

**S**hortleaf Pine, *Pinus echinata*, is one of the most widely distributed southern yellow pines and is found growing naturally from southeastern New York, south to northern Florida, and east to eastern Texas. In the early 1900s, shortleaf pine was found as a dominant species in pure or mixed forest stands on over 281 million acres, and was estimated to have made up more than one-fifth of the southern yellow pine lumber supply. Since that time, shortleaf pine acreage has dropped drastically to just over six million acres, due to conversion to other pine species and hardwoods. According to the USDA Forest Service, Alabama has lost more acres of shortleaf pine since 1980 than any other state. Associated with the loss of this acreage is the loss of the shortleaf pine/oak savanna ecosystem which once provided habitat for many wildlife species, including some which are no longer found here such as American bison and elk. The future of this important species is uncertain, but efforts are underway to improve our understanding of this pine and its associated ecosystem.

In September of 2011, a Shortleaf Pine Conference was held at Monte Sano State Park in Huntsville, which was attended by natural resources professionals from across the eastern half of the United States. Topics addressed at this conference included the historical importance and range of the shortleaf, current economic and ecological value of the species, as well as shortleaf planting and forest management. A field trip to Redstone Arsenal and the Bankhead National Forest provided an opportunity to see shortleaf reforestation and management.

Historically, shortleaf pine was found in very open, often pure stands, but also mixed with other pine species or hardwoods such as oaks. These natural stands were found with native grasses as an understory and were maintained with frequent, low intensity fires. This type of stand was particularly important to the mega fauna once found here such as the aforementioned American bison and elk, but it was also important to early settlers for grazing free range cattle and other livestock. Fire frequency is important in maintaining this ecosystem. Fires at a frequency of three years apart or less promote a grass understory, while fire frequencies of greater than three years favor woody species in the understory. It is important to note that with shortleaf, fire is important in maintaining the ecosystem, but the species is not fire-dependent as is longleaf pine for seeds to germinate.

Shortleaf and longleaf are similar in that the seedlings are fire-resistant, unlike other pines. Shortleaf seedlings have a basal crook at the root collar – a sharp bend in the stem before turning upright again – keeping the root collar below the litter layer and safe from damaging heat during a fire. While the seedlings will be top-killed during a fire, they will re-sprout from the protected root collar and continue to grow. This attribute allows fire to favor shortleaf in a natural system; without it many other woody



# Shortleaf Pine The Forgotten

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species would quickly take over the site and suppress the shortleaf regeneration.

It is thought that much of the loss of historical shortleaf acreage is due to the reduction of natural fires. Without frequent fire, natural shortleaf stands will convert to other species with quicker early growth, such as hardwoods or loblolly pine, by the suppression of the shortleaf seedlings. Frequent fires across the landscape once allowed shortleaf to thrive, but today's landscape is



Photo by Franklin Bonner, USFS (ret.), Bugwood.org

# Littleleaf: Rotten Pine?

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much different. Fires are no longer allowed to burn unchecked because of the danger to homes, communities, and farms. Although the frequency and scale of natural fire is hard to duplicate with prescribed burning, prescribed fire is effective at regenerating shortleaf pine in stands with even a few remaining shortleaf pines.

In areas with no remaining shortleaf, artificial regeneration by planting is also an option. Shortleaf is planted using the same

techniques and methods as loblolly pine. Seedlings are available from several sources. Check the Seedling Vendors List under Service Providers on the Alabama Forestry Commission's website at [www.forestry.alabama.gov/seedling\\_search.aspx](http://www.forestry.alabama.gov/seedling_search.aspx).

While many acres of shortleaf have been lost by conversion to hardwoods through fire exclusion, numerous other acres have been converted to plantations of other pine species, especially loblolly pine. Loblolly has a faster early growth than shortleaf and has been the commercial species of choice for years; this is not likely to change anytime soon. Although loblolly has the economic advantage, shortleaf also offers advantages of which landowners and land managers should be aware. Shortleaf is the most resistant southern pine to fusiform rust, it is more drought-resistant than loblolly, and is more resistant to wind-throw. Shortleaf also has low levels of flammable resins and is resistant to fire scar rot. As mentioned before, shortleaf seedlings re-sprout prolifically after fire, which could make it a valuable alternative in areas north of the longleaf range in managing habitat for wildlife such as quail with frequent prescribed burning. Shortleaf is also reported to be a better species on poor sites than loblolly. In areas where shortleaf, longleaf, and loblolly pine share ranges, loblolly was historically found on

wet sites, longleaf on dry ridges, and shortleaf was everywhere in between. This would indicate that shortleaf should be suitable for most sites in Alabama.

There is one problem with shortleaf pine in some portions of its range: Littleleaf Disease. A fungal disease, littleleaf affects shortleaf pine on poorly drained and eroded soils in the coastal plain and piedmont regions. Trees infected with this fungus turn a yellowish-green color, and tree growth slows. The needles also grow shorter than normal. While some infected trees may live only a year or two, others may survive as much as ten years with the disease. Infected stands are also more susceptible to southern pine beetle outbreaks.

Littleleaf is rarely found in the following north Alabama counties which are outside of the coastal plain: Blount, Cherokee, Cullman, DeKalb, Etowah, Jackson, Lawrence, Limestone, Madison, Marshall, Morgan, Walker, Winston, and the eastern portions of Colbert, Lauderdale, Fayette, Franklin, and Marion. Studies have also shown that trees grown from fire-killed and re-sprouted shortleaf seedlings may be more susceptible to littleleaf disease, so it may be unwise to burn young stands in areas of the state outside of the counties mentioned above.

For most of the recent history, shortleaf has been treated as a weed species in other pine stands and little was known of its importance and management. This is changing with efforts such as the Shortleaf Pine Conference, but there is still much to be learned of this species and the important ecosystem it provides. Foresters and other natural resource managers will continue to research the management of shortleaf pine for use by landowners. For more information on managing or planting shortleaf pine, visit your local Alabama Forestry Commission office. ♣