Impacts of Pollen Donor Distance and Nutrient Availability on **Reproductive Success in a Carnivorous Plant**

INTRODUCTION

Populations of the carnivorous plant *Sarracenia alata* have dwindled and become extremely fragmented due to land use changes and habitat destruction. Understanding the variance in fitness within populations is important for restoration and management of small and/or isolated plant populations. The impacts of nutrient limitation and pollen-donor quality in isolation are well known however, their combined effect is a relatively new area of investigation. The purpose of this study was to examine the effects of pollen-donor distance and prey capture on reproductive success in *S. alata*.

| METHODS | | | | | | | | |
|---------|---------|---|------|------|------|-------|-------|--|
| | | Distance from Pollen-Donor to Recipient | | | | | | |
| Q | | 0 m (self) | 35 m | 60 m | 90 m | 125 m | 190 m | |
| aptur | Open | N=26 | N=13 | N=13 | N=26 | N=13 | N=13 | |
| rey C | Blocked | N=26 | N=13 | N=13 | N=26 | N=13 | N=13 | |



Randomly chosen flowers were hand pollinated with a Qtip. Outcrossed flowers recieved a mixture of pollen from 7-10 donors from each distance



Plants receiving the Blocked treatment had all pitchers blocked with a small piece of cotton.

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RESEARCH QUESTIONS

Effects on seed production and germination due to:

. Pollen-donor distance 2. Prey capture 3. The interaction of

pollen-donor distance and prey capture



Seeds were germinated from each replicate (n=20). Ungerminated seeds were tested for viability using Tetrazolium chloride, stained tissues indicate viability

Flowers produced more seeds when pollinated with pollen donated from the furthest distances

| | 1800 |
|-----|------|
| | 1600 |
| ber | 1400 |
| mnu | 1200 |
| sed | 1000 |
| als | 800 |
| ţ | 600 |
| | 400 |
| | 200 |
| | 0 |
| | |

RESULTS



No effect of pollen donor distance, prey capture or their interaction on proportion of germinated seeds of viable seeds produced

CONCLUSION

- Reproductive output increases with increased distance to pollen donor
- Multiple years of resource restriction in individuals needed to understand nutrient cycling in S. alata
 - Need to evaluate reproductive success at every stage of lifecycle

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There was no significant effect of prey capture on seed production, nor an interaction with pollen-donor distance

