

aava_poplars_abreen_2014_readme_metadata.pdf

AAVA readme file for Poplars (July 20, 2016)

Dataset Title: Alaska Arctic Vegetation Archive: Poplar Vegetation Plots

Dataset Author: Amy L. Breen

Alaska Arctic Vegetation Archive Dataset Name: poplars_abreen (POP_AB)

Dataset Description:

The vegetation associated with balsam poplar stands in the Arctic Foothills of Alaska and the interior boreal forests of Alaska and Yukon was described by Breen (2014) as part of her doctoral dissertation research from 2003 to 2006 (Breen 2010). This research was supported by a National Science Foundation Doctoral Dissertation Improvement grant (DEB-0608539) and by a Center for Global Change and Arctic System Research (University of Alaska Fairbanks) student award to Breen and by the National Science Foundation grant OPP-9996383 to Marilyn Walker.

The Arctic study area is bounded by the Noatak River (162 degrees W) to the west and the Kongakut River (142 degrees W) to the east. The boreal forest study area is bounded to the east by the Kobuk River (159 degrees W) and to the west by the headwaters of the Yukon River (137 degrees W). A new order and alliance were described, *Populetales balsamiferae* and *Eurybia-Populion balsamiferae*, respectively. Within the alliance, two new associations were described: (1) *Salix alaxensis-Populetales balsamiferae* (arctic communities) with three variants (typical variant in riparian areas (11 plots), var. *Androsace chamaejasme* on south-facing slopes (6 plots) and var. *Cystopteris montana* associated with perennial springs (2 plots)), and (2) *Rosoacicularis-Populetales balsamiferae* (boreal communities; 13 plots).

The study plots were chosen subjectively in areas of homogeneous, representative vegetation and geo-referenced. For each plant community, the minimum sampling area was determined. At each study plot, site variables were recorded. The vegetation data were analyzed using the Braun-Blanquet approach, and the plant community types were published in Breen (2014). Subsets of the vegetation and environmental data were used in several subsequent publications (Afonina and Breen 2009, Breen et al. 2009, Breen et al. 2012).

References:

Afonina, O., and A. L. Breen. 2009. *Dicranum dispersum* (Dicranaceae) and *Sciuro-hypnum ornellanum* (Brachytheciaceae), new to Arctic North America. *The Bryologist* 112:268-272.

Breen, A. L. 2010. From forest to tundra: Historical biogeography, floristic diversity and nucleotide variation in balsam poplar. PhD thesis, University of Alaska, Fairbanks, Alaska, USA.

Breen, A. L. 2014. Balsam poplar (*Populus balsamifera* L.) communities on the Arctic Slope of Alaska. *Phytocoenologia* 44:1–24.

Breen, A. L., E. Glenn, A. Yeager, and M. S. Olson. 2009. Nucleotide diversity among natural populations of a North American poplar (*Populus balsamifera*, Salicaceae). *New Phytolog.* 182:763–773.

Breen, A. L., D. F. Murray, and M. S. Olson. 2012. Genetic consequences of glacial survival: the late Quaternary history of balsam poplar (*Populus balsamifera* L.) in North America. *Journal of Biogeography* 39:918–928.

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Primary Agency: Alaska Geobotany Center, University of Alaska Fairbanks

Direct Plot Archive Record Link: <http://geobotanical.portal.gina.alaska.edu/catalogs/9666-alaska-arctic-vegetation-archive-poplar-vegeta>

Data prepared by: Lisa Druckenmiller (ladruckenmiller@alaska.edu) and Amy Breen (albreen@alaska.edu)

Link to VegBank Record: Will add when available

Missing data: Indicated by ‘-9999’ for numerical data and ‘n/a’ for categorical or text data

Files Available for Download:

1) AAVA Poplar Modified Source Data

1a) Poplar Species Cover

aava_poplars_breen_2014_spp_modsrc.csv

aava_poplars_breen_2014_spp_modsrc.xlsx

These files contain species cover data for the Poplar vegetation plots in both .csv and .xlsx format. The source of these data is the *Phytocoenologia* publication (Breen 2014). Both the author's determination and the current taxonomy according to the Panarctic Species List (PASL) are listed. Taxa are listed in alphabetical order

according to the accepted PASL name. Species cover classes are the old Braun-Blanquet cover-abundance scale: r (rare), + (common, but less than 1 percent cover), 1 (1-5 percent), 2 (6 to 25 percent), 3 (26 to 50 percent), 4 (51 to 75 percent), 5 (76 to 100 percent). The plot numbers in the source data are the author's. The main plot numbers in the Turboveg database are accession numbers and will differ. The author's plot numbers are retained in the 'Field releve number' field in the Turboveg database.

1b) Poplar Environmental Data

aava_poplars_abreen_2014_allenv_modsrc.csv

aava_poplars_abreen_2014_allenv_modsrc.xlsx

These files contain modified environmental data for the Poplar vegetation plots in both .csv and .xlsx format. The source of these data is Breen (2010 & 2014), field data sheets, and calculated data. For the source of the fields within the file, see No. 4) below. The header data in the Turboveg database only includes a subset of these data. The plot numbers in the source data are the author's. The main plot numbers in the Turboveg database are accession numbers and will differ. The author's plot numbers are retained in the 'Field releve number' field in the Turboveg database. The codes and scalars used in this file are in the Legend for Environmental Variables file in the project metadata folder

(aava_poplars_abreen_2014_envlegend_metadata.pdf and

aava_poplars_abreen_2014_envlegend_metadata.docx).

Improvements to the source data include: 1) tree, shrub, forb, graminoid, horsetail, bryophyte, and lichen cover were summed to provide total vegetation cover, and 2) latitude and longitude measurements were improved from Breen (2014) using Google Earth.

2) AAVA Poplar Turboveg Database

aava_poplars_abreen_2014_tv.zip

This file is the Poplar Turboveg Database (.dbf). Turboveg is a software program for managing vegetation-plot data (see <http://www.synbiosys.alterra.nl/turboveg/>). The database includes both species cover and environmental header data. The header data for the database are consistent across all datasets in the AAVA. There are both required and recommended fields for inclusion in the AAVA. Consequently, only a subset of the modified source environmental data are included in the database and these may be cross-walked to the AAVA data dictionary. The species nomenclature used in the database is according to the Panarctic Species List (beta 1.0) created for the Arctic Vegetation Archive. These files are updated periodically and available for download via 'Data and Resources' section of the data record.

3) AAVA Poplar Ancillary Data

3a) Poplar Plot Location Map
aava_poplars_abreen_2014_plotmap_anc.pdf

This file is a map of the general locations where the Poplar permanent vegetation plots were sampled from Breen (2014).

3b) Poplar Plot Photos
aava_poplars_abreen_2014_plotphotos_anc.pdf

This file contains landscape and vegetation photos from the Poplar permanent vegetation plots provided by the author.

3c) Poplar Publications
afoninao_2009_bryologist_raremosses.pdf
breena_2009_newphytol_nucldiversitypoplar.pdf
breena_2012_jbiogeography_quaterhistpoplar.pdf
breena_2014_phytocoenologia_poplarcomm.pdf

These are .pdf files of the references cited in the dataset description for the Poplar permanent vegetation plots. Journal names are abbreviated using the standards for the abbreviation of titles of periodicals and serial titles. The following reference was unavailable digitally: Breen, A. L. 2010. From forest to tundra: Historical biogeography, floristic diversity and nucleotide variation in balsam poplar. PhD thesis, University of Alaska, Fairbanks, Alaska, USA.

4) AAVA Poplar Metadata
aava_poplars_abreen_2014_envlegend_metadata.pdf
aava_poplars_abreen_2014_envlegend_metadata.docx

These files are metadata for the Poplar permanent vegetation plots and include a metadata legend in two formats for the modified environmental data that are specific to this dataset.

Modifications to environmental source data:

The table below in comma separated values format indicates the modifications made to source data in the preparation of the AAVA Poplar Modified Source Environmental Data files (aava_poplars_abreen_2014_allenv_modsrc.csv and aava_poplars_abreen_2014_allenv_modsrc.xlsx) and fields that were used to crosswalk these data to the Turboveg database (aava_poplars_abreen_2014_tv.zip).

VARIABLE, IN MODIFIED SOURCE ENVIRONMENTAL DATA FILE, IN TURBOVEG FILE, SOURCE AND CHANGES MADE TO DATA
FIELD PLOT NUMBER, Y, Y, Table 3.2 in Breen 2010. The plot numbers in the modified source data are the author's. The main plot numbers in the Turboveg database are accession numbers and will differ. The author's

plot numbers are retained in the 'Field releve number' field in the Turboveg database.

DATE SURVEYED (YYYYMMDD),Y,Y,Breen Unpublished data. From original field datasheets.

BIOME,Y,N,Breen Unpublished data. From original field datasheets.

HABITAT,Y,N,Breen Unpublished data. From original field datasheets.

LOCALITY,Y,N,Breen Unpublished data. From original field datasheets.

LATITUDE GOOGLE EARTH WGS 84 (DD),Y,Y,Appendix 1 in Breen 2014. A. Breen improved these plot locations using Google Earth. All coordinates were projected to the WGS84 datum by L. Wirth (GINA) in 2014.

LONGITUDE GOOGLE EARTH WGS 84 (DD),Y,Y,Appendix 1 in Breen 2014. A. Breen improved these plot locations using Google Earth. All coordinates were projected to the WGS84 datum by L. Wirth (GINA) in 2014.

ELEVATION (M),Y,Y,Breen Unpublished data. From original field datasheets.

SLOPE (DEGREES),Y,Y,Breen Unpublished data. From original field datasheets.

ASPECT (DEGREES),Y,Y,Breen Unpublished data. From original field datasheets. Crosswalked to the Turboveg field 'Aspect.'

STAND AREA (METERS SQUARED),Y,N,Breen Unpublished data. From original field datasheets.

LANDFORM (CODE),Y,N,Breen Unpublished data. From original field datasheets.

SURFICIAL GEOLOGY (CODE),Y,Y,Breen Unpublished data. From original field datasheets. Aided in crosswalk to the Turboveg field 'Surficial geology.'

STABILITY (SCALAR),Y,N,Breen Unpublished data. From original field datasheets.

SITE MOISTURE (SCALAR),Y,Y,Breen Unpublished data. From original field datasheets. Crosswalked to the Turboveg field 'Site moisture.'

ESTIMATED SNOW DURATION (SCALAR),Y,N,Breen Unpublished data. From original field datasheets.

SOIL MOISTURE (SCALAR),Y,N,Breen Unpublished data. From original field datasheets. Aided in crosswalk to the Turboveg field 'Site moisture.'

DISTURBANCE TYPE (CODE),Y,N,Breen Unpublished data. From original field datasheets.

DISTURBANCE DEGREE (SCALAR),Y,N,Breen Unpublished data. From original field datasheets.

SITE CONTOUR (CODE),Y,N,Breen Unpublished data. From original field datasheets.

EXPOSURE (SCALAR),Y,N,Breen Unpublished data. From original field datasheets.

TOPOGRAPHIC POSITION (CODE),Y,Y,Breen Unpublished data. From original field datasheets. Crosswalked to the Turboveg field 'Topographic position.'

POPLAR REPRODUCTION (CODE),Y,N,Breen Unpublished data. From original field datasheets.

TREE CANOPY HEIGHT (M),Y,Y,Breen Unpublished data. From original field

datasheets.
SHRUB HEIGHT (CM),Y,Y,Breen Unpublished data. From original field
datasheets.
FORB/GRAMINOID HEIGHT (CM),Y,Y,Breen Unpublished data. From original
field datasheets.
MOSS/ORGANIC/A HORIZON HEIGHT (CM),Y,Y,Breen Unpublished data. From
original field datasheets.
BASAL AREA OF STAND (METERS SQUARED/HA),Y,N,Breen Unpublished data.
From original field datasheets.
DENSITY OF STAND (TREES/HA),Y,N,Breen Unpublished data. From original
field datasheets.
LITTER DEPTH (CM),Y,N,Breen Unpublished data. From original field
datasheets.
ORGANIC HORIZON PRESENT?,Y,N,Breen Unpublished data. From original
field datasheets.
BURIED ORGANIC HORIZONS?,Y,N,Breen Unpublished data. From original
field datasheets.
COVER TREES (PERCENT),Y,Y,Breen Unpublished data. From original field
datasheets.
COVER TREE SAPLINGS (PERCENT),Y,N,Breen Unpublished data. From
original field datasheets.
COVER DECIDUOUS SHRUBS (PERCENT),Y,N,Breen Unpublished data. From
original field datasheets.
COVER EVERGREEN SHRUBS (PERCENT),Y,N,Breen Unpublished data. From
original field datasheets.
COVER SHRUBS (PERCENT),Y,Y,Breen Unpublished data. From original field
datasheets.
COVER FORBS (PERCENT),Y,Y,Breen Unpublished data. From original field
datasheets.
COVER GRAMINOIDS(PERCENT),Y,Y,Breen Unpublished data. From original
field datasheets.
COVER HORSETAILS (PERCENT),Y,Y,Breen Unpublished data. From original
field datasheets.
COVER BRYOPHYTES (PERCENT),Y,Y,Breen Unpublished data. From original
field datasheets.
COVER LICHEN (PERCENT),Y,Y,Breen Unpublished data. From original field
datasheets.
COVER LITTER (PERCENT),Y,Y,Breen Unpublished data. From original field
datasheets.
COVER STANDING DEAD (PERCENT),Y,N,Breen Unpublished data. From
original field datasheets.
COVER BARE ROCK (PERCENT),Y,Y,Breen Unpublished data. From original
field datasheets.
COVER BARE SOIL (PERCENT),Y,Y,Breen Unpublished data. From original
field datasheets.
COVER OPEN WATER (PERCENT),Y,Y,Breen Unpublished data. From original
field datasheets.
COVER TOTAL DEAD (PERCENT),Y,N,Breen Unpublished data. From original
field datasheets.
COVER TOTAL VEGETATION (PERCENT),Y,Y,"Breen Unpublished data. 'Cover

Trees', 'Cover Shrubs', 'Cover Forbs', 'Cover Graminoids', 'Cover Horsetails', 'Cover Bryophytes', and 'Cover Lichen' were combined for Turboveg field 'Cover total vegetation.'