

### MAJOR EMPHASIS—Stand Management

Stand management studies began in the 1930s. Mechanical and chemical site preparation with fire, direct seeding, planting spacing, thinning levels and timing, and length of stand rotations have been evaluated in many studies. The resulting data bases and growth and yield models are unique. The Unit is currently cooperating with several research groups across the region who are using our data bases to model longleaf pine growth and yield in even-aged stands.



### MAJOR EMPHASIS—Ecophysiology

Over 10 years of research on the stand-level physiology of loblolly pine has provided expertise to investigate the physiological and environmental conditions that sustain longleaf pine vigor. Currently, the carbon dynamics of longleaf pine are being studied to understand how repeated fire and fire-induced foliage loss affect whole-crown photosynthesis and water status, new root growth relative to soil physical properties, and carbon allocation to the crown, stem, and root system.



### MAJOR EMPHASIS—Prescribed Fire

Early in the management of longleaf pine, fire was recognized as a basic need. Prescribed burning research examined frequency, season, and techniques. Unit scientists have studied how fuel condition and fire intensity influenced tree growth and the physiological response of longleaf pine to fire. Researchers have worked with herbicides as a substitute for burning. Current efforts focus on how season of burning and crown scorching influence longleaf pine physiology.



**Restoring and Managing Longleaf Pine Ecosystems, SRS-RWU-4158**, has six scientists with expertise in plant physiology, ecology, and silviculture. In addition to the Palustris, the Escambia Experimental Forest in Alabama is used for research and demonstration of longleaf pine establishment, development, and management.

**For More Information Scan Here!**

Website: <http://www.srs.fs.usda.gov/longleaf>



**Or Contact**

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## ***PALUSTRIS EXPERIMENTAL FOREST – A FOCUS ON LONGLEAF PINE***



## **RESTORING AND MANAGING LONGLEAF PINE ECOSYSTEMS**

## THE J.K. JOHNSON TRACT

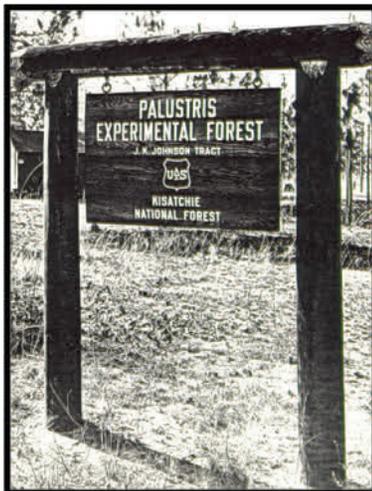
Phillip Wakeley began reforestation research in 1924 in cooperation with the Great Southern Lumber Company. In 1934, the Stuart Nursery was established at Pollock, LA and his work was transferred there.

A wide range of nursery problems were studied, including the control of brown-spot needle blight that devastated longleaf pine seedling crops. The availability of Civilian Conservation Corp crews provided a ready pool of labor.



Needing more space for outplanting his seedlings, Wakeley established the J.K. Johnson Tract in 1935 to provide a 2,700-acre research site to develop seedling specifications for planting southern pines.

The J.K. Johnson Tract was named in honor of the South's first industrial forester who supported early cooperative nursery research at the Great Southern Lumber Company.



## THE LONGLEAF TRACT

In 1954, the 4,800-acre Longleaf Tract was added to the Palustris Experimental Forest. This Tract represented the cutover longleaf pine type and initially served as a site for range management and direct seeding research.



### MAJOR EMPHASIS—Direct Seeding

Aggressive logging practices in the West Gulf Coastal Plain resulted in millions of acres of cutover land with no natural seed source. Development of an artificial means of regenerating this



vast area led to bird and rodent repellents and direct seeding techniques, which were key to speeding up reforestation of these lands.

### MAJOR EMPHASIS—Seed Physiology

Direct seeding required huge quantities of seeds and longleaf seeds were difficult to store. Studies focused on cone and seed collection, processing, and storage. Research yielded the technology to maintain seed quality for 10 years.



In the field, brown-spot needle blight disease would stunt seedling growth. This extended the time seedlings were in the grass stage and susceptible to smothering by litter and overtopping by woody

brush. Wakeley found a disease free seedling in the nursery, outplanted it, and "Father Abraham" proved to be genetically immune to the disease. The tree became the basis of a longleaf pine tree improvement program.



### MAJOR EMPHASIS—Container Seedlings

As a way to overcome problems with outplanted seedling survival, container-grown longleaf pine seedlings have been a research focus on the Palustris Experimental Forest for decades. Work continues on container size, type, nursery fertilization regime, and field performance.

