

2016

Session C, 2016 Second Place: Carnivorous Chaos: A Comparison Study of Number of Attractions by Prey for Roundleaf Sundew (*Drosera rotundifolia* L.) and Purple Pitcher Plant (*Sarracenia purpurea*)

Alex Dogonniuck, Michael Greener, Marissa Lathrop, Adam Loomis, Madison Morley

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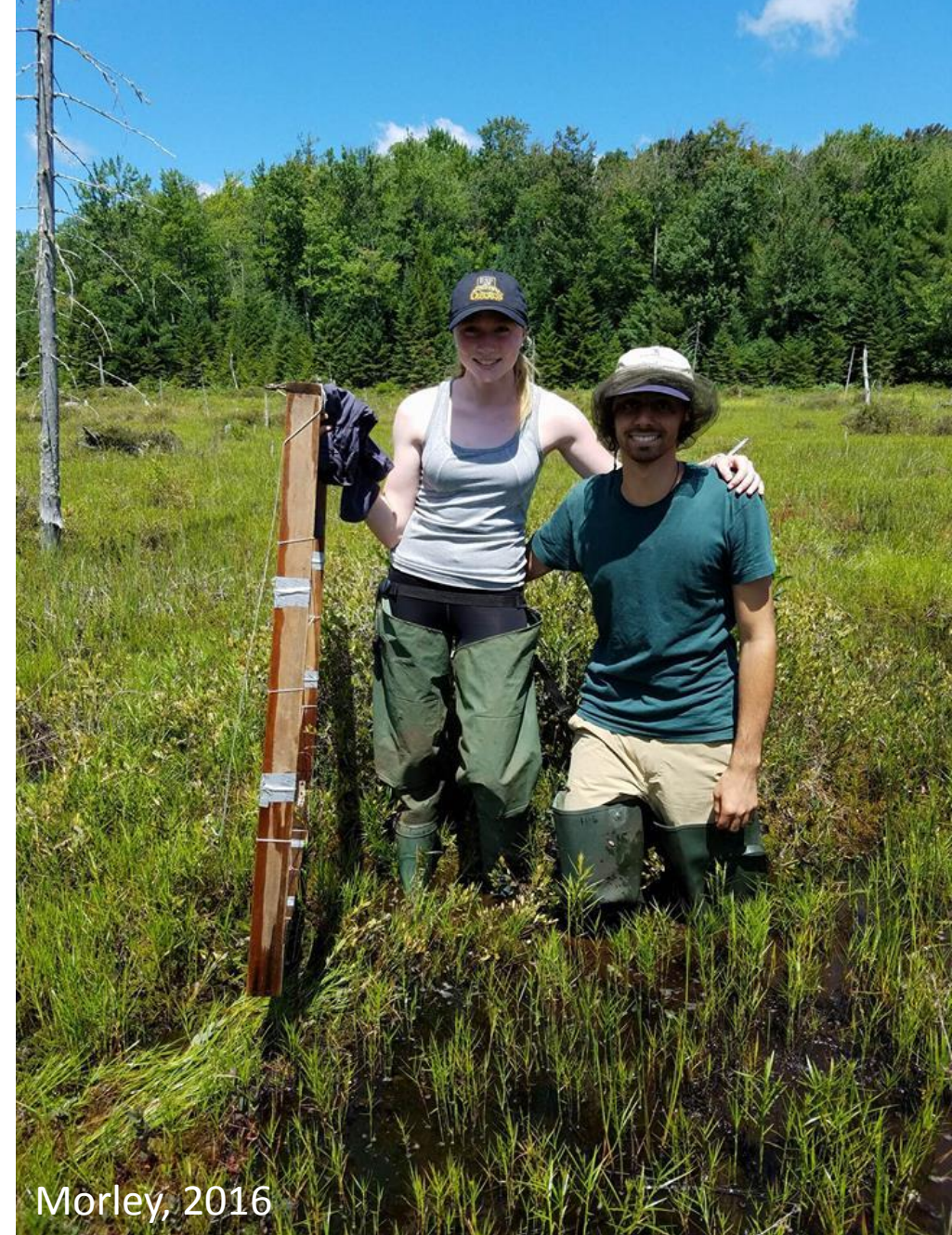
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**Carnivorous Chaos:
A Comparison Study of the Abilities of
Roundleaf Sundew (*Drosera rotundifolia* L.)
and Purple Pitcher Plant (*Sarracenia
purpurea*) to attract prey.**

**The Carnivorous Captivators: Marissa Lathrop, Madison Morley,
Michael Greener, Alex Dogonniuck, and Adam Loomis**

Introduction

- Wetland importance
- Abiotic conditions
- Species adaptation
- “Wetlands play an important role in our ecosystem. From storing carbon to improving water quality...”(U.S. Environmental Protection Agency, 2016).



Morley, 2016

Roundleaf Sundew (*Drosera rotundifolia* L.)

- Give off sweet smell within dew drops (Jurgens et al., 2009).



Purple Pitcher Plant (*Sarracenia purpurea*)

- Attract prey by resembling bright flowers (Bohn, 2004).



Dogonniuck, 2016



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Hypotheses

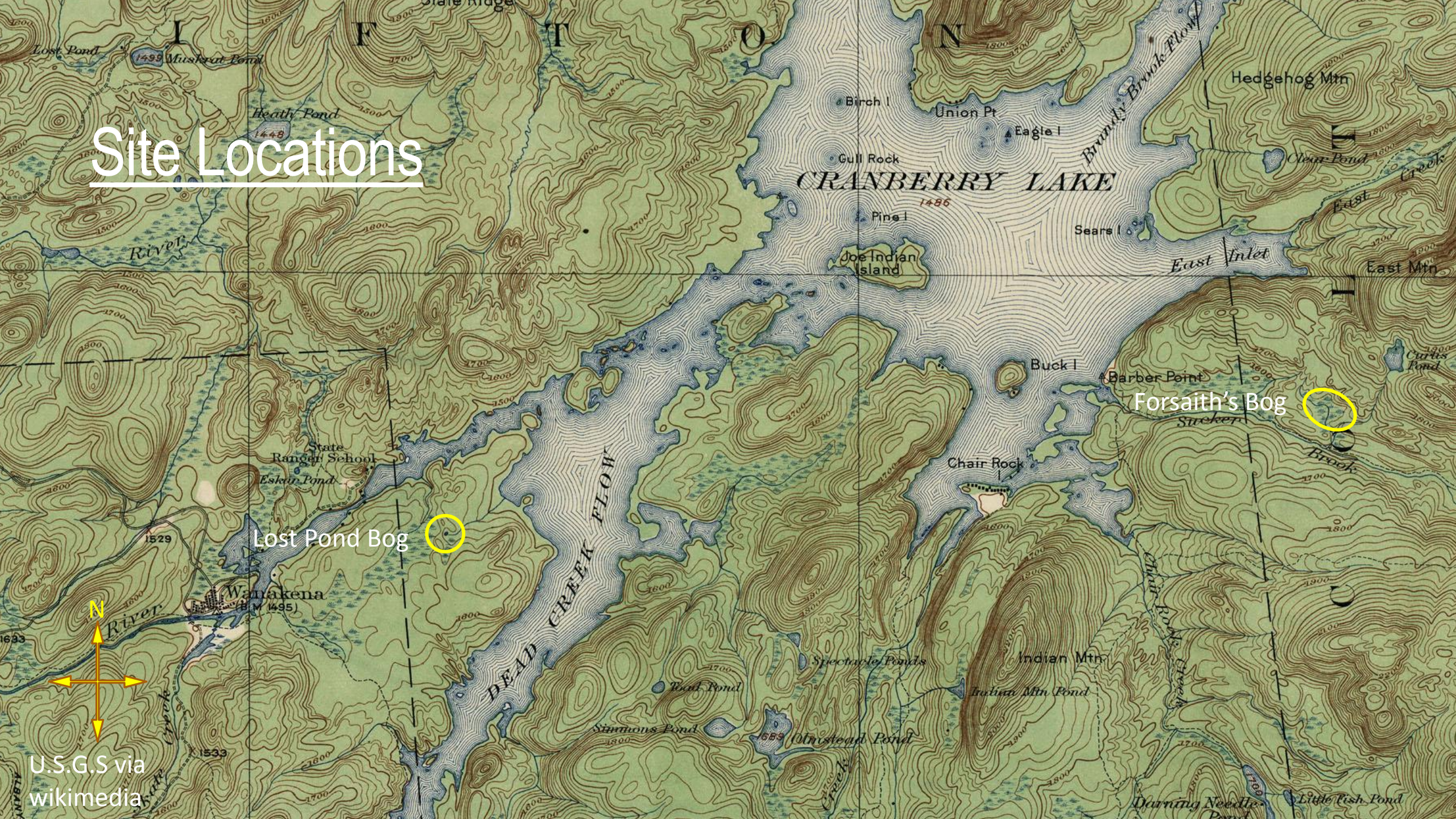
H_{o_1} : There is no difference in the frequency that prey visit roundleaf sundew and purple pitcher plants.

H_{a_1} : There is a difference in the frequency that prey visit roundleaf sundew and purple pitcher plants.

H_{o_2} : Roundleaf sundew and purple pitcher plants will have no difference in percent cover.

H_{a_2} : Roundleaf sundew and purple pitcher plants will have a difference in percent cover.

Site Locations

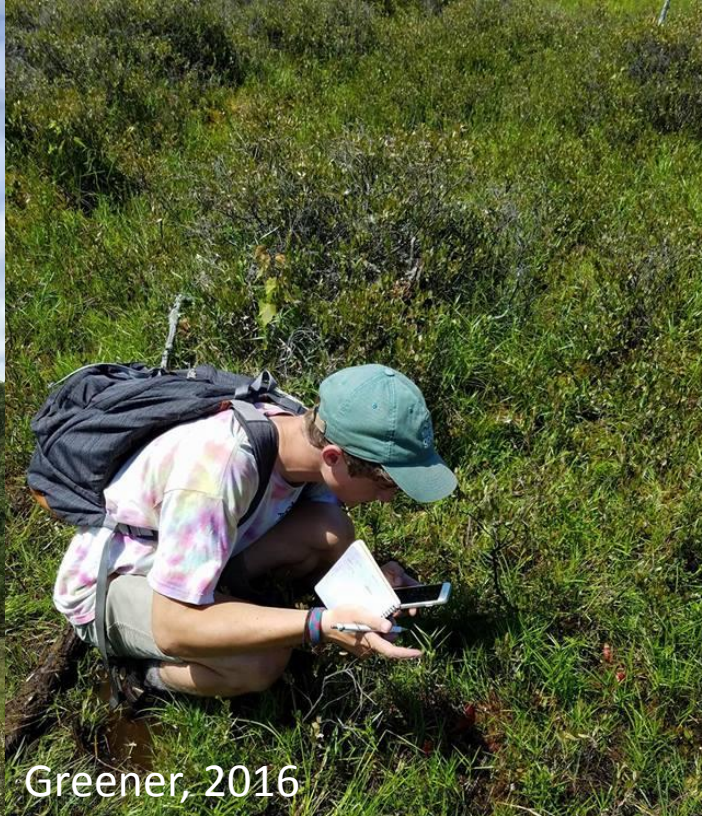


U.S.G.S via
wikimedia

Observe individual plants for one hour



Dogonniuck, 2016

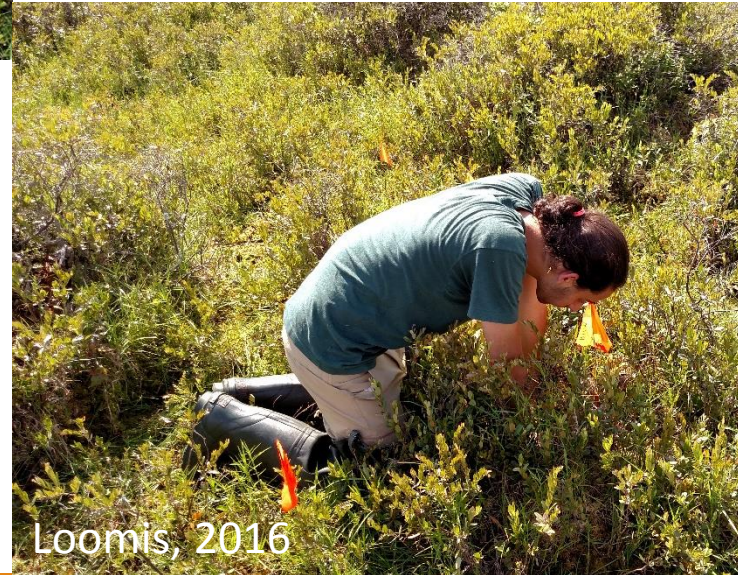


Greener, 2016

Record number of attractions

Methods- Observations

- 16 pitcher plant observed (n=16)
- 17 sundew observed (n=17)



Loomis, 2016

1. Lay out transect line



Methods- Determine Percent Coverage

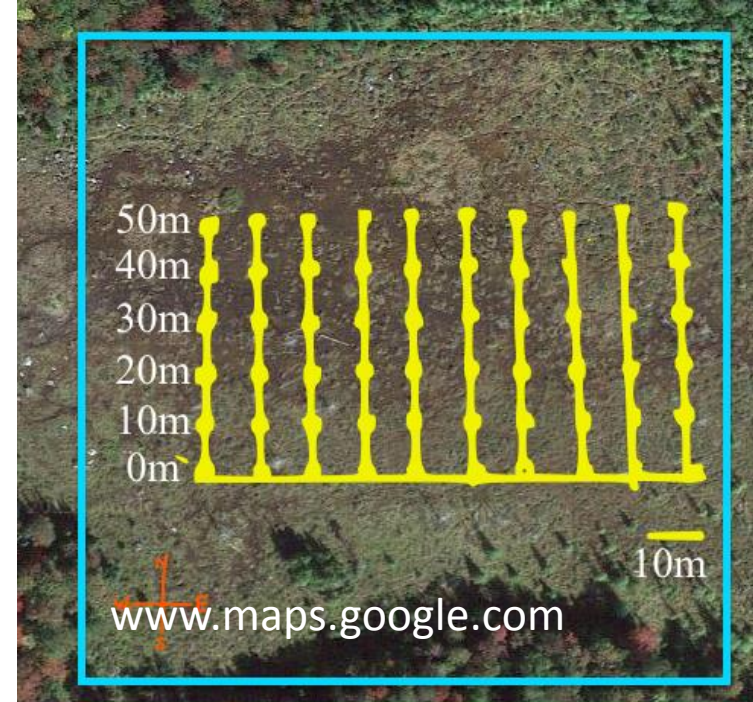
3. Estimate % cover
and record plot
characteristics

2. Lay down quadrat





Forsaith's Bog





Lost Pond Bog



Results

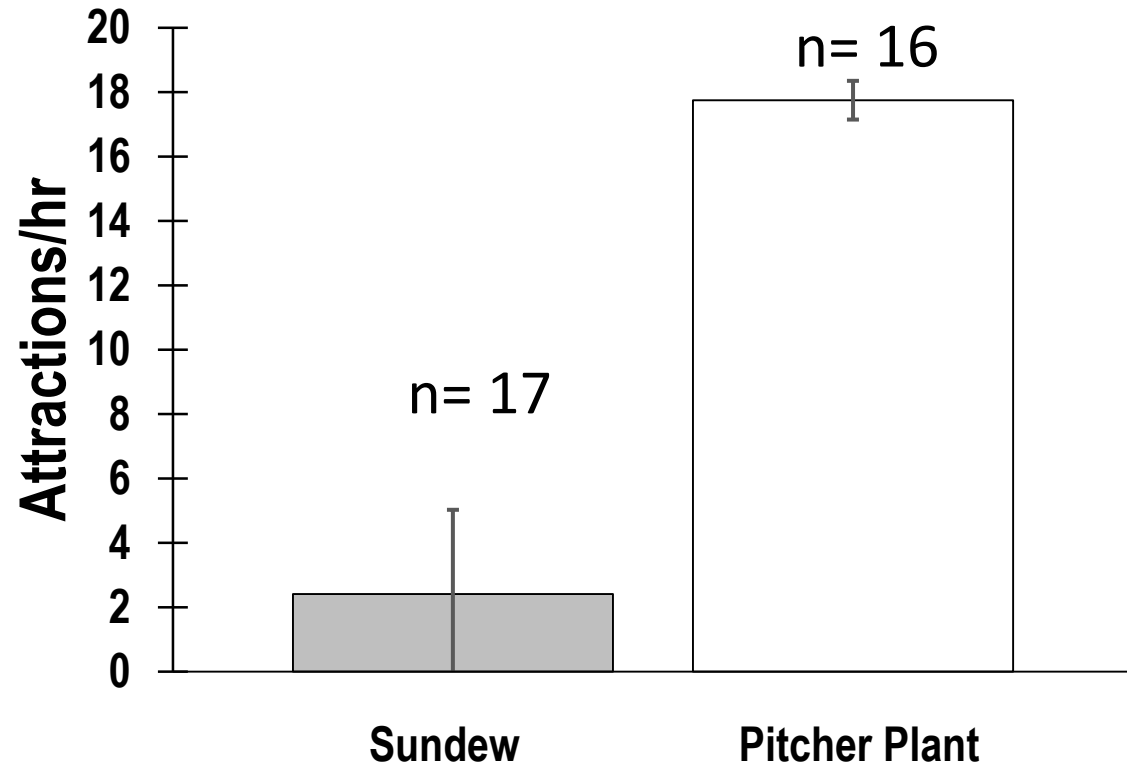


Fig. 1: Attractions per hour of each plant.
T-Value = 5.73; P-Value ≤ 0.001 ; DF = 16

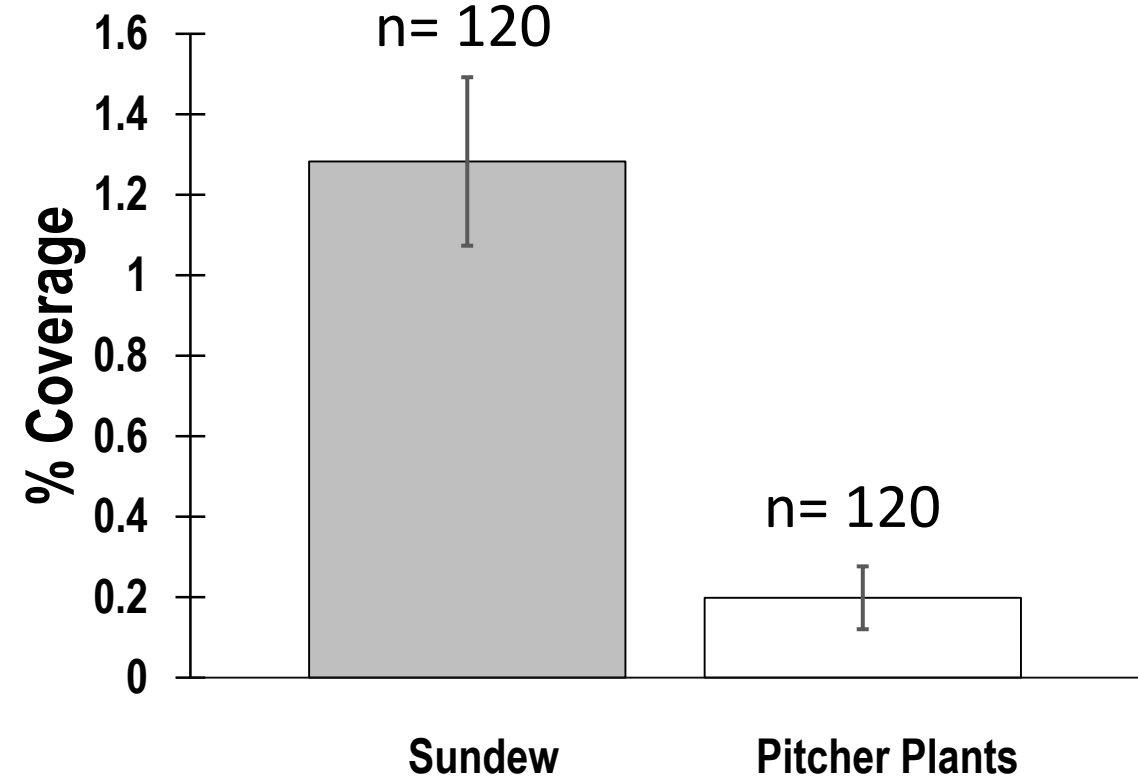


Fig. 2: Percent area cover of each species.
T-Value = 4.85
P-Value ≤ 0.001 ; DF = 151

Results cont.

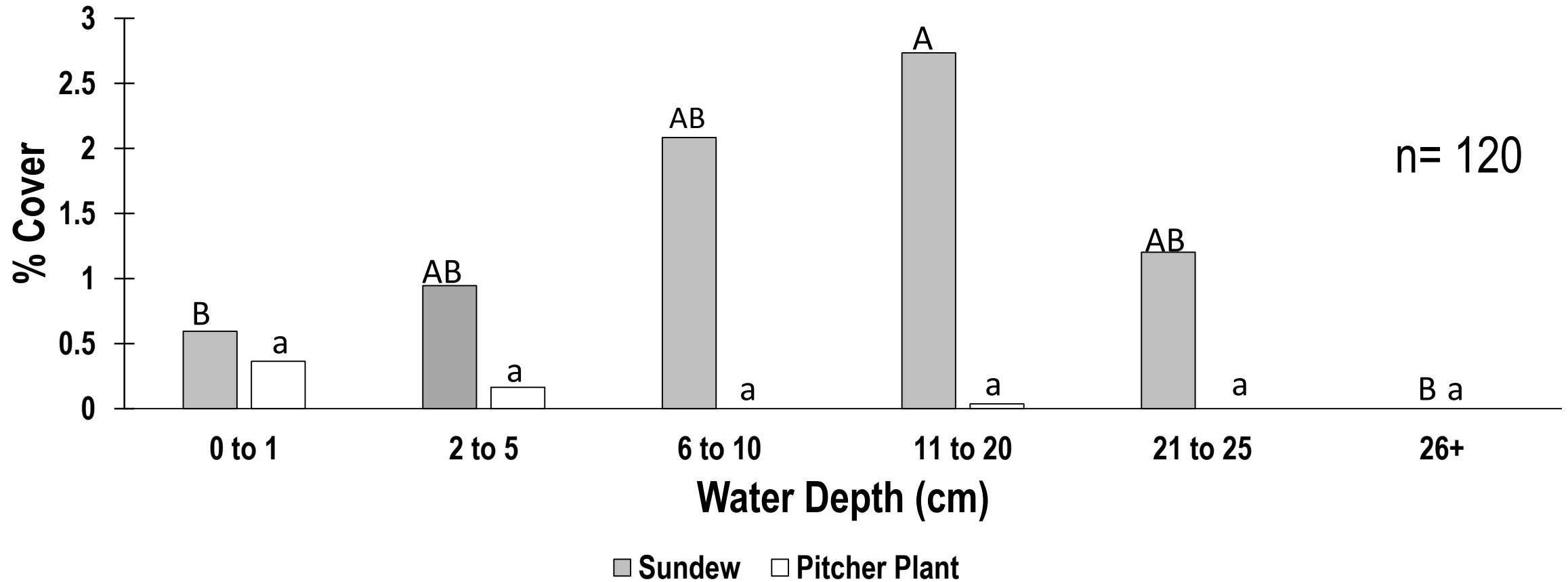


Fig. 3: Percent cover of each plant at different water depths.

For Sundew: $F= 4.66$; $P= 0.001$; $DF= 5$

For Pitcher Plant: $F= 0.7$; $P= 0.623$; $DF=5$

Results cont.

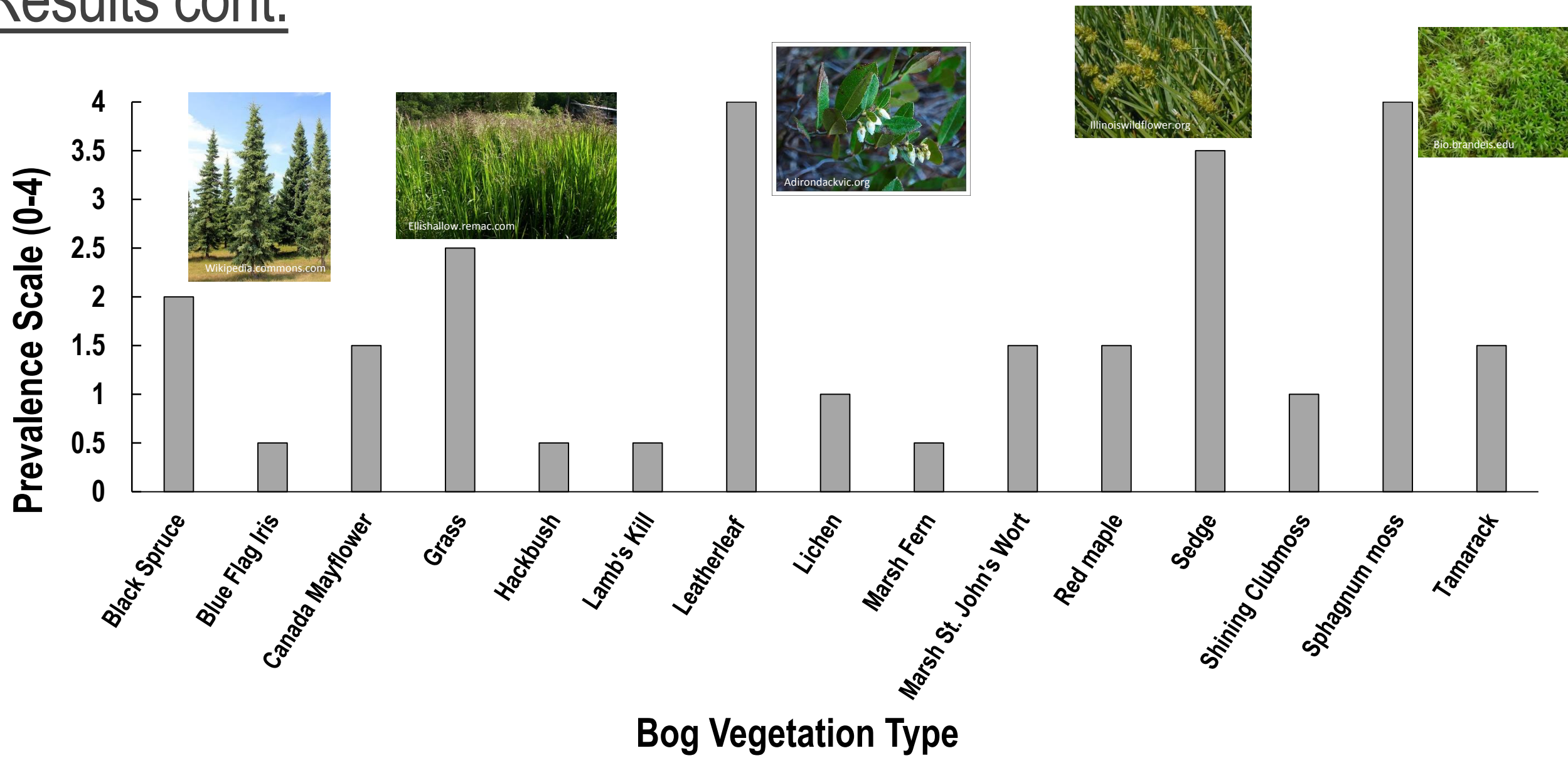


Fig. 4: The prevalence of various bog vegetation within sample quadrats. Scale: 0= found in no plots; 4= found in every plot

Discussion

- Pitcher plant is more attractive than sundew to prey
- % area cover differed between pitcher plant and sundew
- Water level and % area cover related for sundew ($P=0.001$) but not pitcher plant ($P=0.623$)
- Other factors affecting attractiveness



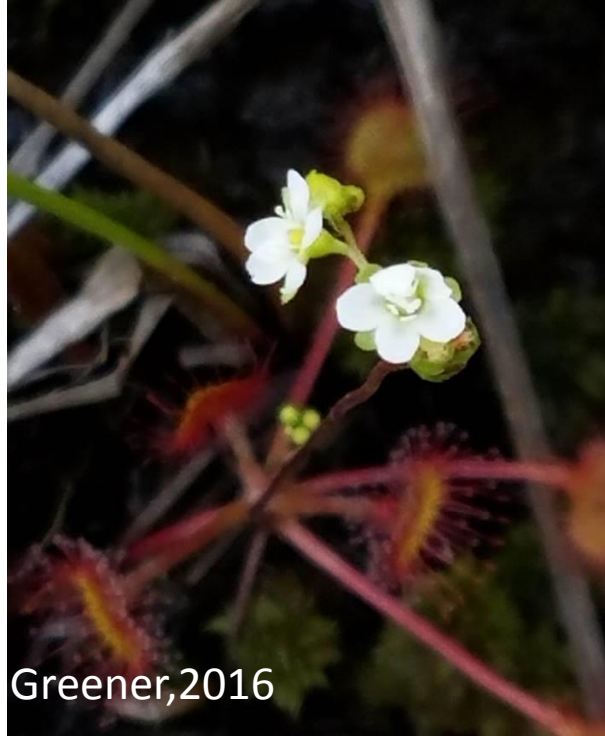
Dogonniuck, 2016



Dogonniuck, 2016

Discussion

- Other ecological factors (Adlassnig et al. 2005 & Chapin et al. 1986)
- Improvements to this study
- Further studies
 - Sundew surrounding pitcher plant
 - Importance of predation
 - Ecological factors of success



Greener, 2016



Greener, 2016



Morley, 2016

Conclusion

Our study has found that there is a significant difference in the attractiveness of each species, however it does not infer an effect on percent cover. Our results show that water depth has a positive relationship with sundew percent coverage, which suggests that other factors may be more influential in the dominance of each species.

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References

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Questions?

Dogonniuck, 2016