



DOES SEED SET VARY ACROSS PURPLE PRAIRIE CLOVER POPULATION?

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Overview:

- Effects of habitat fragmentation on the fitness and population dynamics of plants located in tall grass prairies.
 - Help further research to allow for a better understanding in regards to the biology, conservation, and restoration of prairie plants.
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The Echinacea Project

- “investigating ecology and evolution in fragmented prairie habitat since 1995”
- *Echinacea angustifolia* (Narrow-leaved purple coneflower), *Dalea purpurea* (Purple prairie clover), *Echinacea pallida* (Pale purple coneflower), *Echinacea purpurea* (Purple coneflower), *Heliopsis helianthoides* (False sunflower)
- <https://www.facebook.com/echinaceaproject>

Mentors



Observed organism

- Purple prairie clover (*Dalea purpurea*) around the area of Kensington, Minnesota



<http://www.krischanphoto.com/gardens/prairie/dalea/dalea%20purpurea.htm>

DaLea purpurea

- Member of the Fabaceae (legume) family
- Pollinator is mostly the bee
- It is not self compatible with breeding and requires a wide range of genetic variability.
- Phenology: June – August
 - Florets start toward the bottom of the spike and then continue further up along the spike.





Study Site

- Rural western Minnesota, USA between the towns of Kensington and Hoffman
 - $45^{\circ} 49' N, 95^{\circ} 43' W$
- Prairie plants now reside in a habitat dominated by hillsides that are surrounded by agricultural production and farm machinery, roads, and abandoned pasturelands

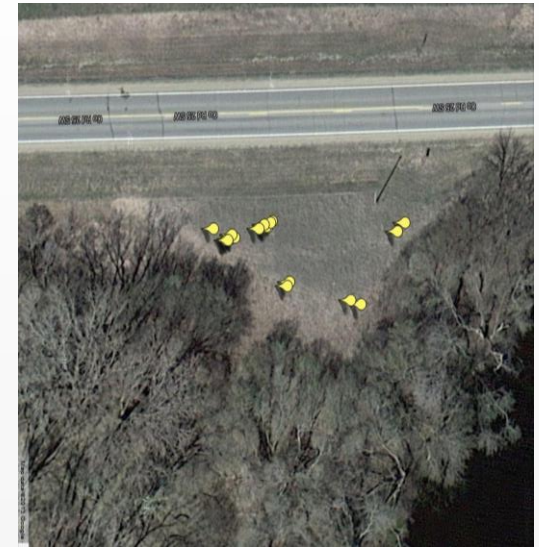
Locations (Six Populations) in Kensington, Minnesota



Woody



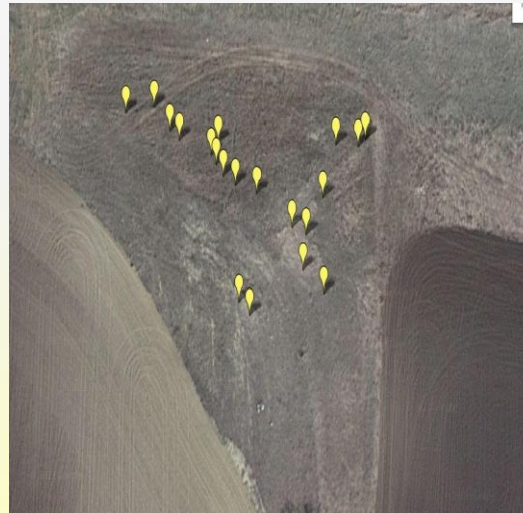
Rrx



SGC



SPP



ON27



LF



Hypothesis

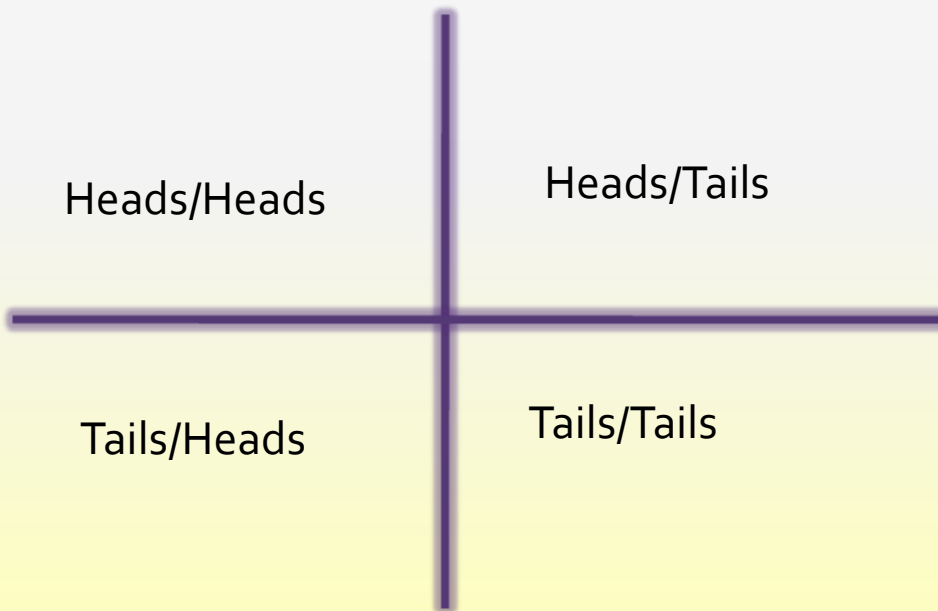
- Seed set of purple prairie clover populations are affected by certain conditions such as location and pollinators; populations of purple prairie clover near roads and farmlands will have a lower seed set.
- Sites with the largest populations will have the largest seed sets

Methods

MaPla
2013 Site Name

DalPur

- Field Sampling
- Randomization
 - Take random samples of *Dalea* to x-ray and each sample should be around 30 seeds

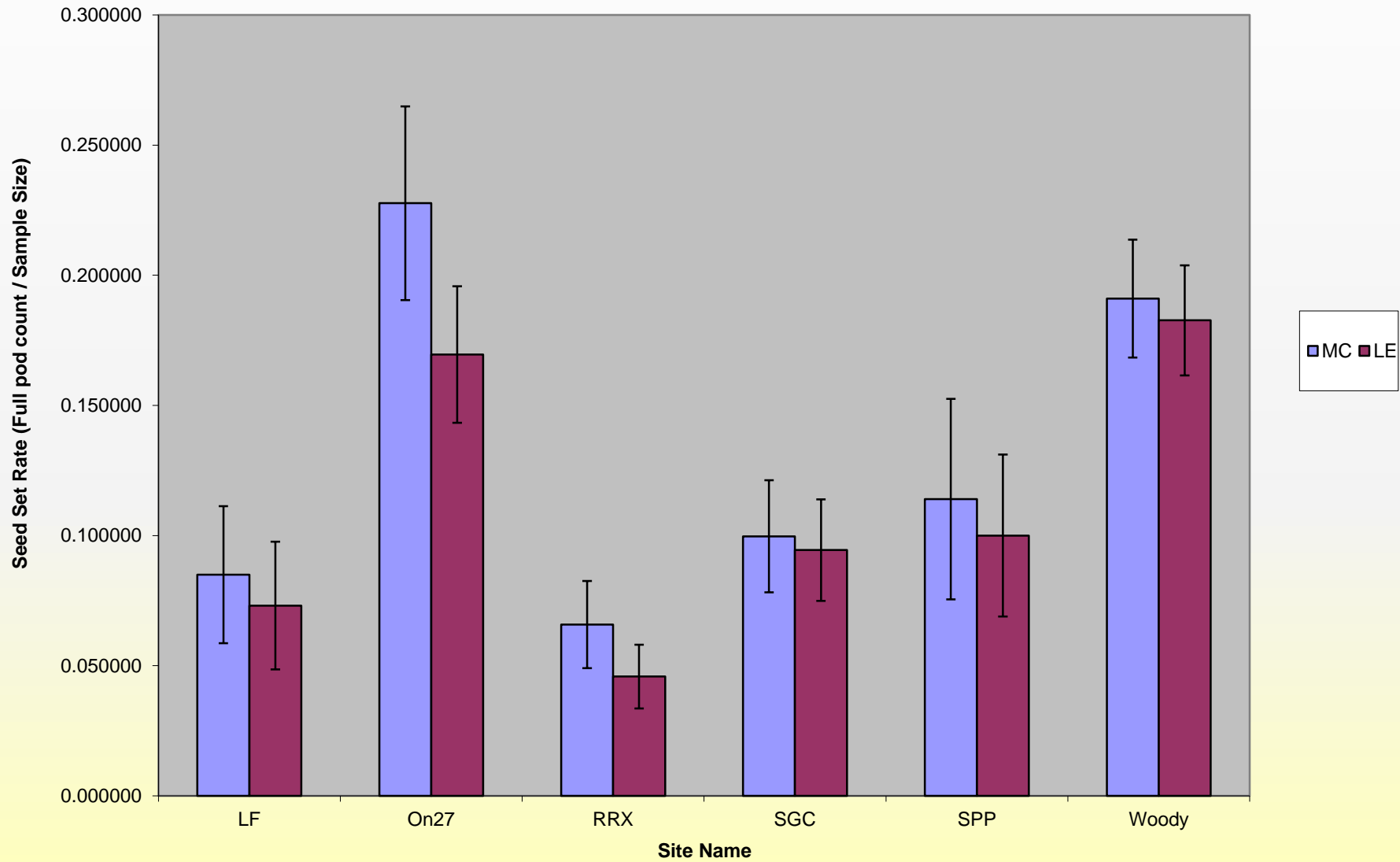


Methods continued

- X Ray
 - Faxitron
 - (4 seconds
12 dosage)



Results






Discussion

- Highest Seed Set was found on sites ON27 and Woody
 - Both sites could have sufficient genetic variation in population
 - *Dalea purpurea* need wide availability of mates
 - Not self compatible
- There was also no correlation between plants with an increased number of rosettes heads and an increase number of seed sets



Critics/Future Studies

- Phenology (did flowering time have an effect on seed set)
 - Determination of seed set: ambiguous
 - Pollinators
- 

Citations

- Wagenius, S. 2013. Stuart Wagenius, Ph.D. Chicago Botanic Garden.
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