



Shortleaf Pine and Timber

What Is A Shortleaf Pine Forest?

In the early 1900s, shortleaf pine forests were everywhere in the eastern U.S. In pure stands or in mixed shortleaf pine/oak savanna ecosystems, they grew on more than 280 million acres from southeastern New York to northern Florida, and west to eastern Texas. Shortleaf pines were so common that they supplied the nation with more than one-fifth of its southern yellow pine lumber.

The secret of the shortleaf's success was its adaptability. It grows well in a variety of soils, including thin, rocky and nutrient-poor soils, and tolerates a wider range of temperatures and moisture levels than other southern pines. It also tolerates fire—its seedlings have a sharp bend in their stems that keep the root collar below the forest's litter layer and safe from damaging heat during a fire. This enables the seedlings to resprout from the root collar and keep growing, even if the seedling is burned.

But despite its ability to adapt and survive, the shortleaf's dominance turned into a decline that has drastically reduced its range—and continues to threaten it today.

Why Are Shortleaf Pines Important?

The shortleaf pine has at times been taken for granted. In recent history, it has often been treated as a kind of weed species in stands of other pines.

But it remains one of the four most important commercial conifers in the southeastern U.S., and it holds considerable value as both wildlife habitat and as a source of timber, pulpwood and other products. That makes its decline all the more significant—and alarming.

Today, shortleaf pines are found on just over 6 million acres in 22 states. Land use changes, altered cycles of fire, hybridization, disease outbreaks and pest infestations have all taken a toll on shortleaf pine forests and contributed to their decline.

Fire suppression has allowed species that have quicker early growth than the shortleaf pine—these include hardwoods and loblolly pine—to outcompete and supplant shortleaf seedlings.

Land use changes, and specifically the conversion of shortleaf pine forest to agriculture or loblolly pine plantations, have also played a role in the shortleaf's decline. Many landowners have favored the faster-growing loblolly pine, in hopes of profiting more quickly from their investment.

The recent rise and spread of littleleaf disease, the most serious disease affecting shortleaf pines, has also taken a toll on the species. This fungal disease tends to affect 30- to 50-year-old trees growing in nutrient-poor, poorly drained soils where the fungus *Phytophthora cinnamomi* lives. Shortleaf pines are also vulnerable to root rot and red heart rot, and to infestation by Southern pine beetles.

In addition, hybridization between loblolly pines and shortleaf pines may also threaten shortleaf survival. That's because hybridization mixes or "averages" the traits of each parent, causing some of the shortleaf's unique characteristics to be lost. For example, shortleaf-loblolly pine hybrids may lack the sharp bend that protects seedlings from fire, and may as a result be more easily damaged or destroyed by fire than pure shortleaf pines.

Together, all these factors have led to the continuing decline of shortleaf pines. And as shortleaf pines are lost, so is the shortleaf pine/oak savanna ecosystem that once provided habitat for many plant and animal communities.

Markets For Shortleaf Pines

Shortleaf pines have gotten short shrift for decades because they grow more slowly early in their lives than do loblolly pines, the commercial tree species of choice. But shortleaf does have its own unique set of advantages that can make it a viable commercial option.

Shortleaf is more resistant to fusiform rust than any other Southern pine, and it is more wind- and drought-resistant than loblolly. It is also highly adaptable to different soil and site conditions and tolerant of fire. Between ages 20 and 44, its growth rate matches that of loblolly pines, and it surpasses loblolly thereafter. All of these characteristics make it a viable option for landowners who are interested in restoring shortleaf pines but concerned about its market opportunities.

Timber products. Shortleaf pines produce dense, tight-grained wood that is used for:

- high-quality sawtimber (trees that are sawed into lumber)
- plywood
- structural material

- pulpwood (even its taproots are sometimes used for pulpwood)

Non-timber products. Shortleaf pines are sometimes used as ornamental or Christmas trees, and to make resin products. Other markets are emerging for the non-timber benefits that shortleaf pines provide, from their value as habitat for game an asset if you offer hunting leases to their carbon-storing capabilities.

These market possibilities for shortleaf pines provide an extra incentive for woodland owners who'd like to see the tree protected. If you'd like to be part of turning the tide for the shortleaf pine, there are plenty of resources available to help you get started.

Interested In Growing Shortleaf On Your Land?

You can help stem the decline of shortleaf pines is to cultivate new stands. There are two ways to do this:

- (1) In pure stands, which feature only shortleaf pines
- (2) In mixed stands, which include a mix of shortleaf pines and hardwoods (often oaks).

Some studies suggest that shortleaf pines in mixed stands are healthier, because the hardwoods prevent soil moisture loss and buffer the pines from disease and pests. Mixed stands also provide richer, more diverse habitat. Creating this kind of forest from scratch does take more intensive management at the start, however.

Whether you're growing a pure stand or a mixed one, you'll need to identify the right site, plant new trees, and then help the trees get established in your woods. Here's what you need to know:

1. **Picking your site:** Because shortleaf pines are adaptable and shade-intolerant, they tend to do well in clearcut or disturbed areas, such as eroded lands or old mine sites. They grow best in deep, well-drained soils. Avoid poorly drained soils or soils with a high calcium content or high pH, as these can limit shortleaf growth and make the tree more susceptible to disease.
2. **Preparing your site:** At the seedling stage, shortleaf pines don't tolerate shade or competition from other woody vegetation. To give the seedlings their best chance at growth and survival, remove any competing vegetation with herbicide application or prescribed fire before planting and as seedlings become established. This is true whether you're creating a pure or mixed stand; if your goal is a pure stand, longer-term and more intensive control of competing hardwoods will be needed.
3. **Choosing your trees:** Healthy, high-quality seedlings grown from a local seed source stand the best chance of survival on your site. These seedlings will be available to you in two forms: "bareroot" or "containerized."

4. Bareroot seedlings are exactly what they sound like—seedlings with minimal soil attached to their roots. Their roots are exposed and easily damaged this way, so bareroot seedlings are often more stressed and have a lower survival rate. Your viable storage time and planting window will be shorter if you opt for bareroot seedlings. However, they are less expensive and easier to handle in bulk.
5. Containerized seedlings are grown and sold in individual containers that hold the soil mass and roots together. This keeps the roots intact and undisturbed until planting and reduces stress on the seedlings, so they tend to survive better and store for longer. They do cost more, however.
6. Whether you choose bareroot or containerized seedlings, handle them with care before planting for best results. Keep the roots moist, and protect the seedlings from wind and heat before planting. Store them in a cool, well-ventilated area, and plant them as soon as you can.
7. **Planting your trees:** Shortleaf pines are sensitive to rough handling and poor planting, so handle them carefully and hire an experienced planting crew if you can. Shortleaf pines can be planted between October and March, but planting in late February through early March is recommended for high survival. Remember: shortleaf pines like their space. It's best to plant them relatively sparsely, at about 300 to 360 shortleaf pine seedlings per acre.
8. **Caring for your pines:** Shortleaf pines grow slowly during the first 2-3 years after planting, and remain sensitive to competition and shade throughout their lives. You will need to control competing vegetation as they become established.

Landowners and land managers have long neglected the shortleaf pine, opting instead for faster-growing pines, such as loblolly pine. But the shortleaf pine can offer you unique advantages that are all its own.