



Beauty in the Bog

by Jim Lacefield

yellow fringed orchid
Platanthera ciliaris

One More Reason to Appreciate Those Damp Areas on Your Property

If you are out in the woods during the hottest, stickiest part of an Alabama summer, your attention might be captured by a burst of extravagant color in a most unexpected place. Along the margins of damp upland bogs and seasonally wet forested areas during the peak of summer, one of Alabama's most beautiful and fragile wildflowers blooms. It is the yellow-fringed orchid, known to botanists as *Platanthera ciliaris*. If you can remember trick-or-treating as a youngster, the flower's bright orange and yellow coloration might remind you of the candy

corn that was such a common Halloween night bounty a generation or two ago.

This delicate native orchid's flowers are borne in an elongated cluster that may contain as many as 30 to 60 individual blooms. The showy orange blossoms with yellowish, feathery tips open first near the bottom of the cluster and progress upward over the course of several days. Its flowering period lasts only a few weeks in July and early August during the hottest, most humid part of summer. For this reason it often goes unnoticed by those who tend to spend this part of the year indoors near the air conditioner. The thin, otherwise nondescript plant itself may range from under a foot to nearly three feet in height. When not in flower it may lie concealed

within a background of huckleberries, native azaleas, buttonbush, and sedges. In northern parts of the state it might be spotted growing within a shady bed of sphagnum or *Polytrichum* moss. Typical tree species that may share the orchid's damp habitat are water oak, red maple, loblolly pine, swamp black gum, and sweet gum. At times it may spread to open sandy woods, but it never seems to be far from boggy ground. This strikingly beautiful wildflower ranges widely across the state, probably being found in every Alabama county, but its habitat requirements are such that it is far less common than in past years.

The yellow-fringed orchid is unusually selective in where it chooses to live, and this is the key to why it might be considered a threatened species within the state. Among its basic life requirements is a stable, undisturbed environment in which to grow. Like many of our native orchids, the yellow-fringed orchid depends upon maintaining a mutually beneficial ("symbiotic") relationship with special fungi that live in the surrounding soil. These companion fungi are fragile in the sense that they rarely survive attempts to transplant the orchids to the home garden or greenhouse. Because these delicate, unseen partners are essential to the plant's survival, it explains why these orchids cannot be moved successfully from their natural environment to an artificial one. Thus, this beautiful native plant grows wild and unfettered, and must remain so.

Like so many other of Alabama's endangered and threatened native species, the major reason for declining numbers of the yellow-fringed orchid plant is not from over picking, pollution, or competition from some invasive exotic species, but from a simple loss of suitable habitat. The sites where the plant is most at home have disappeared through changing land use practices through the years. Many landowners have considered the seasonally wet areas they inhabit to be valueless except when put to work in pine production or when converted to pastureland. A more informed understanding of the benefits of these areas' special hydrology, or natural water budget for rainfall, runoff, and infiltration would surely cause most landowners to rethink these ecologically and economically destructive attitudes.

The Importance of Subsurface Hydrology to Forest Productivity

While it may be true that sites where water stands throughout parts of the year may not be the ideal spots for cultivation and harvesting of trees on a commercial scale, these areas are valuable for other reasons. Much has been learned recently about the tremendous value that wetlands, both large and small, offer in improving water quality, providing drought insulation, and as prime wildlife habitat. The contribution that wetlands make to environmental quality goes far beyond the benefit they have for individual landowners, but also extends out to benefit systems far removed from their immediate locations.

Forestry scientists as well as the public in general are becoming increasingly aware of the importance wet areas have in larger hydrologic and conservation systems. The hydrology of an area – the dynamics of rainfall, runoff, infiltration, and the underground movement and storage of fresh water – plays a key role in the land's productivity and sustainable use for forestry and agricultural purposes. All watersheds have localized areas whose natural topography and soil characteristics are such that rainfall runoff is temporarily stored. These areas may be as small as a fraction of an acre in size, but they have an oversized role to play in the way rainfall is made available to the land. Hydrologists use the term "catchments" for these temporary storage basins for rainfall runoff. The size and storage ability of a catchment may be influenced by land relief and slope, drainage pattern, geographic orientation, and the characteristics and structure of underlying earth material such as soil and rocks.

Forest productivity depends on having adequate availability of soil moisture, a need that is particularly critical during the hot months of summer when rainfall amounts may be highly variable and rapidly growing trees are at their peak of water loss through transpiration. Low, damp areas that were once seen as economic "under achievers" are now becoming recognized for their hydrologic value as catchments, helping to slow down rainfall runoff and allowing the infiltration of water both into the soil and

into deeper aquifers for longer term storage. Small bogs and topographic depressions – "loblollies" as they were known to Alabama's early loggers and timber men in the flat woods of the southern part of the state – are like savings banks that hold water for later withdrawal during drier parts of the climate cycle. No Alabama timber producer should need to be reminded of the economic importance of maintaining supplies of soil moisture after the recent years when drought stress in forests led to near catastrophic losses from pine beetles across the state. Trees use water not just in photosynthesis for producing new tissue, but water loss through leaves during transpiration helps to lower surface temperatures and keep enzyme systems at peak efficiency for maximum growth to occur.

How land is managed can greatly affect the availability of soil moisture. Much of Alabama's landscape is underlain by sand and clay layers that serve important roles in storing and transporting water underground. Sandy horizons can store large amounts of subsurface water between individual sand grains. Clay layers serve to slow the gravity-driven downward movement of water into zones where it is inaccessible to plant roots. Transpiration by trees exerts a pressure on this underground supply, and capillary attraction helps draw moisture back toward the surface. With their natural subsurface "plumbing" intact, small catchments scattered across the landscape help recharge the water table by encouraging a higher level of rainfall infiltration into subsurface zones. Stored here it can re-supply the soil during drier months and provide a natural insulation against drought and the accompanying stress it produces in forests. Human-induced landscape modification such as channelization of streams or draining of wetlands to accelerate runoff disrupts collection and storage of rainfall in these natural catchments, and likely has long-term adverse consequences on the potential productivity of the surrounding forest community. Heavy equipment such as skidders used in harvesting trees in these sensitive areas can also compact soils

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THREATENED & ENDANGERED SPECIES

and reduce their capacity to absorb and store rainfall for many years.

Sound Reasons to Protect Those Streamsides and Boggy Areas

So you see, bogs are beautiful! There are a number of contributions, both economic and aesthetic, that even small wetlands make to your property. Let's summarize here some of reasons why you, as a forest owner or manager, should value these parts of your land. If you have an eye on the economic returns from timber production, you can recognize the importance woodland catchments have in extending forest growth into dry seasons and periods of drought. They help buffer the forest's moisture supply during dry times and help to reduce stress and disease in your trees.

If you are a wildlife lover you are probably already aware of the year-round benefit that wetlands offer to local and migratory populations of mammals, frogs, fish, and birds. Maintaining these wet areas protects many of the key habitats that allow Alabama to boast such a rich variety of plant and animal life.

If you support the wise use of Alabama's resources and the pursuit of a healthy environment you undoubtedly know of the protective and cleansing properties of wetlands. Slowing water down in its path to the sea reduces its often-damaging effect on the land and makes it better available to all life. Streamside management zones reduce soil erosion and siltation in downstream areas, improving water quality in our lakes and rivers.

If you need yet one final reason to appreciate those wooded stream margins and damp environments on your property, then the chance to glimpse a radiant yellow-fringed orchid rising out of the boggy area at the peak of summer might just do it for you. ☘