Flatwoods species responses to restoration treatment and season at Myakka River State Park—A CFEOR Signature Project

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Along the continuum that comprises flatwoods forests of the southern Coastal Plain are Florida’s dry prairies. Originally covering ca. 830,000 ha and currently occupying ca. 160,000 ha, dry prairies are unique in that they have few to any trees, and flora that shares characteristics with both flatwoods and wetland ecosystems. Dry prairies are rare as they occur only in Florida, are home to 6 federally and 31 state listed species, and are considered globally imperiled, mostly due to development and fire suppression.

Fire suppression in flatwoods ecosystems typically increases the density and height of understory saw palmetto and shrubs, and litter and duff accumulations, with a concomitant decrease in density and richness of gramminoid and herbaceous species. These changes are of concern for reasons that range from human safety to ecosystem health, biological conservation, and habitat quality and management. In the past few decades, mechanical treatments have been coupled with prescribed burning to restore dry prairie ecosystems; both to decrease shrub dominance as well as to decrease fire intensity during wildfires.

Using CFEOR Signature research project funding, we reassessed restoration treatment units established in 1988 and originally assessed in 2001, at the Myakka River State Park in central-west peninsular Florida. This uniquely continuous and long-term restoration experiment compares mechanical treatments (roller chopping every six years, applied for the first 13 years) with and without fire (every three years; also in all sites starting in 2001) in both growing and dormant seasons over the 23 year timespan. Treatments including fire had plant communities more similar to reference sites when compared with roller chopped sites.

In all sites except those only roller chopped, overall species richness and gramminoid and herbaceous richness increased over time. Overall species richness was lowest in summer chopped sites, and highest in the winter burned and chopped and winter burn only sites. Reduction of shrub density, another objective of the restoration, was not achieved with any of the treatments; however, shrub species richness increased in all but the winter burn/chop site.

Gramminoid density was higher in sites that included burning, regardless of season or whether they included chopping, and highest in the summer chop and burn combined treatment.

In summary, mechanical treatments alone appear less beneficial for achieving restoration objectives, even after maintenance burning began in 2001. Combined treatments, also representing the “most disturbed” treatment (18 treatments over 23 years), yielded more desirable results than burning alone. Given estimates that historical disturbance frequency was 1-3 years in Florida dry prairies, these results suggest that more frequent disturbance, regardless of the season, is beneficial to dry prairie restoration. For more information about this study contact UF/SFRC Associate Professor, Leda Kobziar at lkobziar@ufl.edu.
Eutrophication of the Baltic Sea has in Sweden led to the initiation of government schemes aiming to increase wetland areas in agricultural regions and thereby reduce nutrient transport to the sea. Landowners play a significant role as providers of this ecosystem service and are currently offered subsidies to cover their costs for constructing and maintaining wetlands. We undertook a grounded theory study, in which landowners were interviewed, aiming at identifying landowners’ incentives for constructing wetlands on their land. The study showed that adequate subsidies, additional services that the wetland could provide to the landowner, local environmental benefits, sufficient knowledge, and peers' good experiences could encourage landowners to construct wetlands. Perceived hindrances were burdensome management, deficient knowledge, time-consuming application procedures and unclear effectiveness of nutrient reduction. The main reason for not creating a wetland, however, was that the land was classified as productive by the landowner, i.e., suitable for food production. Current schemes are directed toward landowners as individuals and based on subsidies to cover costs. We propose that landowners instead are approached as ecosystem service entrepreneurs and contracted after a tendering process based on nutrient reduction effects. This would lead to new definitions of production and may stimulate improved design and placement of wetlands.
Upcoming Events

- **Forest Landowners Association National Conference,**

- **32nd Southern Forest Tree Improvement Conference Meeting (SFTIC), June 10-13, 2013** at the Madren Continuing Education and Conference Center, Clemson University, Clemson, SC. For more information go to [www.clemson.edu/cafls/sftic](http://www.clemson.edu/cafls/sftic)