Dec	Maintain trails and roads	
2032	1,4		by Dec	Monitor and maintain kestrel and bat nest boxes	
2033	ALL	variable	by Aug	Monitor non-native, invasive - Japanese climbing fern – treat if needed.	
2033	ALL	variable	by Oct	Monitor non-native, invasives – Chinese privet and tallow – treat if needed	
2033	ALL	variable	by Oct	Monitor for non-native, invasive - cogongrass – treat if needed.	
2033	1,(4),5,9,10,11,12	45.4 ac	by Oct	Monitor understory brush – apply mechanical/chemical treatment, as needed	
2033	1	0.5 ac	by Nov	Mow pollinator fields	
2033	ALL	variable	May- Dec	Maintain trails and roads	
2033	1,4		by Dec	Monitor and maintain kestrel and bat nest boxes	

2034	ALL	variable	by Aug	Monitor non-native, invasive - Japanese climbing fern – treat if needed.	
2034	ALL	variable	by Oct	Monitor non-native, invasives – Chinese privet and tallow – treat if needed	
2034	ALL	variable	by Oct	Monitor for non-native, invasive - cogongrass – treat if needed.	
2034	1,11,12	variable	by Jan	Refresh firelines (as needed)	
2034	1,11,12	34.6 ac	by Feb	Prescribe burn stands	
2034	1	0.5 ac	by Nov	Mow pollinator fields	
2034	ALL	variable	May- Dec	Maintain trails and roads	
2034	1,4		by Dec	Monitor and maintain kestrel and bat nest boxes	

LONGLEAF PINE PLANTING INFORMATION

Planting longleaf pine in an old cutover forestland requires site preparation to prevent hardwoods, turf grasses, and other native vegetation from overtaking your seedlings. Through extensive research and experience, the Longleaf Alliance has developed detailed guidelines for site preparation and planting of longleaf pines in old pastures and agricultural fields, which can be found <u>here</u>, but further information and research is presented in the attached PDF, "<u>Planting Longleaf Pine on Cutover Forestland</u>". Most of the recommended site prep in this document is applicable. A brief summary of recommended site prep:

- 1. Chemically site prep field, follow labels
- 2. Site prep burn field, see above
- 3. Plant containerized seedlings in early fall

Once you buy seedlings, remember these four rules:

- 1. Plant as soon as possible. Although containerized seedlings may keep (under the correct conditions) for several weeks, survival decreases with increasing storage time.
- 2. Keep seedlings in lined (waxed) boxes provided by the nursery. Waxed boxes will assist in keeping seedlings from drying out. Do not store seedlings in planting bags.
- 3. Store trees in a shaded, cool, dry area protected from desiccating winds.
- 4. Keep plugs moist with a light mist of water. However, saturating seedlings may lead to mildew development.

Longleaf pine density and spacing recommendations:

- 600 trees per acre: Will need thinning at age 12-15 to maintain forest health and increase sunlight for herbaceous plants in the understory that provide food, water, and cover for wildlife. The thinning would provide an opportunity for some revenue.
- 200-400 trees per acre: May not need thinning and would better align with goals for wildlife. Less trees per acre means more sunlight will reach the ground, therefore providing herbaceous plants with more opportunities to grow.
- 9x12 ft spacing ~ 403 trees per acre
- 12x12 ft spacing ~ 302 trees per acre
- 14x14 ft spacing ~ 222 trees per acre

Refer to the attached Word document entitled "**Planting Depth is Critical**" and the PDF "**USDA Pine Planting Guidelines**" for more information.

Resources

RESOURCES

EDUCATION AND INFORMATION

LONGLEAF ALLIANCE

The <u>Longleaf Alliance</u> has information on all aspects and benefits of longleaf pine management, from choosing native plant nurseries and planting to managing an adult pine forest with fire for wildlife.

GROUNDCOVER RESTORATION

<u>Groundcover Restoration Implementation Guidebook</u>, Florida Fish and Wildlife Conservation Commission

<u>Groundcover Restoration in Forest of the Southeastern United States</u>, Conserved Forest Ecosystems Outreach and Research

FLORIDA MASTER NATURALIST PROGRAM

The <u>Florida Master Naturalist Program</u> is an adult education UF/IFAS Extension program that promotes awareness, understanding, and respect of Florida's natural world among Florida's citizens and visitors. FMNP training will benefit persons interested in learning more about Florida's environment or wishing to increase their knowledge for use in education programs as volun-teers, employees, ecotourism guides, and others. To find classes in your area, click <u>here</u>.

FLORIDA MASTER GARDENER PROGRAM

The <u>Florida Master Gardener Program</u> is a volunteer-driven program that benefits UF/IFAS Extension and the citizens of Florida. The program relies on dedicated volunteers who have an interest in gardening and in giving back to their communities. Learn more about the program <u>here</u>.

RECOGNITION

WILDLIFE HABITAT RECOGNITION PROGRAM

The <u>Wildlife Habitat Recognition Program</u>, developed by Florida Fish and Wildlife Conservation Commission's <u>Landowner Assistance Program</u> was created to show appreciation for the important contributions to wildlife conservation made by private landowners. Properties with at least 20 acres of land dedicated to wildlife habitat have the opportunity to request an evaluation <u>here</u>.

FLORIDA TREE FARM PROGRAM

The <u>Florida Tree Farm Program</u> is a forest certification program that is recognized nationally by the Sustainable Forestry Initiative (SFI). They work in partnership with the Florida Forest Stewardship Program, UF/IFAS and Florida Forest Service in providing landowners with educational opportunities.

FLORIDA FORESTRY ASSOCIATION

The <u>Florida Forestry Association</u> will have information on landowner outreach programs, advocacy, State Tree Farm Program and master loggers.

AMERICAN FOREST FOUNDATION

The <u>American Forest Foundation</u> will have information on youth education, forest landowner outreach, special programs and advocacy on a National level.

UNIVERSITY OF FLORIDA FOREST STEWARDSHIP LINKS

The <u>University of Florida Extension - Forest Stewardship</u> has information on outreach, programs and forest management.

COST-SHARE PROGRAMS

There are state and federal programs available to landowners to incentivize the implementation of good stewardship forestry/wildlife practices. Programs can help pay to thin timber, install firebreaks, conduct prescribed burns, combat invasive species, etc.

Generally speaking, the state programs (offered by <u>Florida Forest Service</u>) are often seasonal (summer) and less administratively complex. The federal programs (offered by <u>Natural Resources Conservation</u> <u>Service</u> and the <u>Farm Service Agency</u>) are typically year-round but administratively complex. Both programs require out of pocket expenditures and then practices are reimbursed at a set rate which typically works out to ~ 50% offset of the cost of "doing business". To receive reimbursement, **land management practices cannot begin nor be approved until a signed contract is in place** so timing is an important consideration. If any of this is appealing, consider reaching out to the folks listed below.

NRCS

<u>USDA Natural Resource Conservation Service (NRCS)</u> offers the program <u>EQIP</u>, Environmental Quality Incentives Program, which has conservation initiatives for longleaf pines and gopher tortoises in your area. The best way to find out more information on these programs is to reach out to your local District Conservationist, <u>Josh Mcelhaney</u> at (850) 587-5404. The application and acceptance process can take around a year.

FLORIDA FOREST SERVICE

<u>Florida Forest Service</u> offers some cost-share opportunities for longleaf pine planting and the best way to learn more about those is through your county forester, <u>Cathy Hardin</u> at (850) 587-5237. You can find more information about the <u>Forest Stewardship Program</u> on the FDACS website.

NATIVE PLANTS

For native plant landscaping options that benefit hundreds of native pollinators and birds, see <u>20 Easy-</u> <u>to-Grow Wildflowers</u>, visit the <u>Florida-Friendly Landscaping</u> website, and see the <u>native plant list</u> in this document generated using the <u>Florida Native Plant Society</u> county-specific form.

NATIVE PLANT LIST

This list is **not** a comprehensive list of all plants that historically grew in your area, however it is a great start to learning about some native plants that might have occurred there. Click on the plant name to get information about the plant.

TREES

- <u>Cornus asperifolia</u>
- <u>Crataegus michauxii</u>
- <u>Diospyros virginiana</u>
- <u>Fraxinus americana</u>
- Fraxinus caroliniana
- <u>Ilex ambigua</u>
- <u>Magnolia virginiana</u>
- <u>Nyssa biflora</u>
- <u>Persea borbonia</u>
- <u>Persea palustris</u>
- <u>Pinus elliottii</u>
- <u>Pinus palustris</u>
- <u>Prunus angustifolia</u>
- <u>Prunus umbellata</u>
- <u>Quercus chapmanii</u>
- Quercus geminata
- Quercus laevis

rough-leaf cornel Michaux's hawthorn persimmon white ash Carolina ash Carolina holly, sand holly sweetbay swamp tupelo red bay swamp bay slash pine longleaf pine chickasaw plum hog plum, flatwoods plum Chapman's oak sand live oak turkey oak

- <u>Quercus virginiana</u>
- Vaccinium arboreum
- <u>Zanthoxylum clava-herculis</u>

live oak sparkleberry, farkleberry Hercules-club

SHRUBS

- <u>Amorpha fruticosa</u>
- Aronia arbutifolia
- Baccharis halimifolia
- <u>Callicarpa americana</u>
- Ceratiola ericoides
- <u>Cliftonia monophyla</u>
- <u>Conradina canenscens</u>
- Cyrilla racemiflora
- <u>Erythrina herbacea</u>
- <u>Gaylussacia mosieri</u>
- <u>Geobalanus oblongifolius</u>
- <u>Ilex coriacea</u>
- <u>Ilex glabra</u>
- <u>Ilex vomitoria</u>
- <u>Iva frutescens</u>
- Kalmia hirsuta
- <u>Lyonia lucida</u>
- Morella cerifera
- <u>Oenothera laciniata</u>
- <u>Serenoa repens</u>
- <u>Sophora tomentosa var. truncata</u>
- Vaccinium corymbosum
- <u>Viburnum dentatum</u>
- <u>Yucca aloifolia</u>
- <u>Yucca filamentosa</u>

false indigo-bush, bastard-indigo red chokeberry groundsel tree American beautyberry Florida rosemary black titi false rosemary titi coralbean. Cherokee bean wooly huckleberry gopher apple large gallberry inkberry, gallberry yaupon holly marsh-elder hairy laurel fetterbush wax myrtle cutleaf evening-primrose saw palmetto yellow necklace pod highbush blueberry southern arrowwood

Spanish bayonet, aloe yucca Adam's needle, beargrass

FLOWERS AND GROUNDCOVERS EXCLUDING FERNS AND GRASSES

- <u>Achillea millefolium</u>
- <u>Asclepias tuberosa</u>
- <u>Baptisia alba</u>
- <u>Carphephorus odoratissimus</u>
- <u>Carphephorus paniculatus</u>
- common yarrow butterflyweed, orange milkweed white wild indigo vanillaleaf hairy chaffhead
- 48

٠	<u>Chamaecrista fasciculata</u>	sleeping plant, partridge-pea
•	<u>Chrysopsis gossypina</u>	hairy goldenaster
•	<u>Cirsium horridulum</u>	purple thistle, yellow thistle
•	<u>Dalea carnea</u>	hammock prairie-clover, whitetassels
•	<u>Dalea pinnata</u>	summer farewell
•	<u>Eryngium yuccifolium</u>	button snakeroot, rattlenakemaster
•	<u>Gaillardia aestivalis</u>	smooth-headed blanket flower; gaillardia
•	<u>Helianthus angustifolius</u>	narrowleaf sunflower
•	Ipomopsis rubra	standing-cypress
•	<u>Monarda punctata</u>	dotted horsemint
•	<u>Pityopsis graminifolia</u>	narrowleaf silkgrass
•	Polygala lutea	orange milkwort
•	Polygonum pinicola	tall jointweed
•	<u>Rhexia alifanus</u>	savannah meadowbeauty
•	<u>Salvia azurea</u>	blue sage, azure blue sage
•	<u>Salvia coccinea</u>	scarlet sage, tropical sage, blood sage
•	<u>Symphyotrichum concolor</u>	eastern silver aster
•	<u>Trichostema dichotomum</u>	forked bluecurls
•	Xyris ambigua	coastal plain yellow-eyed grass

GRASSES AND GRASS-LIKE PLANTS

- <u>Andropogon virginicus</u>
- Aristida stricta var. beyrichiana
- Arundinaria gigantea
- Dichanthelium acuminatum
- <u>Eragrostis spectabilis</u>
- <u>Eragrostis elliottii</u>
- Juncus roemerianus
- Schizachyrium scoparium
- <u>Spartina alterniflora</u>
- <u>Uniola paniculata</u>

VINES

- <u>Campsis radicans</u>
- <u>Clematis reticulata</u>
- <u>Gelsemium sempervirens</u>
- <u>Ipomoea hederifolia</u>

broomsedge bluestem wiregrass switchcane tapered witchgrass purple lovegrass Elliott's lovegrass needle rush little bluestem saltmarsh cordgrass sea oats

trumpet-vine, trumpet creeper netleaf virgin's-bower yellow jesamine, Carolina jasamine scarlet morningglory

- Ipomoea imperati
- Lonicera sempervirens
- Smilax glauca
- Smilax laurifolia
- Vitis rotundifolia

beach morningglory coral honeysuckle cat greenbrier laurel greenbrier muscadine

NATIVE PLANT VENDORS

Name	Services
Andrew's Nursery	longleaf pine, wiregrass
Florida Wildflowers Growers Cooperative	native plants/seed
Ernst Seeds Company	native plants/seeds
Florida Association of Native Nurseries	native plants/seeds
Florida Native Plant Society	native plants/seeds
Roundstone Native Seed LLC	native plants/seeds
The Natives Inc.	native plants/seeds/restoration