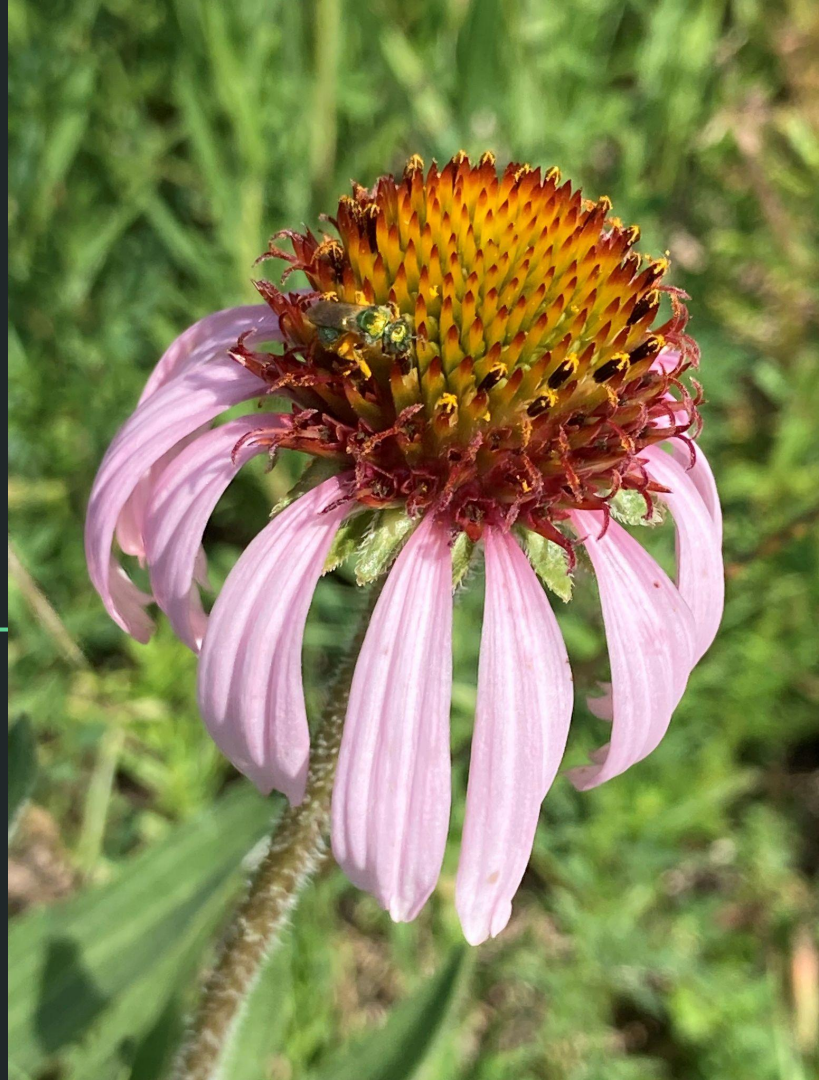
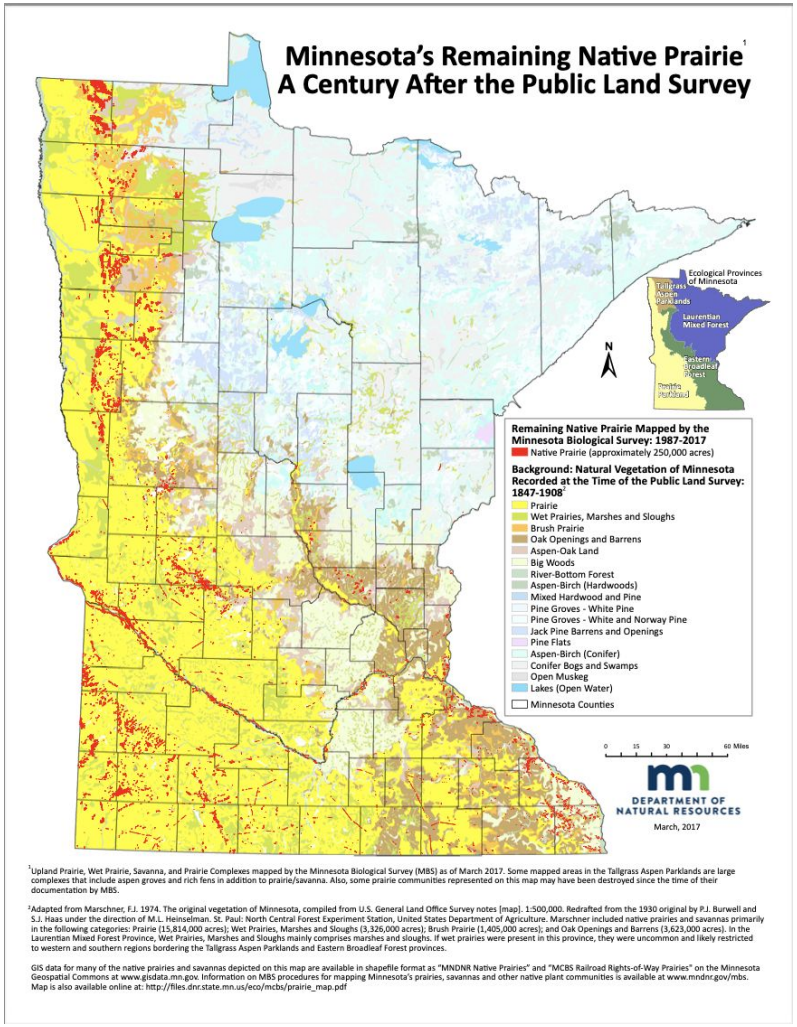
Isolation and pollination in fragmented prairies

Caroline Loescher



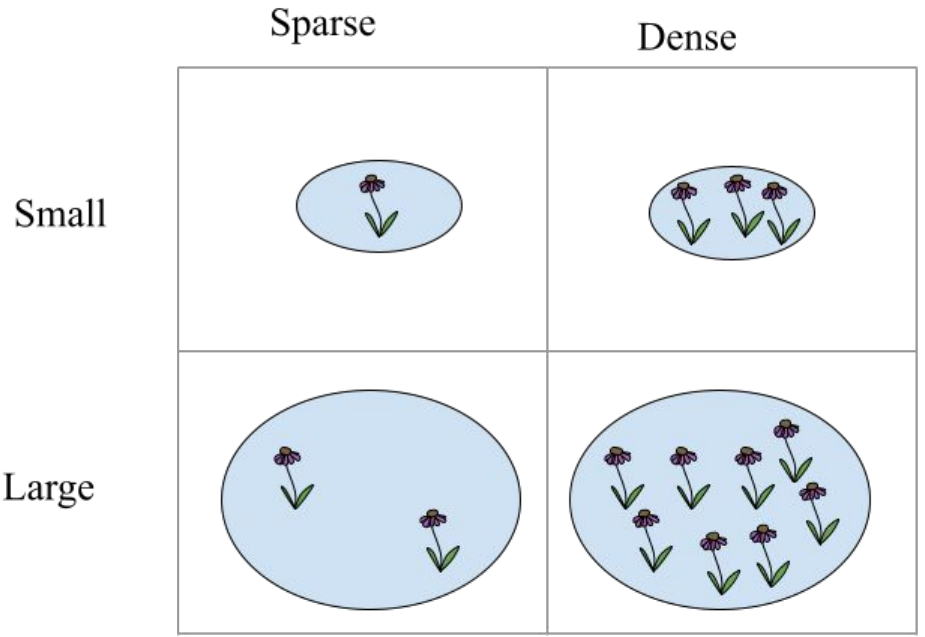
Prairie Fragmentation

- Survival vs. reproduction
- Impact of isolation
- Conservation applications



Echinacea model organism

- Self incompatible
- Rely on general pollinators
- Pollinators pick which plants to go to based on energy it takes to reach them
- Seed set



Question

- Does isolation impact seed set?
- Does remnant size impact seed set?
- Which is a better indicator of seed set?

Hypothesis

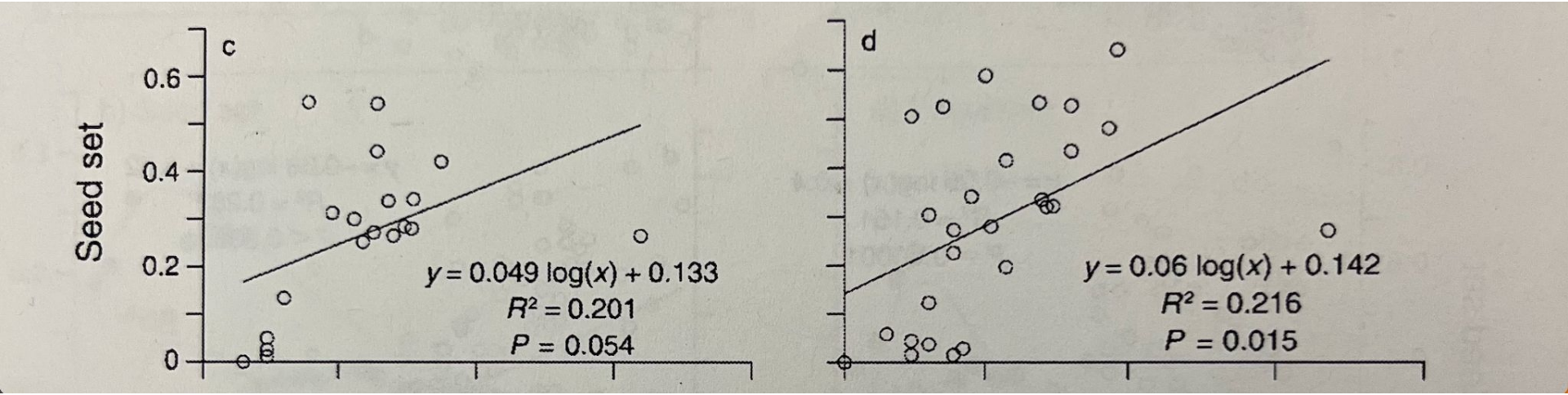
Null: neither remnant size nor degree of isolation has an impact on seed set

Alternatives:

- Remnant size and isolation impact seed set
- Remnant size, but not isolation, impact seed set
- Isolation, but not remnant size, impacts seed set

Previous knowledge

- Seed set decreases with larger distance to 4th nearest neighbor
- Seed set increases at higher population sizes

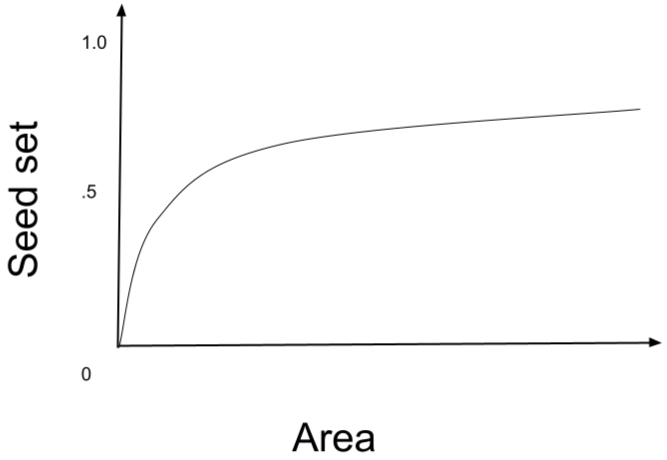


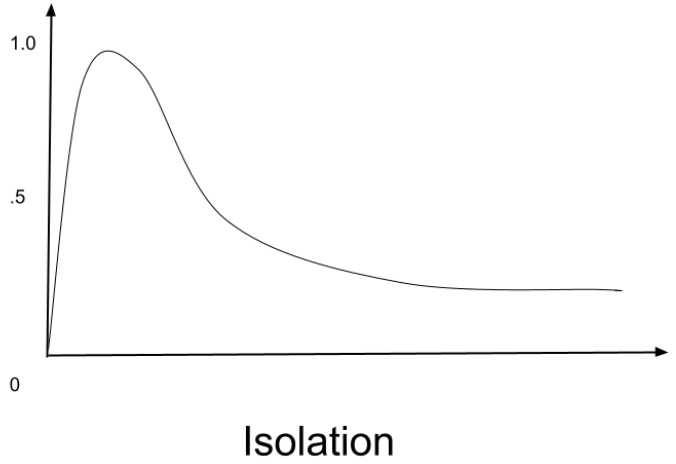
Population size, 1997

Population size 1998

Predictions

-





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CLEANING AND RECHECKING

2

SCAN

3

COUNT

4

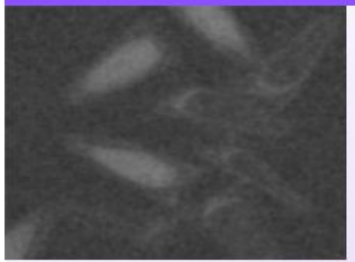
RANDOMIZE

5

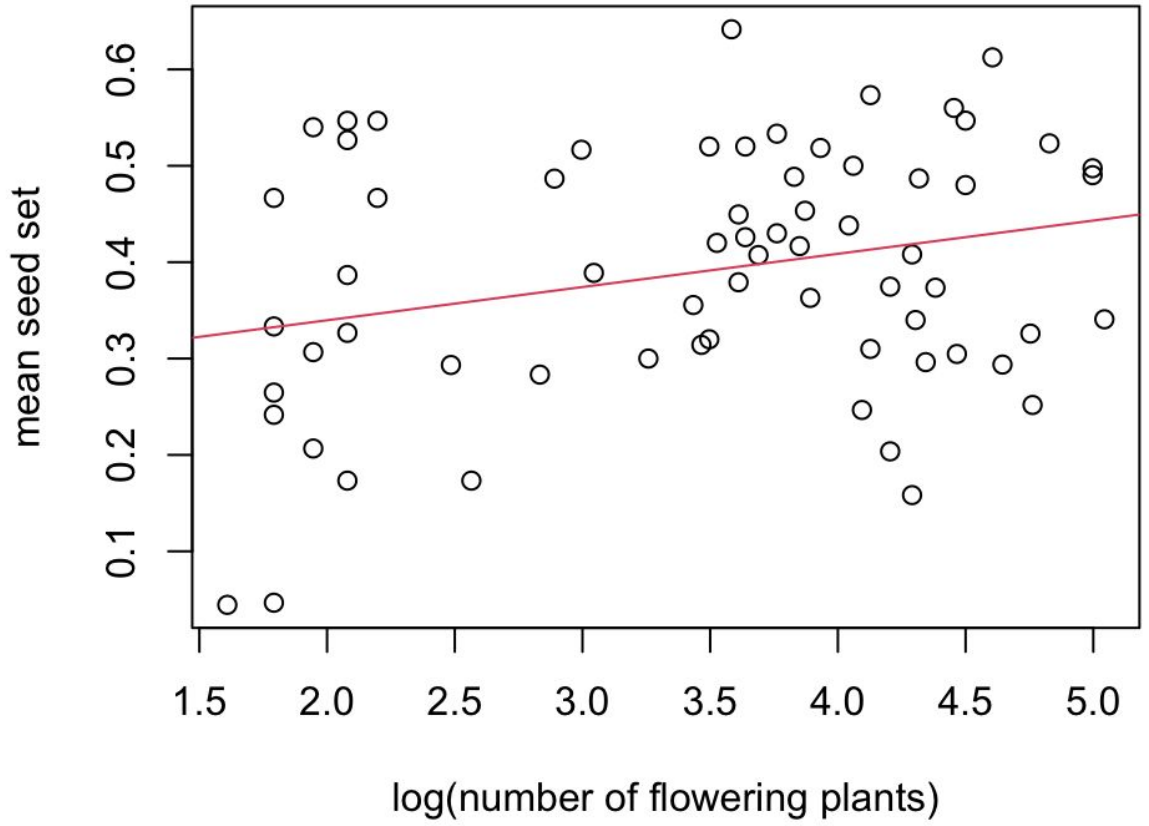
X-RAY

5

CLASSIFY



Number flowering plants

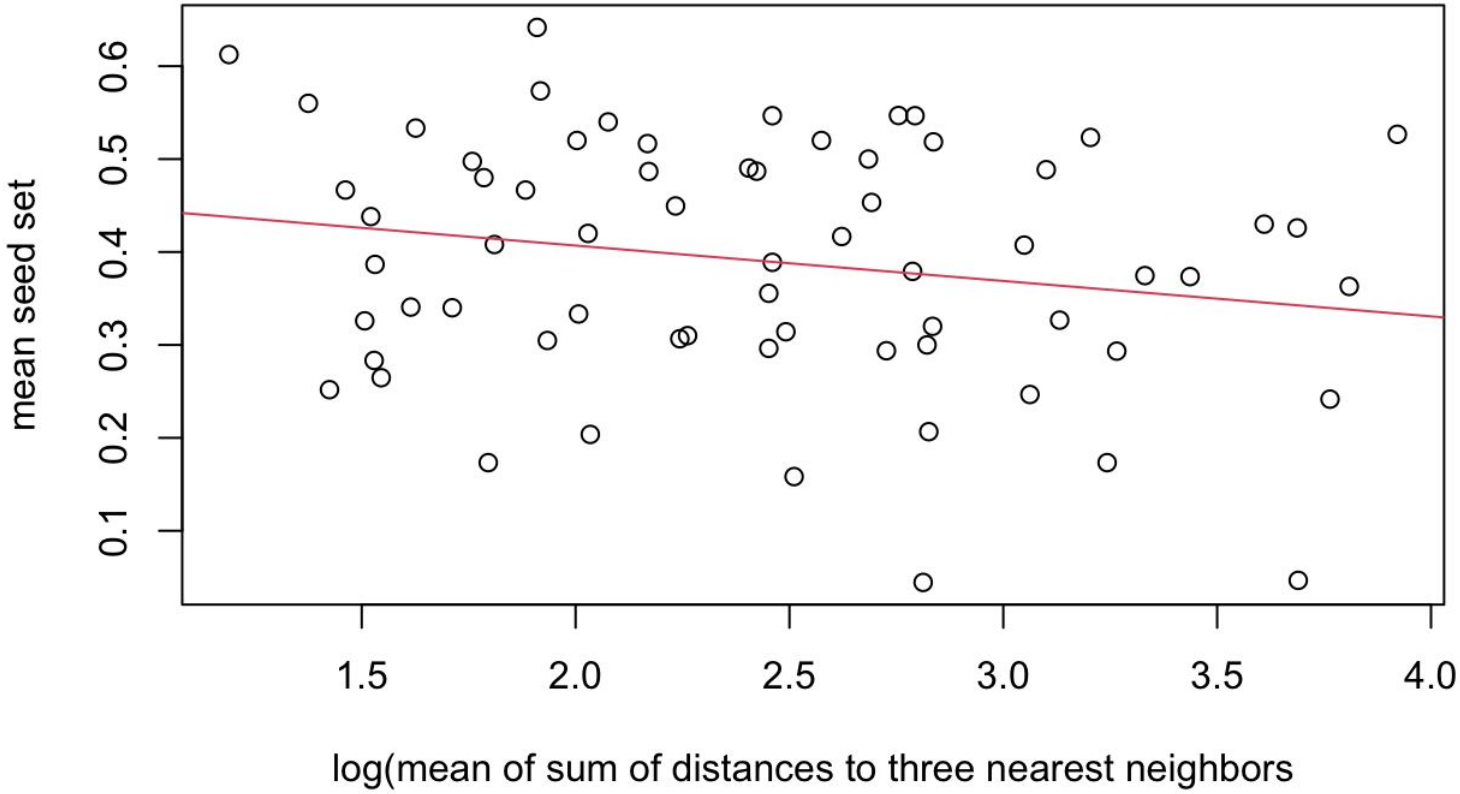


p=.029

T value=2.234

R^2=.07232

Isolation

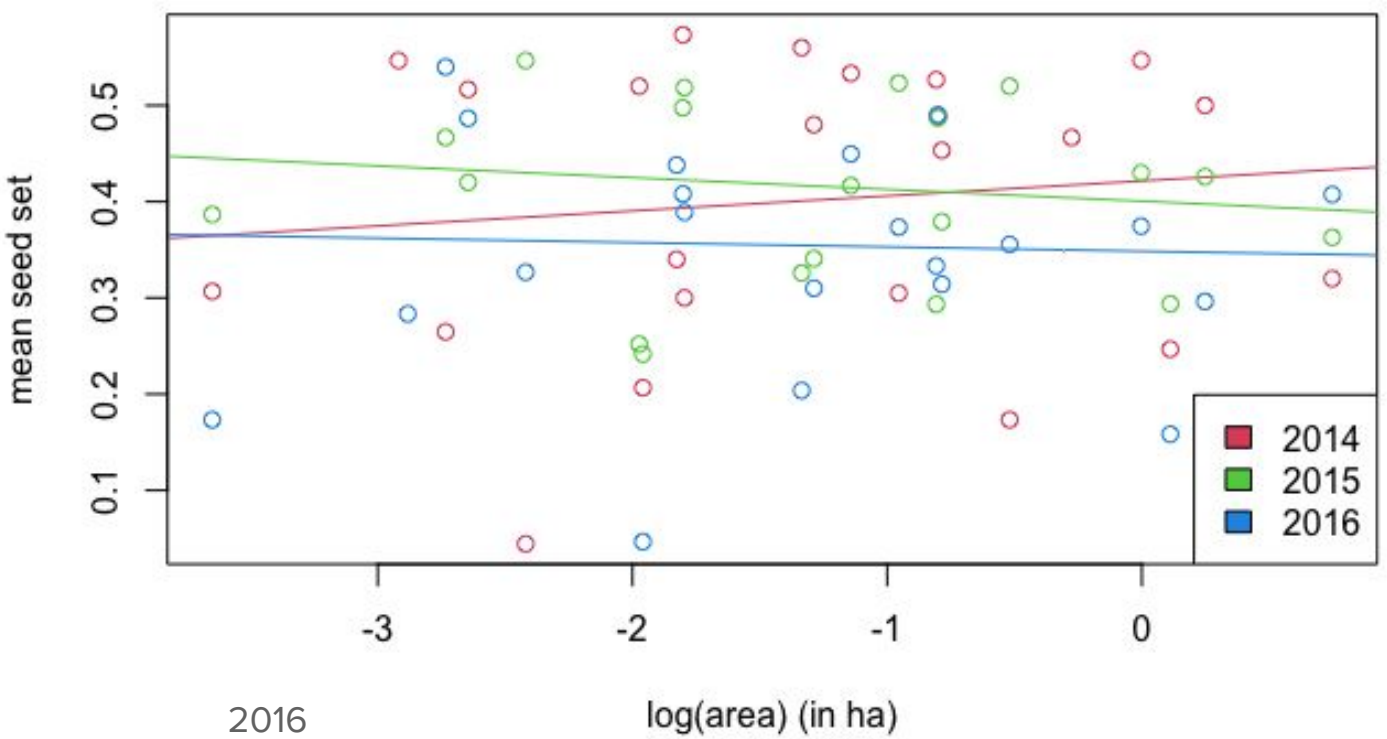


p=.1026

t=-1.656

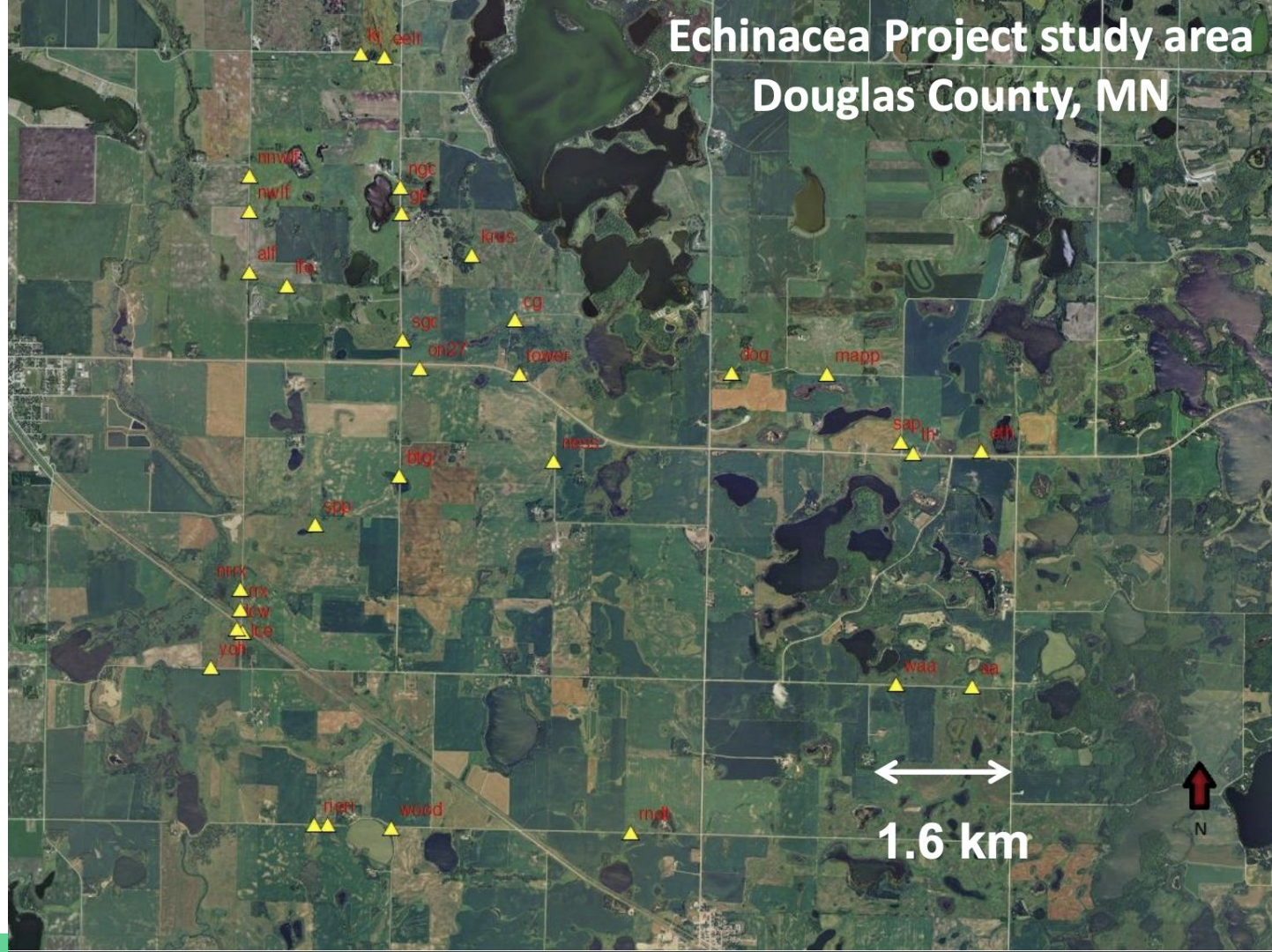
R^2=.04109

Area by year



2014	2015	2016
p=.5932	p=.5686	p=.8655
t=.542	t=-.58	t=-.172
R^2=.01382	R^2=.01741	R^2=.00174

Pollinator Perspective



Sources

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Acknowledgements