



Southern Fire Exchange

Resources for Prescribed Fire and Natural Resource Management

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Southern Fire Exchange Mission

“Increase the availability and application of fire science information for natural resource management and to serve as a conduit for fire managers to share new research needs with the research community.”



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Accessible Fire Science for Resource and Fire Managers

- SFE is one of 15 JFSP regional Fire Exchanges serving fire managers and science providers
- SFE Started 2010
- Goal: enhance fire science delivery and adoption





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SFE Resources for Managers



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Online Southern Fire Science Resource Center

www.SouthernFireExchange.org

- News/events in Southern fire
- State info on rxfire / PFCs / permits
- Tools for rxfire planning
- All SFE science briefs and products
- Regional events calendar

The screenshot shows the homepage of the Southern Fire Exchange Resource Center. The header features the SFE logo, the text 'SOUTHERN Fire Exchange A JFSP Knowledge Exchange Consortium', a map of the Southern US, and the Joint Fire Science Program logo. Below the header is a navigation menu with links to Home, About SFE, Ask an Expert, Discussion Forum, Events Calendar, Fire Science Libraries, Models and Tools, Prescribed Fire Councils, Plan Your Burn, Products, Professional Development, and What's New. The main content area includes a 'Welcome to the Southern Fire Exchange Resource Center' message, a 'NEW PUBLICATION' section for 'Introduction to Prescribed Fires in Southern Ecosystems', and several featured sections: 'ABOUT SFE', 'ASK AN EXPERT', 'DISCUSSION FORUM', 'EVENTS CALENDAR', 'FIRE SCIENCE LIBRARIES', 'GOODFIRES', 'VISIT MY FOREST', 'MODELS & TOOLS', 'PLAN YOUR BURN', 'PRESCRIBED FIRE COUNCILS', 'PRODUCTS', and 'PROFESSIONAL DEVELOPMENT'. Each section includes a brief description and a small image or icon.



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22 Free SFE Fact Sheets :

Fire Science Resources

Each 1-3 pgs.

- Mechanical Treatments in Pine Flatwoods
- Ignition Devices Primer
- How to Use a Backing Fire
- Fuel Moisture Primer
- GPS Enabled Maps on a Mobile Device

Mechanical Treatments in Pine Flatwoods: A Temporary Rearrangement of Fuel Structure
Jesse Kreye, David Godwin, and Leda Kobziar

MECHANICAL FUEL TREATMENTS

Prescribed burning is a dominant forest management tool used across the Southeastern U.S., yet burning is often limited due to various social, ecological, or economic factors. The use of mechanical methods as a fire surrogate or as a means to treat overgrown fuels prior to reintroducing fire has become increasingly used in the region, especially in the wildland-urban-interface (WUI) and other areas with significant smoke concerns. Mechanical treatments can include thinning of the overstory, treating understory shrubs and small trees, or a combination of both. Understory treatments commonly used in the South include "mowing", "mulching", "masticating" or "chipping" (depending on the equipment used) of shrubs and small trees. While different terms are used, each treatment is aimed at transforming aerial fuels to surface fuels to reduce fire behavior. Treatments are often employed as a stand-alone option in the WUI, or are followed-up with prescribed burning where possible. While specific treatment objectives may vary, reduction of potential fire behavior attributes including flame lengths, rate of spread, and crown fire potential, are emphasized. Reducing these fire behavior factors is important to both follow-up prescribed burning and potential wildfire.

TREATMENT OF FUELS IN PINE FLATWOODS

Mowing is a common mechanical fuels treatment method especially in long-unburned pine flatwoods (ca. >10 yr. old rough) of the Southeastern Coastal Plain, where understories are dominated by saw palmetto (*Serenioa repens*) and gallberry (*Ilex glabra*) shrubs. Although understory shrubs in these stands can be very dense, mature longleaf pine (*Pinus palustris*) and slash pine (*P. elliotii*) in the overstory are often sufficiently spaced to facilitate mowing without damage to mature trees. While shrubs are typically the target of mowing in flatwoods, understory and midstory hardwoods may also be targeted in forests that have gone without fire for longer durations.

Importantly, mowing itself is not a "fuels reduction" treatment as it doesn't actually reduce fuel loads, but rather alters or rearranges fuel structure. During treatment, shrubs and small trees are shredded and spread across the forest floor creating a dense and shallow fuel bed (usually ≤ 4 inches deep, with the depth depending on the quantity of vegetation mowed).

SUMMARY

Mechanical "mowing" treatments can alter the structure and arrangement of understory and midstory fuels in pine flatwoods thereby reducing post-treatment flame lengths and rates of fire spread. Shrubs, however, can quickly recover following treatment and reduce the longevity of this effectiveness. Surface fuels resulting from the mowing of small trees and shrubs may present challenges given that long-duration combustion can occur in these compact fuels. The timing of subsequent mechanical or prescribed fire treatments may be very important for achieving management objectives.

Following treatment, fuel bed height is greatly reduced while fuel bed bulk density is substantially increased, both of which can influence fire behavior¹. Fuel beds created from mowing are mixtures of small-diameter woody fuels composed of broken sticks from shrub stems, or fractured (shredded) woody debris from larger shrub or tree stems. In pine flatwoods, the bulk of the post-mowing forest floor material is often composed of shredded saw palmetto foliar material². These pine flatwoods post-treatment fuel beds can be somewhat "fluffy" or aerated compared to mowed debris generated in forests where woody shrubs or trees dominate the understory¹. Although the surface of such fuel beds may initially appear "fluffy," the lower strata of mowed fuels remain relatively dense and may become more compact over time.

Although shrubs are converted to dense surface fuels by mowing, they recover quickly following treatment in pine flatwoods¹. It is unclear how mowing impacts shrub or tree regeneration from seeds, but palmetto, gallberry and many other flatwoods shrub species sprout vigorously after a disturbance. Where the rate of shrub regrowth exceeds that of decomposition of mowed surface fuels, total fuel loads may actually *increase* following mowing treatments. Timing post-treatment application of prescribed fire or subsequent mowing treatments may be critical to achieving management objectives.

SFE Fact Sheet 2015-1



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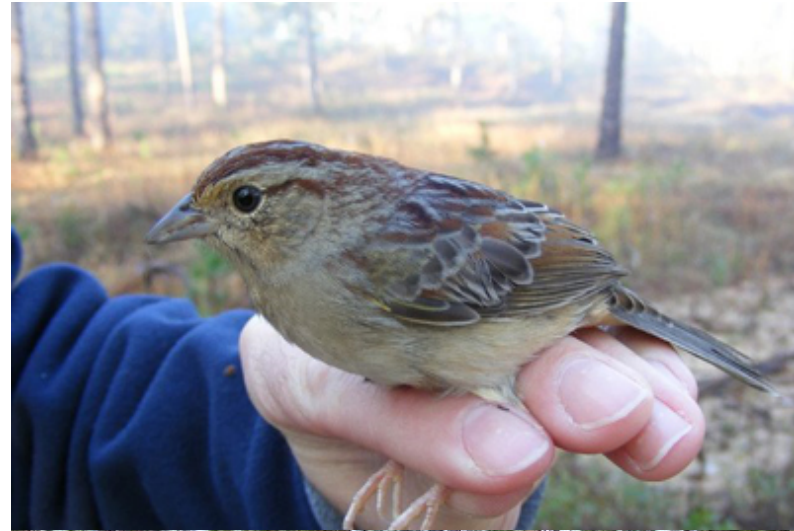


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Wetlands



Longleaf Pine



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Questions?

Thank you!

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