Preregistration

Effects of altered snowmelt timing on flowering phenology of Arctic plant species

Nicola F. Rammell[1]

[1] Department of Geography, The University of British Columbia

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STUDY INFORMATION

1. Title

1.1 Effects of altered snowmelt timing on flowering phenology of Arctic plant species

2. Authors

Nicola F. Rammell

3. Description

This study uses data from Blume-Werry et al. (2017)** accessed from Dryad to plot flowering phenology of several Arctic plant species as a function of snowmelt timing. In this study, snowmelt was manipulated by removing snow from experimental plots to obtain earlier snowmelt dates. Data was collected during the 2014 growing season in Northern Sweden near the Abisko Scientific Research Station (68°210 N18°450 E). An improved understanding of how species will react to altered snowmelt is imperative in tundra environments where environmental change is driving rapid shifts in vegetation.

** Blume-Werry, G., Jansson, R., & Milbau, A. (2017). Root phenology unresponsive to earlier snowmelt despite advanced above-ground phenology in two subarctic plant communities. Functional Ecology, 31(7), 1493-1502.

4. Hypotheses

4.1 Phenological development will advance with snowmelt date, though responses will be species specific.

DESIGN PLAN

5. Study Type

5.1 Experimental data.

6. Blinding

No blinding is involved in this study.

7. Is there anything blinding in this study

No.

Study Design

This study used a randomized blocked design.

SAMPLING PLAN

10. Existing data

Registration prior to analysis of data.

11. Explanation of existing data

Data were accessed from Dryad (https://datadryad.org/stash/dataset/doi:10.5061%2Fdryad.21bg6). Data were not explored prior to this analysis.

12. Data collection procedures

N/A

13. Sample size

Observations were collected for 124 individual plants across two treatment groups.

ANALYSIS PLAN

I will subset data to examine flowering phenology for all Arctic plant species included in the study. Flowering phenology will be plotted as a function of snowmelt date by species.