

EFFECTS OF DRUM-CHOPPING ON WIREGRASS AND OTHER HERBACEOUS SPECIES IN XERIC SANDHILL SITES

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ABSTRACT

Fire exclusion in most longleaf pine (*Pinus palustris*) woodlands of the Sandhills region in the southeastern United States results in extensive encroachment by midstory oaks and other hardwoods. Reduction of dense hardwood midstories by the use of prescribed burning alone is often a difficult and lengthy process, due to the large size of trees to be removed and the poor quality of fuels available for conducting controlled burns. Alternative treatments, such as drum chopping and chemical control in combination with fire, greatly reduce the time required to restore open woodland conditions. Though the effects of chemical and mechanical control on hardwood species are known, effects on herbaceous species remain poorly understood. Of particular concern are the impacts of these treatments on wiregrass (*Aristida stricta*), the dominant ground cover species which provides fine fuels essential for fire regimes that maintain longleaf pine-wiregrass communities. Our preliminary findings from drum-chopped sites on xeric sands in the South Carolina Sandhills suggest that drum-chopping does not lead to decreases in wiregrass cover or other herbaceous species. Weedy species comprising less than 2% cover in 0.1 hectare plots are present in soil disturbance areas of drum-chopped sites, especially sites in which tracked vehicles instead of tire vehicles were used to drag chopping drums. Field observations and plot data suggest many of these weedy species are eliminated over time by prescribed burning and possibly by competition with native perennial species. These findings may only apply to sites with deep, xeric sands, where a rather restricted assemblage of plant species naturally occur and where soil disturbances do not lead to substantial changes in soil moisture or nutrient availability. Similar disturbances in mesic sites with greater species diversity and more complex soil profiles may lead to significant changes in environmental conditions and species distributions.

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