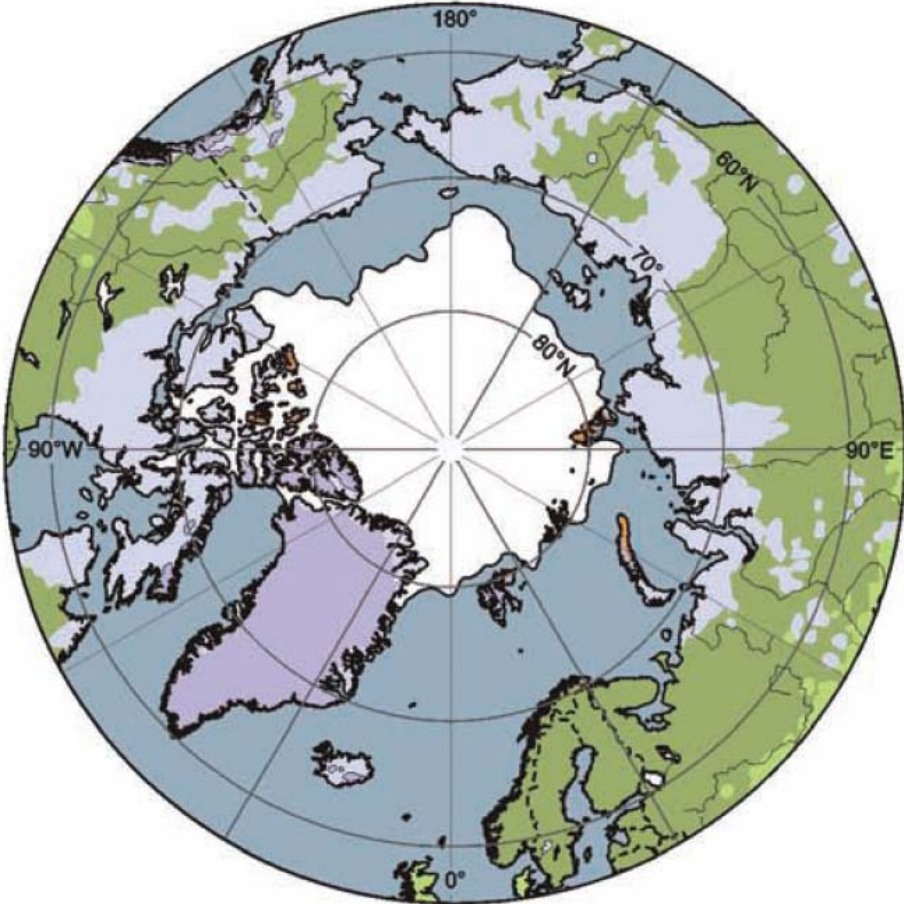


Response of the arctic wet meadow sedge, *Carex aquatilis*, to changing temperature

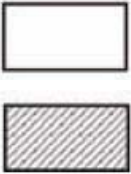
Michael L. Lothschütz



Current Arctic Conditions



Northwest Passage
Northern Sea Route



Observed ice extent
September 2002
Projected ice extent
2080 - 2100

Carex aquatilis

(Water Sedge)

- Dominant sedge
- Occurs in most wet meadows
- Shows variation in size within its natural habitat (Chapin, 1981)

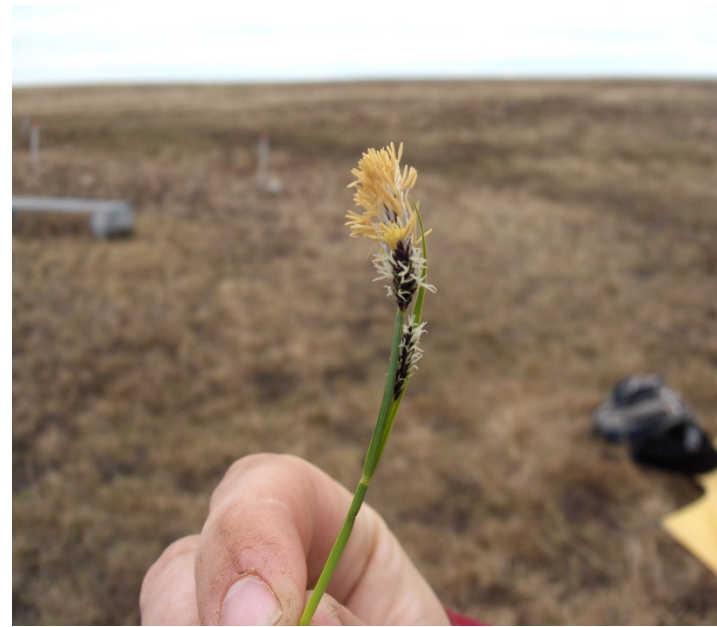
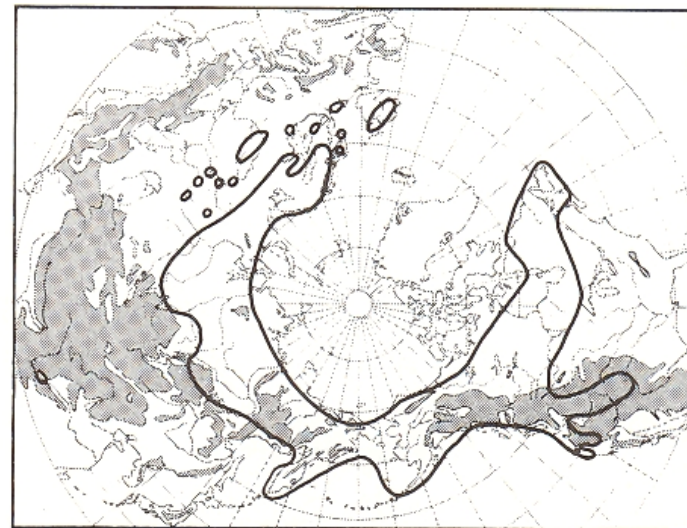
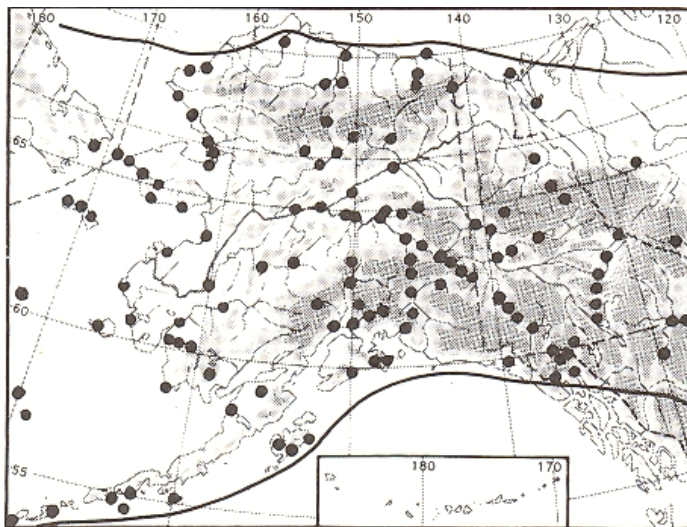


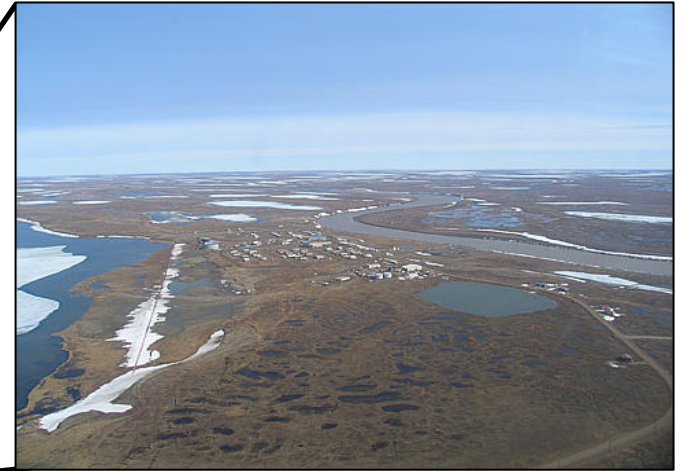
Image Courtesy of Robert Slider



Huitén (1968)

Barrow

Atqasuk



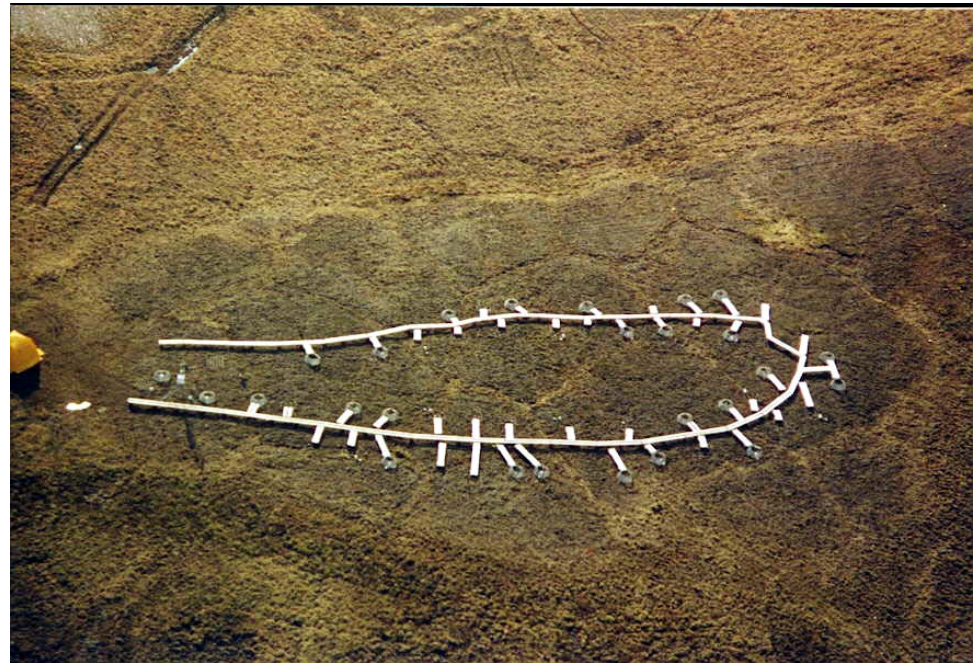
www.area02alaska.org

David Brannan (2005)

ARM Climate Research (2005)

Research Design

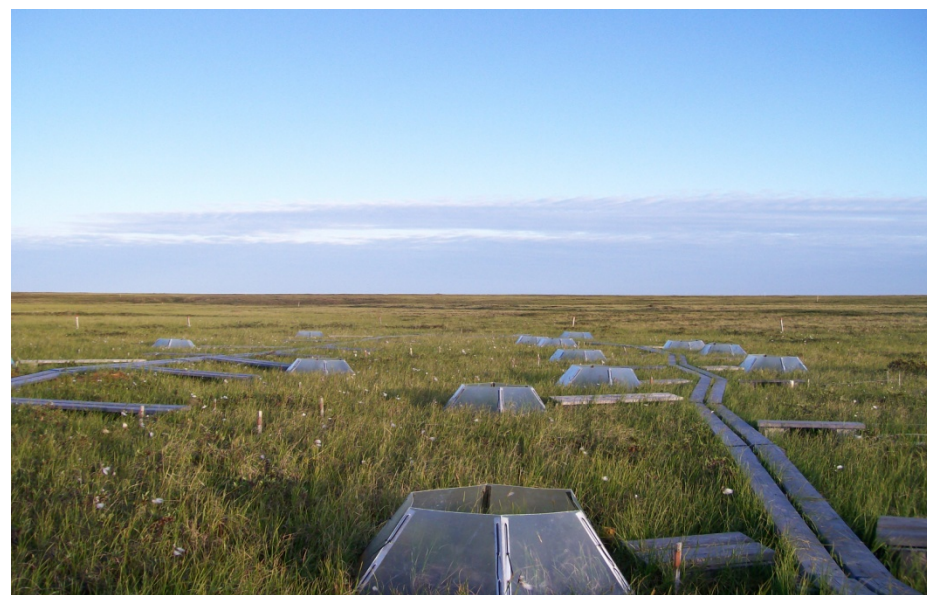
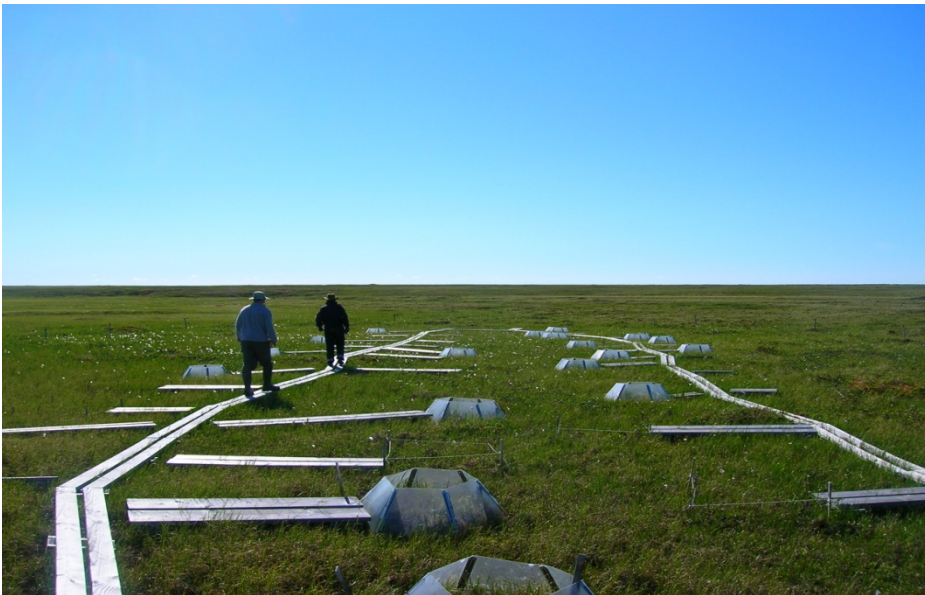
- Two wet meadow communities.
- Meter squared plots
 - 24 warmed
 - ITEX Passive Open-Top Chambers
 - Increase in 1-2 degrees Celsius
 - 24 controlled



Barrow Wet Site (BW)



Atqasuk Wet Site (AW)



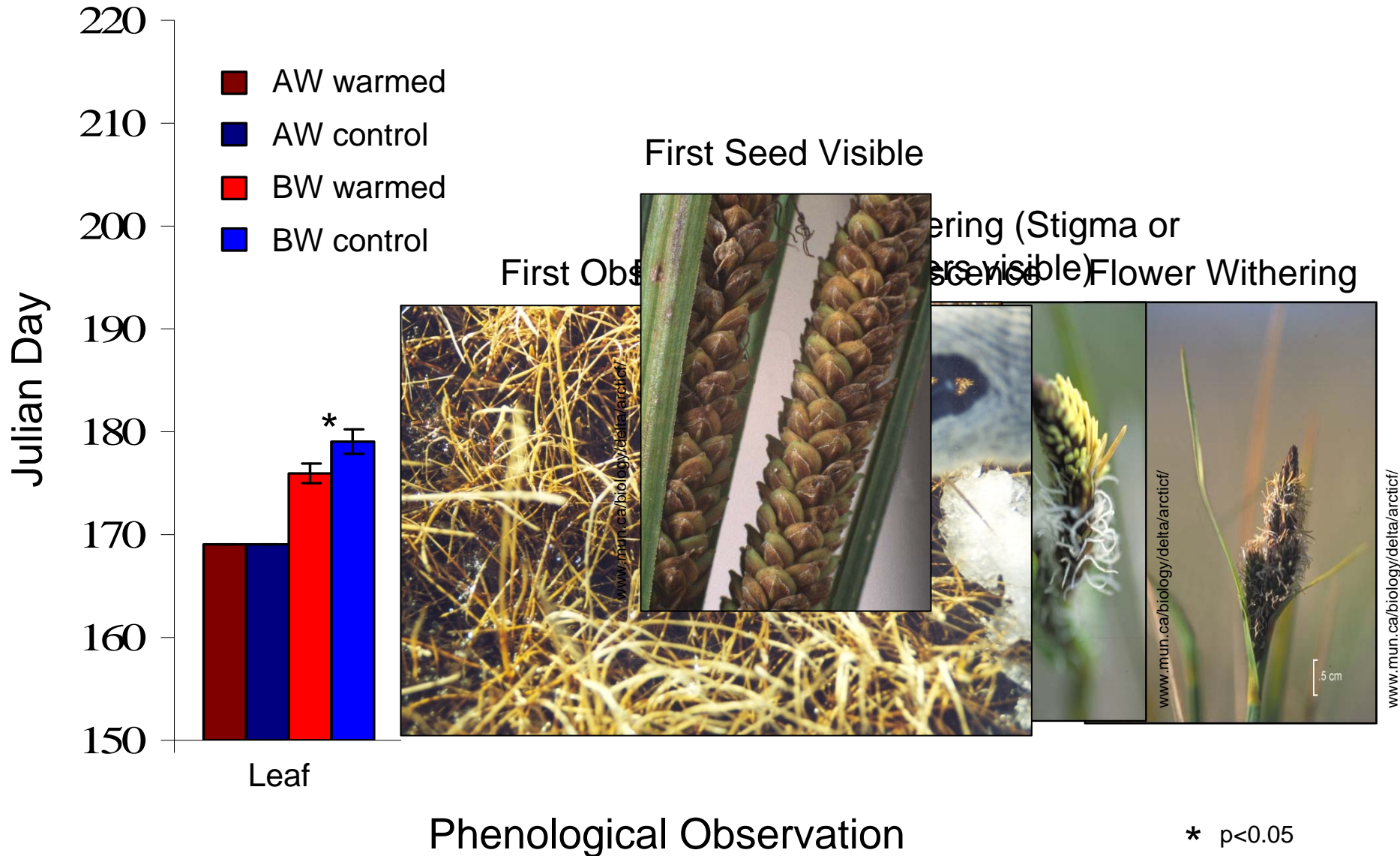
Research Design

- Measurements during Summer 2007
 - Phenological Observations
 - Inflorescence Counts
 - Growth Measures



Hultén (1968)

Phenological Observations



Number of Plants Flowering

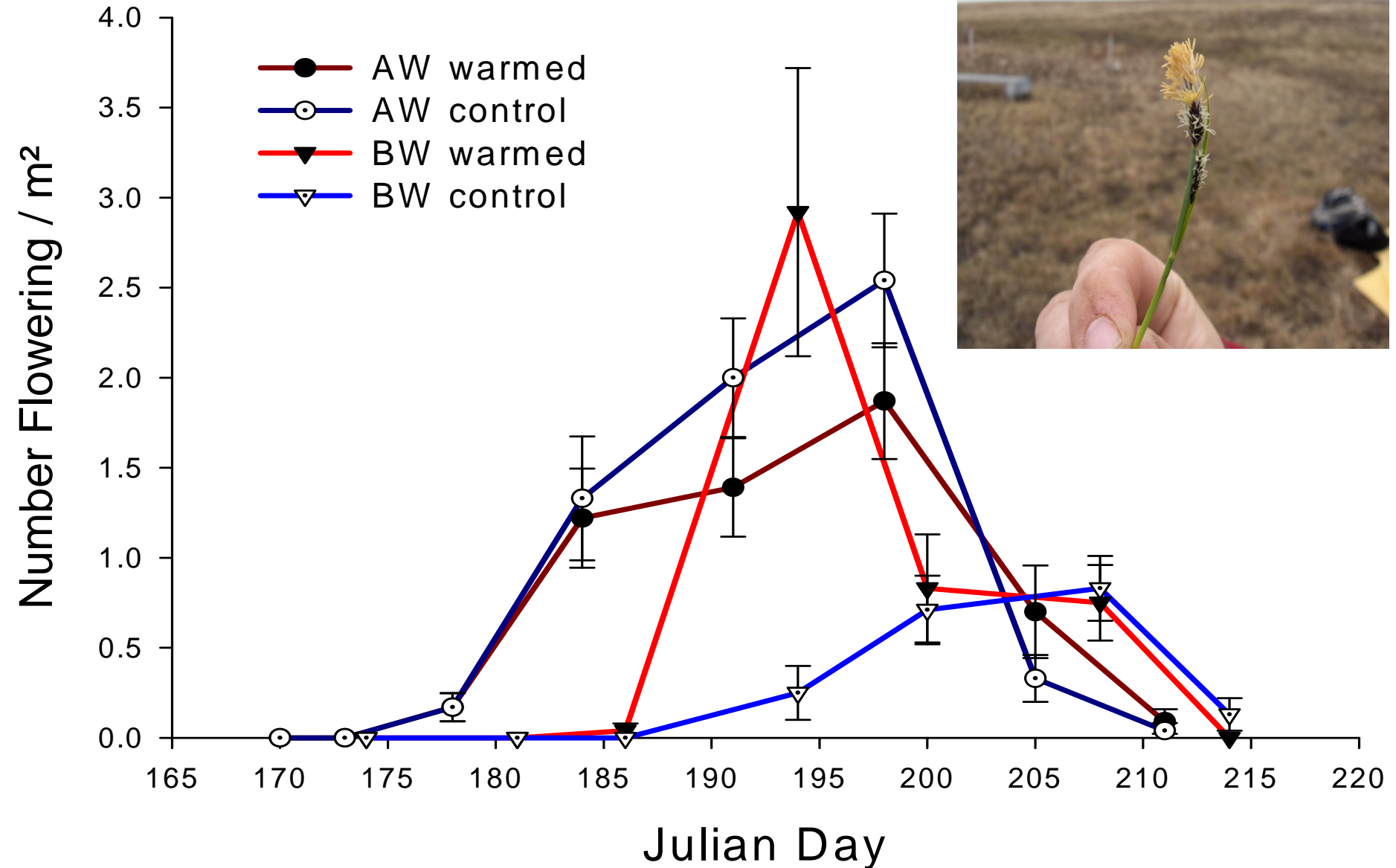
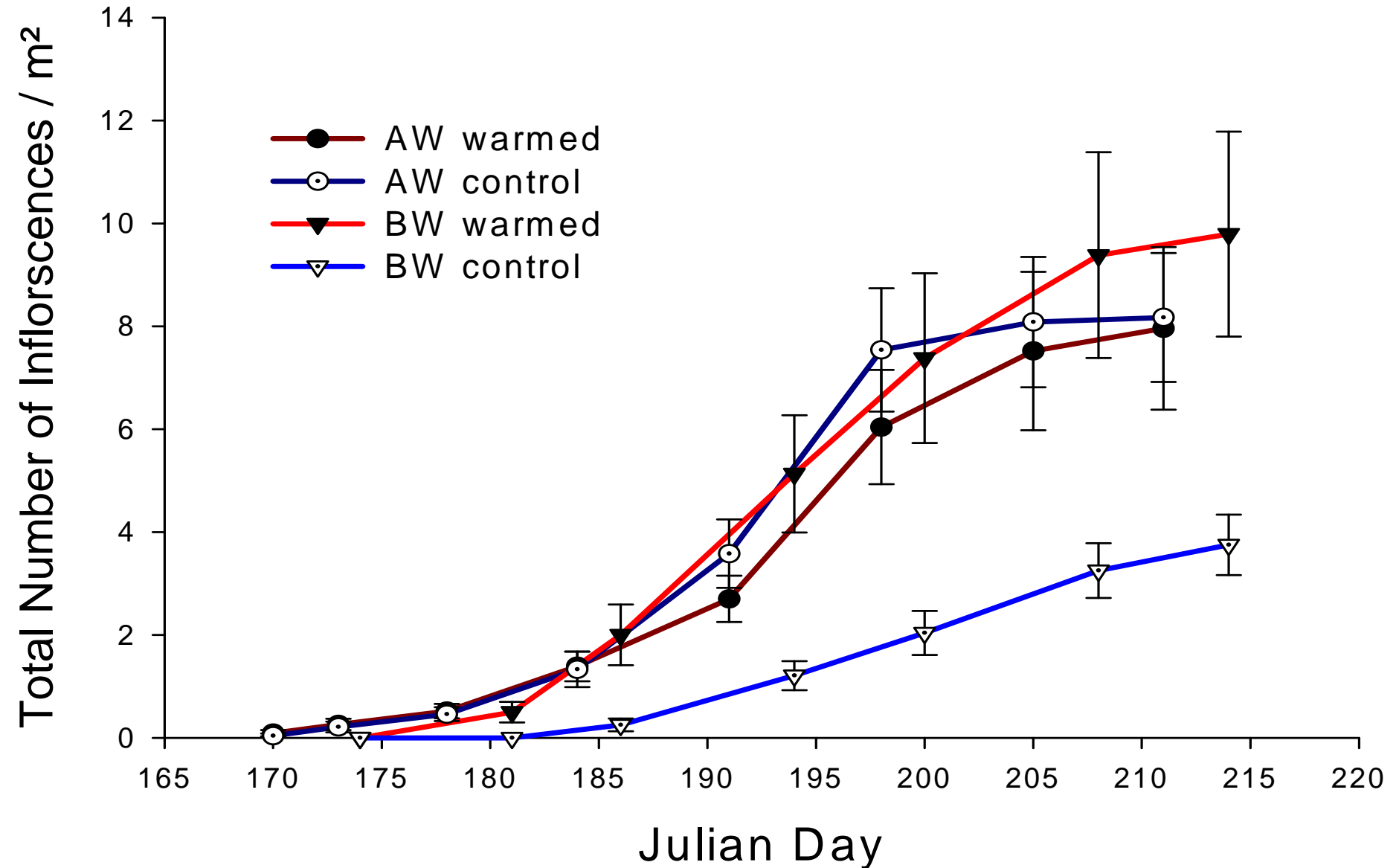
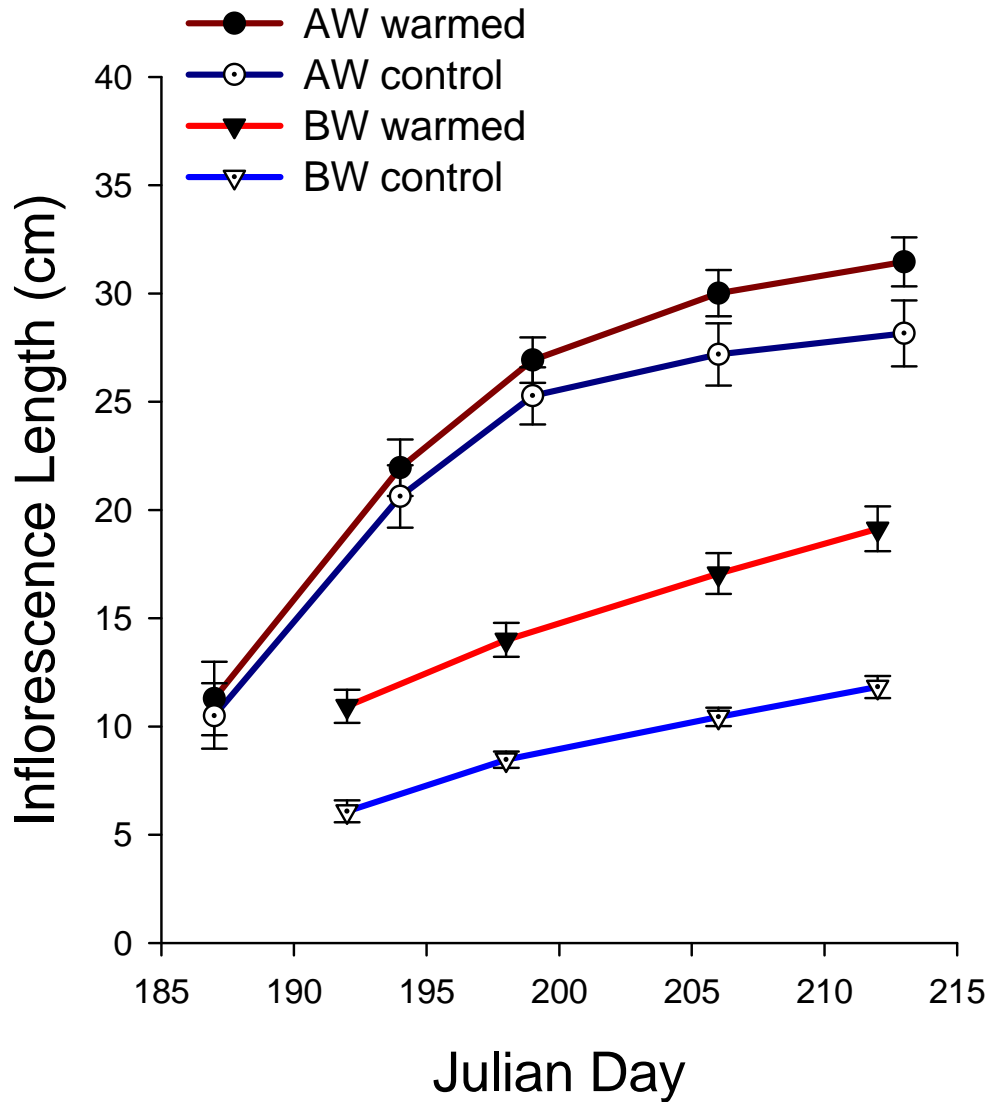


Image Courtesy of Robert Slider

Total Number of Inflorescences



Inflorescence Length



Discussion

- Significant changes in Barrow
 - Increase in Growth and Reproduction
 - Phenological events occur earlier
- No significant changes in Atqasuk



Sources and Acknowledgements

- Thanks to:

- National Science Foundation
- Grand Valley State University
- Robert Hollister, GVSU
- GVSU Arctic Ecology Program
 - Robert Slider, Jeremy May, Amanda Snyder
- Barrow Arctic Science Consortium



- Sources

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QUESTIONS?