University of Florida Conservation Areas Land Management Plan

Harmonic Woods

Introduction

Harmonic Woods is a 10-acre Conservation Area located north of Lake Alice on Museum Road and bordered on the east by Fraternity Drive and on the west by Village Drive. This property is a relatively undisturbed upland hardwood dominated forest, which slopes down to Lake Alice. Unlike many other natural areas on campus these woods have not been taken over by invasive exotic plants, although ardesia is fairly widespread. The primary use of the property has been by the Botany Department for plant identification and by the Geomatics (Survey and Mapping) Department for teaching surveying techniques in woods and on slopes. Due to its close proximity to campus, this site has been ideal for these departments.

According to information from the 2000-2010 Campus Master Plan, the area was recommended for preservation (Preservation Area 12) by several university staff and faculty members as well as representatives from state and local environmental agencies, who value the area for its relatively pristine condition and proximity to the campus. The protection of the resources provided by this area will require the exclusion of development activity, including clearing, earthwork, and paving. Only minor restoration along the forested edges is necessary, due to its relatively undisturbed condition.

Natural Areas Inventory

Water Resources

Harmonic Woods does not contain any permanent water features, but does provide some water resource protection, through recharge to the surficial aquifer and stormwater abatement. These woods are immediately adjacent and upstream to Lake Alice and, therefore, provide the lake some resource protection by being maintained in their undeveloped state.

Stormwater is a dominant watershed issue within the Lake Alice watershed. The current stormwater permit with the St. Johns River Water Management District does not require additional stormwater treatment for new impervious surfaces until a threshold is tripped (refer to CALM introduction), however campus staff are looking for ways to incorporate new technologies into sites that will retain and percolate water. In this light, the southwestern corner of the property could be potential location for a rain garden retention area to treat upstream runoff before it enters Lake Alice.

Natural Communities

Harmonic Woods is comprised primarily of a mesic / upland-mixed hardwood forest. Upland mixed forests are characterized as well-developed, closed-canopy forests of upland hardwoods on rolling hills. Upland mixed forests often have limestone or phosphatic rock near the surface and occasionally as outcrops. Soils are generally sandy-clays or clayey sands with substantial organic and often calcareous components. In larger, less strenuous conditions, mesic forests typically support significant wildlife and plant diversity, which result from the nutrient rich nature of hardwood forests and flowering and fruiting plants.

Plant Species

The canopy is dominated by *Carpinus caroliniana* (American Hornbeam), *Carya glabra* (Pignut Hickory), *Liquidambar styraciflua* (Sweetgum), *Ostrya virginiana* (Eastern Hophornbeam), *Pinus taeda* (Loblolly Pine), *Quercus hemisphaerica* (Upland Laurel Oak), *Quercus nigra* (Water Oak), *Tilia americana* var. *caroliniana* (Carolina Basswood) and *Ulmus alata* (Winged Elm). Also present

are *Acer negundo* (Boxelder), *Acer rubrum* (Red Maple), *Carpinus caroliniana* (American Hornbeam), *Celtis laevigata* (Hackberry), *Cercis canadensis* (Eastern Redbud), *Cornus florida* (Flowering Dogwood), *Diospyros virginiana* (Common Persimmon), *Fraxinus americana* (White Ash), *Juniperis virginiana* (Red Cedar), *Magnolia grandiflora* (Southern Magnolia), *Morus rubra* (Red Mulberry), *Prunus caroliniana* (Carolina Laurelcherry), *Prunus umbellata* (Black Cherry), *Quercus austrina* (Bastard White Oak), *Quercus michauxii* (Basket Oak), *Quercus virginiana* (Live Oak), *Sabal palmetto* (Cabbage Palm), *Sapindus saponaria* (Soapberry), and *Ulmus americana* (American Elm).

The understory is dominated by native species and houses a great diversity of small shrubs, vines and herbaceous plants. These include: *Aesculus pavia* (Red Buckeye), *Apios americana* (Groundnut), *Aralia spinosa* (Devil's Walking Stick), *Arundinaria gigantea* (Switchcane), *Asplenium platyneuron* (Ebony Spleenwort), *Bignonia capreolata* (Crossvine), *Boehmaria cylindrica* (False Nettle), *Callicarpa americana* (American Beautyberry), *Campsis radicans* (Trumpet Creeper), *Clematis reticulata* (Netleaf Leatherflower), *Crategus uniflora* (Dwarf Hawthorne), *Erythrina herbacea* (Coralbean), *Euonymus americanus* (American Strawberry Bush), *Gelsemium sempervirens* (Yellow Jessamine), *Hypericum hypericoides* (St. Andrew's Cross), *Ilex vomitoria* (Yaupon), *Ipomoea cordatotriloba* (Tievine), *Mitchella repens* (Partridgeberry), *Myrica cerifera* (Wax Myrtle), *Oplismenus hirtellus* (Woodsgrass), *Parthenocissus quinquefolia* (Virginia creeper), *Phytolacca americana* var. *rigida* (American Pokeweed), *Rubus trivialis* (Southern Dewberry), *Ruellia carolinense* (Carolina Wild Petunia), *Sabal minor* (Bluestem Palm, found in the wetter areas), *Sambucus nigra* subsp. *canadensis* (Elderberry), *Sideroxylon lanuginosum* (Gum Bully), various *Smilax* (Greenbriar) species, *Tillandsia usneoides* (Spanish Moss), *Toxicodendron radicans* (Poison Ivy), *Trillium maculataum* (Spotted Wakerobin), *Vaccinium arboreum* (Sparkleberry), *Vernonia gigantea* (Giant Ironweed), *Viola palmata* (Early Blue Violet), *Viola sororia* (Common Blue Violet), *Viola walteri* (Prostrate Blue Violet), *Vitis rotundifolia* (Muscadine Grape), and *Yucca filamentosa* (Adam's Needle).

Trillium maculataum (Spotted Wakerobin) and *Smilax lasioneuron* (Blueridge Carrionflower) are two rare species found here that are at the southern edge of their range. Other native species of note include *Arisaema triphyllum* (Jack in the Pulpit, an uncommon species), *Arisaema dracontium* (Greendragon, an uncommon species), *Athyrium filix-femina* subsp. *asplenioides* (Southern Lady Fern, threatened FL, at the southern limit of its range), *Clematis catesbyana* (Satincurls, an uncommon species), *Collinsonia serotina* (Blueridge Horsebalm, very rare), *Dioscorea floridana* (Florida Yam, an uncommon species), *Matelea floridana* (Florida Milkvine, endangered-FL) and *Onosmodium virginianum* (False Gromwell, an uncommon species) and the vine {Smilax hugeri (Small) Norton ex Pennell}.

Invasive non-native plant species

Portions of this mature forest are being encroached upon by non-native species. The most problematic areas include the southwest corner (on the moist lower slopes and in the lower elevations), the western edge, and along the disturbed, extreme northern boundary. *Ardisia crenata* (Scratchthroat) is the worst offender: this species is found scattered throughout the forest, and in great abundance in the southwestern and at the north edge. In places along the bottom half of the slope *Ardisia* dominates the understory; this monoculture is marching up the slope and beginning to invade the small swale part-way up the slope that houses populations of *Trillium maculatum* (Spotted Wakerobin) and *Smilax lasioneuron* (Blueridge Carrionflower). Also found in these wetter

areas but in less abundance are *Elaeagnus pungens* (Silverthorn), *Hedera helix* (English Ivy), *Liriope spicata* (Border Grass), *Macfadyana unguis-cati* (Catclaw Vine), *Nandina domestica* (Heavenly Bamboo), *Trachelospermum jasminoides* (Confederate Jasmine), and *Urena lobata* (Caesarweed). Several fraternity houses and dorms neighbor Harmonic Woods to the north, and this edge area is quite disturbed. *Albizia julibrissin* (Mimosa), *Dioscorea bulbifera* (Air Potato; limited to this portion of the property), *Melia azedarach* (Chinaberry Tree), *Sapium sebiferum* (Popcorn Tree), *Tradescantia fluminensis* (Small Leaf Spiderwort), and *Wisteria sinensis* (Chinese Wisteria) occur here. Non-native species found occasionally throughout the natural area include *Cinnamomum camphora* (Camphortree), *Eriobotrya japonica* (Loquat), and *Ligustrum lucidum* (Glossy Privet). *Lantana camara* (Lantana) was occasionally seen along the edges of the property.

Animal Species

Harmonic Woods is relatively small in size, which limits the amount of habitat for terrestrial species. American Crow, American Goldfinch, American Robin, Black and White Warbler, Blue-Gray Gnatcatcher, Brown-headed cowbird, Blue-headed Vireo, Blue Jay, Brown Thrasher, Boat-tailed Grackle, Carolina Chickadee, Carolina Wren, Cedar Waxwing, Chimney Swift, Downy Woodpecker, Eastern Phoebe, Eastern Tufted Titmouse, Great Crested Flycatcher, Gray Catbird, House Finch, House Wren, Indigo Bunting, Mourning Dove, Northern Cardinal, Northern Mockingbird, Northern Parula, Palm Warbler, Pine Warbler, Pileated Woodpecker, Red-bellied Woodpecker, Ruby-crowned Kinglet, Red-eyed Vireo, Red-winged Blackbird, Tree Swallow, White-eyed Vireo, Yellow-bellied Sapsucker, Yellow-rumped Warbler, Yellow-throated Warbler, Brown anole, Green anole, Green house frog, Squirrel Tree Frog, Pinewoods Snake, Southern Ring-neck snake, Gray Squirrel, Black rat, Cotton mouse, Oldfield mouse, and Raccoon.

Sweetgum and Loblolly Pine in Harmonic Woods

Soils Inventory

In general, mesic upland mixed / hardwood forests occur on rolling hills that often have limestone or phosphatic rock near the surface and occasionally as outcrops. Soils are generally sandy-clays or clayey sands with substantial organic and often calcareous components. The topography and clayey soils increase surface water runoff, although this is counterbalanced by the moisture retention properties of clays and by the often thick layer of leaf mulch which helps conserve soil moisture and create decidedly mesic conditions (FNAI).

The following soil information for on-site soils was gathered from the Soil Survey of Alachua County (1985).

Blichton Urban Land Complex (0-5% slope)

This gently sloping, poorly drained soil is on gently rolling uplands. Slopes are slightly convex. The areas are mostly irregular in shape and elongated and range from 10 to 40 acres. Typically, the surface layer is dark brown sand about 6 inches thick.

Millhopper Urban Land Complex (0-5% slope)

This nearly level to gently sloping, moderately well drained soil is in small and large irregularly shaped areas on uplands and slightly rolling knolls in the broad flatwoods. Typically, the surface layer is dark grayish brown sand about 9 inches thick. The subsurface layer is sand or fine sand about 49 inches thick.

Cultural and Recreational Resources

Harmonic Woods functions as forested green space for the student residents of Fraternity Row and Corey Village. As stated previously, these woods are also important areas for the Botany and Geomatics (Survey and Mapping) Departments, due to its close proximity to the main campus, intact forest canopy with limited invasive exotic intrusion and sloping terrain. The woods are bisected with unmarked footpaths and trails that are used by walkers and mountain bikers. On football game days, tailgaters park along the grassy edge that rings the woods. At present, there are no picnic tables, benches, or designated trails provided.

Southern portions of this site overlap with the potential archeological sites map, although no known sites have been in identified.

Future Improvements

Harmonic Wood's physical attribute of being an upland forest strongly point towards a Nature Park orientation, however the Botany and Geomatics departments also use this area for research and class activities. Therefore, it should be considered as both Nature Park and Academic Preserve. Land management activities should include creating designated footpaths, fencing along the northern boundary to prevent fraternity and sorority houses from encroaching, mowing, and, or, dumping into the woods and increasing the forest canopy along the borders. Additionally, habitat enhancements like bird and bat boxes and wildlife friendly plantings should be considered for this site.

Actions Since 2005

Since 2005 the primary actives taken have been the placement of a conservation sign, treatment of invasive exotic treatment and fencing along the back of fraternity/sorority houses as was recommended by the Conservation Study Committee. Additionally, Clare Ritscoff, Zoology PHD student, produced a poster of the life history of the Orb spider that is found in the woods. Once funding is identified, the next project that should be taken within this area is to continue the control efforts on invasive exotic vegetation.

Maps on the following pages:

1. Aerial Photo
2. Water Resources
3. Natural Communities
4. Soils