



Restoring and Managing Longleaf Pine Ecosystems

United States
Department of
Agriculture
Forest Service



Southern
Research
Station

Our mission is to provide knowledge and strategies for restoring, managing and sustaining longleaf pine ecosystems. Our team of six scientists and support staff is located throughout the South in Auburn and Brewton, AL, Pineville, LA, and Clemson, SC. Our work in the Escambia and Palustris Experimental Forests and elsewhere enhance the understanding of longleaf pine seedling production, establishment, growth and development, and understory plant ecology. We collaborate with State, Federal, university, and private organizations in assessing and delivering the research needed to restore and maintain this ecosystem.



RESEARCH WORK UNIT 4158

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Longleaf Pine Silvopasture We are conducting research to assess how combining longleaf pine timber production with silvopasture (livestock grazing) may provide an attractive economic option to many landowners in the region, especially those with limited resources.



Ground Cover Restoration Groundcover in longleaf pine stands is species-rich, provides habitat for wildlife, and produces fuel needed to carry surface fires. A vigorous groundcover facilitates prescribed burning, an economical method for achieving landowner objectives.

At Risk Species Research to date shows that white topped pitcher plant seeds rapidly deteriorate in the soil seed bank, with just 2 percent of the seeds remaining viable after a year. Such limited length of survival in the seed bank for any species emphasizes the importance of conserving existing flowering populations.



Regeneration and the Pro-B Method To maintain healthy longleaf pine ecosystems, forests need to be maintained through artificial or natural means. Research indicates that Pro-B is a versatile method that fosters regeneration, maintains forest growth, and conserves biological diversity in longleaf pine forest ecosystems. Its use in this and other forest types is expected to expand with time.



Prescribed Fire By minimizing the growth of encroaching shrubs and hardwoods, prescribed fire can be used to maintain open understories within longleaf pine stands. Longleaf pine trees are fire-adapted and have thick bark as well as terminal shoots with dense tufts of needles that protect the new buds. This along with a physiology that rapidly replaces dead foliage aids in longleaf pine being more tolerant of fire than other woody plants.



Root-Soil Interface Longleaf pine trees rely on the development of an extensive root system for adequate supplies of water and nutrients, and on management practices such as prescribed fire that aid root system expansion. Our research shows that pine nutrition is greatly enhanced when new roots forage unexplored soil.

Experimental Forests Experimental forests are vital to conducting long-term research. The 3,000-acre Escambia Experimental Forest, established in 1947 in Brewton, AL, involves all aspects of longleaf pine natural regeneration and long-term studies.

The 7,500-acre Palustris Experimental Forest in Pineville, LA, consists of two tracts. The J.K. Johnson tract, established in 1935, is the site of numerous long-term studies. One of its most important studies is the longleaf pine thinning regime study that has been maintained for more than 75 years. The Longleaf tract was established in 1951. Long-term studies using both tracts are under way to evaluate management strategies that increase forest productivity and assess effects of forest management practices on sustainable soil productivity.

