aava_pruarc_dwalker_2015_readme_metadata.pdf

AAVA readme file for Prudhoe Bay ArcSEES Vegetation Plots 2015 (September 9, 2016)

Dataset Title: Prudhoe Bay ArcSEES Vegetation Plots 2015

Dataset Author: Donald A. (Skip) Walker

Alaska Arctic Vegetation Archive Dataset Name: pruarc_dwalker (PRUARC_DW)

Dataset Description:

Sampling of vegetation in the vicinity of Lake Colleen off the Spine Road at Prudhoe Bay was undertaken in 2014 as part of a study that focused on thermokarst in relationship to climate change and oilfield infrastructure. The objectives of the project were to study the effects of road dust and road-related flooding to topography, landforms, permafrost, soils and vegetation. This site was chosen in part due the comprehensive aerial photography available from 1949 (prior to road construction), up to the present. The work was funded by the National Science Foundation, Arctic Science, Engineering, and Education for Sustainability (NSF, ArcSEES) Program, Award No 1233854, and the National Aeronautics and Space Administration, Land-Cover and Land-Use Change (NASA, LCLUC) Program, Award No. NNX14AD906.

Thirty-seven permanent vegetation and soil plots were established along two 200 meter transects in polygon centers and troughs at 5, 10, 25, 50, 100, and 200 meters from the road. Five additional vegetation plots were established outside the transects, 3 placed in heavy dust areas within 5 meters of the road on the south side, and two plots placed in relatively undisturbed mesic tundra at approximately 435 m along Transect 1. Plant communities were found to occur in 4 broad habitat types including: 1) Coastal salt marsh vegetation (1 plot), 2) Dry coastal beach and sand dune vegetation (1 plot), 3) Sedge grass and dwarf shrub mire and fen vegetation (19 plots), and 5) Dry and mesic dwarf-shrub and graminoid vegetation on non-acidic substrates (10 plots).

The 1 x 1 m plots were permanently marked with short wooden stakes. In the center of the plot is an 18 inch (46 cm) piece of 3/8 inch (1 cm) diameter steel rebar rod with a plot number engraved on the aluminum cap that marks the photo point. Additional data obtained from or adjacent to the plots include soil physical, chemical and descriptive data, soil and air temperatures, photographs and spectral data (leaf area index (LAI)).

Other data included in the unpublished report (Walker et al. 2015), but not contained in the Alaska Arctic Vegetation Archive, includes

information from sample points taken at 1 m intervals along two 200 meter transects such as thaw depth, water depth, plant canopy height, leaf area index (LAI), vegetation type (following Walker and Webber 1980), microrelief feature, and at 5 m intervals thickness of dust.

Reference:

Walker D. A., M. Buchhorn, M. Kanevskiy, G. V. Matyshak, M. K. Raynolds, Yuri L. Shur, and L. M. Wirth. 2015. Infrastructure-Thermokarst-Soil-Vegetation Interactions at Lake Colleen Site A, Prudhoe Bay, Alaska. Alaska Geobotany Center Data Report AGC 15-01, 92 pp. Institute of Arctic Biology, University of Alaska Fairbanks, Fairbanks, AK.

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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/11486-alaska-arctic-vegetation-archive-prudhoe-bay-a

Data prepared by: Lisa Druckenmiller (ladruckenmiller@alaska.edu)

Link to VegBank Record: yet to be entered

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

Files Available for Download:

1) AAVA Prudhoe Bay ArcSEES Modified Source Data

1a) AAVA Prudhoe Bay ArcSEES Species Cover Data
aava_pruarc_dwalker_2015_spp_modsrc.csv
aava_pruarc_dwalker_2015_spp_modsrc.xlsx

These files contain species cover data for the Prudhoe Bay ArcSEES permanent vegetation plots (Walker et al. 2015; Tables 2.3, 2.4A and B and C) in both .csv and .xlsx format. The dataset presents the species cover classes according to the old Braun-Banquet cover-abundance scale: r (rare), + (common, but less than 1 percent), 1 (1 to 5 percent), 2 (6 to 25 percent), 3 (26 to 50 percent), 4 (51 to 75 percent), and 5 (76 to 100 percent). Taxa are listed in alphabetical order according to the PASL. Both the dataset author determinations and the current nomenclature according to the Panarctic Species List

(PASL) are listed. In one instance, taxa were lumped into a single taxon in the PASL: Unknown crustose lichen (Black soil crust and White soil crust). The plot numbers in the source data are the author's. Plot number indicates: 1) Transect 1 (T1) or Transect 2 (T2), 2) distance from road measured in meters, and 3) plot location - polygon center (C) or polygon trough (T). Extra plots include only a year 14 (2014) and a plot number. 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) AAVA Prudhoe Bay ArcSEES Environmental Data
aava_pruarc_dwalker_2015_allenv_modsrc.csv
aava_pruarc_dwalker_2015_allenv_modsrc.xlsx

These files contain modified environmental data for the Prudhoe Bay ArcSEES Road Study (Walker et al. 2015;Tables 2.2 A, B and C) in .csv and .xlsx format. 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 plot numbers in the source data are the author's. Plot number indicates: 1) Transect 1 (T1) or Transect 2 (T2), 2) distance from road measured in meters, and 3) plot location - polygon center (C) or polygon trough (T). Extra plots include only a year 14 (2014) and a plot number. The author's plot numbers are retained in the 'Field releve number' field in the Turboveg database. See the environmental legend in the metadata folder for further explanation of the data. Elevations were surveyed using a GPS real time kinematic (RTK) Topkon IS-3 Imaging Station in combination with an RC-4 advanced prism tracking and locking system with an FC-2500 field controller. See page 36 of the data report Walker et al. (2015) available in the Ancillary Data folder for detailed description of location and elevation measurements.

2) AAVA Prudhoe Bay ArcSEES Turboveg Database
aava_pruarc_dwalker_2015_turboveg.zip

This file is the Prudhoe Bay ArcSEES Road Study 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. 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 source data to the Turboveg database, we made the following changes for the species data 1) In one instance taxa were lumped into a single taxon in the PASL: Unknown crustose lichen (Black soil crust and White soil crust).

For the cross-walk from the source data to the Turboveg database, we made the following changes for the environmental data: 1) aspect descriptions were crosswalked to the Turboveg categorical data, and where slope was 0 and aspect was lacking, aspect values were converted to -1 “too flat to determine”, and 2) latitude and longitude measurements were rounded to 6 digits.

3) AAVA Prudhoe Bay ArcSEES Ancillary Data

3a) Prudhoe Bay ArcSEES Plot Photos
aava_pruarc_dwalker_2015_photos_anc.pdf

This file contains a photolog of plot vegetation and soil provided by the authors in .pdf format.

3b) Prudhoe Bay ArcSEES Location Map
aava_pruarc_dwalker_2015_studysite_anc.jpg
aava_pruarc_dwalker_2015_transectmap_anc.jpg

These maps document the general location of the Prudhoe Bay ArcSEES Road Study plots and the specific location of plots along each transect.

3c) Prudhoe Bay ArcSEES Publications
walkerd_2015_datarpt_agc15-01_prudhoebay_thermokarst.pdf

This pdf file contains the data report for the Prudhoe Bay ArcSEES Road Study.

3d) Prudhoe Bay ArcSEES Soils Data

This file contains the soil physical, chemical and descriptive data for the Prudhoe Bay ArcSEES vegetation plots. Soil methods are described in detail on pages 16 and 17 of the data report (Walker et al. 2015) available in the Ancillary Data folder. A soil sample was collected adjacent to each plot and the soil was classified using the USDA Soil Taxonomy (Soil Survey Staff, 1999). Peat samples were classified using the von Post scale (von Post et al. 1926). The fiber and roots were estimated following Malterer et al. (1992).

3e) Prudhoe Bay ArcSEES Spectral Data

This file contains the Leaf Area Index (LAI) data for the permanent vegetation plots. LAI was measured using the AccuPar LP-80, PAR/LAI

Ceptometer. LAI is calculated as the ratio of the below-canopy PAR to the above-canopy PAR.

4) AAVA Prudhoe Bay ArcSEES Metadata
aava_pruarc_dwalker_2015_envlegend_metatdata.pdf
aava_pruarc_dwalker_2015_readme_metadata.pdf
aava_pruarc_dwalker_2015_readme_metadata.txt

These are the metadata, an environmental legend and readme files for the Prudhoe Bay ArcSEES Road Study.

Modifications to environmental source data:

The table below in comma-separated value format indicates the modifications made to source data in the preparation of the AAVA Prudhoe Bay ArcSees Road Study modified source environmental data files (aava_pruarc_dwalker_2015_allenv_modsrc.csv and aava_pruarc_dwalker_2015_allenv_modsrc.xlsx) and fields that were used to crosswalk these data to the Turboveg database (aava_pruarc_dwalker_2015_tv.zip).

VARIABLE,IN ENVIRONMENTAL MODIFIED SOURCE DATA FILE,IN TURBOVEG FILE AS THE SAME NAMED FIELD,DATA SOURCE AND CHANGES MADE TO DATA
RELEVE NUMBER,Y,Y,"Walker et al. (2015; Tables 2.2A, B, and C)."
DATE,Y,Y,"Walker et al. (2015; Tables 2.2A, B, and C)."
OBSERVERS,Y,N,"Walker et al. (2015; Tables 2.2A, B, and C)."
LATITUDE (WGS 84 DD),Y,Y,"Walker et al. (2015; Tables 2.2A, B, and C). Reduced to 6 digits after the decimal for Turboveg."
LONGITUDE (WGS 84 DD),Y,Y,"Walker et al. (2015; Tables 2.2A, B, and C). Reduced to 6 digits after the decimal for Turboveg."
SLOPE (DEGREES),Y,Y,"Walker et al. (2015; Tables 2.2A, B, and C)."
ASPECT (NA - TOO FLAT TO DETERMINE),Y,Y,"Walker et al. (2015; Tables 2.2A, B, and C). For Turboveg alphabetic aspects were converted to degrees and where slope is 0, aspect was changed from NA to -1 'too flat to determine.'"
ELEVATION (M),Y,Y,"Walker et al. (2015; Tables 2.2A, B, and C)."
PLOT PHOTO NUMBER (TAKEN FROM ROAD SIDE OF PLOT),Y,N,"Walker et al. (2015; Tables 2.2A, B, and C)."
SOIL PHOTO NUMBER,Y,N,"Walker et al. (2015; Tables 2.2A, B, and C)."
LANDFORM (CODE),Y,N,"Walker et al. (2015; Tables 2.2A, B, and C)."
SURFICIAL GEOLOGY-PARENT MATERIAL (CODE) ,Y,N,"Walker et al. (2015; Tables 2.2A, B, and C)."
SURFICIAL GEOMORPHOLOGY (CODE),Y,N,"Walker et al. (2015; Tables 2.2A, B, and C)."
MICROSITE (CODE),Y,Y,"Walker et al. (2015; Tables 2.2A, B, and C)."
SITE MOISTURE (SCALAR),Y,Y,"Walker et al. (2015; Tables 2.2A, B, and C)."
SOIL MOISTURE (CODE),Y,N,"Walker et al. (2015; Tables 2.2A, B, and C)."
GLACIAL GEOLOGY (CODE),Y,N,"Walker et al. (2015; Tables 2.2A, B, and

C)."
TOPOGRAPHIC POSITION (CODE),Y,N,"Walker et al. (2015; Tables 2.2A, B, and C)."
ESTIMATED SNOW DURATION (SCALAR) SLIGHTLY LESS OR SLIGHTLY MORE (- and +),Y,N,"Walker et al. (2015; Tables 2.2A, B, and C)."
DISTURBANCE DEGREE (CODES),Y,N,"Walker et al. (2015; Tables 2.2A, B, and C)."
DISTURBANCE TYPE (CODES),Y,N,"Walker et al. (2015; Tables 2.2A, B, and C)."
PHYSICAL STABILITY (CODE) ,Y,N,"Walker et al. (2015; Tables 2.2A, B, and C)."
EXPOSURE (SCALAR),Y,N,"Walker et al. (2015; Tables 2.2A, B, and C)."
NUMBER OF SOIL GRAB SAMPLES TAKEN,Y,N,"Walker et al. (2015; Tables 2.2A, B, and C)."
LOW SHRUBS (PERCENT LIVE/STANDING DEAD),Y,Y,"Walker et al. (2015; Tables 2.2A, B, and C)."
ERECT DWARF SHRUBS (PERCENT) (LIVE/STANDING DEAD),Y,Y,"Walker et al. (2015; Tables 2.2A, B, and C)."
PROSTRATE DWARF SHRUBS (PERCENT LIVE/STANDING DEAD),Y,Y,"Walker et al. (2015; Tables 2.2A, B, and C)."
EVERGREEN SHRUBS (PERCENT) (LIVE/STANDING DEAD),Y,Y,"Walker et al. (2015; Tables 2.2A, B, and C)."
DECIDUOUS SHRUBS (PERCENT LIVE/STANDING DEAD),Y,Y,"Walker et al. (2015; Tables 2.2A, B, and C)."
ERECT FORBS (PERCENT) (LIVE/STANDING DEAD),Y,Y,"Walker et al. (2015; Tables 2.2A, B, and C)."
MAT AND CUSHION FORBS (PERCENT LIVE/STANDING DEAD),Y,Y,"Walker et al. (2015; Tables 2.2A, B, and C)."
NON-TUSSOCK GRAMINOIDS (PERCENT LIVE/STANDING DEAD),Y,Y,"Walker et al. (2015; Tables 2.2A, B, and C)."
TUSSOCK GRAMINOIDS (PERCENT LIVE/STANDING DEAD),Y,Y,"Walker et al. (2015; Tables 2.2A, B, and C)."
FOLIOSE LICHEN (PERCENT),Y,Y,"Walker et al. (2015; Tables 2.2A, B, and C)."
FRUTICOSE LICHEN (PERCENT),Y,Y,"Walker et al. (2015; Tables 2.2A, B, and C)."
CRUSTOSE LICHEN (PERCENT),Y,Y,"Walker et al. (2015; Tables 2.2A, B, and C)."
PLEUROCARPOUS BRYOPHYTES (PERCENT),Y,Y,"Walker et al. (2015; Tables 2.2A, B, and C)."
ACROCARPOUS BRYOPHYTES (PERCENT),Y,Y,"Walker et al. (2015; Tables 2.2A, B, and C)."
LIVERWORTS (PERCENT),Y,Y,"Walker et al. (2015; Tables 2.2A, B, and C)."
HORSETAILS (PERCENT),Y,Y,"Walker et al. (2015; Tables 2.2A, B, and C)."
ALGAE (PERCENT),Y,Y,"Walker et al. (2015; Tables 2.2A, B, and C)."
ROCKS (PERCENT),Y,Y,"Walker et al. (2015; Tables 2.2A, B, and C)."
BARE SOIL (PERCENT),Y,Y,"Walker et al. (2015; Tables 2.2A, B, and C)."
WATER (PERCENT),Y,Y,"Walker et al. (2015; Tables 2.2A, B, and C)."

WATER DEPTH (CM),Y,N,"Walker et al. (2015; Tables 2.2A, B, and C)."
LITTER (PERCENT COVER),Y,Y,"Walker et al. (2015; Tables 2.2A, B, and C)."
DWARF SHRUB HEIGHT (CM),Y,Y,"Walker et al. (2015; Tables 2.2A, B, and C)."
HERBACEOUS HEIGHT (CM),Y,Y,"Walker et al. (2015; Tables 2.2A, B, and C)."
LIVE MOSS HEIGHT (CM),Y,N,"Walker et al. (2015; Tables 2.2A, B, and C)."
DEAD MOSS DEPTH (CM),Y,N,"Walker et al. (2015; Tables 2.2A, B, and C)."
DUST THICKNESS (CM),Y,N,"Walker et al. (2015; Tables 2.2A, B, and C)."
ORGANIC LAYER (CM) ,Y,Y,"Walker et al. (2015; Tables 2.2A, B, and C)."
MICRORELIEF (CM),Y,N,"Walker et al. (2015; Tables 2.2A, B, and C)."
MEAN THAW DEPTH (CM),Y,N,"Walker et al. (2015; Tables 2.2A, B, and C)."
LAI (LEAF AREA INDEX),Y,N,"Walker et al. (2015; Tables 2.2A, B, and C)."
VEGETATION TYPE (CODE from Walker and Webber 1980) AND DUST (d),Y,N,"Walker et al. (2015; Tables 2.2A, B, and C)."
VEGETATION TYPE,Y,Y,"Walker et al. (2015; Tables 2.2A, B, and C)."
DISTURBED/NATURAL,Y,Y,"Walker et al. (2015; Tables 2.2A, B, and C)."
NOTES,Y,N,Source Data.