

Prescribed Fire – Wildfire Costs

- Merritt Island NWR, 2012, Hinckley & Wallace
 - 3 wildfires on previously burned land
 - \$78/ac suppression vs \$9/ac Rx fire
 - Projected costs if no Rx burns much higher
 - But, there are other considerations:
 - Rx fires must be repeated
 - Wildfire costs could be higher if other resources considered
- Koehler, 1993 – FDOF data – increases in Rx fire acres correlated with decrease in wildfire acres



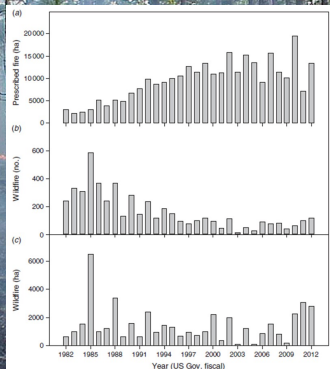
Research Highlight

Prescribed Fire Reduces Wildfires

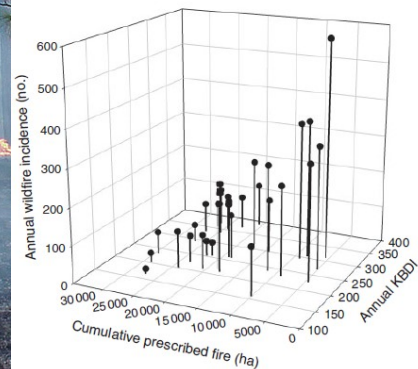
- *Relationships among wildfire, prescribed fire, and drought in a fire-prone landscape in the southeastern United States. 2015, IJWF, Addington et al*
 - Ft Benning, GA, target fire return interval = 2-3 years
 - All wildfire and Rx burn records 1982-2012
 - Analyzed records for incidence and area against drought and weather
- Main questions
 - Are wildfire incidence & area related to prescribed fire activity?
 - How is that relationship influenced by weather and drought?



Research Highlight Prescribed Fire Reduces Wildfires



Research Highlight Prescribed Fire Reduces Wildfires



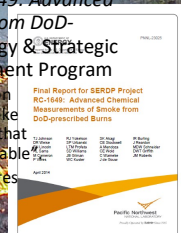
Prescribed Fire – Wildfire Costs

- New JFSP studies on Rx fire costs & benefits
 - Do fuel treatment costs affect wildfire suppression costs and property damage?
 - *Evaluation of fuel treatment and previous wildfire effects on suppression costs*
 - Benefits and costs of implementing fuel treatments on nonindustrial private forest (NIPF) lands in Mississippi



Smoke Management What's New?

- Sources of emission factor information
 - Substantial JFSP funding into related research over last 10 years, and much is available in reports
 - *Final Report for SERDP Project RC-1649: Advanced Chemical Measurements of Smoke from DoD-prescribed Burns*; 2014, Dept of Energy & Strategic Environmental Research & Development Program
 - "The analyses ... provide a set of emission factors for modeling prescribed fire smoke photochemistry and air quality impacts that go far beyond what was previously available"
 - Includes comparisons among types of fires
 - Would a summary of this be useful?



Smoke Management What's New?

- 2016 regional round tables - applications of past/ongoing JFSP-sponsored smoke research.
- New JFSP research funding for smoke & air quality in South
 - Is prescribed fire smoke impacting air quality monitors?
 - Are current smoke management tools adequate for prescribed burn planning?
 - Do smoke management programs effectively minimize ground-level particulate matter and ozone?
- Development & testing of new models for smoke dispersion and impacts

Prescribed Fire Effects on Wildlife

- Is repeated fire improving populations of special-concern species?
- RCW – positive trend in many parts of FL

Source: Craig Faulhaber	Active clusters 2000	Active clusters 2015
Eglin Air Force Range	301	504
Apalachicola National Forest	624	970
Osceola National Forest	163	249
St. Marks National Wildlife Refuge	9	34
Withlacoochee State Forest Citrus Tract	46	80
Withlacoochee State Forest Croom Tract	5	35
Blackwater River State Forest	26	108
Triple N Ranch WMA	1	14
St. Sebastian River Preserve State Park	8	14
Ocala National Forest	22	112

Research Highlight Burn Frequency & Season

- *Burning for Conservation Values...*; Proc 17th Biennial Southern Silvicultural Conf, 2015
- Stoddard Fire Plots—2, 3, 5, 9, 20-yr FRI (35 yrs)

Fire Return Interval (years)	Grasses (feet)	Hardwood stems (feet)
1	~1.8	~0.8
2	~1.2	~2.8
3	~1.0	~5.2
5	~0.8	~4.2
9	~0.5	~5.5
20	~0.8	~5.2

Research Highlight Burn Frequency & Season

- Escambia Experimental Forest – 2, 3, 5-yr FRI, winter & spring (25 yrs)
 - 2-3 yr cycle resulted in fewer hardwoods than 5-yr
 - Only spring burns controlled hardwoods

Fire Return Interval (years)	Winter (stems/acre)	Spring (stems/acre)
2	~100	~0
3	~120	~0
5	~300	~20

Research Highlight Burn Frequency & Season

Conclusions:

- Short and consistent FRIs are necessary for key stand objectives
- Spring burns much more effective for hardwood control
- Other non-fire treatments may periodically be necessary to “boost the effectiveness of fire” (Adaptive Management!) with longer FRIs

Research Highlight Longleaf Pine Plantation Management

- Restoring longleaf pine: Effects of seasonal prescribed fire and overstory density on vegetation structure of a young longleaf pine plantation. *Forest Science*, 2015.
- Starting conditions and treatments:
 - 14-yr old, 450 tpa, sandy & loamy sand soils
 - Half plots uniformly thinned 50%
 - 3 prescribed burn treatments
 - None
 - Winter 3 times
 - Summer 3 times



Research Highlight

Longleaf Pine Plantation Management

Results after 8 years

- Burns (either season)
 - Reduced midstory hardwoods
 - Increased herbaceous vegetation 4 fold
 - No apparent impact on pine mortality or growth
- Season of burn effects?
 - None apparent for most parameters (but last 2 summer burns were in August)
 - Functional group differences – more grasses after winter burns, more legumes after summer burns



Research Highlight

Longleaf Pine Plantation Management

Conclusion

"Overall, our study highlights the importance of regular burning regardless of overstory density in young longleaf pine plantations to advance restoration goals for vegetation structure across overstory, midstory, and understory strata."



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Fire Exchange**
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Discussion - Questions



Email: contactus@seffiremilitarystance.org or ail2@outlook.it

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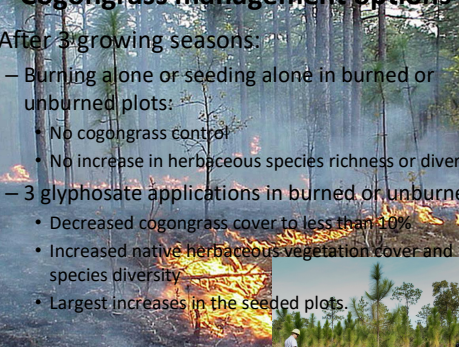
Team Members: Joe Roise, Alan Long, Kevin Robertson, Joe O'Brien, Leda Kobziar, David Godwin



Research Highlight

Cogongrass under young longleaf pine: Management options

- *Impacts of Prescribed Fire, Glyphosate, and Seeding on Cogongrass, Species Richness, and Species Diversity in Longleaf Pine*, Enloe et al, 2013.
- Starting conditions and treatments:
 - 10-yr old plantations, SW Alabama
 - Heavy cogongrass cover throughout
 - Half plots burned in early March
 - Treatment combinations
 - Glyphosate 3 times
 - Light disking & seeding
 - Glyphosate 1x + seeding



Cogongrass management options

- After 3 growing seasons:
 - Burning alone or seeding alone in burned or unburned plots:
 - No cogongrass control
 - No increase in herbaceous species richness or diversity
 - 3 glyphosate applications in burned or unburned
 - Decreased cogongrass cover to less than 10%
 - Increased native herbaceous vegetation cover and species diversity
 - Largest increases in the seeded plots.

Photo: David Goodwin



Prescribed Fire – Wildfire Costs

- Variety of past studies on Rx fire costs in South
 - Cleaves & Haines, 1995 – 2x increase in 13 years
 - Hessel, 2000 – “Additional research should build on the existing literature and address the effects of prescribed burning on future expected costs, suppression expenditures, and market and nonmarket benefits.”
 - Mercer et al, 2007; economic analysis
 - “Prescribed fire reduces both wildfire area and intensity.”
 - “Impacts of prescribed burning and past wildfire are similar at least for the first few years.”