

Limited decadal growth of mountain birch saplings has minor impact on surrounding tundra vegetation

SND-ID: 2022-75-1. **Version:** 1. **DOI:** <https://doi.org/10.5878/p826-y513>

Download data

Latnjajaure_Birch.zip (224.69 KB)

Associated documentation

Latnjajaure_birch_README.txt (3.47 KB)

Download all files

2022-75-1-1.zip (~228.17 KB)

Citation

Scharn, R., Negri, I. S., Løkken, J. O., Bacon, C. D., Antonelli, A., Hofgaard, A., Nilsson, R. H., et al. (2022) Limited decadal growth of mountain birch saplings has minor impact on surrounding tundra vegetation (Version 1) [Data set]. University of Gothenburg. Available at: <https://doi.org/10.5878/p826-y513>

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Description

The study addresses two important issues in arctic treeline dynamics:

- How do birch saplings, being the dominant treeline species, that have been established above treeline perform?
- How do these birch saplings affect the surrounding tundra vegetation?

For this, we collected species abundance measurements in 50 x 50 cm plots around birch saplings above the treeline near the Latnjajaure Field Station in northern Sweden. We compared these measurements with control measurements, and reference measurements taken below the treeline. We also looked at the growth (Diameter + Length) of birch saplings over 15 years (2001-2016). The data deposited includes the raw data, code, and statistical models used to analyze the data, and all

output (figures and tables) used in the study. Further metadata can be found in the README file included with the data.

GENERAL INFORMATION

1. Title of Dataset:

Limited decadal growth of mountain birch saplings has minor impact on surrounding tundra vegetation

2. Author Information

A. Principal Investigator Contact Information

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B. Associate or Co-investigator Contact Information

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Institution: University of Gothenburg

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3. Date of data collection: 2016-07-(4-31)

4. Geographic location of data collection

Latnjaure field station close to Abisko northern Sweden (68.35°N, 18.49°E).

DATA & FILE OVERVIEW

The file birch_coordinates.csv contains the coordinates of each birch (WGS84 and SWEREF99) together with height, number of stems, base diameter and number of branches.

For each analysis in the paper, we created a folder containing three subfolders

The main folders:

- 1 alpha diversity altitude slope
- 2 alpha diversity intercept only
- 3 Beta diversity
- 4 Diameter and length

Subfolders are structured the same for all main folders containing:

- 1 input: containing raw input data.
- 2 script: R Script containing all data processing as well as the JAGS script containing the code used in the statistical modelling. R Scripts should run provided the path to the input data is set correctly (see setwd in the start of the script) and the required libraries are installed locally
- 3 output: containing output tables and figures

Raw data for main folders 1-3 are the same containing:

Latnja2006-16.txt: a tab-separated matrix containing species cover estimates (columns) for plots

(rows). rownames contain community type (Bpt_Ref, Bpt and C for Reference, Birch and Control plots) and the height of the plot in meters above sea level.

norway_latnjatree.dated.tre: dated phylogeny by scharn et al 2021 (doi:

<https://doi.org/10.1088/1748-9326/abfe8a>) used for phylogenetic diversity estimates in Newick format.

main folder 3 (Beta_diversity) sub-folder input contains netMPD_sweden.rds, a serialized R object file containing the mean pairwise distances of the species.

main folder 4 contains:

Birch_heigh_Diameter.csv: a tab-separated matrix containing the birch number, sampling year, height, and diameter

Birch_heigh_Diameter_dif.csv: a tab-separated matrix containing the birch number, as well as the between year difference in height and diameter

METHODOLOGICAL INFORMATION

1. Description of methods used for collection/generation of data:

Methods can be found in "Limited decadal growth of mountain birch saplings has a minor impact on surrounding tundra vegetation" (See associated publication)

Data contains personal data

No

Language

[English](#)

Time period(s) investigated

2001-07-01 - 2016-07-31

2005-07-01 - 2016-07-31

Data format / data structure

[Numeric](#)

[Text](#)

[Geospatial](#)

Species and taxons

[Betula pubescens ehrh.](#)

Geographic spread

Geographic location: [Sweden](#), [Norrbotten County](#), [Kiruna Municipality](#), [Arctic](#)

Geographic description: Latnjajaure field station close to Abisko northern Sweden (68.35°N, 18.49°E).

Responsible department/unit

Department of Earth Sciences

Funding

- Funding agency: Swedish Research Council for Environment Agricultural Sciences and Spatial Planning (Formas)
- Funding agency's reference number: 942-2015-1382
- Project name on the application: Inverkan av ett varmare klimat på den biologiska mångfalden i Arktis

Research area

[Environmental sciences](#) (Standard för svensk indelning av forskningsämnen 2011)

[Ecology](#) (Standard för svensk indelning av forskningsämnen 2011)

[Evolutionary biology](#) (Standard för svensk indelning av forskningsämnen 2011)

[Environment](#) (INSPIRE topic categories)

Keywords

[Biodiversity](#), [Species distribution](#), [Downy birch](#), [Tree line](#), [Arctic region](#), [Environmental changes](#)

Publications

Scharn, R., Negri, I. S., Sundqvist, M. K., Løkken, J. O., Bacon, C. D., Antonelli, A., Hofgaard, A., Nilsson, R. H., & Björk, R. G. (2022). Limited decadal growth of mountain birch saplings has minor impact on surrounding tundra vegetation. In *Ecology and Evolution* (Vol. 12, Issue 6). Wiley.

<https://doi.org/10.1002/ece3.9028>

DOI: <https://doi.org/10.1002/ece3.9028>

If you have published anything based on these data, [please notify us](#) with a reference to your publication(s). If you are responsible for the catalogue entry, you can update the metadata/data description in DORIS.

Polygon (Lon/Lat)

18.466805, 68.322022

18.63924, 68.322022

18.63924, 68.365607

18.466805, 68.365607

18.466805, 68.322022

Accessibility level

Access to data through SND

Data are freely accessible

Use of data

[Things to consider when using data shared through SND](#)

Copyright

GNU General Public License v3.0

Versions

Version 1. 2022-05-09

Contacts for questions about the data

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Download metadata

[DataCite](#)

[DDI 2.5](#)

[DDI 3.3](#)

[DCAT-AP-SE 2.0](#)

[JSON-LD](#)

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