aava_legacy_dwalker_1996_readme_metadata.pdf

AAVA readme file for Legacy (Barter Island and Barrow) Vegetation Plots (February 17, 2020)

Dataset Title: Alaska Arctic Vegetation Archive: Legacy (Barter Island and Barrow) Vegetation Plots

Dataset Author: Donald A. ‘Skip’ Walker

Alaska Arctic Vegetation Archive Dataset Name: legacy_dw (LEG_DW)

Dataset Description:

The Legacy Resource Management Program (Department of Defense, Legacy Project Number 0742) was part of a larger study initiated in 1991 by the United States Congress to provide an opportunity to enhance the stewardship of the natural and cultural resources on the more than 25 million acres of land under Department of Defense jurisdiction. To achieve this goal, the Department of Defense initially gave high priority to inventorying, protecting, and restoring natural resources. In Alaska, two U.S. Air Force sites on the coastal North Slope of Alaska, Barter Island and Barrow, were characterized to build an inventory of the present biotic communities to compare them to historic communities. Dr. Donald A. (Skip) Walker conducted the vegetation inventory in 1993 and 1994, the results of which are included in a data report by Elias et al. (1996).

During the Legacy vegetation survey, 61 releves (31 at Barter Island, and 30 at Barrow) were subjectively located in 14 plant communities and 4 broad habitat types including: 1) coastal salt marsh vegetation (4 plots), 2) dry coastal beach and sand dune vegetation (3 plots), 3) sedge grass and dwarf shrub mire and fen vegetation (36 plots), and 4) dry and mesic dwarf-shrub and graminoid vegetation on non-acidic substrate (18 plots).

The plots were not permanently marked but were located on aerial photographs. The size of each sample area was estimated after a complete species list was obtained and varied from 14 to 500 square meters. Species and environmental data including subjective site assessments were collected in the field. Soil samples were brought back to the lab for chemical analysis.

The report Elias et al. (1996) also includes data on Holocene and modern insects, and Holocene plant communities (pollen).

References:

Elias, S., S. K. Short, D. A. Walker, and N. A. Auerbach. 1996. Historical biodiversity at Remote Air Force Sites in Alaska. Legacy

Resource Management Program Project #0742, Point Barrow and Barter Island Long Range Radar Sites, Alaska. Data Report, Institute of Arctic and Alpine Research, University of Colorado, Boulder, Colorado, USA.

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Primary Agency: Alaska Geobotany Center, University of Alaska Fairbanks

Direct Plot Archive Record Link: http://agc.portal.gina.alaska.edu/catalogs/10672-alaska-arctic-vegetation-archive-legacy-vegeta

Data prepared by: Lisa Druckenmiller (ladruckenmiller@alaska.edu) and entered into Turboveg by Lisa Druckenmiller.

Link to VegBank Record: 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 Legacy Modified Source Data

1a) Legacy Species Cover
aava_legacy_dwalker_1996_spp_modsrc.csv
aava_legacy_dwalker_1996_spp_modsrc.xlsx

These files contain species cover data for the Legacy dataset in both comma separated value (.csv) and Microsoft Excel (.xlsx) format. The source of these data is the data report Elias et al. (1996: Appendix E). 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 old Braun-Blanquet: 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). In four instances, taxa were lumped into a single taxon in the PASL: 1) Dicranum scoparium (Dicranum scoparium and Dicranum majus), 2)Dicranum spadiceum (Dicranum spadiceum and Dicranum angustum), 3) Salix rotundifolia (Salix rotundifolia ssp. reticulata and Salix rotundifolia x pulchra), 4) Tortula leucostoma (Tortula leucostoma and Desmatodon leucostoma). The field plot numbers in the modified source data are the author's; while the Turboveg plot numbers are database accession numbers and therefore differ. The author's plot numbers, location initials BI (Barter Island) and B (Barrow), releve number,

and occasionally a letter, A or B that represent a releve microsite, are retained in the ‘Field releve number’ field in the Turboveg database.

1b) Legacy Environmental Data
aava_legacy_dwalker_1996_allenv_modsrc.csv
aava_legacy_dwalker_1996_allenv_modsrc.xlsx

These files contain modified environmental data for the Legacy (Barter Island and Barrow) dataset in both .csv and .xlsx format. The source of these data is the Legacy data report by Elias et al. (1996: Figure 2, Table 5, Appendix E), original datasheets, and L. Druckenmiller used the aerial photographs in the report and Google Earth to estimate the plot latitudes and longitudes, in that order. The header data in the Turboveg database only includes a subset of these data. The field plot numbers in the source data are the author’s. The author’s plot numbers, location initials BI (Barter Island) and B (Barrow), releve number, and sometimes a letter A or B that represent a releve microsite are retained in the ‘Field releve number’ field in the Turboveg database. The main plot numbers in the Turboveg database are accession numbers and will differ.

Improvements to the source data include: 1) latitude and longitude measurements for the plots were unavailable, however L. Druckenmiller used aerial photographs in the report in conjunction with Google Earth to obtain approximate plot latitudes and longitudes, 2) plant community names for plots BI-2, BI-15, BI-27, B-17, and B-18 were corrected by the author D. A. ‘Skip’ Walker in 2015, 3) releve length and width measurements were converted to square meters by L. Druckenmiller, 4) in consultation with the author (D. A. ‘Skip’ Walker) site BI-3, not shown on the aerial, was located along the shoreline to obtain latitude and longitude coordinates, and 5) for the modified source file, when slope was 0 on the data sheets, aspect was recorded as 0 to indicate no aspect, however since this is a cardinal direction, it was changed for the modified source and the Turboveg files to ‘too flat to determine.’

2) AAVA Legacy Turboveg Database
aava_legacy_dwalker_1996_tv.zip

This file is the Legacy Turboveg Database file (.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 data dictionary and PASL files are required for the correct use of these data in Turboveg. These files are updated periodically and available for download via 'Data and Resources' section of the data record.

For the crosswalk from the modified source data to the Turboveg database, we made the following changes: 1) cover values for forbs, graminoids, lichens, bryophytes, bare soil, and open water recorded as either R (rare), or + (less than 1 percent), were changed to 1 percent to crosswalk to Turboveg as these fields require an integer, and 2) in four instances, taxa were lumped into a single taxon in the PASL: 1) Dicranum scoparium (Dicranum scoparium and Dicranum majus), 2) Dicranum spadiceum (Dicranum spadiceum and Dicranum angustum), 3) Salix rotundifolia (Salix rotundifolia ssp. reticulata and Salix rotundifolia x pulchra), 4) Tortula leucostoma (Tortula leucostoma and Desmatodon leucostoma), latitude and longitude accuracy values are estimates made in conjunction with the author. Habitat types were assigned by D. A. 'Skip' Walker in 2013, modified by Jozef Sibik and D. A. 'Skip' Walker in 2016, and modified again by Sibik and Walker in November 2019. All habitat type code changes are documented in the modified source environmental data file for the project. A history of habitat type code changes is detailed in a metadata folder titled 'Habitat_type_history_metadata_2013-2019.'

3) AAVA Legacy Ancillary Data

3a) Legacy Plot Location Map
aava_legacy_dwalker_1996_barrowplotmap_anc.jpg
aava_legacy_dwalker_1996_barterislplotmap_anc.jpg

These files are maps of the Legacy vegetation plots at Barrow and at Barter Island. With consultation from the author D. A. ‘Skip’ Walker, plot BI-3 at Barter Island was located along the shoreline.

3b) Legacy Plot Photos
aava_legacy_dwalker_1996_plotphotos_anc.pdf

These are photographs of the Legacy plots. Not all plots have photographs, and due to light leaks, many of the existing photographs were cropped for presentation.

3c) Legacy Soils Data
aava_legacy_dwalker_1996_soildata_anc.csv
aava_legacy_dwalker_1996_soildata_anc.xlsx
aava_legacy_dwalker_1996_soildescript.csv
aava_legacy_dwalker_1996_soildescript.xlsx

These are the soils data and brief soils descriptions for Legacy (Barrow and Barter Island). Soils data include soil moisture, bulk density, pH, and thaw depth from Elias et al. (1996, Appendix E). A

sample of soil at or near 10 cm depth was collected and gravimetric soil moisture, bulk density, and soil pH (saturated paste method) were determined in a lab. Thaw depth was measured in the field. Brief soil descriptions were transcribed directly from datasheets by L. Druckenmiller.

3d) Legacy Publications
elias_1996_datarprt_legacy.pdf

This is an Adobe Acrobat portable document file (.pdf) of the references cited in the dataset description (above) for the Legacy dataset. Journal names are abbreviated using the standards for the abbreviation of titles of periodicals and serial titles.

4) AAVA Legacy Metadata
aava_legacy_dwalker_1996_envlegend_metadata.pdf
aava_legacy_dwalker_1996_readme_metadata.txt
Folder: Habitat_type_history_metadata_2013-2019

These files include a legend for the modified source environmental data (scalar and code values), and the readme metadata for the entire Legacy dataset. Habitat types changed during the course of the project through review and analysis. A history of these changes is included in the metadata folder titled 'Habitat_type_history_metadata_2013-2019.'

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 Legacy Modified Source Environmental Data files (aava_legacy_dwalker_1996_allenv_modsrc.csv and aava_legacy_dwalker_1996_allenv_modsrc.xlsx) and fields that were used to crosswalk these data to the Turboveg database (aava_legacy_dwalker_1996_tv.zip).

VARIABLE,IN ENVIRONMENTAL MODIFIED SOURCE DATA FILE,IN TURBOVEG FILE AS THE SAME NAMED FIELD,DATA SOURCE AND CHANGES MADE TO DATA
FIELD RELEVE NUMBER,Y,Y,Elias et al. (1996) Figure 2 and Table 5.
PLANT COMMUNITY NAME,Y,Y,"Elias et al. (1996) Table 5 and the author, D. A. 'Skip' Walker, edited plant community names for field plot numbers BI-2, BI-15,BI BI-27, B-17, and 18 for the modified source data and Turboveg files. "
SOIL MOISTURE (PERCENT) AT 10 CM,Y,N,Elias et al. (1996) Appendix E. Included in Ancillary file - soils data.
BULK DENSITY (G/CUBIC CM) AT 10 CM,Y,N,Elias et al. (1996) Appendix E. Included in Ancillary file - soils data and in Turboveg field 'pH.'
SOIL PH (PASTE) AT 10 CM,Y,Y,Elias et al. (1996) Appendix E. Included in Ancillary file - soils data.
THAW DEPTH (CM) MEAN OF 5 SAMPLES,Y,N,Elias et al. (1996) Appendix E.

Included in Ancillary file - soils data.
DATE (YYYYMMDD),Y,Y,Original datasheets.
RELEVE MEASUREMENTS (M X M),Y,N,Original datasheets. Measurements were used by L. Druckenmiller to calculate Turboveg field 'Releve area.'
PLOT LOCATION DESCRIPTION,Y,Y,Original datasheets. Included in Turboveg field 'Remarks.'
PLANT COMMUNITY DESCRIPTION,Y,Y,Original datasheets. Included in Turboveg field 'Remarks.'
SLOPE (DEGREES),Y,Y,Original datasheets.
ASPECT (DEGREES),Y,Y,"Original datasheets. For slope 0 on the datasheets, aspect was assigned a 0 to reflect lack of aspect (D. A. 'Skip' Walker personal communication). For the modified source data and Turboveg files, aspects of 0 were converted to 'Too flat to determine.'"
LANDFORMS (CODE),Y,Y,Original datasheets. Aided with crosswalk to Turboveg field 'Habitat type.'
SURFICIAL GEOLOGY (CODE),Y,Y,Original datasheets. Aided with crosswalk to Turboveg field 'Surficial geology.'
SURFICIAL GEOMORPHOLOGY CODE),Y,N,Original datasheets. Aided with crosswalk to Turboveg field 'Surficial geology.'
MICROSITE (CODE),Y,N,Original datasheets. Aided with crosswalk to Turboveg field 'Habitat type.'
SITE MOISTURE (SCALAR),Y,N,Original datasheets.
SOIL MOISTURE (SCALAR),Y,N,Original datasheets.
TOPOGRAPHIC POSITION (CODE),Y,Y,Original datasheets. Aided with crosswalk to Turboveg field 'Topographic position.'
SOIL UNIT (CODE),Y,N,Original datasheets.
EXPOSURE SCALE (SCALAR),Y,N,Original datasheets.
ESTIMATED SNOW DURATION (SCALAR),Y,N,Original datasheets.
ANIMAL DISTURBANCE (SCALAR) REMARKS IN PARENTHESES,Y,N,Original datasheets.
STABILITY (SCALAR) REMARKS IN PARENTHESES,Y,N,Original datasheets.
LOW SHRUBS (PERCENT),Y,Y,Original datasheets.
DWARF SHRUBS (PERCENT),Y,N,Original datasheets. Dwarf shrubs were not separated out to erect and prostrate and could not be used for the Turboveg fields 'dwarf erect and dwarf prostrate shrubs.'
EVERGREEN SHRUBS (PERCENT),Y,N,Original datasheets.
DECIDUOUS SHRUBS (PERCENT),Y,N,Original datasheets.
COVER FORBS (PERCENT),Y,Y,Original datasheets. To crosswalk to Turboveg the values R (rare) and + (less than 1 percent) were changed to 1 percent.
COVER GRAMINOIDS (PERCENT),Y,Y,Original datasheets. To crosswalk to Turboveg the values R (rare) and + (less than 1 percent) were changed to 1 percent.
COVER LICHEN LAYER (PERCENT),Y,Y,Original datasheets. To crosswalk to Turboveg the values R (rare) and + (less than 1 percent) were changed to 1 percent.
COVER BRYOPHYTES(PERCENT),Y,Y,Original datasheets. To crosswalk to Turboveg the values R (rare) and + (less than 1 percent) were changed to 1 percent.

COVER BARE ROCK (PERCENT),Y,Y,Original datasheets.
COVER BARE SOIL (PERCENT),Y,Y,Original datasheets. To crosswalk to Turboveg the values R (rare) and + (less than 1 percent) were changed to 1 percent.
COVER OPEN WATER (PERCENT),Y,Y,Original datasheets. To crosswalk to Turboveg the values R (rare) and + (less than 1 percent) were changed to 1 percent.
COVER FROST SCAR (PERCENT),Y,N,Original datasheets.
COVER TOTAL DEAD (PERCENT),Y,Y,Original datasheets.
MEAN CANOPY HEIGHT (CM),Y,Y,Original datasheets.
Latitude (WGS 84) ESTIMATED,Y,Y,L. Druckenmiller used the aerial photographs in Elias et al. 1996 in conjunction with Google Earth to estimate the Latitude and Longitude of the plots for Turboveg. An error of 99 meters was entered.
Longitude (WGS 84) ESTIMATED,Y,Y,L. Druckenmiller used the aerial photographs in Elias et al. 1996 in conjunction with Google Earth to estimate the Latitude and Longitude of the plots for Turboveg. An error of 99 meters was entered.
HABITAT TYPE 2013-2016 (CODE),Y,N,Habitat types assigned for Turboveg by D. A. 'Skip' Walker.
HABITAT TYPE 2016-2019 (CODE),Y,N,Turboveg habitat types modified by Jozef Sibik and D. A. 'Skip' Walker.