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Longleaf pine (Pinus palustris) Stand Dynamics: A Regional Longleaf Growth Study

Ralph S. Meldahl, John S. Kush, and William D. Boyer

Duration: 1964-present

Objective: Describe and model temporal changes in longleaf pine stand structure. From 1964-1967, the U.S. Forest Service established a regional longleaf pine growth study (RLGS) in the Gulf States. The original objective was to obtain a database for the development of growth and mortality predictions of naturally regenerated, even-aged longleaf pine stands. The original objective has been expanded to include all aspects of longleaf pine stand dynamics and relationships with understory species.

Methods: The RLGS currently consists of 305 permanent plots located in central and southern Alabama. southern Mississippi. southwest Georgia, North Carolina sandhills and northern Florida. Plots are inventoried on a five-year cycle. Monitoring plots have also been established in a virgin old-growth stand in Flomaton. AL and a new study was initiated at Eglin A.F.B. in 1997 to examine the relationships among longleaf pine seedling/ sapling mortality, recruitment, growth, and fire.

Progress: The following work has been completed:
1) initial efforts to evaluate longleaf pine productivity involving timing and amount of litter fall; specific leaf area and leaf area index; standing biomass, net primary productivity and carbon sequestration; 2) the integration of climate variables into growth models.

Efforts now focus on summarizing and publishing results. Work continues on the development of a computer model of natural longleaf pine regeneration based on published findings. Regarding the study initiated at Eglin in 1997, three stands containing a total of 14 gaps were sampled following the bumper seed crop in the fall of 1996. Additional sites were sampled this fall and the 1997 sites will be remeasured. These locations will be monitored annually to assess seedling survival, growth, and initiation of height growth.

Publications:

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