

Public Abstract

First Name:Aaron

Middle Name:Patrick

Last Name:Stevenson

Adviser's First Name:Rose-Marie

Adviser's Last Name:Muzika

Co-Adviser's First Name:

Co-Adviser's Last Name:

Graduation Term:FS 2007

Department:Forestry

Degree:MS

Title:Prescribed Fire Effects in Missouri Ozark Upland Forests

Prescribed fire is used in Missouri to achieve various silvicultural goals, but the use of burning in upland Ozark forests raises many questions that research has yet to answer. The purpose of this study is to examine the effects of prescribed burning on fire scars, overstory tree vigor, and ground flora vegetation. Data were collected from 22 burn units in five counties in the Missouri Ozark. Fire scar data were collected for *Quercus alba* L., *Quercus coccinea* Muench., *Quercus shumardii* Buckl., *Quercus stellata* Waengh., *Quercus velutina* Lam., *Carya* spp. Nutt., and *Pinus echinata* Mill. *Pinus echinata* was the most resistant to fire scarring, and *Quercus coccinea* and *Quercus shumardii* were the least resistant. Regression analysis reveals that stem bark char height, a proxy for fire intensity, is the most effective postfire predictor of percentage of trees scarred and extent of scarring. Landscape features such as aspect, fetch, and slope steepness were also important predictors of extent of scarring for some species. Tree vigor in *Quercus coccinea* was negatively correlated with fire injury, but there was no difference in tree vigor in burned and unburned stands. Tree vigor of *Quercus velutina* was higher in burned stands, although the difference may not be biologically significant. Grass cover was highest in burned stands, and tree seedling cover was highest in stands burned one year before sampling. Models developed from this study can aid managers in assessment of potential injury to trees based on landscape features and fire intensity