



University of Florida Conservation Area Land Management Plan
Lake Wauburg

Introduction

The University's Lake Wauburg recreational area is located between Gainesville and Micanopy along US 441 and is adjacent to Paynes Prairie State Preserve. The recreation area is divided into a north park and a south park, with a yearly overall attendance of 65,000 students, faculty and staff. The Lake Wauburg Conservation Area consists of two natural areas on the southern shores of Lake Wauburg South.

Wauburg South consists of 65 total acres with 12 acres in Conservation. On the western side of this park, 10 acre Conservation Area, a bald eagles nest is located that has been protected by a regulatory buffer. On the smaller eastern Conservation Area, 2 acres, a small creek flows into the lake from the state preserve along a riparian corridor.

The history of Lake Wauburg's use by the University began in 1918 when the University YMCA purchased twenty acres of land on the lake. At this time US 441 did not exist, nor did a land bridge so the journey to the lake, circumnavigating Paynes Prairie/Lake took a half-day on a winding road of mostly sand, with the risk of getting stuck always a real possibility. In 1938 the University YMCA dissolved, and the land was deeded to the University of Florida. In 1939 a recreation center and a small residence were built on the property. Since 1974, the north park has been continually operated with student activity fees and assistance from the College of Health and Human Performance.

A special note: This plan is primarily directed at management considerations for the Conservation Areas located at the Lake Wauburg South. However, this plan will also serve as a guide to future improvements at both parks that may impact the Conservation Areas, lake and surrounding natural areas. Specifically, this plan will address measures that should be taken to improve water quality and maintain a fire wise development.

Natural Areas Inventory

Water Resources

Lake Wauburg is in the Orange Creek sub-basin of the Ocklawaha River Basin. Since the majority of the Lake is in public ownership, it is also designated as an Outstanding Florida Water (OFW). This designation applies to a water body deemed worthy of special protection, due to its natural attributes that are generally given to state and federally owned public lands. This special designation is applied to certain waters and is intended to protect existing good water quality. As applied, the designation serves to require enhanced water quality protections in permitting of new developments, but allows for continuation, grandfathering, of existing facilities.

The lake is considered to be a eutrophic lake, with a shallow, soft, mucky bottom. Rooted plant growth is abundant along the shores and out into the lake, and algal blooms are not unusual (NHDEP). While it is generally recognized that Lake Wauburg's eutrophic state is naturally occurring, there is little debate that anthropomorphic causes have accelerated the eutrophication process over the last century.

According to data from the Florida Department of Environmental (FDEP) protection, Lake Wauburg's water quality suffers from nutrient loading of phosphorus and nitrogen. As a result a Total Maximum Daily Limit (TMDL) has been set for the lake on both of these nutrients. The

TMDL for Total Nitrogen (TN) is 2,062 pounds per year (lbs/y), while the TMDL for Total Phosphorus is 374 pounds per year (lbs/y). This TMDL applies to nonpoint solution sources that are within the Lake Wauburg watershed. According to FDEP the most likely sources for the nutrients are septic tanks (10%) and other (90%) (Basin Management Plan, 2007, FDEP).



Lake Wauburg

Mixed hardwood forest communities dominated the upland portions of the area. Wetlands on site are, primarily, represented by the bottomland forest associated with the lake

Natural Communities

Lake Wauburg is comprised, primarily, of three natural community types. These communities begin at the lake's edge with a sliver of floodplain marsh that grades up into bottomland hardwoods, which in turn grades into a mesic mixed-hardwood forest. The marshes associated with lake are wetlands of herbaceous vegetation and low shrubs. Moving up the slope, the bottomland forest is characterized as a low-lying, closed-canopy forest of tall, straight trees with a dense shrubby understory and little ground cover. The upland forested areas are comprised primarily of a mesic / upland-mixed hardwood forest. Mesic forests typically support significant wildlife and plant diversity, which result from the nutrient rich nature of hardwood forests and flowering and fruiting plants.

Bottomland Forest

The Lake Wauburg Conservation Area consists of 7 acres of Bottomland Forest. Bottomland Forest is characterized as a low-lying, closed-canopy forest of tall, straight trees with either a dense shrubby understory and little ground cover, or an open understory and ground cover of ferns, herbs, and grasses. Bottomland Forest occurs on low-lying flatlands that usually border streams with distinct banks, such that water rarely overflows the stream channel to inundate the forest. They also occur in scattered low spots in basins and depressions that are rarely inundated, which allow typical upland species to survive. Soils are generally a mixture of clay and organic materials. The water table is high, but Bottomland Forests are inundated only during extreme floods or exceptionally heavy rains.

Plant Species

Typical plants include water oak, live oak, red maple, sweetgum, loblolly pine, white cedar, cabbage palm, diamond-leaf oak, southern magnolia, loblolly bay, swamp tupelo, spruce pine, American beech, dahoon holly, wax myrtle, swamp dogwood, Florida elm, stiff cornel dogwood, and American hornbeam.

Animal Species

Typical animals include marbled salamander, mole salamander, three-lined salamander, slimy salamander, five-lined skink, ringneck snake, gray rat snake, eastern king snake, cottonmouth, wood duck, red-tailed hawk, turkey, yellow-billed cuckoo, screech-owl, great-horned owl, ruby-throated hummingbird, acadian flycatcher, pileated woodpecker, hermit thrush, cedar waxwing, yellow-throated warbler, opossum, gray squirrel, flying squirrel, raccoon, mink, gray fox, bobcat, and white-tailed deer.

Upland Mixed Forest / Mesic Hammock

Upland Mixed Forests are characterized as well-developed, closed-canopy forests of upland hardwoods on rolling hills. Upland Mixed 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.

Plant Species

Common species of this community type include southern magnolia, pignut hickory, sweetgum, Florida maple, devil's walking stick, American hornbeam, redbud, flowering dogwood, Carolina holly, American holly, eastern hophornbeam, spruce pine, loblolly pine, live oak, and swamp chestnut oak, among others. Other typical plants include gum bumelia, hackberry, persimmon, red cedar, red mulberry, wild olive, redbay, laurel cherry, black cherry, bluff oak, water oak, cabbage palm, basswood, winged elm, Florida elm, sparkleberry, Hercules' club, slippery elm, beautyberry, partridgeberry, sarsaparilla vine, greenbrier, trilliums, beech drops, passion flower, bedstraw, strawberry bush, silverbell, caric sedges, fringe tree, horse sugar, white oak, and blackgum.

Invasive non-native plants

On the site visit of the Conservation Area Working Group a few invasive plants were identified within the Conservation Area that should be treated by site staff with assistance from the University's Urban Forester. The plant species identified were Coral Ardesia [*Ardisia crenata*](#) Wandering Jew [*Tradescantia fluminensis*](#) and were in small enough quantities to be dealt with easily.

Animal Species

Typical animals species of the mesic system include slimy salamander, Cope's gray treefrog, bronze frog, box turtle, eastern glass lizard, green anole, broadhead skink, ground skink, red-bellied snake, gray rat snake, rough green snake, coral snake, woodcock, barred owl, pileated woodpecker, shrews, eastern mole, gray squirrel, wood rat, cotton mouse, gray fox, and white-tailed deer.



Soil Inventory

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

Blichton Sand (2-5% 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 grayish brown sand about 6 inches thick. It is about 3 percent nodules of ironstone and fragments and nodules of phosphatic limestone. The subsurface layer extends to a depth of 28 inches. The upper 7 inches is grayish brown sand and it has about 2 percent nodules of ironstone and fragments of phosphatic limestone. In Blichton soil, the subsurface layer and the upper part of the subsoil are saturated by a perched water table for 1 to 4 months during most years. Surface runoff is medium. The available water capacity is low in the sandy surface and subsurface layers and low to medium in the loamy subsoil. Natural fertility is low to medium and organic matter content is moderately low to moderate. Natural vegetation consists of hickory, magnolia, pineland, three awn, slash, longleaf, loblolly pines, sweet gum and bluestem.

Millhopper Sand (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. This Millhopper sand has a water table that is at a depth of 40 to 60 inches for 1 to 4 months and at a depth of 60 to 72 inches for 2 to 4 months during most years. Natural vegetation of this soil consists of live laurel, post, water oaks, sweet gum, cherry laurel, hickory, slash and longleaf pines. The understory is chiefly lopsided indiagrass, hairy panicum, low panicum, green brier, hawthorn, persimmon, fringeleaf paspalum, hoary tick clover, dwarf huckleberry, chalky and creeping bluestems and pineland threeawn.

Pomona Sand (0-2% slope)

This nearly level, poorly drained soil is in small and large areas in the flatwoods. Slopes are nearly smooth and range from 0 to 2 percent. Typically, the surface layer is very dark gray sand about 5 inches thick. The subsurface layer is sand to a depth of 16 inches. In this Pomona soil, the water

table is within 10 inches of the surface for 1 to 3 months during most years. The available water capacity is low to medium in the surface and subsurface layers and it ranges from low to high in the subsoil. Permeability is rapid to very rapid in the surface and subsurface layers. Natural vegetation of this soil is a forest of longleaf and slash pine. The understory is sawpalmetto, waxmyrtle, gallberry, bracken fern, pineland threeawn, blueberry, huckleberry, bluestem and running oak. Most areas are still in natural vegetation.

Sparr

The Sparr series are nearly level to gently sloping, somewhat poorly drained soils that formed in thick beds of sandy and loamy marine sediment. These soils are in broad areas of the gently rolling uplands and on slightly convex areas of the flatwoods. Slopes range from 0 to 5 percent. The water table is at a depth of 20 to 40 inches for 1 to 4 months during most years. Natural vegetation of this soil is a forest of longleaf and slash pine. The understory is saw palmetto, waxmyrtle, gallberry, bracken fern, pineland threeawn, blueberry, huckleberry, bluestem and running oak. Most areas are still in natural vegetation.

Cultural and Passive Recreational Resources

The properties that make up Lake Wauburg North and South are readily accessible by bus and car, as the park is within 10 miles of the main UF campus. Wauburg North consists of 25 acres of shaded, grassy picnic areas, with picnic tables and grills overlooking the lake and swimming area. Canoes, kayaks, paddle boats and rowboats are available and can be checked out for free with your Gator-1 Card. Beach volleyball and fishing from the dock are also popular activities. Extensive renovations took place from 1998-2000 and include: a rest room, with showers and changing areas, a shelter for boats, and renovation of Cypress Lodge that included central heat and air-conditioning and a full service kitchen. In order to support these new facilities, new water and septic systems were installed.

The Lake Wauburg South Recreation Center offers many recreational amenities as well as the opportunity to view wildlife. Animal species commonly seen include: bald eagles, ospreys, deer, turkeys and alligators. Recreational opportunities offered at this park include mountain bike and nature trails, an 18-hole championship disc golf course, water skiing, a soccer field and sand volleyball courts. Additionally, a 16-station climbing wall and six-sided bouldering facility are available as well as a High Ropes/Low Initiatives Course.

The probability of Paleo-Indian sites within parks is high, due to the proximity of the lake. Future improvements to the site will take into account the location of known areas and follow guidelines by the Department of Historical Resources before sighting any new structures.

Future Improvements

The Lake Wauburg Conservation Area is located within a recreational area, where many passive recreational activities are readily available. Therefore, management of the conservation areas within Wauburg South should be focused on maintaining them in their native state, with minimal use. The only improvement identified by the working group was to eradicate invasive non-native plants on the two conservation areas.

Listed animal species found on site include gopher tortoises, American alligator and bald eagles. Of these the primary species of concern is the bald eagle. As such a 330 foot buffer shall be maintained around the nesting tree identified on site. Within this buffer, no construction activities will be

undertaken during the nesting season (road/trail building) and no physical structures shall be placed. Additionally, construction activities outside of the buffer on the South Park shall follow the latest guidelines as put forward by the United States Fish and Wildlife Service.

Fire resistant development

Since this recreation and conservation area is located in an undeveloped portion of the county, with large natural systems that are fire dependent on its borders, current and future development shall follow the recommendations put forward in the Wildfire Mitigation in Florida handbook put out by the Department of Community Affairs and the Department of Agriculture and Consumer Affairs, as well as recommendations in the Alachua County Comprehensive Plan. These recommendations include planning development to include a defensible project perimeter (fire lines), interior fuel breaks, and landscaping guidelines and plant material that provide less fuel for wildfires.

Additionally, the placement of structures should be designed to minimize the potential for loss of life and property from wildfires, through requirements for fire-resistant building materials or treatments, provisions for accessibility by standard fire-fighting equipment and identification of how water from the lake may be utilized to suppress an active fire by identifying how fire equipment would access the lake in both the north and south parks. Finally, roads, driveways, culverts, and cul-de-sacs shall be designed to assure access by fire fighting equipment, providing for weight class, cornering, turnaround and overhead clearance.

Water quality

As detailed in the water resources section, Lake Wauburg is in a TMDL watershed and is designated an Outstanding Florida Water. These designations, as well as the use of the lake by students, staff and faculty mandate that the University do everything practicable (economically viable and in keeping with the mission of the recreation area) to maintain and, if possible, improve water quality in the lake. Therefore, this plan encourages that future development and redevelopment focus on using the most effective alternative waste water treatment technologies that will help reduce nitrogen and phosphorus loading to the lake. These technologies could include upgrading current waste water facilities, using composting toilets, or considering septic pump outs after high attendance events.

Maps on the following pages:

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

Regardless of any possible directional change in trophic state in Lake Wauberg, high productivity in this lake probably results from the influence of edaphic factors rather than from eutrophication caused by human activities. If any directional change in trophic state has occurred in the time period represented by this short sediment core, that change probably resulted from natural fluctuation in factors, such as hydrology, that influence nutrient inputs to the lake. Lake Wauberg lies above phosphate-bearing deposits of the Hawthorne Formation (Brooks 1981) and it is probable that the lake receives nutrient-rich groundwater inputs. Groundwater inputs to lakes in Florida frequently are intermittent or variable in nature (Deevey 1988), and they can influence natural fluctuations in water level and trophic state conditions over decadal periods of time.

Sedimented algal pigment profiles in Florida lakes: evaluating algal community responses to eutrophication

Thomas Whitmore Melanie Riedinger 2002

62-304.100

62-304.500 Ocklawaha River TMDLS.

(9) Lake Wauberg.

(a) The Total Maximum Daily Load for **Total Nitrogen (TN) for Lake Wauberg is 2,062 pounds per year (lbs/y)** and is allocated as follows:

1. The Wasteload Allocation for point sources is not applicable because there are no permitted point sources authorized to discharge wastewater to Lake Wauberg,
2. The Load Allocation for nonpoint sources is 2,062 lbs/y of TN, and
3. The Margin of Safety is implicit.

(b) The Total Maximum Daily Load for **Total Phosphorus for Lake Wauberg is 374 pounds per year (lbs/y)** and is allocated as follows:

1. The Wasteload Allocation for point sources is not applicable because there are no permitted point sources authorized to discharge wastewater to Lake Wauberg,
2. The Load Allocation for nonpoint sources is 374 lbs/y of TP, and
3. The Margin of Safety is implicit.