University of Florida Conservation Areas Land Management Plan

Creeks and Ponds

Introduction

The purpose of this management plan is to document existing conditions and to plan for future improvements to the University's creeks and ponds that are not part of larger existing Conservation Areas. These systems have been grouped together due to their similar management strategies and with and eye to reducing redundancy. The following systems are included in this management plan, Gator Pond, Ocala Pond, Dairy Pond, Graham Pond, Diamond Creek, Jennings Creek, Tumbin Creek, and Hume Creek.

The main campus at the University has many creeks and ponds that are both of natural and un-natural origin. However, as the campus has developed almost all of them have been integrated into the stormwater management system. Many of the ponds appear to have originated as sinkholes that were altered to retain water to a certain elevation and then were outfitted with structures that release water into the stormwater system. Also, a few sinks have been altered with stormwater conveyance incorporated, usually at the base taking advantage of the lower elevation in the overall systems gravity flow system. On campus all of these systems feed into the University's creeks. As in pre-development conditions, these creek are the primary conveyance system for stormwater, however while most would have only flowed on an intermittent basis, they now flow most of the time. This flow is maintained by both rainfall and reclaimed irrigation.

Natural Area Inventory

Water Resources

Jennings and Diamond Creek**s** - These two tributaries flow into the base of Bartram-Carr Woods, which in turn flows into towards Lake Alice. Upstream areas that drain into the Jennings Creek include Broward, Mallory, Reid, Jennings and Beaty Towers residence halls. Diamond Creek is the receiving body for water draining from Sorority Row, a portion of the intersection of SW 13th Street and Archer Road, and from the parking garages on the east side of the Shands Hospital complex. Like most other creek systems on campus, this creek's flow is derived from a mix of both stormwater runoff and natural surfical aquifer seepage (which is at least partially the result of the University's irrigation system). The banks of the creeks are deeply incised by years of down-cutting from stormwater coming off of impervious surfaces. Of particular concern are areas along Diamond Creek, adjacent to the intersection of SW13th Street and Archer Road. This area is eroding rapidly and is already a safety hazard. University staff have had discussion with Department of Transportation officials about placing railings along the sidewalks at this intersection to reduce the likelihood of an accident. As with most creeks within campus, these creeks would benefit greatly from upstream stormwater improvements. The Yulee Pit area, headwater area of the northern creek, appears to be an ideal location for a stormwater enhancement project like the SEEP (Stormwater Ecological Enhancement Project) to help reduce velocities entering the north creek. Additionally, the south creek begins just east of Sorority Row (this is same creek that runs at the base of Sorority Row), where some instream enhancements should be studied to see if water velocities could be slowed before they exacerbate the erosion mentioned previously.

Bridge over Jennings Creek

Erosion in Diamond Creek, adjacent to SW 13th

Tumblin Creek - In places, the banks of Tumbin Creek are deeply incised by years of down-cutting from stormwater which primarily originates in downtown Gainesville. The City of Gainesville has begun studying ways to reduce volumes and has in fact built some upstream retention areas that should help reduce velocities in the long term. In the short term, some measures need to be taken to reduce side-bank erosion that threatens buildings at P.K. Yonge. Recently, the University re-built the PK Yonge Auditorium after years of settling had led to major cracks that could no longer be patched. Other buildings on this campus also are showing signs of slippage. While side-bank erosion is not the primary cause of these foundation issues, it does play a role and will in the long-term cause additional problems. Thus, some in-stream measures should be identified to help ameliorate the problem, such as native chert stone (rip-rap) placed along areas of side-bank erosion.

Tumblin Creek at P.K. Yonge

Hume Creek – This creek is a small creek that enters into Hume Pond and is formed by the outfall of three primary conveyance systems that enter under Museum Road and from Graham Pond, Reitz Ravine Creek and Green Pond- Newins-Zielger Sink.

Gator, Ocala, Graham and Dairy Ponds are located on the older-more developed portions of campus. They are largely ringed by development and have been integrated into the university's stormwater system, providing functions similar to a wet retention pond. Additional background research needs to be completed in order to determine their respective origins as either natural sinkhole formations that were artificially or naturally plugged or as created retention ponds that were aesthetically improved to look natural. Each pond is surrounded by a small buffer of vegetation.

Natural Communities

Diamond and Jennings Creek are comprised of an upland-mixed hardwood forest that grades into a bottomland hardwood / floodplain forest along the creeks that run through the property. Due to the topographic grades and limited porosity of underlying clays, some seepage likely occurs coming from neighboring upland areas. Thus, some small areas may be better described as seepage slope rather than as bottomland forest. An inventory of flora and fauna is not contemplated for this site.

Tumblin Creek through P.K. Yonge is comprised of bottomland hardwoods, but the natural community is fairly disturbed.

Plant Species

The upland hardwood canopy in these areas is comprised of pignut hickory, winged elm, sweet gum, loblolly pine, laurel oak, chestnut oak, water oak, cabbage palm, slash pine and maple. The lowland stream valley wetland areas include red maple, sweetgum, loblolly pine, cabbage palm, southern magnolia, swamp tupelo, dahoon holly, wax myrtle, swamp dogwood, Florida elm, stiffcornel dogwood, and American hornbeam.

Invasive non-native plant species

Future management of these sites will need to address invasive plant management. The following invasive non-native plants have been documented on site: air potato vine, cat's claw vine, scratchthroat, glossy privet, and loquat tree.

Animal Species

These creeks are small in size with relatively small forested riparian corridors. This limits the amount of habitat for terrestrial species. Common mammals like raccoons, gray squirrels and armadillos have been documented on site. Other animals typically found in these hardwood dominated systems, but which have not been documented on the property, 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, wood rat, cotton mouse, gray fox, red-tailed hawk, turkey, yellow-billed cuckoo, screech-owl, great-horned owl, ruby-throated hummingbird, arcadian flycatcher, pileated woodpecker, hermit thrush, cedar waxwing, yellow-throated warbler, opossum, gray squirrel, flying squirrel and white-tailed deer.


Graham Pond

Soil Inventory

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

Arredondo Fine Sand (5-8% slope)

This sloping, well-drained soil is in small areas on sharp breaking slopes and in relatively large areas on long slopes of the uplands. Typically, the surface layer is dark grayish brown fine sand about 5 inches thick. The subsurface layer is yellowish brown fine sand to a depth of 65 inches. The available water capacity is low in the surface and subsurface layers and medium in the subsoil.

Blichton Urban Land Complex (0-5% slope)

This complex consists of poorly drained, nearly level to gently sloping Blichton soils and Urban land. It is irregularly shaped with relatively small areas. About 50 to 85 percent of each delineation is open areas of Blichton soils. These open areas are gardens, vacant lots, lawns and playgrounds. About 15 to 50 percent of each delineation is Urban land. Urban land consists of areas covered with houses, streets, parking lots, sidewalks, industrial buildings and other structures.

Millhopper Sand (5-8% slope)

This sloping moderately well drained soil is in small areas on narrow breaks and on long slopes of rolling uplands. Typically the surface layer is dark grayish brown sand about 7 inches thick. The subsurface layer is sand about 47 inches thick. This Millhopper soil has a water table that is at a depth of 40 to 60 inches for 1 to 2 months and at a depth of 60 to 72 inches for 2 to 3 months during most years.

Urban Land Millhopper Complex

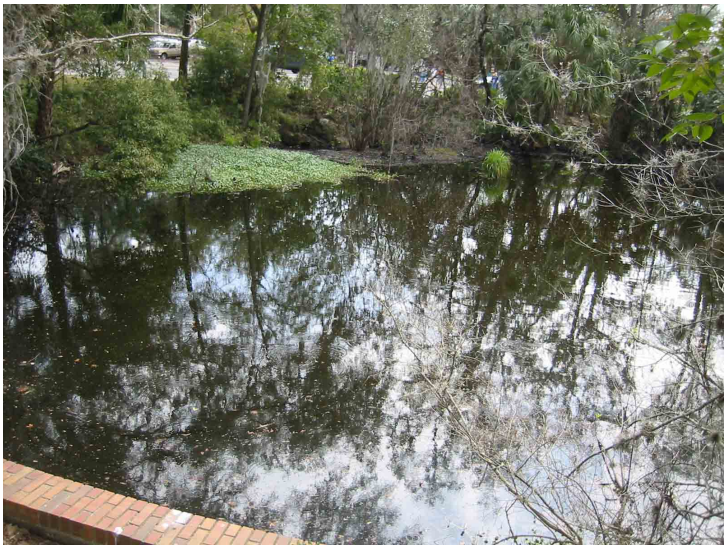
This complex consists of Urban land intermixed with nearly level areas of Millhopper soils. The areas are irregular in shape and range from 15 to 200 acres. About 50 to 85 percent of each delineation is Urban land. This Urban land consists of areas covered with buildings, streets, parking lots, sidewalks, and other structures. About 15 to 50 percent of each delineation is open areas of Millhopper soils. These open areas are vacant lots, lawns, parks, or playgrounds.


Gator Pond

Cultural and Passive Recreational Resources

Creeks - Diamond and Jennings Creeks are riparian corridors with steep slopes and a small vegetative buffer; as such, passive recreational opportunities are limited. Thus, the only amenities offered on site are associated with the pedestrian bridge that cross over the north creek between Jennings and Diamond Village residence halls and two benches. Tumbin Creek has benches and other sitting areas adjacent to it as it flow through the center of P.K. Yonge. Since Hume Creek only flows for a small distance, no amenities have been provided. There are no known archeological or historic sites at these sites.

Ponds – The primary physical improvement that is available around all of the campus ponds is sitting areas that are located on or immediately adjacent to the pond. There are no known archeological or historic sites at these sites.


Ocala Pond

Future Improvements

Creeks

Diamond Creek and Jennings Creek - The riparian corridors of these creeks are steep, which limits public use in these areas outside of the existing footpaths. Some consideration should be paid to mowing less of the edge in order to create a less accessible buffer for safety reasons, along Jennings Creek. Additionally, some creek stabilization counter-measures to prevent erosion as well as some stormwater outfall piping will be studied and potential implemented in the next year for both of these creeks. Habitat enhancements like bird and bat boxes and wildlife friendly plantings should be considered for these sites.

Tumblin Creek – Some side bank erosion has been identified and may need to be stabilized with hardscape material such as chert riprap.

Hume Creek – No improvements have been identified for Hume Creek.

Ponds

All ponds on campus are integrated into the campus stormwater system. While they perform a stormwater function, they are also treated as a visual amenity and serve as habitat for flora and fauna. Maintenance of the ponds falls under the direction of the Physical Plant Division's Grounds Department. The Grounds Department uses an aquatic plant contractor to keep the ponds 90% free of undesirable plants and algae. General upkeep is focused on an as-need basis, to keep costs and disruptions to a minimum.

Graham Pond - The ad-hoc working group recommended that a no-mow / infrequent mow buffer be established around the eastern side of Graham Pond. Within this no-mow area and in the littoral zone of the pond efforts should be made to establish native aquatic plants that will help beautify the pond and potentially improve water quality.

Gator Pond, Ocala Pond, and Dairy Pond – No improvements have been identified for these ponds.

Maps on the following pages:

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