Public Abstract

First Name:Patrick

Middle Name:Joseph

Last Name:Curtin

Adviser's First Name:Benjamin

Adviser's Last Name:Knapp

Co-Adviser's First Name:Steven

Co-Adviser's Last Name:Jack

Graduation Term:FS 2017

Department:Natural Resources

Degree:MS

Title:CANOPY RECRUITMENT DYNAMICS IN NATURALLY REGENERATED LONGLEAF PINE (*Pinus palustris*) WOODLANDS

The dramatic decline in the historic range of the longleaf pine (*Pinus palustris*) ecosystem has led to increasing interest in ecosystem restoration and management in recent decades. While research has elucidated much about regeneration dynamics, there is a paucity of information regarding the recruitment period of seedlings to the overstory. The overall goal of this project was to determine the factors influencing canopy recruitment rates and patterns in longleaf pine woodlands. This study was located in southwest Georgia, and utilized a combination of repeat-measurement data with retrospective stem analysis data of longleaf pine individuals. We found that regeneration survival was strongly driven by individual size and relative size within dense regeneration clusters. Individual height growth of midstory trees was strongly driven by overstory abundance but minimally related to soil moisture class. Suppression and release patterns were common in the growth histories of midstory trees within dense stands but less so for overstory or midstory trees within open stands. In dense stands, midstory trees were generally from the same age cohort as overstory trees and likely stagnated in height growth after falling behind peers during canopy recruitment. Our results indicate that rapid initial growth and dominant crown position within even-aged cohorts is important for eventual canopy recruitment. Survival probability is low for individuals in lower crown positions, although a given individual may persist in the midstory for decades with minimal height growth and respond to release. By creating canopy gaps of various sizes and releasing advance regeneration, our results indicate that uneven-aged silviculture may be sustainable in longleaf pine woodlands.