

# Fire is a game changer



**Dr. Marcus Lashley**  
Associate Professor  
University of Florida

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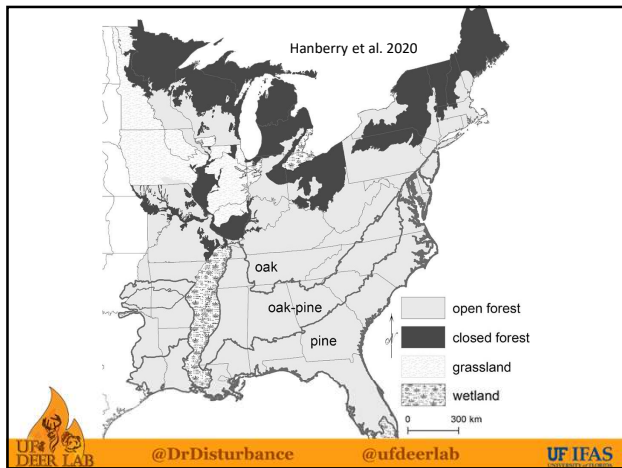
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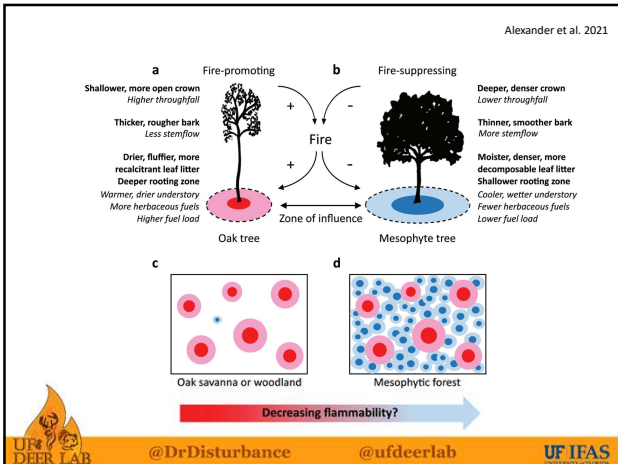
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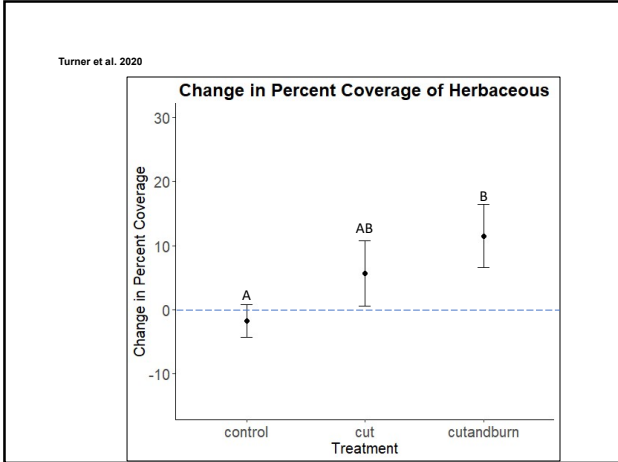
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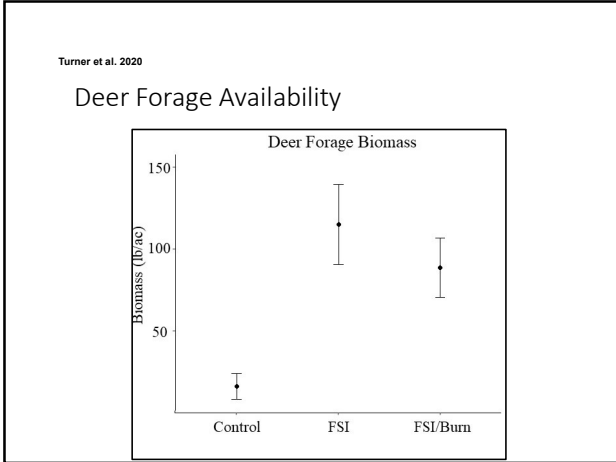
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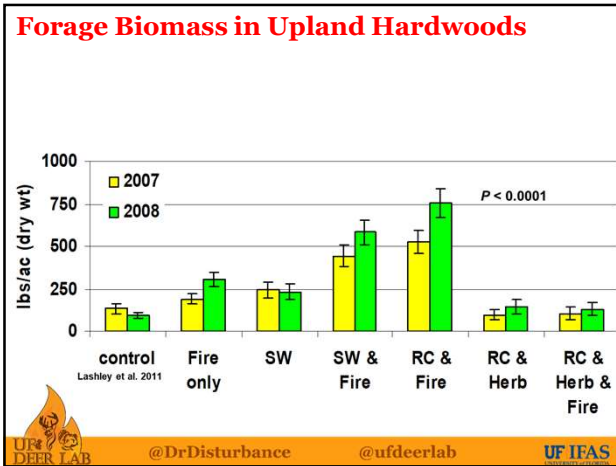
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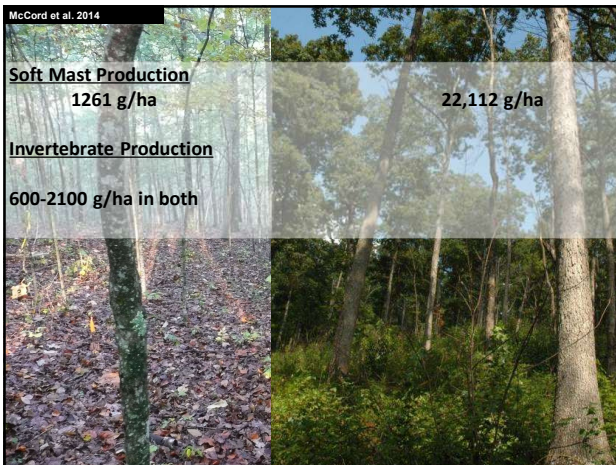
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**Nesting:**  
*what causes nests to fail?*

Nest success:  
Londe et al. 2023 (Easterns)  
• 38% based on 24 studies  
Crawford et al. 2021 (Southeast)  
• 32% on Unhunted SRS  
• 47% on Webb WMA  
• 47% on Silver Lake WMA



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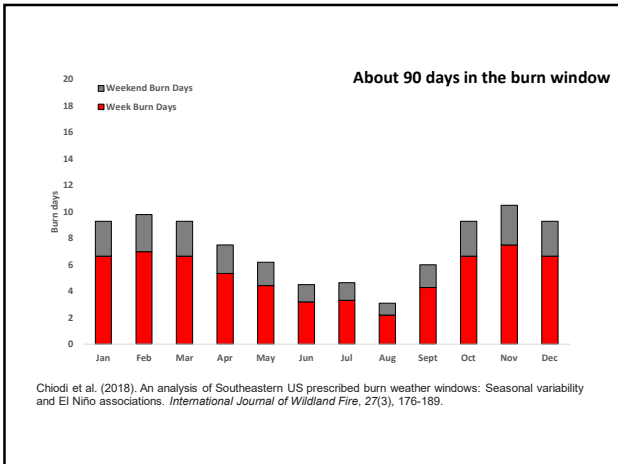
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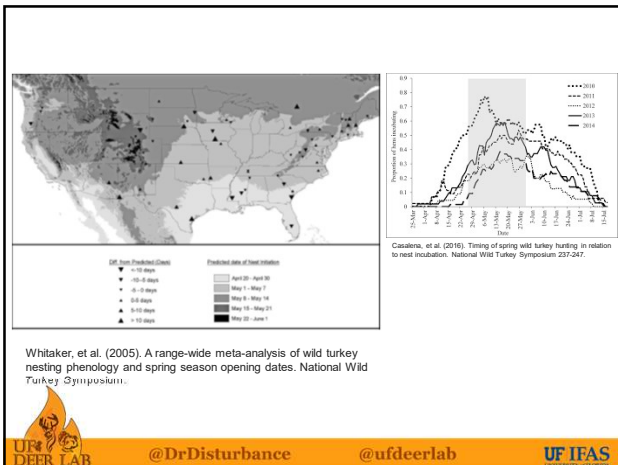
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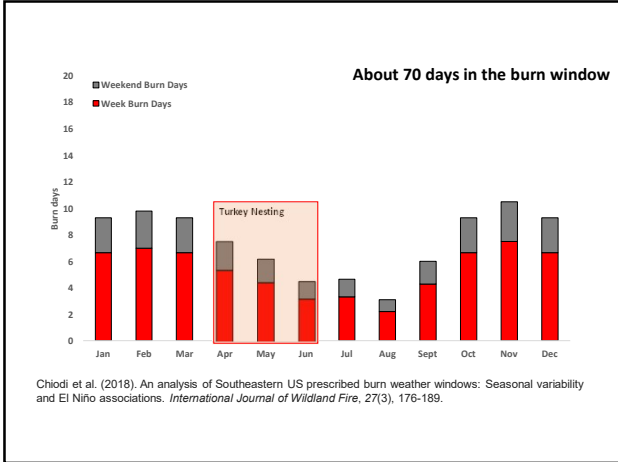
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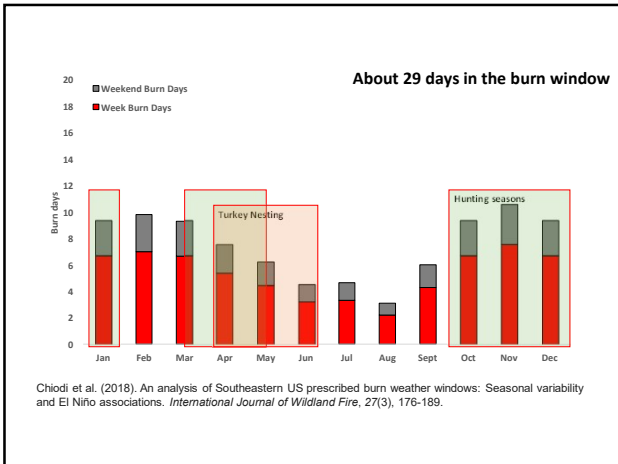
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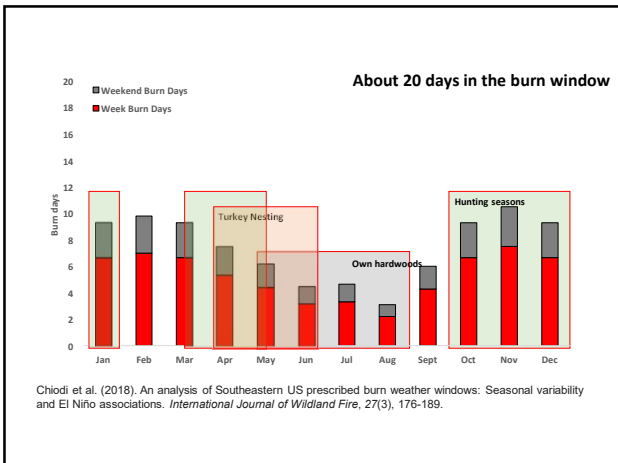
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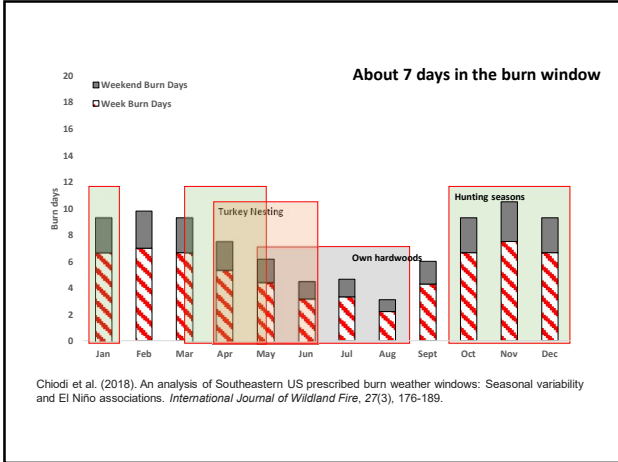
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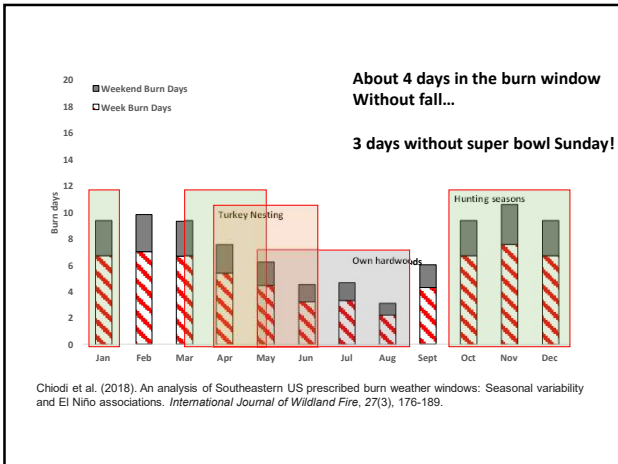
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## Fire effects on eastern box turtles

Vulnerable in Apr/May



- increased mortality w EGS
- little mortality w DS or LGS

Behavior reduces direct effects

- leave burn unit during fire
- go to areas that won't burn
- burrow, use stumps/logs
- close shell and ride it out!

Site fidelity

- no preference for burned or not
- groundcover/leaf litter

Days	Percent of turtles
0-7	70%
8-14	~10%
15-21	~20%
22-28	~10%
29-35	~10%
36-42	~10%
43-49	~10%
after burnunit	~10%

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## Damage?

Mann et al. 2020

- 139 stands
- 10-50ac
- 1-6 fires
- Average 3% loss
- Worst case – 10% damage or -\$83.79/acre in fully stocked stand

(also see Manschall et al. 2014, Wiederbeck and Schuler 2014, Stans et al. 2019, Day and Schweitzer 2018)

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## Burning in hardwoods

Lashley et al. 2011

- Increase high quality forage by 650lbs/ac
- Average forage 16% CP
- Contract burning \$30/ac

**10yr management plan**

- = \$0.09/lb of protein (\$0.04/lb of protein)
- Cowpea food plot = \$0.13/lb of protein
- Supplemental feed = \$2.50/lb of protein (\$25 per sack and 20% CP)

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### Burning in hardwoods

Considering the losses expected from the worst case scenario in the long term studies, it still cost 27x as much to pour protein out of a sack! (over 50x if you conduct shelterwood harvest first)




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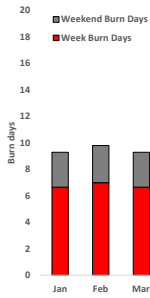
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Chiodi et al. (2018). An analysis of Southeastern US prescribed burn weather windows: Seasonal variability and El Niño associations. *International Journal of Wildland Fire*, 27(3), 176-189.

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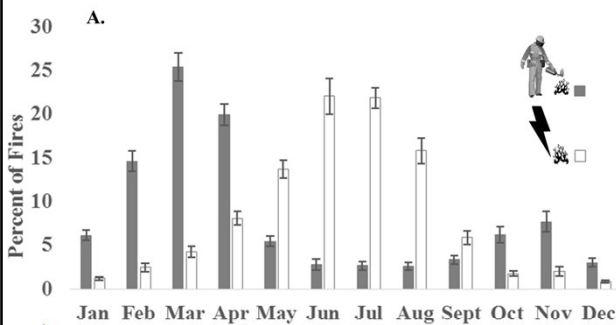
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### Season of fire



http://wildfire.cr.usgs.gov/firehistory/data.html Lashley et al. 2022


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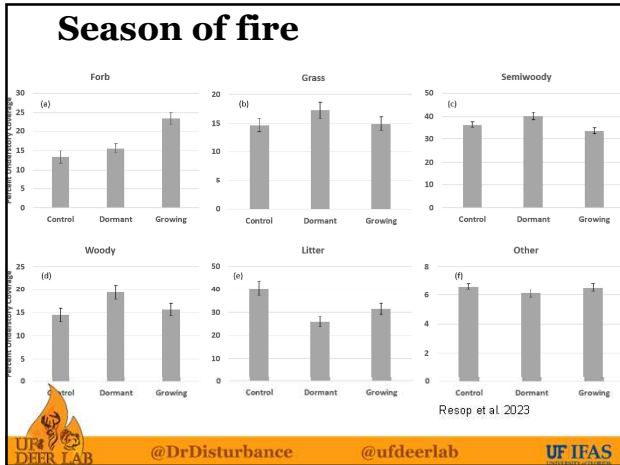
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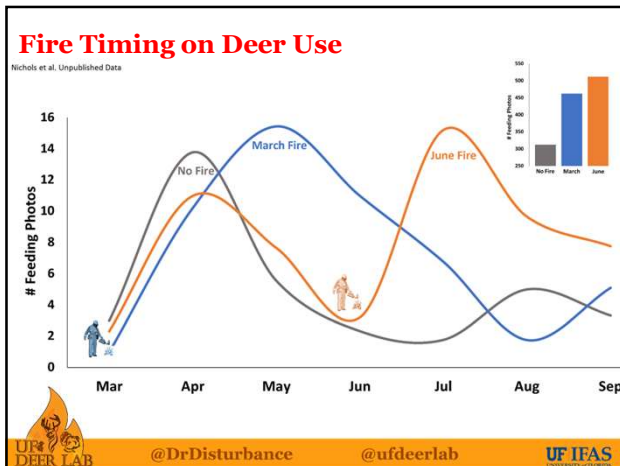
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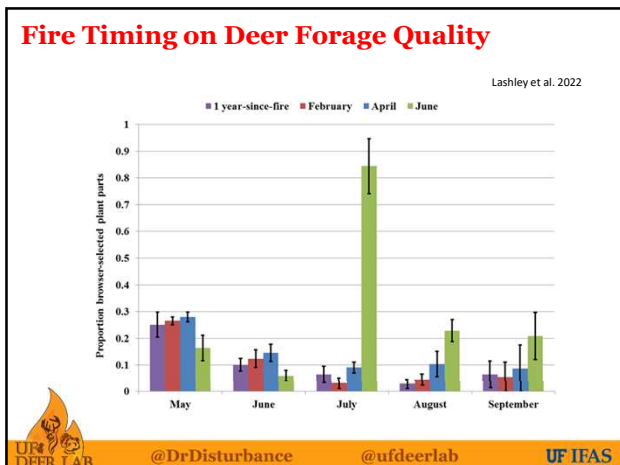
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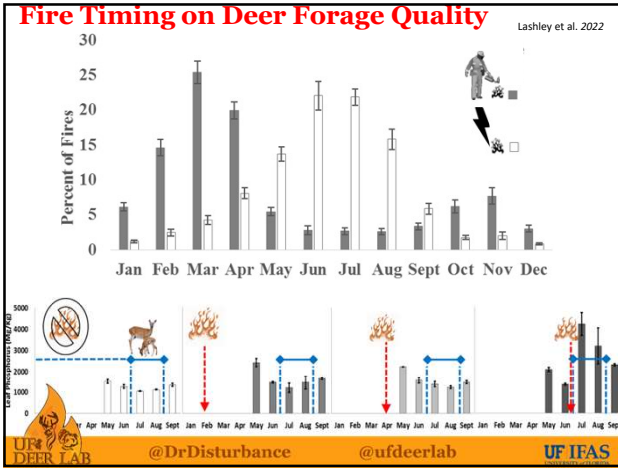
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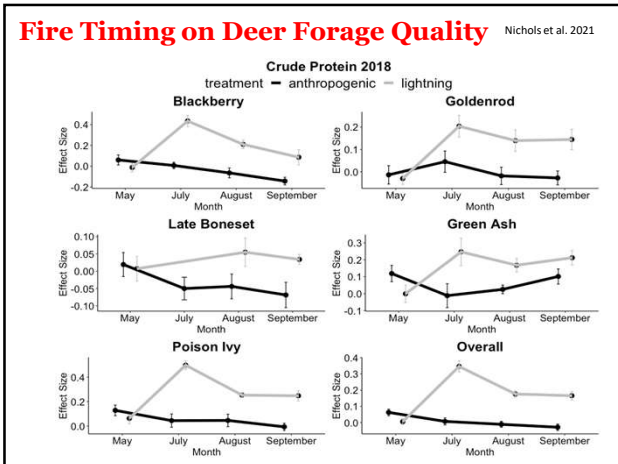
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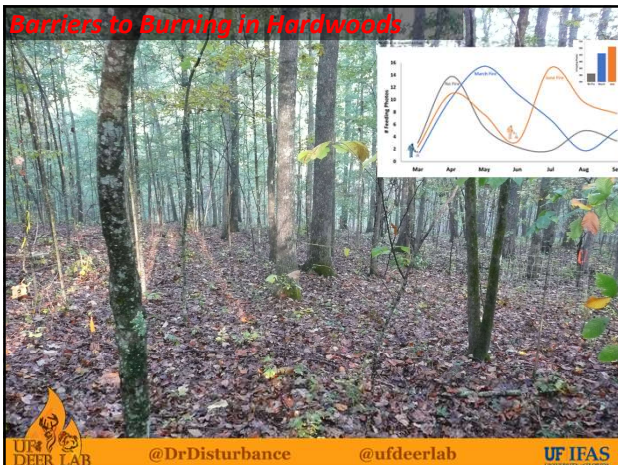
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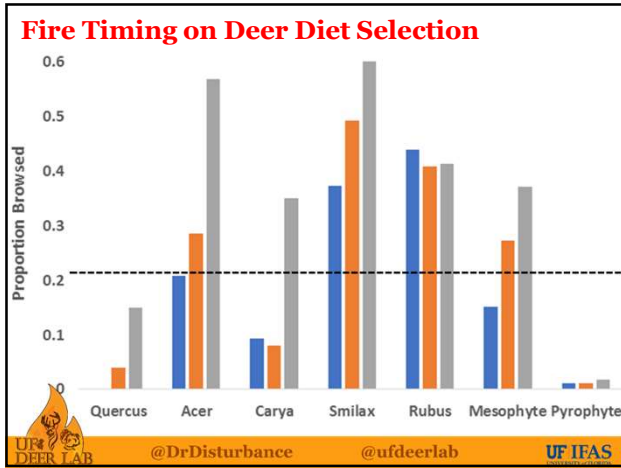
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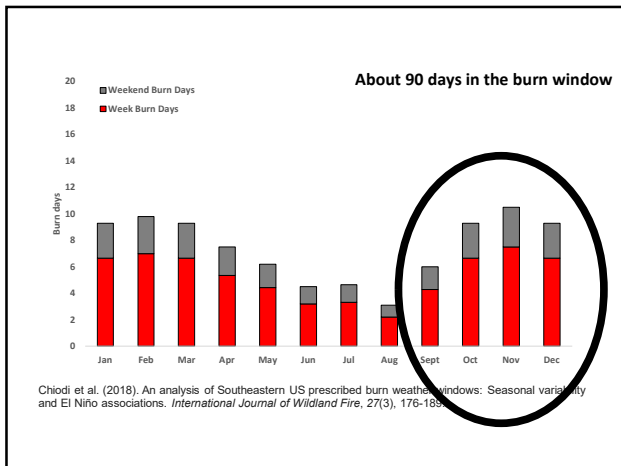
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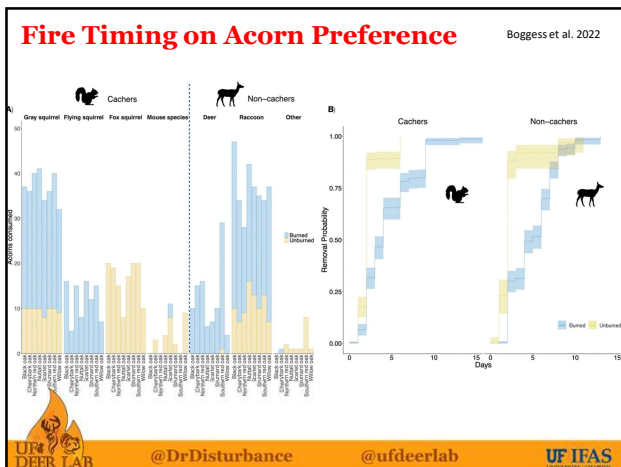
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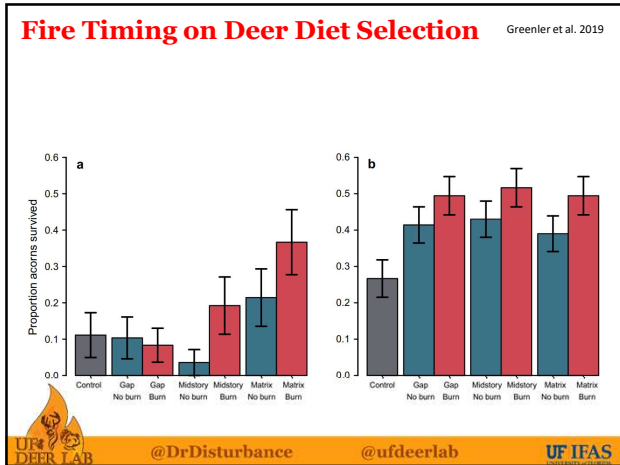
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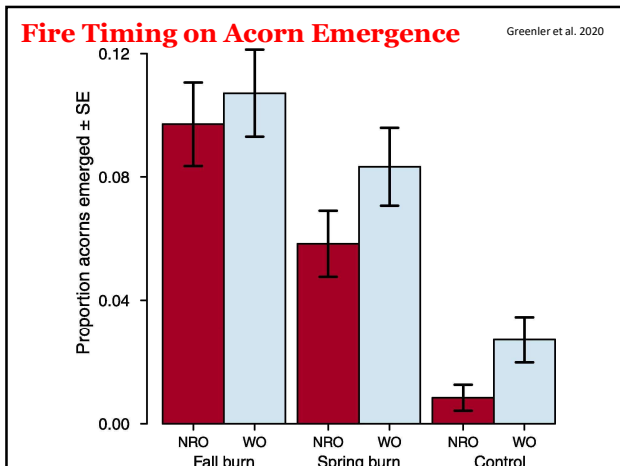
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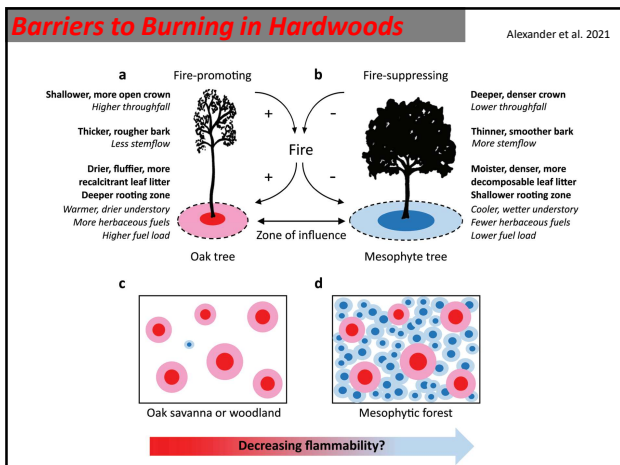
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**Acknowledgments**

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Dan Morina  
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Lashley Lab Contributors  
Jacob Dykes  
Carolina Baruzzi  
Don Chance  
Johannah McCollum  
Annemarie Prince  
Matthew Ivey  
Rainer Nichols  
David Mason

**MISSISSIPPI STATE UNIVERSITY**  
*Department of Wildlife, Fisheries and Aquaculture*

**College of Forest Resources**  
Forest and Wildlife Research Center

**MSUDeerLab**  
unit of Mississippi State University

**MDWFP**

Rick Hamrick  
John Gruchy  
Adam Butler

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