

The Longleaf Pine Ecosystems of St. Tammany Parish

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Longleaf pine ecosystems once covered 90 million acres of the southeast coastal plain, from Virginia to East Texas of which only approximately 1% remain intact today. The pines were almost entirely clear-cut between 1880 and 1940. During the first half of the 20th century, the U.S. Forest Service promoted an aggressive fire suppression policy (do you remember Smokey the Bear?) and actively discouraged controlled burning of the woods, a common practice in the rural, southeast U.S. This policy doomed the longleaf ecosystems from having any chance of recovering from the clear-cutting, as the whole ecosystem is dependent on frequent fires to maintain it. Unless the seed from a longleaf pine falls on the soil made bare from a fire earlier that year, it will not germinate. Even if it does take root, the seedling will fail to thrive and die unless the competing brush and vines are cleared away by fire at some point in its first five years of life.

The longleaf pine is the keystone species of this ecosystem and forms almost a monoculture at the treetop level. The system has an open, savanna-type structure with widely scattered trees, very few midstory shrubs, and a highly biodiverse ground cover layer composed of grasses and herbaceous wildflowers. The biodiversity in the ground cover is one of the most remarkable features of the ecosystem and is said to be among the richest in North America, rivaling that of some tropical rainforests on a species per square meter scale. Here can be found, in addition to many of our more common grasses and wildflowers, a variety of orchids, multiple types of carnivorous plants, as well as many other rare and unusual plant species. In turn, these plants support a diverse web of animal life, including native pollinating insects, spiders, amphibians, reptiles, and mammals. Many of our most endangered birds are grassland species that utilize this habitat, including the red-cockaded woodpecker, with the only population in eastern Louisiana living on the Big Branch Marsh National Wildlife Refuge.

There are two slightly different variations of the longleaf ecosystem in St. Tammany Parish. Across the south half of the parish are the flat, poorly drained, and seasonally wet and boggy pine flatwoods. The poor soils here were once home to vast flats of carnivorous pitcher plants that turned the savanna lemony yellow when they bloomed in the spring. To the north are the drier, sandier, rolling hills that are home to dozens of species of the sunflower family, that in their fall bloom, once carpeted the entire forest in purple and gold.

From a historical perspective, the longleaf savanna was once the dominant ecosystem of St. Tammany Parish, apart from the thin strip of grassy marshes on Lake Pontchartrain's edge and the cypress/tupelo swamps along the Pearl and Tchefuncte Rivers, and other smaller tributaries and bayous. Nearly the entire parish would have burned at some point, at a frequency of every one to three years. The fires would have first been set by frequent lightning strikes from the intense thunderstorms that sweep across the southeast in the spring and early summer. Later, they were also set by Native Americans, and then early European settlers, who saw the benefit of having open forests that were easy to hunt, graze livestock on, and travel through.

The forests of St. Tammany are now everywhere choked with a dense growth of fast-growing loblolly pines, hardwood trees, and brush that invade in the absence of fire. These form a dense canopy that prevents the sunlight from hitting the ground. There is almost no ground cover and very little diversity in these dark woods. A few patches of high biodiversity can occasionally be found on roadsides or right of ways that have been kept open by low-intensity mowing (which imperfectly mimics fire), but sadly more and more of these are now being treated with herbicide applications instead of mowing. There are still a few mature longleafs scattered in these woods here and there, but sadly, they are the end of the line because their seeds will never find open ground to germinate and grow.

On the bright side, over the past several decades, the beauty, value, and uniqueness of the longleaf ecosystem have been recognized. Several thousands of acres of St. Tammany have been dedicated to restoration (though still less than 3% of the original area), whether through The Nature Conservancy and other not-for-profit groups, government organizations, or through private mitigation banks or other private landowners. I see value in the city of Mandeville's Wildflower Conservation Area for several reasons. While small in scale and unlikely to perform the functions of an intact ecosystem, it can be a reservoir of biodiversity. As such, it can be an excellent teaching tool and a reminder of our heritage. People who visit it can learn that St. Tammany Parish has some of the most unique habitats in North America. People who see the fire at the project or the recently burned ground can learn that fire was once an essential part of our landscape. Then, when they smell smoke on the wind or a slight haze in the air from a controlled burn from somewhere in the parish, they can know something good is happening.



First Light in the Pines
Ellsworth Woodward 1913
Robert H. Ogden Collection

Woodward was a prominent artist and professor of art at Tulane University in the late 1800s and early 1900s. The longleaf pine savannas of St. Tammany Parish seem to be a subject he frequently returned to. I am drawn to his work because in it we catch glimpses of the landscape as it existed prior to the era of the clearcutting and subsequent fire suppression.



Snake Dance

The Choctaw of St. Tammany

Photo credit: David Bushnell ca. 1908

This photo is fascinating for many reasons, but I show it here to provide another historical perspective on the open savanna in the background at a time prior to the great clearcut and time of fire suppression.



Wet longleaf flatwoods in winter
Talisheek Preserve, The Nature Conservancy



Upland longleaf savanna on rolling hills in mid summer.
Private land between Waldheim and Talisheek



Abita Creek Flatwoods Preserve in late summer, with diverse groundcover.
The Nature Conservancy



Biodiversity up close, on frequently burned private land near Abita Springs.

Fall

I counted almost 30 species in one sitting on this single square meter of ground. If I had returned every week or so over the course of the entire growing season, that number would likely approach 50 species.



Fall color and biodiversity in pine flatwoods.
Private land near Abita Springs.



Yellow fringed orchid, *Platanthera ciliaris*, blooming after a recent burn.
Summer
Private land near Abita Springs.



A low intensity prescribed burn on private land near Abita Springs.



A pine flatwood bog in the early stages of restoration with yellow pitcher plants (*Sarracenia alata*) in bloom.

Spring

Private land near Abita Springs.