



Where there's Smoke, there's Life

the Role of Fire on Alabama's Wildlands

Part Two of a Two-Part Series

Salt Marsh by Will Underwood

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The first article of this series dealt with the role of fire in Alabama's major forest types. The grouping of these habitats was largely a first attempt to explain landscape fire within Alabama in simple terms. Even when making significant assumptions and grouping of habitats, there are many fire-maintained areas within Alabama that do not fit neatly into a defined forest listing and must be looked at separately. The following are some of those areas. They are not included second because they are less significant or less imperiled than other fire-maintained habitats in the state. Some of these areas are more ecologically significant, more imperiled, and more uniquely Alabama than those forests described in Part 1. The commonality with those forests described in Part 1 is that fire is tied to the perpetuation of these areas. Further, like those fires described in Part 1, multi-generational exclusion of fire has caused many of these areas to become largely uncommon (and forgotten) in our state.

Prairies

Prairies are perhaps the least understood of Alabama's historic habitats because so little of it remains today. The largest and most well-known is the Central Prairie Region (also called the Blackbelt Prairie or Canebrake Region) that once covered nearly 3 million acres of Alabama. Though capable of growing some species of trees, as the name implies, this habitat type was predominately treeless, earning it the local name of 'bald prairie.' Fire's role in historic Alabama blackbelt prairie is neither well studied nor well documented. However, the tall-grass prairie systems of the central U.S. are good examples to refer to for further understanding. Fire likely carried across these bald prairies every one to three years, continuing into the canebrakes adjacent to the numerous

streams in the region. Without appreciable fire, many of these blackbelt prairie areas grow up thick with eastern redcedar and their associated canebrakes languish.

Within the Coosa Valley in the Cleburne County area, and embedded within the larger Coosa Flatwoods, were once small pockets of bald prairie. The extent of the Coosa Prairies is not known. But like tallgrass prairies elsewhere, frequent fires kept woody plants from encroaching, therefore allowing unique plants such as the giant whorled sunflower (*Helianthus verticillatus*) to flourish.

Confounding the defining of prairies within Alabama were areas once known as 'wooded prairies.' These areas covered less of the landscape, were often colloquial [local] in naming, and even less understood because they are largely eliminated. However, of these, the Post Oak-Flatwoods of west central Alabama were perhaps the most well-known. This wooded prairie was on the southern end of the Blackbelt Prairie (the southern part of Sumter and middle of Marengo County once covering approximately 200,000 acres). Unlike the post oak-flatwoods growing on dry, sandy soils in the Midwest, this wooded prairie grew on what was locally called 'post oak clay.' Widely spaced post oaks allowed a great deal of light to reach the forest floor allowing groundcover plants to thrive; a prairie scattered with trees. Though the prevailing tree was post oak, shortleaf pine and blackjack oak were also found in lesser densities.

From the Post Oak-Flatwoods, a list of colloquial prairies can be generated. Some include the shell prairies that could be found in Wilcox, Choctaw, and Clarke counties. This soil type containing large fossil deposits was primarily treeless. Others include the Cowikee Prairie in Barbour County found on 'hog-wallow clay.' This prairie was sparsely scattered with longleaf pine and



Prairie by Joe McGown

hickories, with white and red oaks growing together (an unusual combination). Beeswax flatwoods also found in Barbour County could be found with a nearly pure overstory of black jack oak sparsely scattered over prairie grasslands.

Whether the prairie was treeless or populated with widely scattered, fire-tolerant tree species, fire played an important role in its perpetuation. Although Alabama's prairies are extinct functionally speaking, their legacy lives on through grassroots prairie restoration efforts. The restoration of fire will be needed to fuel this effort.

Embedded Glades

The term 'glade' (sometimes called flatrocks or cedar glades) is a generic term used to describe small pockets of largely treeless, rocky outcrops embedded within a larger, forested area. Glades



Embedded Glade by Rachel McGuire

in Alabama are largely a product of an underlying geology of limestone, sandstone, or (less often) granite.

In the thin soils and exposed rocks of the glades, only the hardiest of plants can survive. Nonetheless this largely inhospitable habitat contains unique communities of plants and lichens. In some areas of the glades, a thin layer of topsoil allows a unique assemblage of plants to establish such as Nuttall's rayless-goldenrod (*Bigelovia nuttallii*), dwarf blazing star (*Liatris microcephala*), or the Boynton's oak (*Quercus boyntonii*).

The glades themselves are fairly devoid of fuel, making the intensity and frequency of fire carrying across them typically unimpressive. However, fire from the surrounding woodlands is necessary to combat the encroachment of trees and shrubs from shading the glade's margins. Where fire can carry across the glades, it may help prevent the primary tree competitor (eastern redcedar) from taking over. Today, the best known are the Bibb County glades, some of which are managed by The Nature Conservancy. However, glades in varying forms of disrepair can be found throughout central and north Alabama.

Embedded Bogs and Seepage Slopes

Across many acres and counties of Alabama, bogs or seepage areas can be found embedded within a larger, woodland matrix. Pitcher plant bogs in South Alabama are perhaps the best known of these. Usually treeless (or low-density forested) areas, these grassy expanses (also called wet meadows or prairies) can host several species of carnivorous pitcher plants from the white-topped pitcher plant (*Sarracenia leucophylla*) to the purple pitcher plant (*Sarracenia purpurea*).

In Autauga and Chilton counties, a particularly rare pitcher plant called the Alabama canebrake pitcher plant (*Sarracenia alabamensis*) can be found growing in seepage areas on hillsides surrounded by longleaf pine forests. In these seepage areas, flames move quickly across slopes with the help of rivercane and other grasses to further its spread.

The green pitcher plant (*Sarracenia oreophila*), once historically abundant north of the Fall Line, is associated with a unique micro-habitat embedded within the shortleaf/mixed oak forest type. This micro-habitat historically spanned several geographic provinces in Alabama and until 1979, could be found as far south as Russell County.

These wetland areas where frequent fire occurred every one to seven years, kept shrub growth under control allowing these small, embedded bogs to thrive. Without fire, the areas become entangled with shrubs and trees subsequently shading out these rare, unique plants. The fact that most of Alabama's pitcher plant species are in significant decline speaks to the concurrent, precipitous decline of fire.

Embedded Bayheads

Unique wetland areas called bayheads (or baygalls), can often be found immediately downslope of longleaf or slash pine flatwoods. Such wetlands can be common features in southern Baldwin and Mobile counties. Bayhead areas are often dominated with trees such as laurel oak, sweetbay magnolia, swamp blackgum, swamp redbay, and slash pine. A dense midstory can

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form consisting of fetterbush (*Lyonia lucida*), swamp titi (*Cyrilla racemiflora*), little-leaf gallberry (*Ilex glabra*), and dahoon holly (*Ilex cassine*). Often braided, Coastal Plain streams can be found originating from these areas.

Under typical conditions, fire moves from the pine flatwoods and only chips away at the edges of this habitat. It is at these edges where fire ebbs and flows, that rich biodiversity can be found. One of showier of the plants in these ecotones is the panhandle lily (*Lilium iridollae*) found in Baldwin, Escambia, Covington, and Geneva counties. Periods of extended drying that occurs every few decades can allow these bayhead areas to burn, resulting in high intensity flames that kill back both the trees and shrubs.

In reality, fire spreads in bayheads as a mosaic, leaving a spotted pattern of burned and unburned patches. Where trees and shrubs are knocked back, a rich understory of plants dominated by ferns and mats of *Sphagnum* may take advantage of abundant sunlight now reaching the forest floor. They'll maintain dominance until they are shaded out once again by the resprouting trees and shrubs. Sometimes fire can smolder in this habitat

only to re-emerge back in the pine flatwood habitat weeks or months later, allowing more ground to burn.

Embedded Canebrakes

This term typically refers to transitional areas between uplands and wetlands where the South's three species of native bamboo were once found in great abundance throughout Alabama. Scottish geologist Sir Charles Lyell stated in 1846, "we admired the canes on the border of the river between Tuscaloosa and Demopolis, some of which I found to be thirty feet high."

In 1818, John Audubon makes further note of the canebrakes, "the cane brake is composed of a dense growth of cane measuring twenty or thirty feet in height and packed so closely that a man's body requires to be forced between the shafts of cane."

The greatest concentration was found in Dallas, Lowndes, Marengo, and Wilcox counties covering up to 193,000 acres in that region. The role of fire in canebrakes is complex; however, fire moving through a canebrake is a memorable one, (again) best described by Audubon: "water collected in the separate joints explodes like a shell . . . we believed the Indians were advancing with volleys of musketry."

Fire every three to five years is ideal for spread and density; however, the extensive, mature canebrakes as described historically were likely burning much less often, perhaps every few decades.

Canebreak by John McGuire



Canebreak Pitcher Plant by Rachel McGuire





Atlantic White-Cedar

Atlantic White-Cedar Forests

Following the passage of the Ice Age, Atlantic white-cedar forests became constrained to the four southernmost counties of Alabama. The best examples of what remains is found along the sandy swamps of the Escambia and Perdido rivers in Baldwin County. Historic descriptions call these areas ‘juniper, titi’ swamps which accurately define this habitat niche: adequately wet areas. Similarly, the term ‘impassable swamp’ was often associated with them and described the unique role fire plays. As previously stated, frequent low-intensity fires tend to keep forests open and easily passable. Fire that returned every 35 to 200 years was of high intensity and considered ‘stand replacing.’ The unique relationship formed between fire and Atlantic white-cedar is that the seeds will readily re-sprout after their parent trees are killed by this periodic, intense conflagration.

Marsh

Marshes are often broadly defined and thus challenging to determine their historical extent. They are commonly identified as low-lying, frequently water-logged, treeless areas dominated by grasses, rushes, or sedges. By this loose definition, a once-forested area that was flooded by beaver dams next to a creek could be described as a marsh, if all the trees had died back due to past inundation. However, most of the true marshes in Alabama are those discovered close to or adjacent to the coast in Baldwin and Mobile counties.

Sawgrass marshes (*Cladium jamaicense*) were most often found in shallow, fresh-water, or brackish areas in these counties. Fires occurring on average every decade, historically kept these sawgrass marshes free of trees. In absence of fire, trees (such as aggressive colonizers like red maple) can invade and shade out the grass.

Salt-water marshes are those found in the coastal estuaries and typically dominated with species such as black-needle rush (*Juncus roemerianus*) and salt meadow cordgrass (*Spartina patens*). Fires historically fingered out into this habitat from the adjacent pine flatwoods, on average, every several years. In absence of fire

in these estuary marshes, plant productivity has been shown to decline with a buildup of thatch.

Most often, the ability of these marsh grasses to survive fire is tied to water depth and soil moisture at the time the fire occurs. However, one challenge in maintaining these coastal marshes is the persistent invasion of non-native plants. Of these, *Phragmites*, also known as common reed, has been especially aggressive in colonizing historic marsh areas. As this reed burns at exceptionally high temperatures, the combination of its intense combustion and rapid regrowth following a fire gives it an advantage over many native plants and animals.

Conclusion

Over these past two articles, the message that most of Alabama’s rich and unique natural currency is tied to frequent fire is one that hopefully resonates. Significant changes to the landscape have occurred over the past century in large part due to the absence of this process. However, the message of appreciating and perhaps trying to restore landscape fire to Alabama should be viewed more than a feel-good, left of center, ‘green’ message. Restoring frequent fire also has socio-economic value. The message of trying to remove fire from Alabama’s forests, creating a ticking time bomb of fuel accumulation in its place, is one that is gaining acceptance.

In short, we have merely replaced low-intensity, frequent fire with infrequent, high intensity fires to the peril of those who live in close proximity to the forest’s margins. Similarly, if Alabama seriously considers restoring much of its fire-maintained habitats, tourism dollars are likely to follow as people flock to hunt quail in the Blackbelt Prairie, chase songbirds in the shortleaf pine/oak woodlands, or horseback ride through oak/hickory forests manicured by fire. As a state, we met our objectives set forth in the 1930s to completely control malicious burning. With that done, now is the time to begin to apply restorative and beneficial burning in its place. 🙏



Panhandle Lilly by John McGuire