



TEXAS A&M FOREST SERVICE

Longleaf Pine: Mature Stand Management

Longleaf pine (*Pinus palustris*) forests can be managed for timber, recreation, aesthetics, wildlife, and water quality all on the same tract at the same time. The site characteristics and owner objectives will influence how often and to what extent the site is thinned, burned, or influenced by other silvicultural practices. As a primary objective, longleaf pine should not be grown for pulpwood, because the properties of longleaf pine make it ideal for higher quality products, such as structural lumber, pilings and power poles. The long term goal should be pole and sawtimber production and trees should be grown on a rotation of more than 30 years. An old adage says that at sawtimber rotation age, 70% of longleaf pines produce poles.

A longleaf stand is a low risk species to manage. It is resistant to more serious diseases and insect pests that afflict other southern pines, including fusiform rust, annosus root rot, pitch canker, SPB and Ips beetles, and tip moth which are common pests of southern pine stands. Its deep taproot minimizes wind throw damage during hurricanes and storms. Also, longleaf at any age is more likely to survive a wildfire.



Recommendations:

Longleaf typically begin to produce cones with fertile seeds at about 30 years of age and may continue rapid growth past age 50. Mature longleaf need to be thinned every six to eight years to a residual basal area of 70 to 80 square feet per acre to improve health and vigor. Due to the long life span of longleaf, a stand can be managed until tree diameters start to become too large for local mills or until the stocking rate becomes too low to manage. Longleaf may grow 60 feet in height on poor site index soils or up to 110 feet on good site index soils. Longleaf pine dramatically slow height growth after about 70 to 90 years and red heart rot fungus may set in around 80 years of age. Red heart can cause some timber value loss, but makes the stand more suitable for red cockaded woodpecker nesting.

Preparing for Regeneration:

Depending on landowner objectives and site characteristics, the landowner or resource professional may opt to perform a total harvest on a mature longleaf stand (typically at age 50 or later) and artificially regenerate it, especially if there is not an adequate amount of mature longleaf present.

Natural regeneration may be the best option if wildlife management is the main goal or if the site is too droughty or highly erodible. Natural regeneration is much cheaper and may be more aesthetically pleasing to some. However, with natural regeneration it is difficult to regulate stocking rates. Natural regeneration of longleaf pine should be planned many years in advance so that the site can be prepared for regeneration. Naturally regenerating a longleaf stand works well with an active burn program coupled with two to three strategic harvests. Preparatory harvest(s) will enhance crown and cone development. This type of thinning should remove cull trees and residual hardwood

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species resulting in dominant and co-dominant longleaf pines at a basal area of around 60 square feet per acre. A regular prescribed burning regime, if not already implemented should be used to control understory vegetation and litter once the logging slash has degraded or after about two years have passed. Prior to seed fall in late October through November, an understory herbicide application may be needed to control bermudagrass or woody competition that may be difficult or impossible to control by fire and/or herbicides once the seedlings are established.

Most viable longleaf seeds fall within 65 feet of the parent tree; therefore, the “shelterwood” method typically works better than a “seed-tree” harvest. The shelterwood method usually begins with a preparatory cut about 10 years before the planned harvest by bringing basal area down to about 60 square feet per acre. This stimulates the development of residual seed trees. The preparatory cut is then followed with a seed-cut about five years before final harvest in which 30 to 40 square feet of basal area of residual large-crowned trees are left. Longleaf tend to have good seed crops only every five to seven years; therefore it may take some time to get enough regeneration to produce a stand. It is important that the seed bed remain receptive and not overgrown during this time. The site should be burned within one year of an expected good seed crop to help expose bare mineral soil and reduce competition. Due to collateral mortality issues when harvesting the parent trees, it is recommended that at least 2,000 seedlings per acre be established and that they be at least one year old before the removal of the shelterwood trees. Logging is less damaging to the seedlings if they are still in the grass stage when the parent trees are removed. In some cases supplemental planting must be used if stocking does not reach an adequate level. If brown spot needle blight is present, the fungus will need to be controlled by use of prescribed fire. If not controlled, mortality can occur due to repeated loss of needles.

Wildlife managers recommend uneven-aged management

through group selection harvesting or by leaving some of the shelterwood trees in what is called a modified shelterwood approach. This approach is more beneficial to wildlife and may be more aesthetically pleasing to some than even-aged management; however, the longleaf saplings in the understory will often not grow as well as those in full sunlight and it can be hard and unprofitable to conduct silvicultural treatments in small areas.

Pine Straw and Other Products from Longleaf:

The longleaf pine straw industry has grown in the past two decades and now can be a source of a grower’s income. Broadly speaking, longleaf pine produces enough straw to rake beginning at 10-15 years of age.

Longleaf generally can produce pulpwood by age 20, chip-n-saw logs at 30 years, and higher class products – sawtimber, poles and plywood – by age 40 on better quality sites. Longleaf almost always has a higher specific gravity than other southern pines, both as sawtimber and pulpwood, and produces more dry weight per unit volume.

What is the Key to Maintaining a Longleaf Pine Forest?

Longleaf pines are the most shade intolerant of the southern pines; therefore, it is necessary to control competition from the seedling grass stage on to maturity. In the past, naturally occurring fires every two to seven years kept stands free of hardwoods and helped maintain that open park-like appearance. If longleaf pine is your tree of choice, prescribed fire is absolutely necessary in establishing and maintaining a healthy forest. Since using prescribed fire does carry risks and requires careful planning, you will want to work with your professional resource manager to assist you in the application of this necessary management tool. You can handle the application of prescribed burning on your property or Certified Prescribed Burning Vendors are available to assist you.

