



Examining pollen limitation in a native prairie panic grass, *Dichanthelium leibergii*



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INTRODUCTION

- *Dichanthelium leibergii* is a native prairie grass of conservative concern whose habitat is highly fragmented.
- My previous study found low germination in *D. leibergii*.
- Is pollen limitation the cause?
- **Pollen limitation:**
 - Plants receive inadequate/unsuitable pollen.
 - Unknown whether common in wind-pollinated grasses.
- **Seed set:**
 - Number of ovules that successfully develop into seed.
 - Common measure of reproductive success.



Fig 1.
Hand pollination of *D. leibergii* spikelet.

RESEARCH QUESTIONS

- 1) What is the seed set of *D. leibergii* in a prairie remnant?
- 2) What is the extent of pollen limitation in the prairie remnant?
- 3) Does seed set differ between outcross vs. self-pollen?

STUDY SPECIES



Fig 2. *D. leibergii* inflorescence.

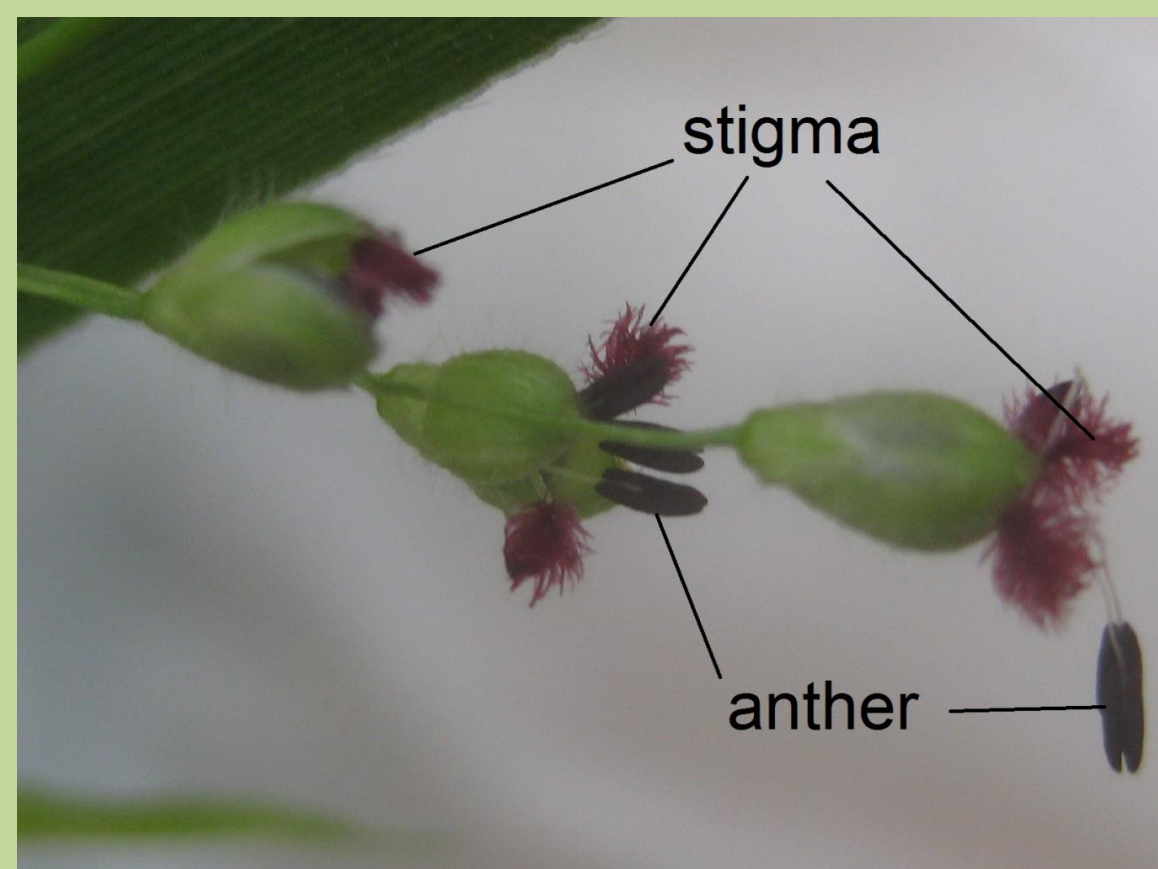


Fig 3. Stages of floret emergence. Stigma emerges first, followed by anthers.



Fig 4. Top view of open spikelets.

- Perennial
- Cool season (C3)
- Wind-pollinated
- Twice-flowering

METHODS

- Study site:
 - Hegg Lake State Wildlife Management Area, Douglas County, MN
- Experimental design:
 - 1) Pollen added
 - 2) Self pollen only
 - 3) Unmanipulated
- Sample size: 32 plants (80 inflorescences)
- Observed daily progress of individual florets over 9 days
- Harvested ~790 seeds, to determine seed set by weighing

CHALLENGES

- Pollen viability/longevity
- Pollen contamination

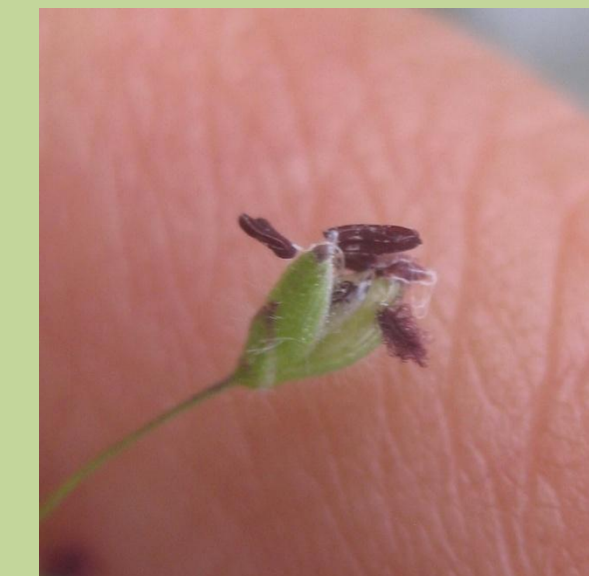


Fig 5. a) Fresh floret & pollen.
b) Older floret & pollen.
c) Older florets & empty anthers.

FUTURE DIRECTIONS

- Pollen viability test
- Density measurements
- Statistical test: GLM with binomial response



Fig 6. Bagged inflorescences at field site.

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