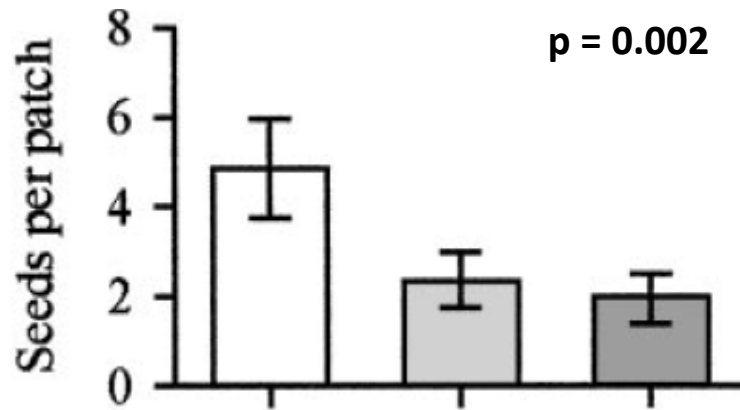
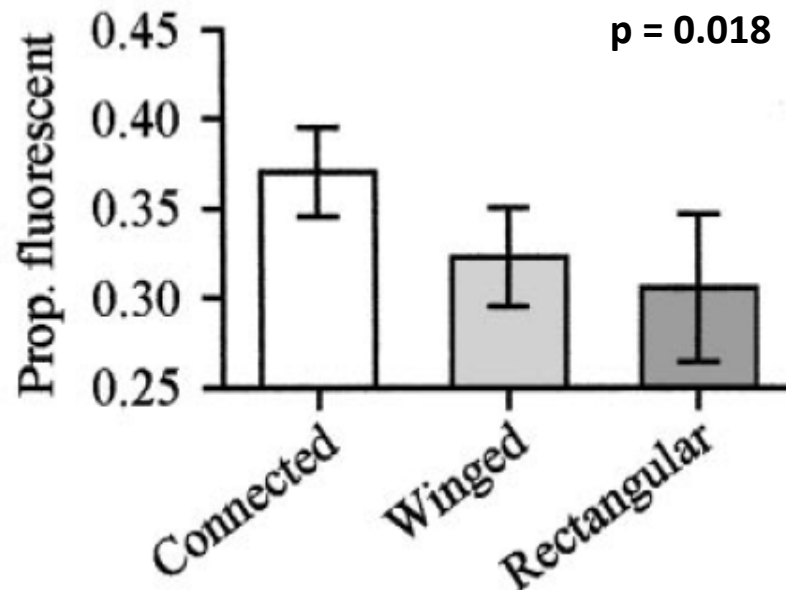


Bird-dispersed seeds

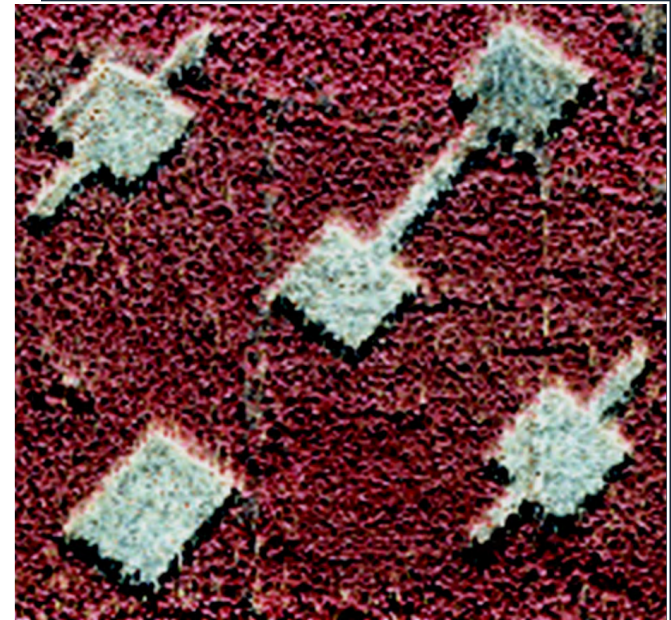
Ilex vomitoria (Aiton)



Morella cerifera (L.)



Photos: E. Damschen



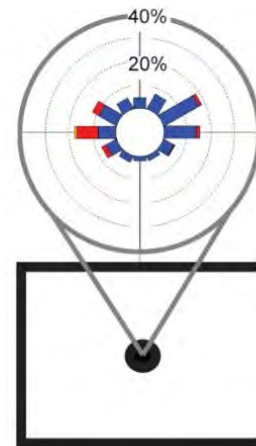
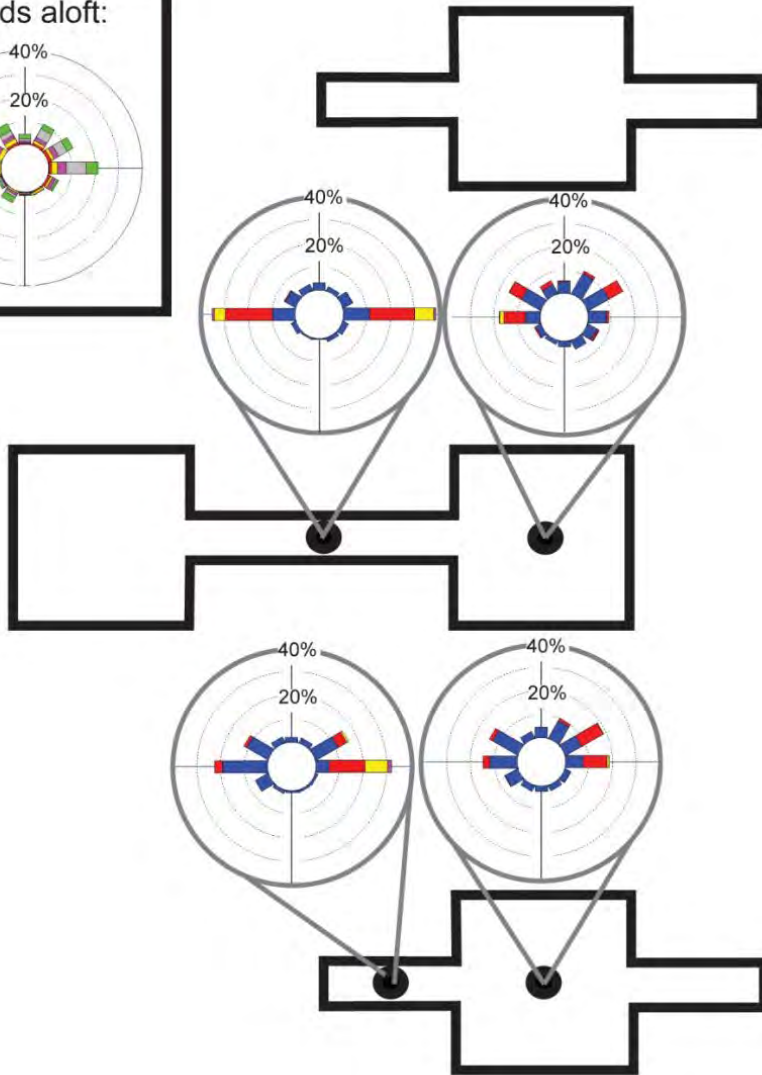
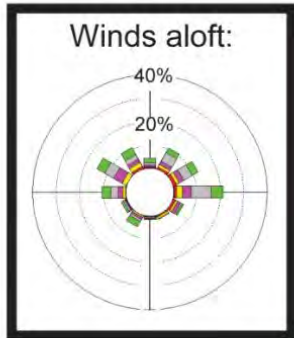
Photos: Savannah River Site

Wind-dispersed seeds



Images: Shutterstock, A.L. Baker, E. Damschen

Wind dynamics



Wind speed (m/s)

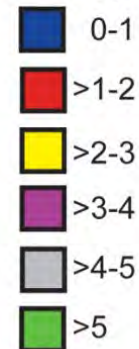
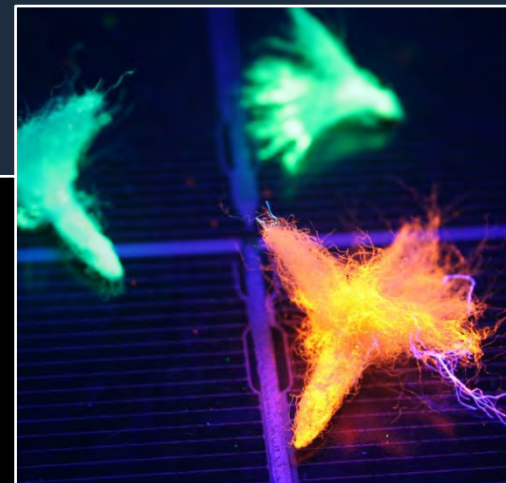


Image: E. Damschen

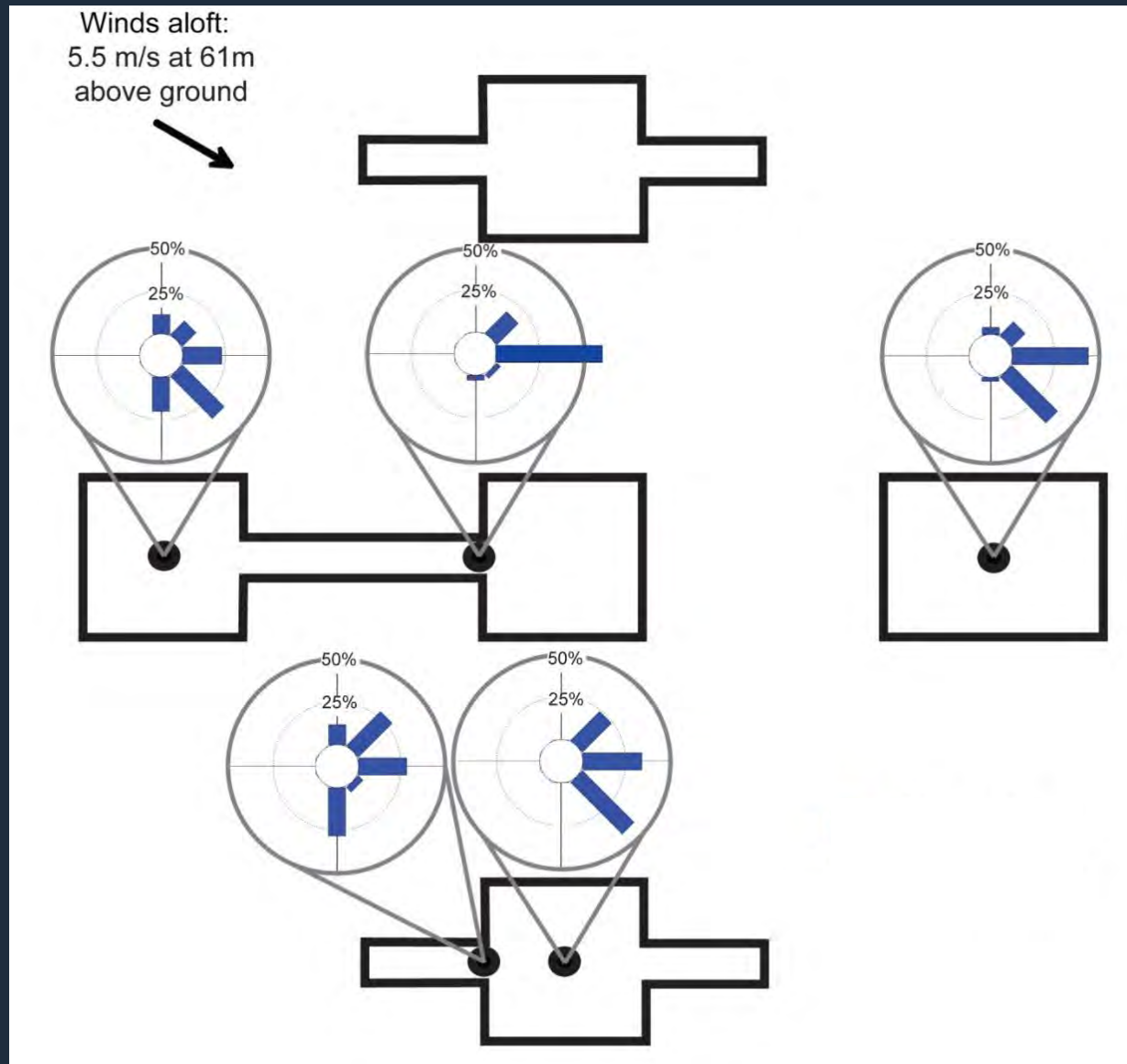
Seed dispersal experiments



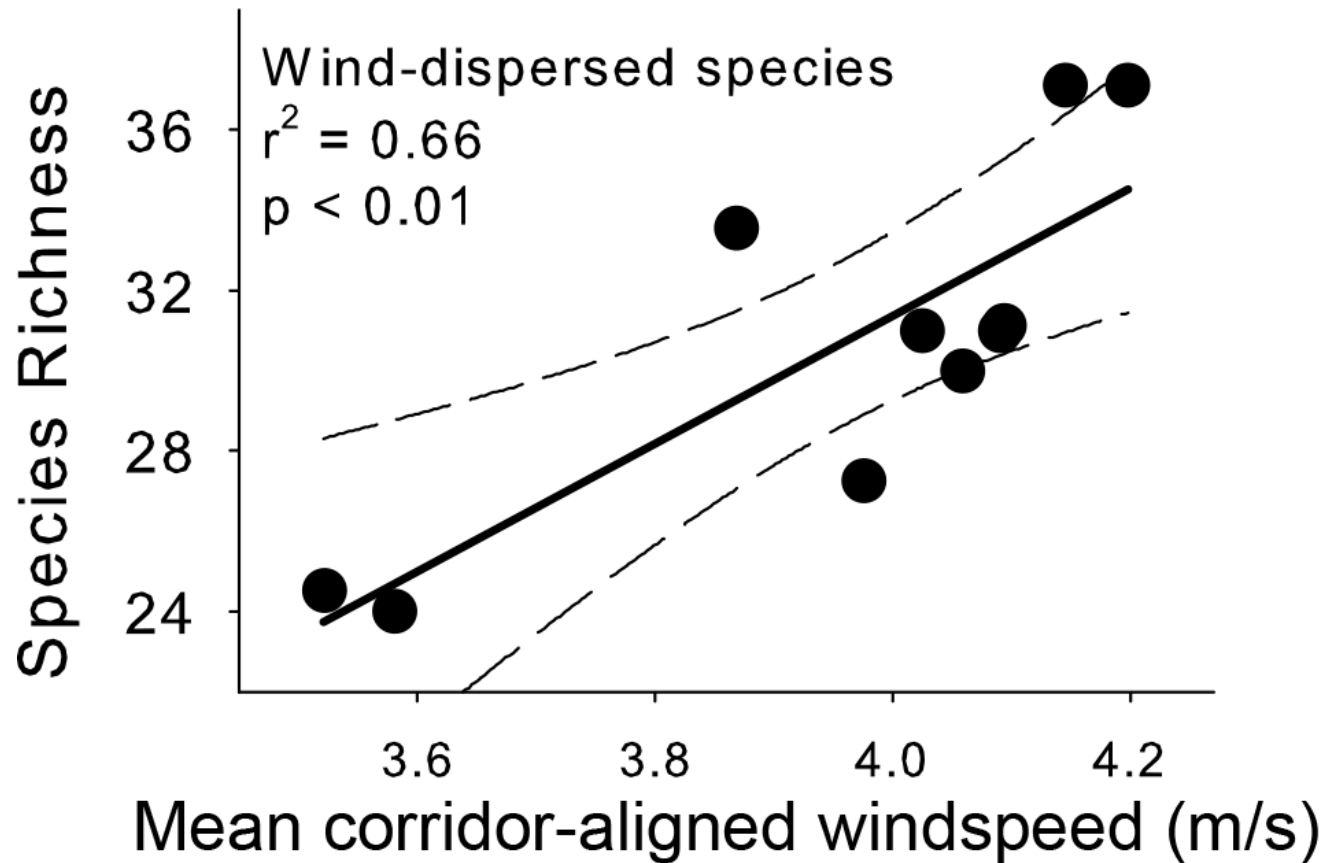
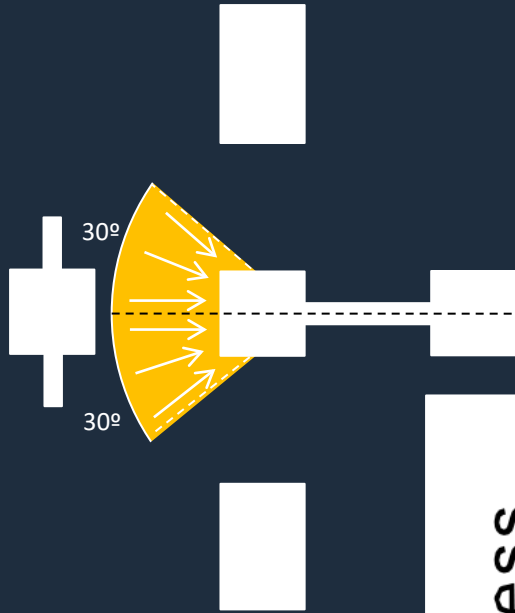
Images: D. Baker, C. Kremer



Redirecting and bellowing



Corridor orientation matters



Talk outline



1. Approach and study systems
2. How does landscape connectivity affect long-term community dynamics?
3. How do landscape and local factors affect long-term change?

Long-term change



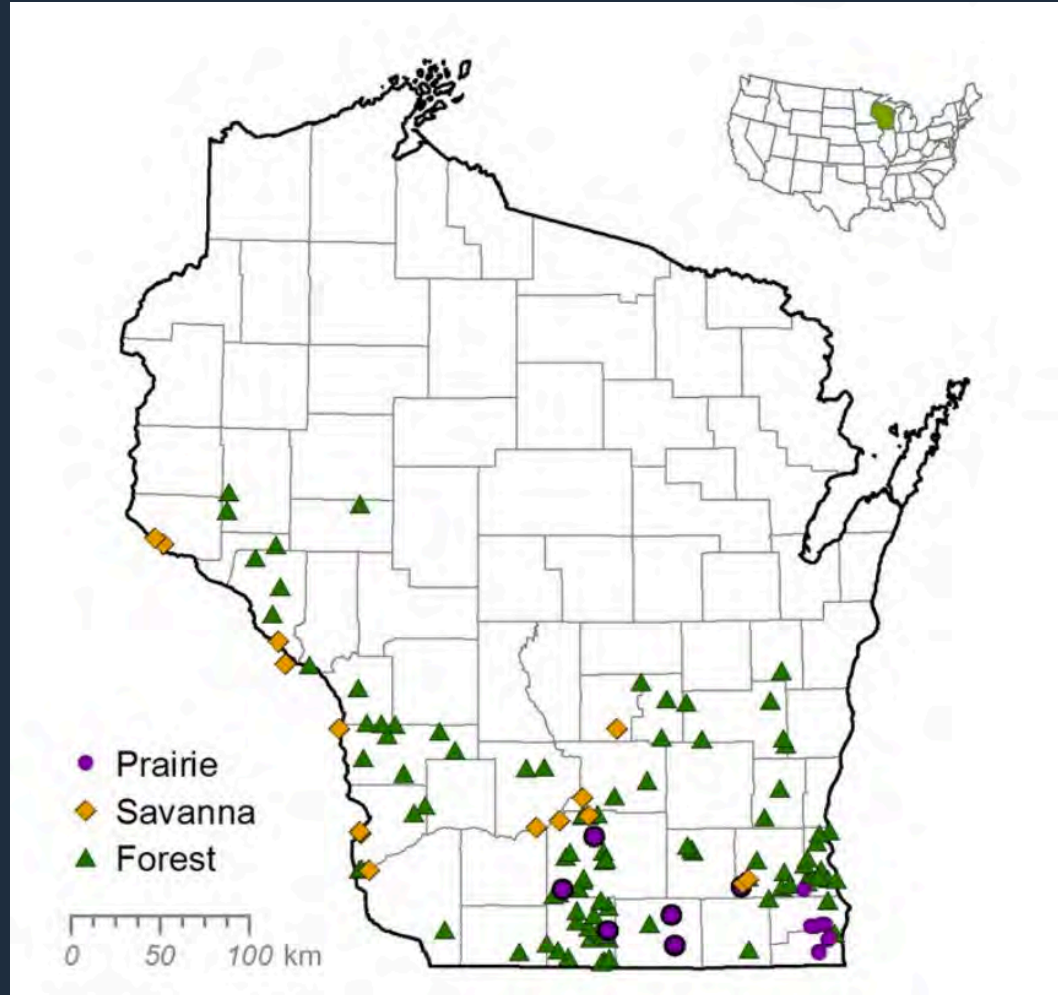
Laura Ladwig



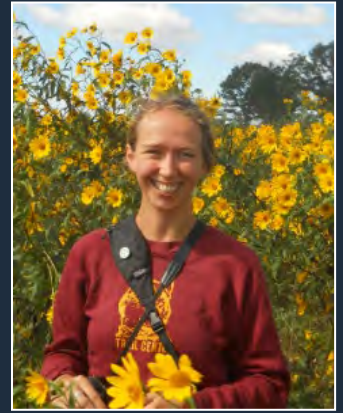
Amy Alstad



Dave Rogers



Ladwig, Damschen & Rogers 2018



Amy Alstad

Tallgrass prairie



John Curtis
samples
remnants

1950-1987 1987-2012

1900

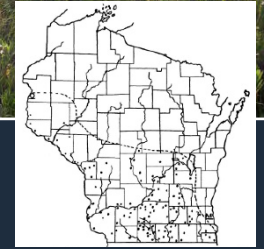
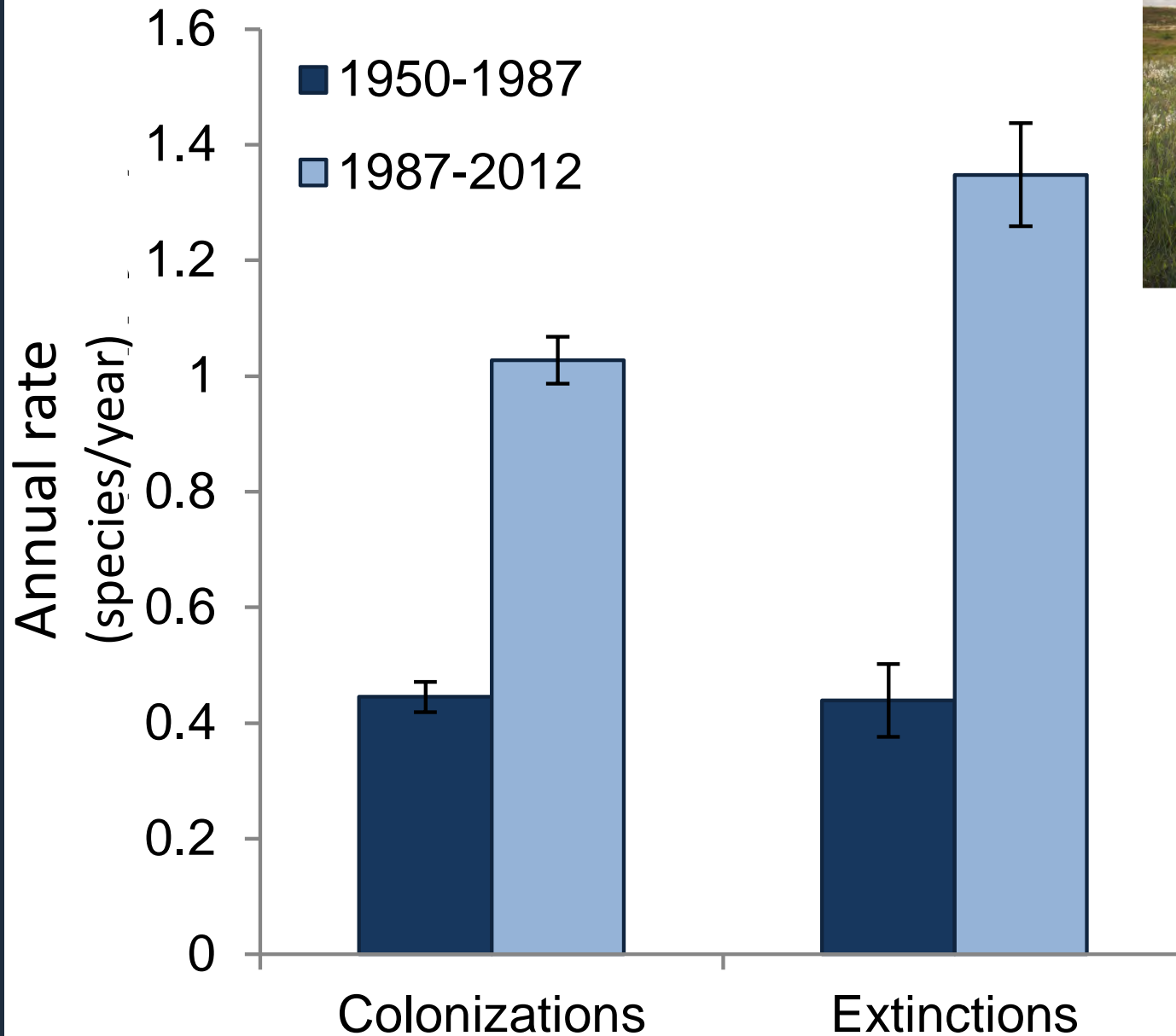
1950

2000

Habitat lost
following
settlement

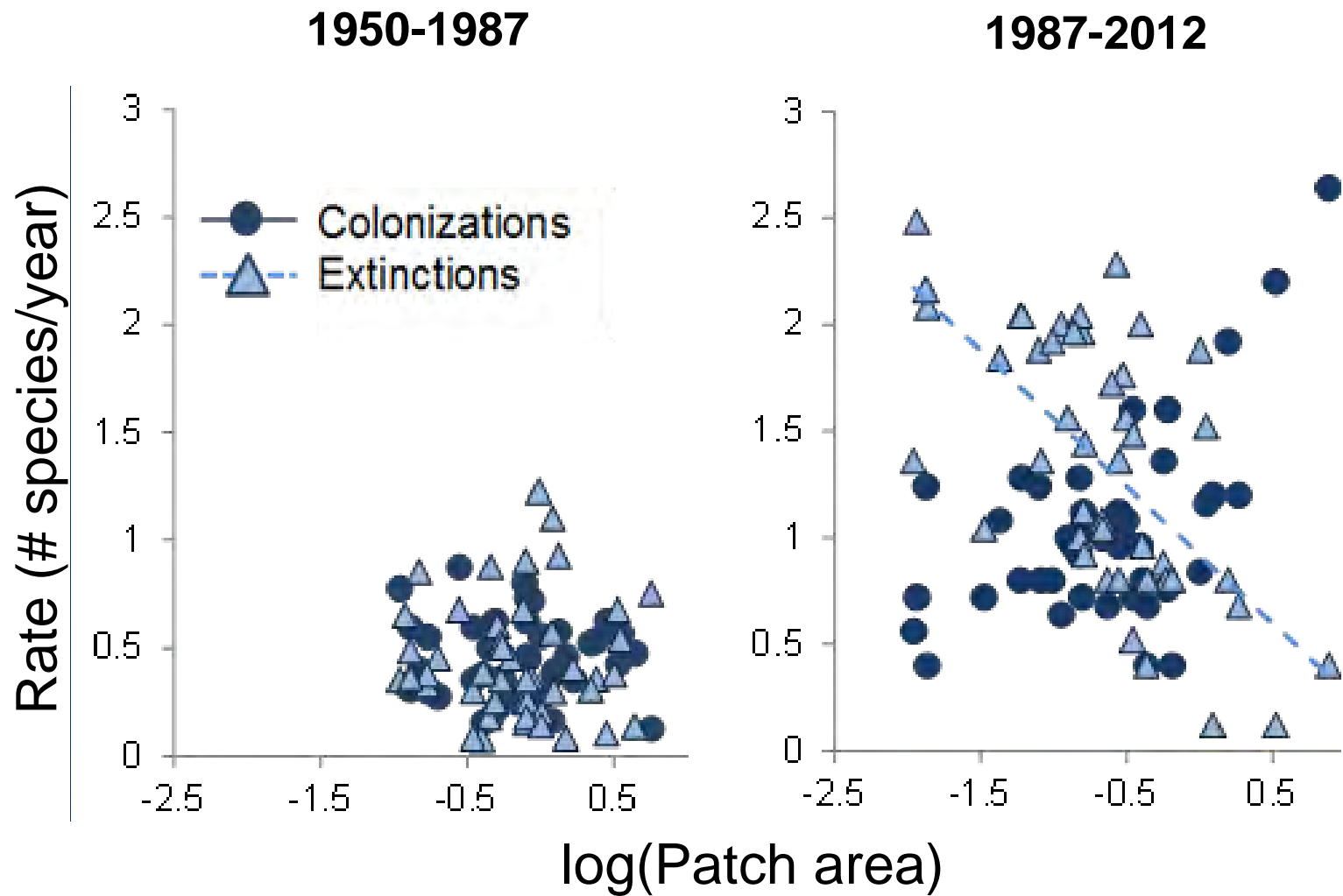
Mark Leach
resamples subset
of prairies

Our
resampling



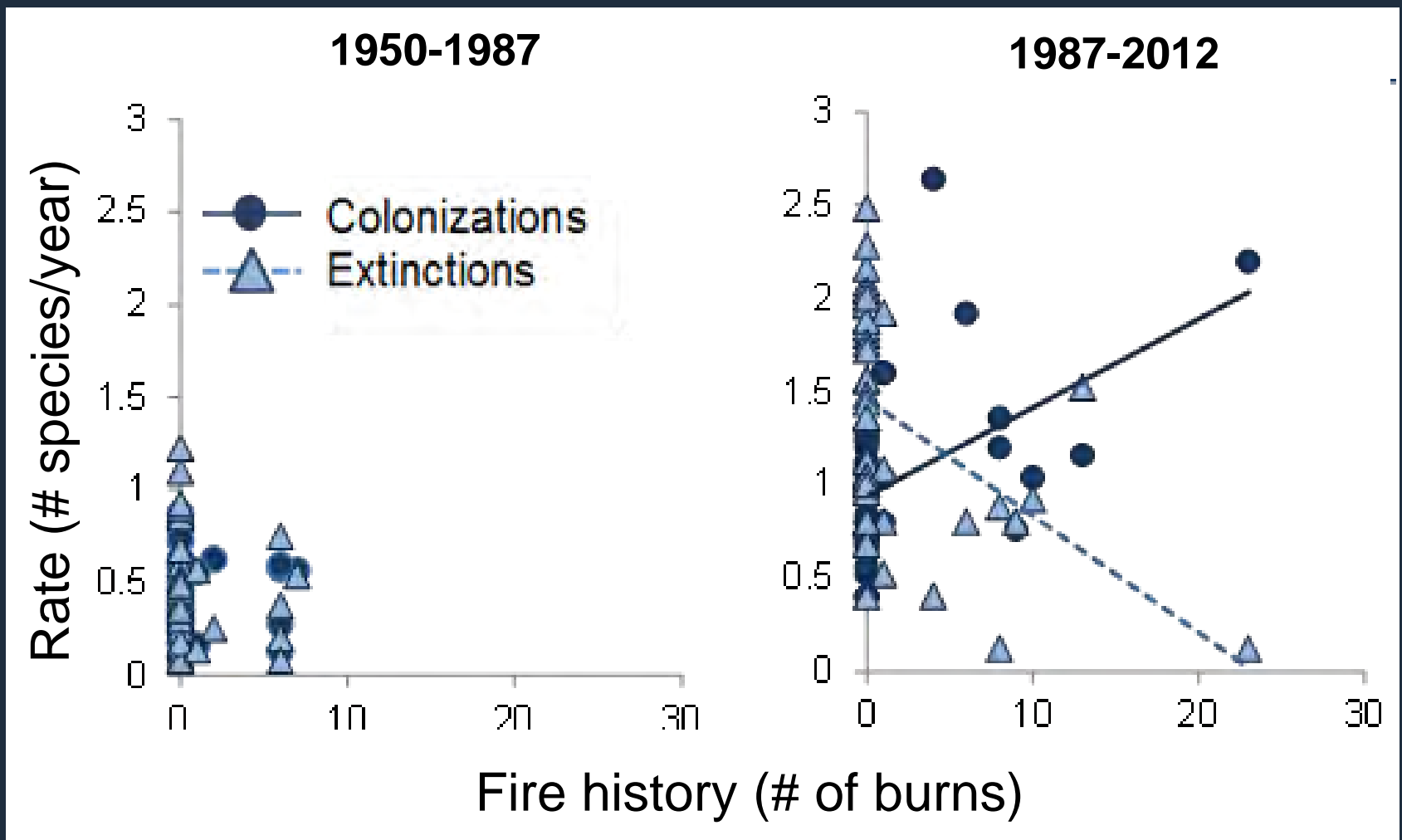
Role of habitat patch size





Role of fire regime

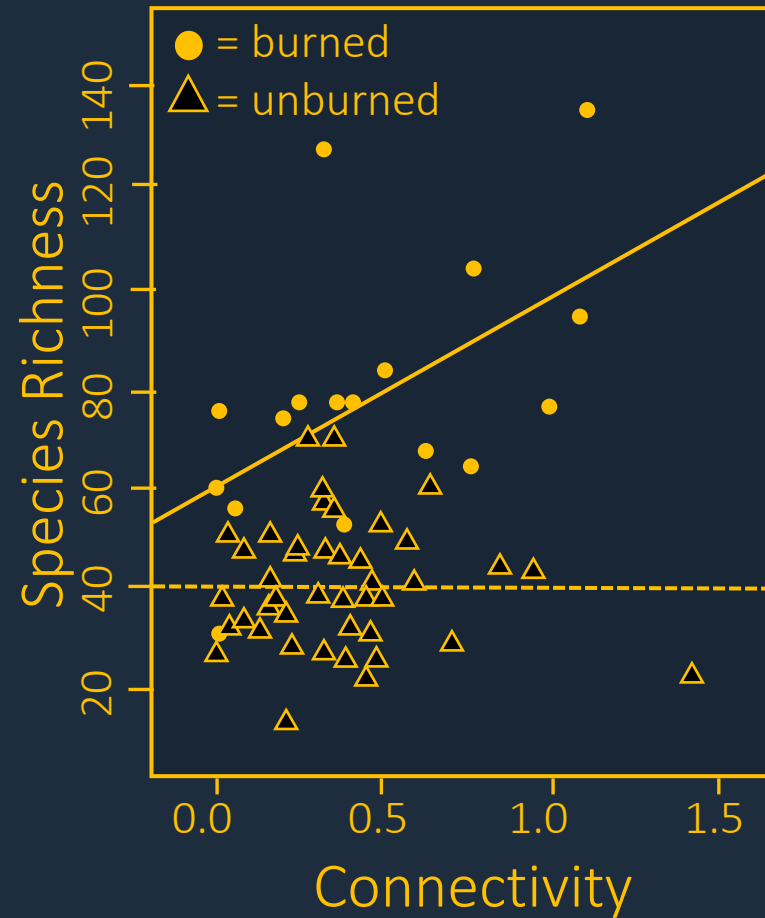




Interaction between connectivity and fire?



Images: oaksavanna.org, Audubon



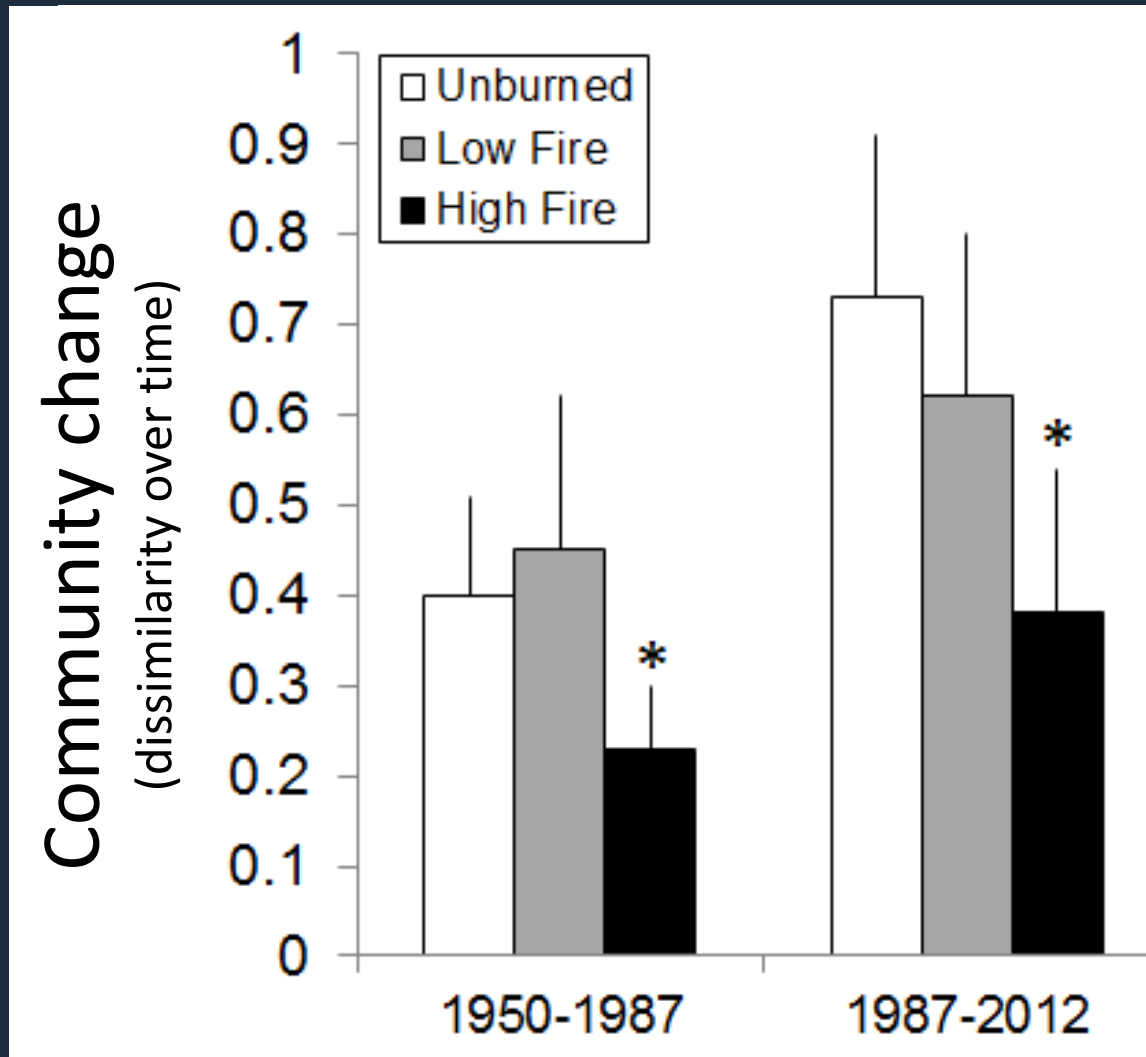
Isolated



Connected

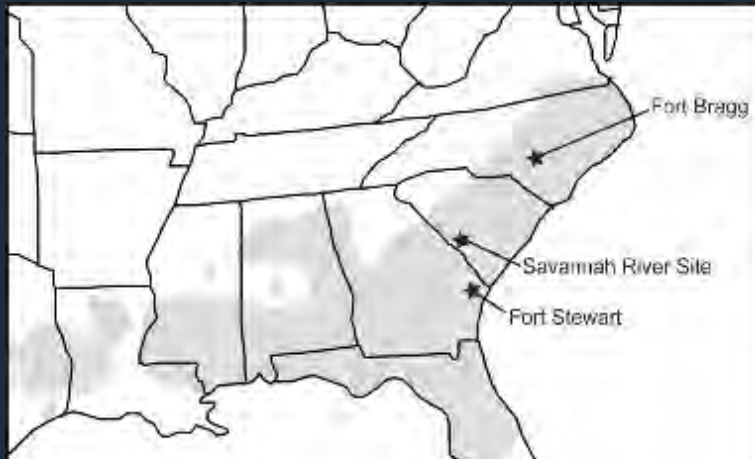
Does fire increase community stability?

Community stability



Does local restoration promote landscape movement?

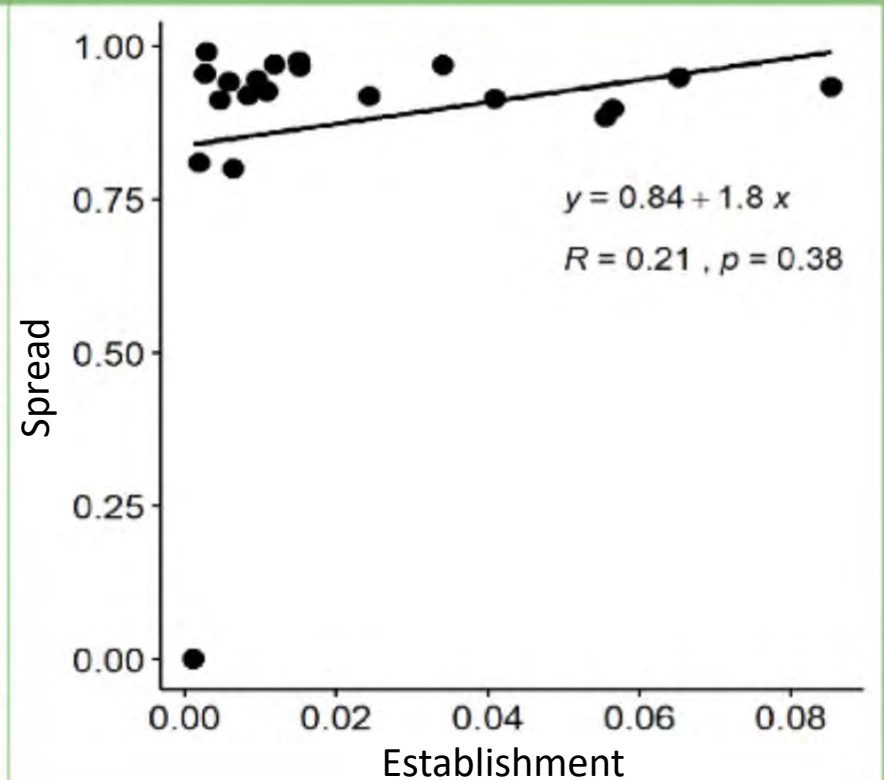
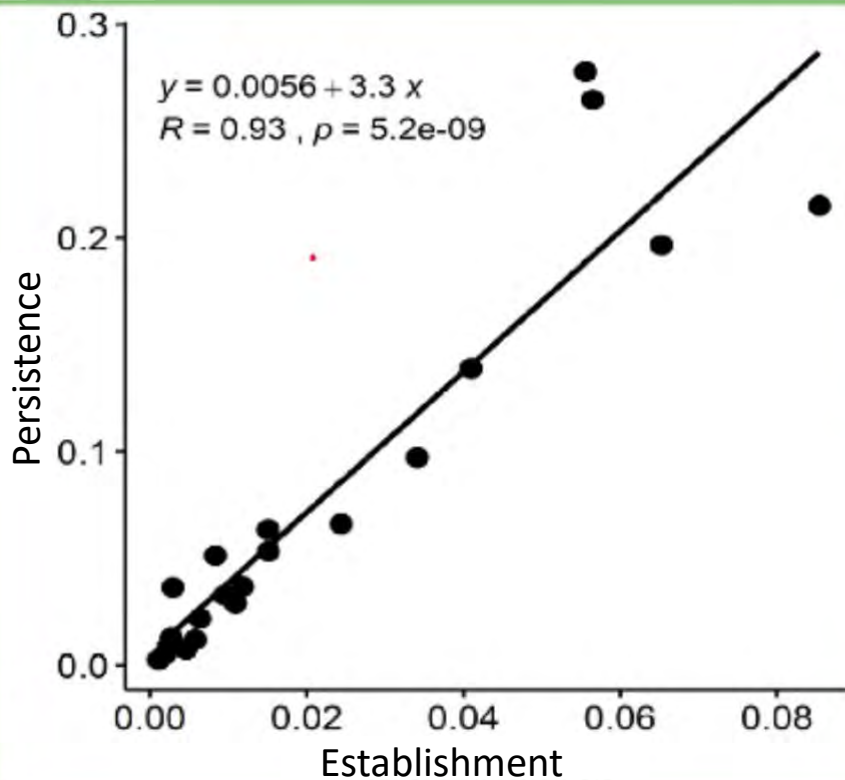
Long-term experiment: community assembly and spatial spread



LEGEND
★ = Study locations
■ = Historical extent of longleaf pine ecos



Likelihood of establishment, persistence, and spread



Conclusions

Ecological
science



Experiments:

- Corridors increase species richness
- Corridors promote dispersal
- Seed additions promote establishment, persistence, and spread

Long-term observational data:

- Connectivity and fire increase community diversity and stability

Implications

Conservation
& restoration
management



Experiments:

- Conservation management based on area alone without considering connectivity will “leave species on the table”
- Restoring with seed additions promotes establishment, persistence, and spread

Long-term observational data:

- Habitat connectivity and fire prevent species losses
- Concurrently plan for connectivity & fire management to restore diversity and prevent species loss

Acknowledgments



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The Prairie Enthusiasts

Wisconsin Natural Areas

Wisconsin Department of Natural Resources