

The Wetlands of the Chattahoochee Nature Center

The Chattahoochee Nature Center has approximately sixty acres of freshwater wetlands. This habitat is the remnant of a much larger system. Although these interconnected marsh and swamp communities were at one time stretched along the length of the Chattahoochee, many changes have taken place that have limited or destroyed them. Before the arrival of the settlers, the area's rivers were virtually unmanaged. Except for the occasional Native American fishing device called a weir dam, no dams, bridges, or docks blocked their courses. The rivers flowed between steep-sided hills and through areas such as this one, with wide flat valleys.

These floodplains served as safety valves for the rivers during unusually high water. Floodwater could spread out and slow down before continuing downstream. The natural communities benefited from this by receiving fresh supplies of dirt and minerals eroding from the mountains. As the flood water fanned out across the valley floor and the water velocity decreased, sediments would settle out, no longer able to be held in solution in the slower moving water. Naturally occurring dikes were formed near the river's edge. Here the water velocity slowed first as the water spilled over the banks into the floodplain. This first decrease of velocity caused much of the larger coarser sediments to fall out, creating a long raised hill or dike. Eventually larger dikes protected the floodplain from small periodic floods, and received more sediment during severe floods. As you drive towards CNC on Willeo Road from Azalea Road you can look across the marsh to the river. What you will see in between is a long dike topped by trees and shrubs. It is also evident on the boardwalk as you approach the A-frame and the river platform.

Different plant communities are found in the floodplain depending upon the elevation. Moist well-drained soils that may rarely flood contain sycamore, persimmon, tulip poplars, or grassy meadows. Areas more frequently flooded have trees more tolerant to these invasions such as river birch, tag alder, green ash, silky dogwood, and black willow. These trees help form a type of upland swamp. Normally there is not standing water, but these trees can tolerate long periods of flooding. They can not tolerate permanent flooding as some of the low country swamp species can.

The marsh is a shallow body of water filled with reeds, rushes, cattails, and other sun-loving herbaceous plants. Marshes can be located along the edges of a river or may be found behind the dikes on low ground that is nearly equal in elevation to the river.

The final community is the dike. Because of the elevation and well drained soil, but also because of the close proximity to water and occasional flooding, these areas have plants that can tolerate mild flooding. Plant species include Water Oak, Tulip Poplar, Black Walnut, Blackberry, Trumpet Vine, Cut-leaved Coneflower, and Crossvine among others.

Much of the floodplain along the Chattahoochee has been altered by man. Many areas have been filled in deliberately or have silted in prematurely because of poor erosion control upstream at construction sites and farms. Dams built on the rivers often push water levels over floodplains and up to the edges of hills. This not only destroys the existing swamps and marshes but leaves no low-lying fringe areas so there is little chance for new marshes and swamps to form. Because there is now flood control, new sediments and water rarely reach the few existing floodplains. The virtual elimination of beavers during the large fur trapping eras caused older beaver ponds to be deserted and not replaced, thus limiting the number of new beaver ponds and marshes from being started.

The Nature Center is fortunate that the area flooded by Morgan Falls Dam (Bull Sluice Lake) is relatively low and has developed into an extensive marsh and swamp system unlike many other areas along the river.

As you walk across the grassy area to the beginning of the boardwalk, be aware of how the area once appeared. The marsh directly in front of you was a floodplain either clothed with trees or possibly cleared and planted with squash, corn, and beans by the Native Americans. The marsh is a shallow body of water with plants uniquely adapted to the various shallow water depths. Most of these plants can tolerate brief spells of drought and flooding but prefer the depth you will normally see. If Bull Sluice Lake is lowered to produce electricity you can tell the average water height by the "scum" on the vegetation surrounding the more open water. A thin skim of oil is very common on the back waters of the marsh. Under normal circumstances this oil is natural. It is created as underwater vegetation decays and releases gases and by-products. If seen in more open water such as the lake or where decayed vegetation is minimal, than it is likely to be a manmade pollutant from boats or washed from roads. This natural oil is not harmful to the marsh though it often prevents the larvae and pupae of the mosquito from reaching air to breath.

Cattails are the most obvious plant in the marsh. Their long broad blades will turn brown in winter but are always evident. The entire plant benefits a wide variety of animals. Ducks, geese, muskrats, and beaver feed on the tender shoots and roots. Small birds eat the abundant tiny seeds in the brown cattail seed head. In early summer the cattail will send up a stout spike. A green "hot dog" will form near the top, and will be topped by a spike of pollen. The pollen blows on to this or nearby plants and pollinates the female portion. As it matures, the green cattail will swell and change to a rich dark brown as the male pollen spike wilts. Cattails were readily used by Native Americans for food, the first biodegradable diapers, and mats.

Reeds, rushes, and other grass-like species make up the balance of plants in the marsh. These, as well as the cattails, provide the same service in nature as a sewage treatment plant does for people. Soil and dead plant and animal material, as well as some human pollutants, are washed in to the marsh. The plants not only add their own dead material, but act as a strainer by filtering and breaking down the material. The slow water allows detritivorous organisms the opportunity to break down the decaying

material to more usable forms. Even some manmade wastes can be altered to less toxic forms by going through a well developed marsh system (remember, only some human waste products can be handled; many can and do kill marshes.) The water leaving a marsh, therefore, is cleaner and clearer than when it went in. Although the marsh does the world a great service, in the long run it eventually destroys itself. By forming a barrier that stops sediments, these plants are actually causing the water to become shallower and eventually building up enough soil so that the marsh plants can no longer live there. Shallow farm ponds go through this process also. You can observe how over many years the cattails will slowly creep toward the center of the pond as the edges build up.

The marsh in its current stage is an extremely hospitable nursery. Many aquatic and semi-aquatic animals either start their lives here or spend their entire existence here. The shallow water and tangles of aquatic plants reduce predation of larger fish and turtles while at the same time actually creating a better hunting environment for diurnal (daytime) predators such as great blue herons, kingfishers, and green herons, and nocturnal predators such as raccoons, water snakes, mink, and even the crayfish-eating barred owl. A long list of animals use the marshes' security for nurseries including amphibians (bullfrogs, green frogs, cricket frogs, and salamanders), mammals (beaver, muskrat, marsh rabbit, otter etc.) use the edge and birds (Canada Geese, 'Wood Duck, and Mallard). Until recent times the Canada Goose would not have been found breeding this far south. Because of the introduction of young birds to the South by wildlife personnel, the marsh now has a year-round flock. Wood duck as well as squirrel, owl, and bird boxes can be seen throughout the marsh and swamp. These boxes replace any natural tree cavities that may have fallen and enhance the habitat with extra cavities. Many bird and mammal species rely on cavities or holes in trees for sheltering their young. Old, damaged, or dead trees are often the only source. Unfortunately, many home and business owners cut them down.

Many aquatic insects spend all or part of their lives on or under the water. Mayflies, stone flies, mosquitoes, and a myriad of other creatures hatch from eggs laid in the water. Some breathe through gills though the mosquito breathes air through tubes. These insects feed on detritus, (decayed plant material) and eventually metamorphose into adult, air breathing, flying insects. At the same time predatory insects are going through the same process. Dragonflies and damselflies are underwater nymphs, there to feed on insects, and as adults they fly about continuing their predaceous lifestyle.

The mosquito fish or gambusia, a small humpbacked fish that rarely reaches two inches in length, is the nemesis for the mosquito larvae. They consume vast quantities of mosquito wigglers and tumblers.

On the surface, a bug that appears like a spider (but looking closely it has only six legs) is the water strider. These bugs feed on insects as they fall in to the water or as they surface. The water strider's light weight, coupled with the water resistant hairs on its feet, allow him to walk on the surface tension of the water (actually bowing it in), without

poking through and getting wet (this is similar to placing your hand lightly on cellophane that is stretched over a bowl.)

Where marsh and swamp meet is a transitional zone of plants adapted to the edge. Buttonbush (a butterfly favorite), cardinal flower, tag alder, and swamp mallow (a hibiscus), among others, share this niche. The bright red cardinal flower is a late summer favorite of hummingbirds and will be followed by the fall blooming touch-me-not or jewelweed. These succulent, orange flowered plants provide a tremendous amount of fuel for migrating hummingbirds. They normally will continue to flower up to the earliest frost. By that time (late October) most hummingbirds are well on their way. Earlier in the spring and summer two vines, Crossvine (red and yellow), and Trumpet Vine or Trumpet Creeper (*Campsis radicans*) (orange), provide nectar for butterflies and hummingbirds alike.

While walking along the boardwalk, constantly keep your eyes open for animal tracks and signs. Beavers will leave foot-wide trails throughout the underbrush, often mingling and going under or over the boardwalk. Small mounds of mud and decayed leaves mark a beaver's scent mound, used to mark territory. Beaver sticks, sticks stripped of bark and the inner cambium layer can be found on most walks. The predominate food source in this area is unfortunately a non-native one, privet. Privet is a horribly invasive plant recognizable by its rounded small semi-evergreen leaves and blue-black berries. Although used as a food source by many animals, it is extremely disruptive to the natural plant community. At low water old beaver dams can still be seen on the northeast end of the boardwalk. The Chattahoochee Nature Center has a beaver population, but because of the configuration of the marsh, hydro-electric use of the river, or beaver choice, these dams are not operational.

Raccoon leave their signs behind also. Often they deposit feces ("scat") littered with the orange shell of digested crayfish, on the boardwalk. In the mud or on the boardwalk are left the human-like footprint and hand prints of raccoons. Also at low water you may see the footprints of fox, heron, turtle, marsh rabbit, or beaver. Many of these animals use the boardwalk for short distances and may leave tracks there also. Look for the nearly round pea-sized scat of the marsh rabbit. This rabbit has smaller ears and larger feet than the cottontail rabbit. The large feet help distribute weight and keep the rabbit from sinking in the mud. The aforementioned pellets are often left in conspicuous places and may serve as markers.

Among the trees you are likely to see all types of birds as well as gray squirrels. The most common birds you see are cardinals, titmice, chickadees, thrashers, crows, grackles, catbirds, and doves. Often the smaller birds can be heard scolding some invader to the swamp. Over the marsh you may see Red-winged Blackbirds, Belted Kingfishers, occasionally Red-tailed Hawks, Turkey Vultures, and rarely Osprey. If you were to venture out at night Screech Owls, Barred Owls, and Flying Squirrels share space with the bats.