PRESCRIBED FIRE AND SELECTIVE HARVESTING: AN EVALUATION OF ECOLOGICAL FOREST MANAGEMENT IN THE RED HILLS REGION OF FLORIDA AND GEORGIA

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ABSTRACT

The Red Hills physiographic region of Georgia and Florida comprises 162,000 hectares and contains significant examples of the endangered longleaf pine-wiregrass community. The diversity of plant and animal species in this community is extremely high, and it is estimated that <5% of the original area in this community type still exists. The objective of this project is to evaluate regionally applicable forest management methods that can be used to conserve this unique natural community. For this project, I define ecological forest management as management to provide resources (timber and wildlife) and maintain ecosystem function and composition. Ecological forestry, using some form of uneven-aged management, is being widely promoted as an alternative to the even-aged industrial forestry approach for southern pine silviculture. Prescribed fire, an integral part of this system, perpetuates open pine woodlands, which support cultural, ecological, and economic elements that are prized in the region.

I examine 2 different approaches to silviculture: the Stoddard-Neel system, which was developed locally and practiced for >40 years by forestry consultants in the region, and the BD_q method, which was adopted by R. Farrar using basal area, maximum diameter, and diameter distribution as an adaptation of methods developed for hardwood silviculture and applied to longleaf pine. A dynamic model was written as a tool to evaluate uneven-aged management in the Red Hills region using inventory and harvesting data from managed tracts in the region. Assumptions in the model use parameters from both forestry approaches. Based on this examination, ecological forest management has the potential to be a biologically and economically viable system for maintaining the multiple resources desired by landowners in the region.

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