

Rapid recovery of the mycorrhizal fungal community following cogongrass (*Imperata cylindrica*) eradication

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Cogongrass (*Imperata cylindrica*)

- C4 rhizomatous grass, native to SE Asia
- Thought to be AM fungal obligate
- Invasive on 6 continents
- 500 million hectares worldwide
- 600,000 hectares in the SE US

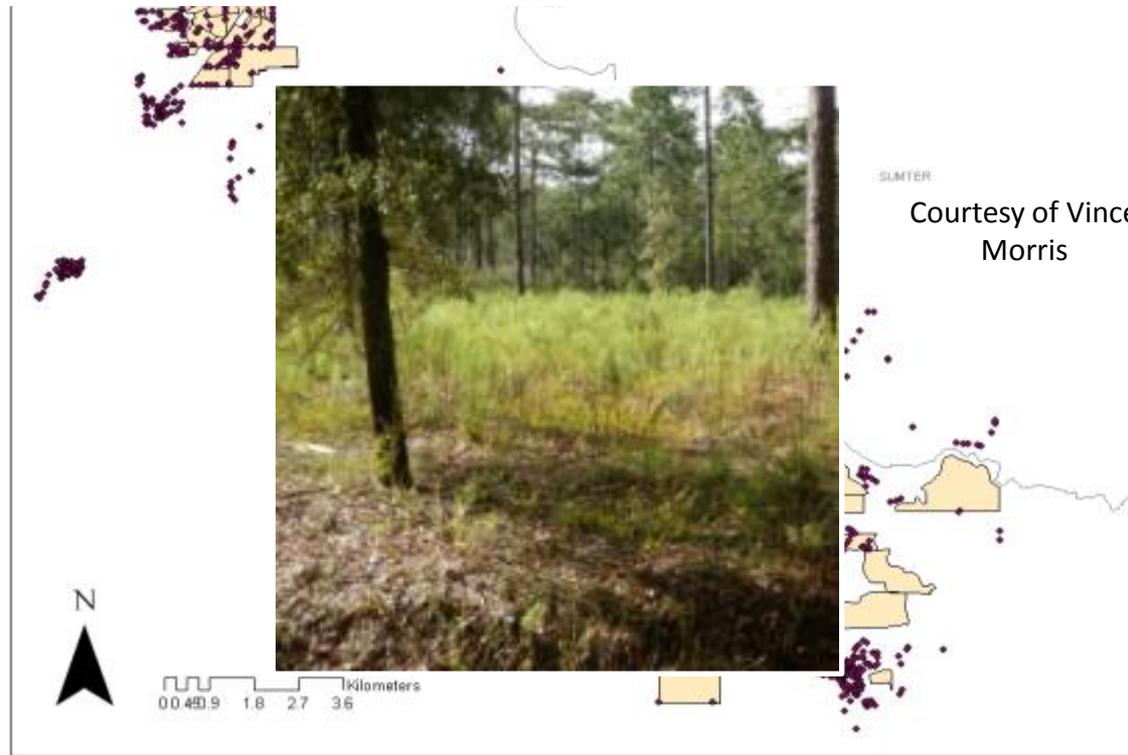
Source: Macdonald (2004)
Holm (1977)



Chris Evans, River to River CWMA,
Bugwood.org

UGA2120071

Croom Tract, Withlacoochee SF



Courtesy of
Morris

Does cogongrass “mess up the soil”?

Why mycorrhizae?

“If we listed components of forests in order by their importance in ecosystem processes divided by how much we know about them ... mycorrhizae would be right at the top”

David Foster and John Aber, Forests in Time

A 7 year “recovery chronosequence”

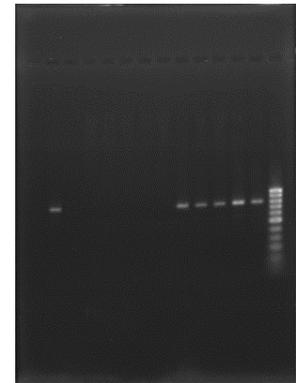


Time since eradication

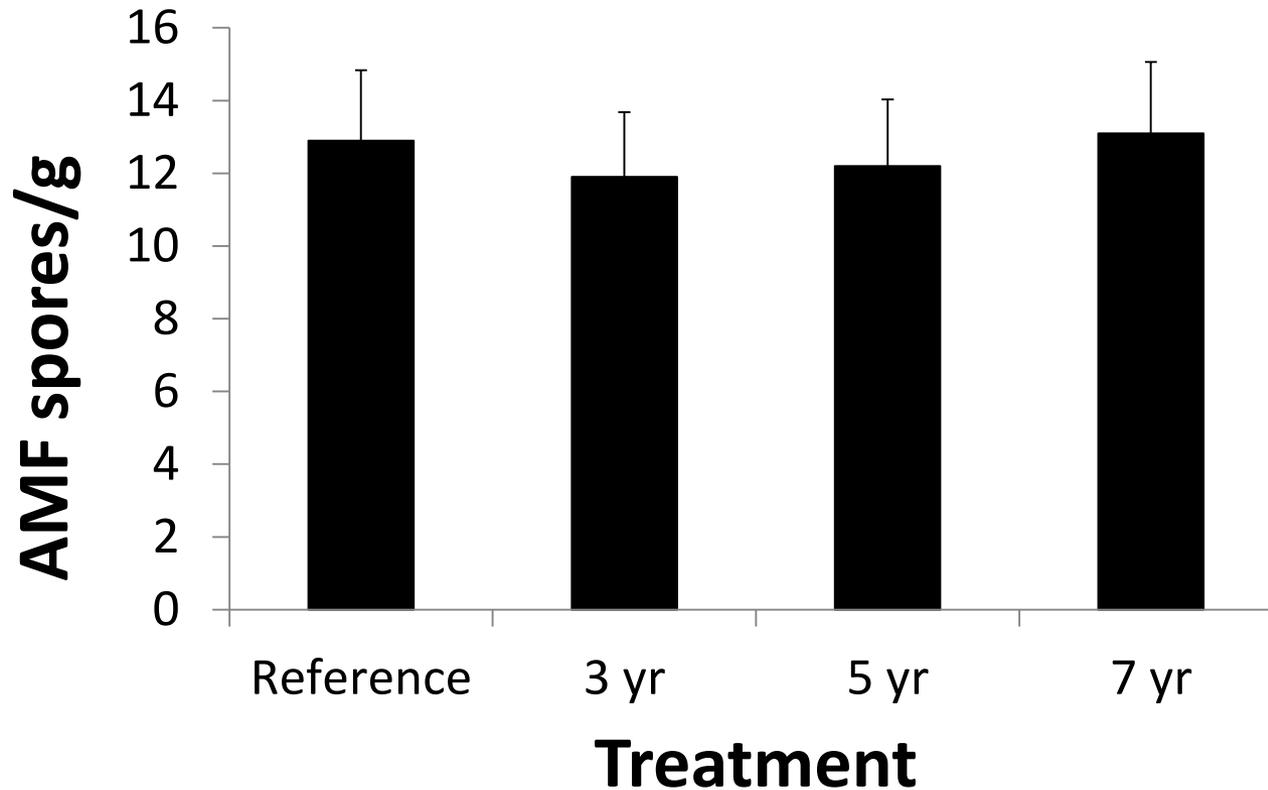
Soils collected from sites where cogongrass was eradicated 3, 5 and 7 years prior, along w/uninvaded reference sites

A 3-part study

- Spore counts
- Mycorrhizal colonization of test plants
- Phylogenetic analyses of community structure

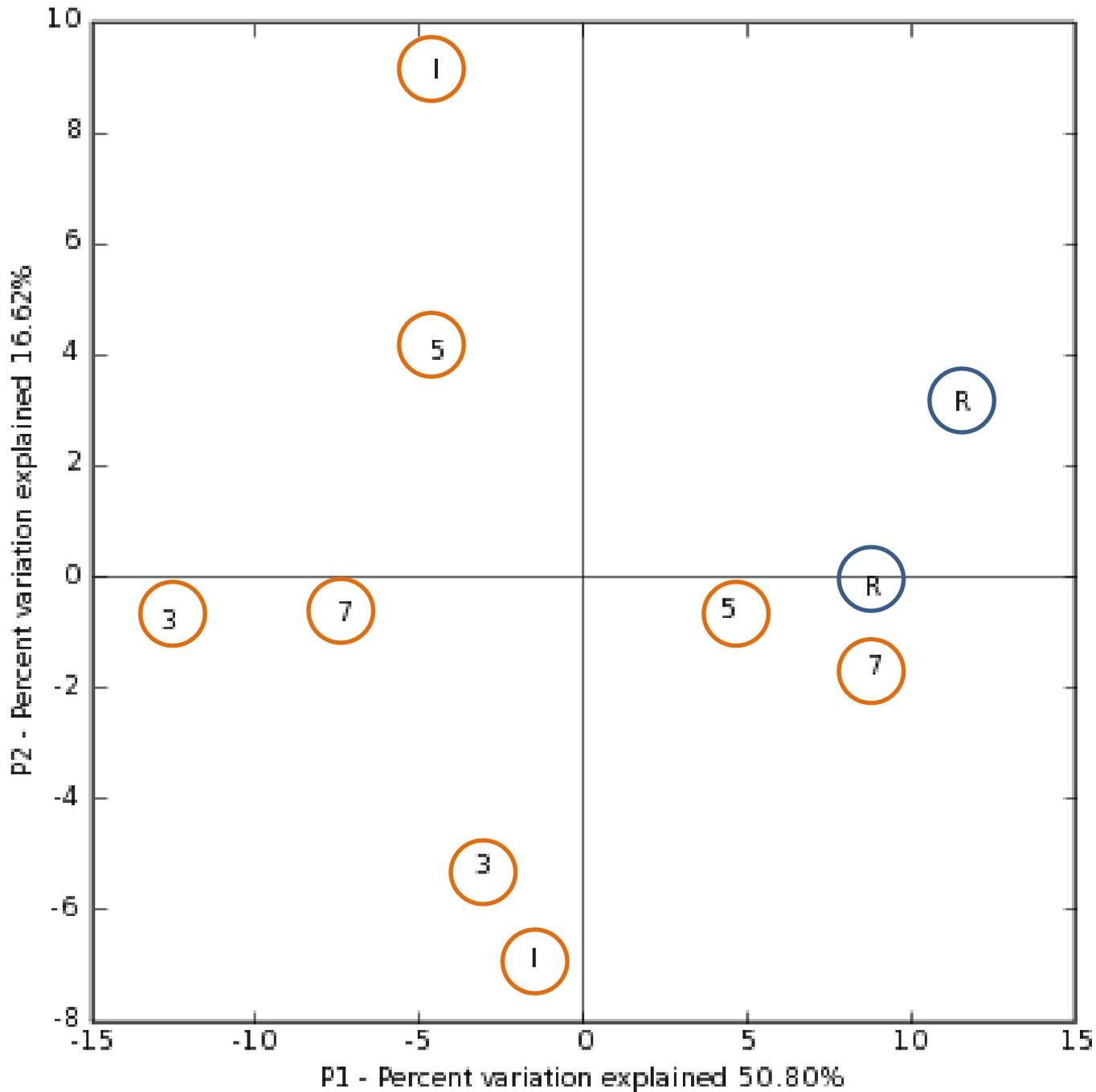


Spore counts



- Also...no difference in mycorrhizal colonization in test plants!

PCA - P1 vs P2



Re:

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Re

Inv

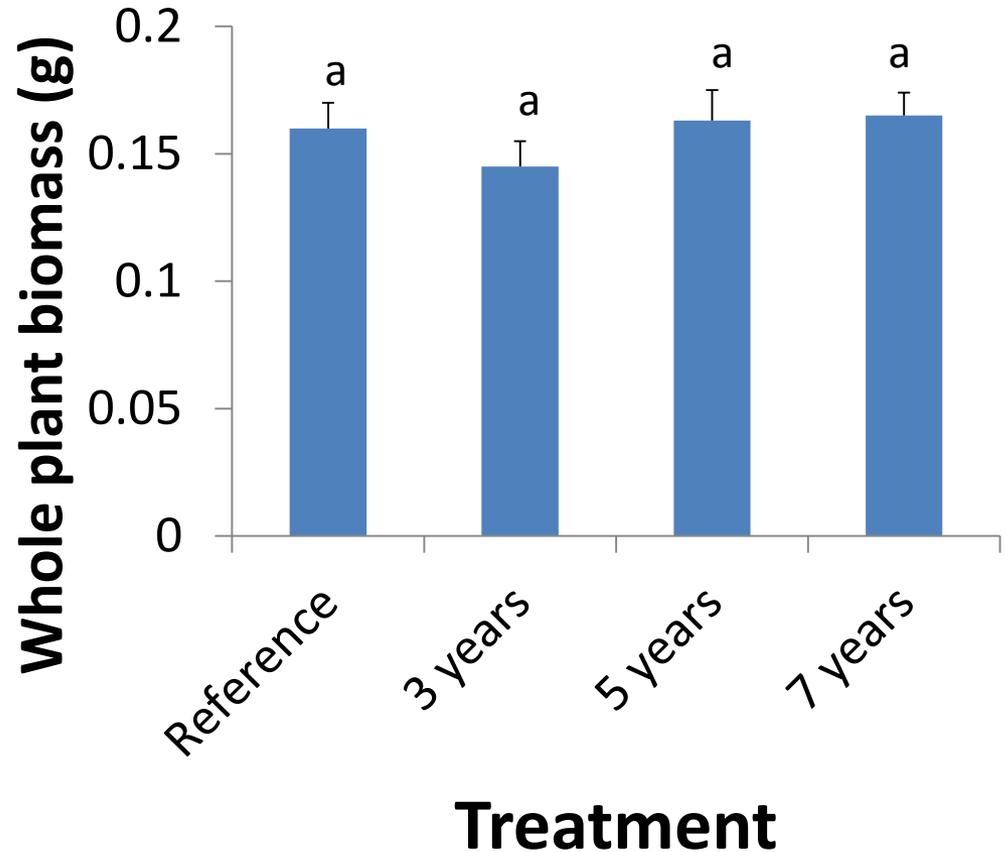
3 y

5 y

7 y

Corroborating evidence

- pH, OM, P and NH₄ were unaffected.
 - Elevated nitrate for 5 years
- No difference in plant performance (greenhouse)



Water availability?



- Species recruitment is likely very episodic!



Questions?