



University of Florida Conservation Area Land Management Plan  
**IFAS Beef Research Unit**

## **Introduction**

The Beef Research Unit is located off of County Road 225 in the Monteocha area of northern Alachua County. The 1,150 acre research unit is approximately 13 miles northeast of the main University of Florida campus and just northwest of the unincorporated town of Fairbanks. As the name denotes, the primary research is on beef cattle with a current population of 275 Angus, Brahman, and Angus/Brahman crossbred cattle. An onsite feedmill facility is utilized to mix rations for research cattle and supply feed for the Beef Teaching Unit. The pasture grasses are pensacola and argentine bahiagrasses. The unit includes facilities for students to live and work.

Hatchet Creek runs through the southern portion of the research unit and its floodplain forest marks the conservation portion of the research unit. The 95 acre Conservation Area consists of mixed pine/hardwood forest communities on the upland portions and bottomland wetlands along the creek. Other isolated wetland areas, primarily cypress domes, are present throughout the unit and are maintained in their natural forested state.

## **Natural Areas Inventory**

### **Water Resources**

The headwaters to Hatchet Creek flow through the southern portion of the research unit. This creek forms from numerous isolated wetlands that are abundant in this Monteocha region of Alachua County and from lateral seepage from the surficial aquifer. Underlying the surficial aquifer is the confining (generally) geologic formation known as the Hawthorn formation, which provides some protection to the Floridan aquifer (Florida's primary drinking water source). Water flowing through Hatchet Creek continues east through Austin Cary Forest and other timberlands before entering Newnan's Lake. The creek and research unit are part of the northernmost extent of the Orange Creek Basin.

The 2000 Florida Department of Environmental Protection's 305b Water Quality Report indicates that Hatchet Creek is considered to have an overall water quality rating of "good". However, the 2002 Total Daily Maximum Limits report from the Environmental Protection Agency indicates that the creek is impaired for iron.

The main branch of Hatchet Creek supports a healthy ecosystem that provides habitat for macro invertebrates and other aquatic life. Hatchet Creek is characterized by low, stable banks, riffles, and pools followed by segments of sediment-free root mats, snags, and leaf packs all of which support macro invertebrate populations.

On the south side of the research unit lies a Florida Department of Transportation sand borrow pit and dump site known as the 'The Fairbanks Pit'. This site was originally a sand borrow pit that provided sand and clay for road construction. Later the site was used to dispose of waste and topsoil collected from roadsides, demolition construction debris, and unrecyclable wastes including chlorinated solvents, asphalt waste, paint, paint thinners, and paint waste. After contamination was found in nearby domestic self supply wells, FDOT began remediation to eliminate an estimated 125,000 tons of contaminated soil. On going monitoring continues to ensure that additional contamination is not leaking into the Floridan and surficial aquifers.



The working group tours the forest.

### Natural Communities

This Conservation Areas is comprised, primarily, of three major natural community types: bottomland hardwoods, mesic flatwoods and mesic hammock. These communities begin on Hatchet Creek's edges and grade from bottomland hardwoods into mesic flatwoods/ mesic hammock-hardwood forest. The small marshes associated with this area are wetlands of herbaceous vegetation and low shrubs.

### Bottomland Forest

The Beef Research Unit Conservation Area consists of 56 acres of Bottomland Forest the grades up from Hatchet Creek. 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.

## Mesic Flatwoods

Mesic Flatwoods are more commonly referred to as pine flatwoods (upland pine) and are characterized by their open canopy of widely spaced pine trees with little or no understory, but a dense ground cover of herbs and shrubs. Several variations of Mesic Flatwoods are recognized, the most common associations being longleaf pine - wiregrass - runner oak and slash pine - gallberry - saw palmetto. Mesic Flatwoods occur on relatively flat, moderately to poorly drained terrain. The soils typically consist of 1-3 feet of acidic sands generally overlying an organic hardpan or clayey subsoil. The hardpan substantially reduces the percolation of water below and above its surface. During the rainy seasons, water frequently stands on the hardpan's surface and briefly inundates much of the flatwoods; while during the drier seasons, ground water is unobtainable for many plants whose roots fail to penetrate the hardpan. Thus, many plants are under the stress of water saturation during the wet seasons and under the stress of dehydration during the dry seasons. Another important physical factor in Mesic Flatwoods is fire, which probably occurred every 1 to 8 years during pre-Columbian times. Nearly all plants and animals inhabiting this community are adapted to periodic fires; several species depend on fire for their continued existence. Without relatively frequent fires, Mesic Flatwoods succeed into hardwood-dominated forests whose closed canopy can essentially eliminate the ground cover herbs and shrubs.

Plant Species - Plant species typical of Mesic Flatwoods include longleaf pine, slash pine, wire grass, saw palmetto, gallberry, St. john-wort, dwarf huckleberry, fetterbush, dwarf wax myrtle, stagger bush, blueberry, gopher apple, tar flower, bog buttons, blackroot, false foxglove, white-topped aster, yellow-eyed grass, and cutthroat grass.

Animal Species - Typical animals of Mesic Flatwoods include: oak toad, little grass frog, narrowmouth toad, black racer, red rat snake, southeastern kestrel, brown-headed nuthatch, pine warbler, Bachman's sparrow, cotton rat, cotton mouse, black bear, raccoon, 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.

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.

Invasive, non-native species

The only non native species located by the working group was Chinese Tallow that was found adjacent to the bridge that crosses Hatchet Creek between the Unit and the DOT remediation site.

### Soil Inventory

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

#### Chipley

This soil consists of nearly level, somewhat poorly drained, deep sandy soils that formed in thick beds of sandy marine sediments. These soils are in broad areas of the flatwoods and along the lower slopes of the sandy uplands. Slopes range for 0 to 2 percent. The water table is from 20 to 40 inches for 2 to 4 months during most years. This soil is sand or fine sand to a depth of more than 80 inches.

#### Mascottee

The Mascotte series consists of very deep, poorly drained and very poorly drained, moderately slowly permeable soils that formed in marine deposits of sandy and loamy sediments. These soils are in areas of flatwoods, in depressions, and on low stream terraces of the lower Coastal Plain. Slopes range from 0 to 2 percent.

#### Myakka

The Myakka series consist of nearly level, poorly drained soils that formed in thick beds of sandy marine deposits. These soils are broad in areas of flatwoods. Slopes range from 0 to 2 percent. The water table

#### 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.

#### Pompano

This nearly level, poorly drained soil is on poorly defined flats in the broad flatwoods and in shallow depressions in the sandy rolling uplands. Slopes are nearly smooth on the broad flats and are slightly concave in the shallow depressions. They range from 0 to 2 percent slope. The shape of the area is variable. They are usually relatively small in size and range from about 10 to 45 acres. Typically, the surface layer is very dark gray sand about 5 inches thick. The underlying

layers are sand to a depth of 82 inches or more. Natural vegetation of this soil is a forest of 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 sawpalmetto, 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 Beef Research Unit is located in a relatively remote location and is closed to the public. Additionally, no cultural resources have been identified with this site. Therefore, no recreational opportunities are offered or planned.



UF Arborist, Erick Smith, identifies a Chinese Tallow tree.

### Future Improvements

The floodplain forest that form the boundaries of this Conservation Area fits into the Nature/Research Preserve category(ies), due to the presence of wetlands, a relatively undisturbed floodplain forest and the probability of important nesting habitat. The only management issue identified by the working group was the need for closer inspection of the forest to identify any invasive exotic plants on the site (a lone Chinese tallow was identified on a bridge that crosses from the DOT remediation site to the south on to the Research Unit).

Maps on the following pages:

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