aava_pingos_mwalker_1990_readme_metadata.pdf

AAVA readme file for Pingo Dataset (November 18, 2016)

Dataset Title: Alaska Arctic Vegetation Archive: Pingo Vegetation Plots

Dataset Author: Marilyn D. Walker

Alaska Arctic Vegetation Archive Dataset Name: pingos_mwalker (PNG_MW)

Dataset Description:

The vegetation and floristics of pingos on the Central Arctic Coastal Plain of Alaska were described by M. D. Walker for her doctoral thesis at the University of Colorado, Department of Environmental, Population and Organismic Biology (Walker 1990). Funding was provided by National Science Foundation grants DPP–8312497 and DPP–8520754, with additional funds from the Arctic Institute of North America, the Explorer's Club, Sigma Xi, University of Colorado Museum Walker van Riper Fund, and the University of Colorado Graduate School Foundation fund. The U.S. Army Corps of Engineers Cold Regions Research and Engineering Laboratory (CRREL), U.S. Fish and Wildlife Service, North Slope Borough, and the Institute of Arctic and Alpine Research (INSTAAR) provided in–kind support. This study was initiated in 1983 with additional vegetation and snow transect work completed in the years 1984–1986.

A total of 293 plots were subjectively located for uniformity in floristic composition and environmental conditions on 41 pingos located in the Kuparuk, Prudhoe Bay, Kadleroshilik and Toolik River areas on the North Slope of Alaska. Plots were located in 9 different locations on the pingos including a) bottom of snowbank (40 plots), b) middle snowbank (45 plots), c) ENE side of the pingo (36 plots), d) north slope of pingo (41 plots), e) south slope of pingo (45 plots), f) summit of pingo (41 plots), g) WSW slope of pingo (39 plots), h) very late lying or permanent snowbed (4 plots), and g) frost boil (1 plot). One plot had insufficient location information. The plots occurred in 7 broad habitat types a) zoogenic communities associated with animal dens and bird mounds (50 plots), b) willow shrub vegetation of riparian areas and warm habitats (8 plots), c) talus slope, debris and alluvial vegetation (4 plots), d) deep snowbed vegetation (40 plots), e) dry to moist dwarf–shrub heath and low–shrub vegetation on acidic nutrient poor substrates (40 plots), f) dry and mesic dwarf–shrub and graminoid vegetation on non–acidic substrate (133 plots), and g) steppe tundra communities on south facing slopes of pingos (19 plots).

The original pingo latitude and longitude coordinates were estimated using a topographic map. Final pingo locations were determined more accurately by M. Walker and L. Druckenmiller in 2014 using original

maps and overlays, aerial photographs, and Google Earth. Circular plots were 12.5 square meter in area and were permanently marked. Most pingos had up to 7 plots while some had more. A complete list of plant species was obtained for each plot. Some environmental data is available by plot, while the remainder is summarized by community and is available in the thesis.

These data were subsequently used in several publications listed below.

References:

Walker, M. D. 1990. Vegetation and floristics of pingos, Central Arctic Coastal Plain, Alaska. Dissertationes Botanicae. J. Cramer, Stuttgart, Germany.

Walker, M. D., D. A. Walker, K. R. Everett, and S. K. Short. 1991. Steppe vegetation on south-facing slopes of pingos, central Arctic Coastal Plain, Alaska, USA. Arctic and Alpine Research 23:170-188.

Walker, M. D., Everett, K. R., Walker, D. A., and Birkland, P. W. 1996. Soil development as an indicator of relative pingo age, Northern Alaska, USA. Arctic and Alpine Research 28:352-362.

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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/10665-alaska-arctic-vegetation-archive-pingos-vegeta

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Link to VegBank Record: http://vegbank.org/vegbank/views/project_summary.jsp?clearSearch=0&qsent=6&xwhereMatchAny=false&xwhereMatchWholeWords=false&perPage=10&where=where_keywords_pk_in&xwhereKey=xwhere_kw_match&xwhereSearch=true&wparam=project__project&selEntity=project&xwhereParams=pingos

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

Files Available for Download:

1) AAVA Pingos Modified Source Data

1a) Pingos Species Cover
aava_pingos_mwalker_1990_spp_modsrc.csv
aava_pingos_mwalker_1990_spp_modsrc.xlsx

These files contain species cover data for the Pingo vegetation plots in both .csv and .xlsx format. The source of these data is the author's thesis (Walker 1990; Tables B1, B2, and B3). 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 by percent in the original data except for values less than 1, where they were assigned either ++ (value greater than 0.5 but less than 1 percent), or + (value less than 0.5 but greater than 0 percent). In the modified source data these values were converted to: ++ (0.7 percent), and + (0.3 percent). In two instances, taxa were lumped into a single taxon in the PASL: 1) Cetraria islandica (Cetraria islandica and Cetraria islandica crispiformis), and 2) Cladonia fimbriata (Cladonia fimbriata and Cladonia chlorophea). The field 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 follow the pattern, Pingo number–plot number at the pingo, and are retained in the 'Field releve number' field in the Turboveg database.

1b) Pingos Environmental Data
aava_pingos_mwalker_1990_allenv_modsrc.csv
aava_pingos_mwalker_1990_allenv_modsrc.xlsx

These files contain modified environmental data for the Pingos vegetation plots in both .csv and .xlsx format. The source of these data is Walker's published dissertation (Walker 1990, Figure 9, Tables 1, 18, C1, text), author communication and Vegbank website, in that order. 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 (Pingo number–plot number at pingo) are retained in the 'Field releve number' field in the Turboveg database. Accession number to VEGBANK are included in this file. The codes and scalar values used in this file are in the Legend for Environmental Variables file in the project metadata folder (aava_pingos_mwalker_1990_envlegend_metadata.pdf).

Improvements to the source data include: 1) final latitude and longitude for the pingos were estimated by M. Walker and L. Druckenmiller in 2014 using topographic maps and a project mylar overlay, color infrared aerial photographs, and Google Earth. An estimate of pingo location accuracy is given in meters.

2) AAVA Pingos Turboveg Database
aava_pingos_mwalker_1990_tv.zip

This file is the Pingos 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 1.1) created for the
Arctic Vegetation Archive. The current Turboveg Data Dictionary and
Panarctic Species List files are necessary to use these data in
Turboveg. These files are updated periodically and available for
download via 'Data and Resources' section of the data record.

Species Data: For the cross-walk from the modified source species data
to the Turboveg database, we made the following changes: 1) The
species determinations are by the author. These may differ from the
species names in the Turboveg database as the nomenclature in the
database is according to the Panarctic Species List created for the
Arctic Vegetation Archive.

Environmental Data: For the cross-walk from the modified environmental
source data to the Turboveg database, we made the following changes:
1) aspect in degrees was rounded up or down to the nearest cardinal,
primary intercardinal and secondary intercardinal direction, 2) where
slope position was given with a decimal, the value was rounded up to
the next whole number as position names were only assigned to whole
numbers, and 3) soil texture was abbreviated to the major soil
separates, plus gravel and loam.

3) AAVA Pingos Ancillary Data

3a) Pingos Plot Location Map
aava_pingos_mwalker_1990_plotmap_anc.jpg
aava_pingos_mwalker_1990_vicinitymap_anc.jpg

These two files are two versions of the maps for the Pingo vegetation
map. The vicinity map is from Walker (1990), while the aerial was made
from the estimated coordinates in conjunction with the original maps
and aerial photographs.

3b) Pingos Plot Photos
aava_pingos_mwalker_1990_plotphotos_anc.pdf

Forthcoming.

3c) Pingos Publications
walkerm_1990_thesis_pingovegfloristics.pdf
walkerm_1991_arctantarctalpres_stepvegsslopepingo.pdf
walkerm_1996_arctantarctalpres_soildevopingoage.pdf

These are (.pdf) files of all of the references cited in the dataset description for the Pingos vegetation plots. Journal names are abbreviated using the standards for the abbreviation of titles of periodicals and serial titles.

4) AAVA Pingos Metadata
aava_pingos_mwalker_1990_readme_metadata.txt
aava_pingos_mwalker_1990_envlegend_metadata.pdf

These files are the metadata for the Pingos vegetation plots and include a readme file and an environmental legend 'envlegend' for the modified environmental data that are specific to this dataset.

Modifications to environmental source data:
The table below in comma separated values (.csv) format indicates the modifications made to source data in the preparation of the AAVA Pingos Modified Source Environmental Data files (aava_pingos_mwalker_1990_allenv_modsrc.csv and aava_pingos_mwalker_1990_allenv_modsrc.xlsx) and fields that were used to crosswalk these data to the Turboveg database (aava_pingos_mwalker_1990_tv.zip).

VARIABLE,IN MODIFIED SOURCE ENVIRONMENTAL DATA FILE,IN TURBOVEG FILE AS A NAMED FIELD,SOURCE AND CHANGES MADE TO DATA
PLOT NUMBER (THESIS),Y,N,"Table 1, Walker 1990."
PINGO NAME,Y,N,"Table 1, Walker 1990. Turboveg field 'Location.'"
STUDY AREA,Y,N,"Figure 9, Walker 1990. Turboveg field 'Region.'"
LATITUDE (DD) (ESTIMATED),Y,Y,"Table 1, Walker 1990. Original latitude and longitude data were measurements from a topographic map. Final pingo locations included in the modified source data and Turboveg Database were determined by M. Walker and L. Druckenmiller in 2014 using original maps and overlays, aerial photographs, and Google Earth."
LONGITUDE (DD) (ESTIMATED),Y,Y,"Table 1, Walker 1990. Original latitude and longitude data were measurements from a topographic map. Final pingo locations included in the modified source data and Turboveg Database were determined by M. Walker and L. Druckenmiller in 2014 using original maps and overlays, aerial photographs, and Google Earth."
MICROSITE,Y,N,"Table 18, Walker 1990. Entered in Turboveg field 'Remarks.'"
AUTHOR PLOT NUMBER,Y,Y,"Table B1, B2, B3, Walker 1990. Turboveg field 'Number in species table.'"
PLANT COMMUNITY,Y,Y,"Table B1, B2, B3, Walker 1990. Turboveg field

'Plant community.'"
GENERAL LANDSCAPE UNIT (CODE),Y,N,"Table C1, Walker 1990. Entered in Turboveg field 'Remarks.'"
PINGO NUMBER,Y,N,"Table C1, Walker 1990."
PH (PASTE),Y,Y,"Table C1, Walker 1990. Turboveg field 'Soil pH.'"
SLOPE ANGLE (DEGREES),Y,Y,"Table C3, Walker 1990. Turboveg field 'Slope.'"
ASPECT (DEGREES),Y,Y,"Table C3, Walker 1990. Aspect measurements were rounded up or down to the nearest cardinal, primary intercardinal, and secondary intercardinal direction for Turboveg field 'Aspect.'"
SLOPE POSITION (CODE),Y,N,"Table C3, Walker 1990. Where slope position was given with a decimal, the value was rounded up to the next whole number as position names were only assigned to whole numbers. Aided in crosswalk to Turboveg field 'Topographic position.'"
EXPOSURE (SCALAR),Y,N,"Table C3, Walker 1990."
THAW DEPTH (CM),Y,N,"Table C3, Walker 1990. "
SOIL OR SITE MOISTURE (SCALAR),Y,N,"Table C3, Walker 1990. Although uncertain whether this was soil moisture or site moisture it aided, along with plant community, in the crosswalk to Turboveg field 'Site moisture.'"
SNOW DURATION (SCALAR),Y,N,"Table C3, Walker 1990."
STABILITY (SCALAR),Y,N,"Table C3, Walker 1990."
CRYOTURBATION(PERCENT),Y,N,"Table C3, Walker 1990."
MICRORELIEF HEIGHT(CM),Y,N,"Table C3, Walker 1990."
SOIL TYPE (CODE),Y,N,"Table C3, Walker 1990."
PLOT SIZE (SQUARE METERS),Y,Y,"Text page 30, Walker 1990, and unpublished data from original notebooks."
NOTES (AUTHOR NOTES),Y,N,M. Walker unpublished data from original field notebooks. Entered in Turboveg field 'Remarks.'
SOIL TEXTURE (AUTHOR NOTES),Y,Y,M. Walker unpublished data from original filed notebooks. Modified to meet Turboveg standards for the field 'Soil texture.'
TURBOVEG ACCESS NUMBER,Y,Y,Plot accession numbers from Turboveg Database for the Pingos dataset.
VEGBANK ACCESSION NUMBER,Y,N,Plot accession numbers from Vegbank Database for the Pingos dataset (http://vegbank.org/vegbank/index.jsp).