The purpose of this study was to observe the effectiveness of thinning and fire as management tools in oak-dominated forests in Compartment 6 and 46. Compartment 6 was thinned (from below) in 2006 and Compartment 46 was thinned in the Spring of 2010. The main goal at both sites was to encourage oak and hickory regeneration by following thinning with prescribed fire. Previous studies have shown that fire alone is not as effective at promoting oak regeneration (Hutchinson et al. 2005, Iverson et al. 2008).

Study Objectives
1) Use thinning and fire to encourage oak and hickory regeneration
2) Remove the exotic pine component (lobolly and white pine) and remove invasive species
3) Involve students in the management process
4) Create long-term research sites for student study

Study Areas
Compartment 6: Six permanent points inside three ½ - 1 acre openings (previously burned) in the 70 acre forest treatment area of Lake O'Donnell (left)
Compartment 46: Twenty permanent points distributed across 35 acre thinned and burned forest (right)

Site Histories
Compartment 6:
- Originally dominated by upland hardwoods with frequent harvesting and fire (burning for livestock forage up until the 1960s)
- Eastern white pine planted in fire lanes in 1960s
- Thinned in 2006; the three openings sampled in this study were burned in spring 2010

Compartment 46:
- Dominated by upland hardwoods in 1950
- Fire lanes/lobbly roads built in 1962, partially cleared and lobolly pine planted in mid-1960s
- Eastern white pine planted in 1968 and 1977 along fire lanes

Introduction

Pre-Thinning Fire
Compartment 6
- Three openings burned on the same day in April 2010
- Flame heights ranged from 1 – 10 feet

Compartment 46
- Fire was applied in mid-April and early May 2010
- Flame lengths and tree char heights varied considerably due to uneven the distribution of pine slash (tree tops left on the site)

Post-Harvest Average Number of Trees per Acre by Species and Diameter Class

Take Home Message
- Tree thinning and prescribed fire created conditions that were favorable for increasing oak seedling densities at the two sites.
- Tree thinning and fire treatments were successful at removing the pine component planted in the 1960s but fire will be required to eliminate pine seedlings that regenerate at Compartment 46.
- A higher number of seedlings were browsed at Compartment 46 compared to Compartment 6 (time to hunt out there?). This site is adjacent to a small reservoir which may contribute to increased deer densities.
- The use of fire has promoted native grass development at both sites.
- Students have played a key role in both of these projects and should continue to actively participate in management activities and the monitoring of these activities across the Domain.