

aava_happyvalley_dwalker_1997_readme_metadata.pdf

AAVA readme file for Happy Valley (July 19, 2016)

Dataset Title: Alaska Arctic Vegetation Archive: Happy Valley Vegetation Plots

Dataset Author: Donald A. (Skip) Walker

Alaska Arctic Vegetation Archive Dataset Name: happyvalley_dwalker (HV_DW)

Alaska Arctic Vegetation Archive: Happy Valley Vegetation Plots

Dataset Description:

The Happy Valley research site is located along the Sagavanirktok River in a glaciated valley of the northern Arctic Foothills of the Brooks Range. Vegetation of the Happy Valley research site was described and mapped by Walker et al. through the Institute of Arctic and Alpine Research, Tundra Ecosystem Analysis and Mapping Laboratory, for a project funded by the Arctic System Science Flux Study, National Science Foundation grant OPP-9318530. The primary source document for this dataset is a data report prepared for the project (Walker et al. 1997).

Data are presented for 56 plots subjectively located in 17 plant communities that occur in five broad habitat types including: 1) dry tundra (including river terraces and frost scars) (10 plots), 2) snowbeds (2 plots), 3) moist tundra (including acidic tussock tundra and nonacidic tundra) (14 plots), 4) shrublands (including riparian alders, riparian willow communities, and dwarf-birch shrub tundra) (16 plots), and 5) wet tundra (including fens, poor fens, and aquatic marshes) (14 plots).

All the plots were permanently marked with a 4-foot black and white-striped 1-inch PVC pipe with the plot number stamped into an aluminum tag at the top of the post. The plots had no fixed size in order to obtain a complete species list, however the size of the plots were estimated and are included within these data. Species and environmental data (including soil physical variables, subjective site assessments, and active layer depths) were collected in the field and soil samples were brought back to the lab for chemical assessments. Species cover-abundance, environmental site factors, and soil physical and chemical data are included in the data report. GPS coordinates were obtained for many plots in the mid-2000's. An aerial photograph and Google Earth were used to approximate the location and obtain coordinates for the remaining plots.

These data were subsequently used in several reports and publications

listed below.

References:

Kane, D. L., and W. S. Reeburgh. 1998. Introduction to special section: Land–Air–Ice Interactions (LAI) Flux Study. *Journal of Geophysical Research* 103:28–913–28–915.

McGuire, A. D., M. Sturm, and F. S. Chapin III. 2003. Arctic Transitions in the Land–Atmosphere System (ATLAS): Background, objectives, results, and future directions. *Journal of Geophysical Research* 108:8166 (ALT1–7).

Walker, D. A., N. A. Auerbach, T. K. Nettleton, A. Gallant, and S. M. Murphy. 1997. Arctic System Science Flux Study Data Report. Happy Valley Vegetation Plots: Site factors, physical and chemical soil properties, plant species cover, photographs, soil descriptions, and ordination. 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://geobotanical.portal.gina.alaska.edu/catalogs/9623-alaska-arctic-vegetation-archive-happy-valley>

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 Happy Valley Modified Source Data

1a) Happy Valley Species Cover
aava_happyvalley_dwalker_1997_spp_modsrc.csv
aava_happyvalley_dwalker_1997_spp_modsrc.xlsx

These files contain species cover data for the Happy Valley vegetation plots in both .csv and .xlsx format. The source of these data is the

Happy Valley data report (Walker et al. 1997). Species cover classes are the old Braun-Blanquet 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). Both the author's determination and the current taxonomy according to the Panarctic Species List (PASL) are listed. Taxa are listed in alphabetical order. In 3 instances, taxa were lumped into a single taxon in the PASL: 1) *Dicranum spadiceum* (*Dicranum angustum* and *Dicranum spadium*) 2) *Cladonia gracilis* s. lat. (*Cladonia gracilis* and *Cladonia gracilis* var. *elongata*), and 3) *Bryum pseudotriquetrum* (*Bryum pseudotriquetrum* and *Bryum neodamense*). Two taxa (*Bistorta bistortoides* and *Salix planifolia*) were incorrectly listed by the dataset author and were rectified to the correct names, although the original determination is retained in the 'DATASET TAXON' field. 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) Happy Valley Environmental Data
aava_happyvalley_dwalker_1997_allenv_modsrc.csv
aava_happyvalley_dwalker_1997_allenv_modsrc.xlsx

These files contain modified environmental data for the Happy Valley vegetation plots in both .csv and .xlsx format. The source of these data is the Happy Valley data report (Walker et al. 1997; Tables 1, 2, 5, 6, Appendix 1, 7, and text) and the Toolik-Arctic Geobotanical Atlas website (<http://www.arcticatlas.org/>; Supplementary Data, Happy Valley). For the source of the fields within the file, see 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 used in this file are in the Legend for Environmental Variables file in the project metadata folder (aava_happyvalley_dawalker_1997_envlegend_metadata.pdf).

Improvements to the source data include: 1) latitude and longitude were obtained in the mid-2000s by the Toolik GIS group for many plots, while plots 7, 8, 11, 12, 13, 15, 16, 19, 41, 48, and 51 were estimated by L. Druckenmiller using the aerial photograph plot map and Google Earth; these data were subsequently converted to decimal degrees, 2) values of less than 1 percent cover coding in the biotic data for forbs, graminoids, and bare soil cover were rounded up to '1' as we require an integer, 3) soil variables were derived by plot, typically at 10 cm depth, from the complete soils data in the ancillary folder, and 4) soil texture is primarily from the top mineral horizon per the soil text descriptions; secondarily from 10 cm, or listed as 'organic' when no mineral horizon is present.

2) AAVA Happy Valley Turboveg Database aava_happyvalley_dawalker_1997_tv.zip

This file is the Happy Valley 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 database, we made the following changes: 1) the plot area is recorded as '-1' to indicate the plot had no boundaries although Walker et al. (1997) report estimated plot size.

3) AAVA Happy Valley Ancillary Data

3a) Happy Valley Plot Location Map aava_happyvalley_dwalker_1997_plotmap_anc.pdf

This file is a plot map of the Happy Valley vegetation plots from the online Toolik-Arctic Geobotanical Atlas, Supplementary Data, Happy Valley.

3b) Happy Valley Plot Photos aava_happyvalley_dwalker_1997_plotphotos_anc.pdf

This file contains landscape, plot, and soil photos (if present) of the Happy Valley vegetation plots from the online Toolik-Arctic Geobotanical Atlas, Supplementary Data, Happy Valley.

3c) Happy Valley Soils Data aava_happyvalley_dwalker_1997_soildata_anc.csv aava_happyvalley_dwalker_1997_soildata_anc.xlsx aava_happyvalley_dwalker_1997_soildesc_anc.pdf

These are the soils data for the Happy Valley Vegetation plots which include chemical, physical, and profile descriptions modified from the data report (Table 7 and Appendix 1). Soil nomenclature and terminology are according to Soil Survey Staff (1974). Symbols used in the data report to indicate 'not enough sample' are replaced by text.

See the data report (Walker et al. 1997) and the Toolik-Arctic Geobotanical Atlas website (<http://www.arcticatlas.org/>, Supplementary Data, Happy Valley) for further information.

3d) Happy Valley Publications

kaned_1998_jgeophysres_arcticflux.pdf
mcquirea_2003_jgeophysres_atlasynthesis.pdf
walker_1997_dataprnt_happyvalleyvegplots.pdf

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

4) AAVA Happy Valley Metadata

aava_happyvalley_dwalker_1997_readme_metadata.txt
aava_happyvalley_dwalker_1997_envlegend_metadata.pdf

These files are metadata for the Happy Valley vegetation plots and include a readme file and metadata legend 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 Happy Valley Modified Source Environmental Data files (aava_happyvalley_dwalker_1997_allenv_modsrc.csv and aava_happyvalley_dwalker_1997_allenv_modsrc.xlsx) and fields that were used to crosswalk these data to the Turboveg database (aava_happyvalley_dawalker_1997_tv.zip).

VARIABLE,IN ENVIRONMENTAL MODIFIED SOURCE DATA FILE,IN TURBOVEG FILE
AS NAMED HEADER,DATA SOURCE AND CHANGES MADE TO DATA
FIELD PLOT NUMBER,Y,Y,"Tables 1,2,5,6,7,8 Walker et al. 1997."
PRINCIPAL HABITAT,Y,Y,Table 2 Walker et al. 1997. Crosswalked to
Turboveg 'Habitat type.'
PRELIMINARY PLANT COMMUNITY,Y,Y,Table 2 Walker et al. 1997. Source of
'Site moisture' in Turboveg and aided with crosswalk in Turboveg
'Habitat type.'
PLANT COMMUNITY DESCRIPTION,Y,Y,Table 2 Walker et al. 1997. Included
in 'Remarks' for Turboveg file.
SITE DESCRIPTION,Y,Y,Table 2 Walker et a. 1997. Included in 'Remarks'
for Turboveg. Aided with crosswalk to Turboveg 'Habitat type.'
DATE SAMPLED (YYYYMMDD),Y,Y,Table 5 Walker et al. 1997.
LATITUDE-WGS 84 (DD),Y,Y,"Data collected by Toolik GIS mid 2000's
located in Table 5 for download on Toolik-Arctic Vegetation Archive
Website. Latitude and longitude were estimated by L. Druckenmiller
using the aerial photograph plot map and Google Earth for plots 7, 8,
11, 12, 13, 15, 16, 19, 41, 48, and 51. Data projected to WGS 84 by L.

Wirth (GINA, 2014)."
LONGITUDE-WGS 84 (DD),Y,Y,"Data collected by Toolik GIS mid 2000's located in Table 5 for download on Toolik-Arctic Vegetation Archive Website. Latitude and longitude were estimated by L. Druckenmiller using the aerial photograph plot map and Google Earth for plots 7, 8, 11, 12, 13, 15, 16, 19, 41, 48, and 51. Data projected to WGS 84 by L. Wirth (GINA, 2014)."
LANDFORM (CODE),Y,Y,Table 5 Walker et al. 1997. Aided with crosswalk to Turboveg 'Habitat type.'
SURFICIAL GEOLOGY (CODE),Y,Y,Table 5 Walker et al. 1997. Crosswalked to Turboveg 'Surficial geology.'
SURFICIAL GEOMORPHOLOGY (CODE),Y,Y,Table 5 Walker et al. 1997. Aided in crosswalk to Turboveg 'Habitat type.'
MICROSITES (CODE),Y,Y,Table 5 Walker et al. 1997. Aided with crosswalk to Turboveg 'Habitat type.'
GLACIAL GEOLOGY (CODE),Y,N,Table 5 Walker et al. 1997.
TOPOGRAPHIC POSITION (CODE),Y,Y,Table 5 Walker et al. 1997. Crosswalked to Turboveg 'Topographic position.'
SOIL UNITS (CODE),Y,N,Table 5 Walker et al. 1997.
SLOPE (DEGREES),Y,Y,"Table 5 Walker et al. 1997. Slope values assigned in the source data as 1-2 or <5 were converted to 2, and 4 degrees, respectively, to crosswalk to Turboveg 'Slope.'
ASPECT (DEGREES),Y,Y,Table 5 Walker et al. 1997. Text description was converted to degrees and then crosswalked to Turboveg 'Aspect.'
THAW DEPTH AND STANDARD DEVIATION WHERE CALCULATED(CM),Y,N,Table 5 Walker et al. 1997.
SITE MOISTURE (SCALAR),Y,N,Table 5 Walker et al. 1997.
SOIL MOISTURE (SCALAR),Y,N,Table 5 Walker et al. 1997.
EXPOSURE (SCALAR),Y,N,Table 5 Walker et al. 1997.
SNOW DURATION (SCALAR),Y,N,Table 5 Walker et al. 1997.
ANIMAL/HUMAN DISTURBANCE (SCALAR),Y,N,Table 5 Walker et al. 1997.
STABILITY (SCALAR),Y,N,Table 5 Walker et al. 1997.
PLOT SIZE (SQUARE METERS),Y,Y,Table 6 Walker et al. 1997. Although plots were dimensionless plot size was estimated in the field and data are included in the Turboveg field 'Releve area.'
COVER TALL SHRUBS (PERCENT),Y,Y,Table 6 Walker et al. 1997.
COVER LOW SHRUBS (PERCENT),Y,Y,Table 6 Walker et al. 1997.
DWARF SHRUB COVER (PERCENT),Y,Y,Table 6 Walker et al. 1997.
COVER EVERGREEN SHRUBS (PERCENT),Y,N,Table 6 Walker et al. 1997.
COVER DECIDUOUS SHRUBS (PERCENT),Y,N,Table 6 Walker et al. 1997.
COVER FORBS (PERCENT),Y,Y,Table 6 Walker et al. 1997. Cover values of less than 1 were rounded up to 1 to crosswalk to Turboveg.
COVER HORSETAILS (PERCENT),Y,Y,Table 6 Walker et al. 1997.
COVER GRAMINOIDS (PERCENT),Y,Y,Table 6 Walker et al. 1997. Cover values of less than 1 were rounded up to 1 to crosswalk to Turboveg.
COVER LICHENS (PERCENT),Y,Y,Table 6 Walker et al. 1997. Cover values of less than 1 were rounded up to 1 to crosswalk to Turboveg.
COVER BRYOPHYTES (PERCENT),Y,Y,Table 6 Walker et al. 1997.
COVER ROCKS (PERCENT),Y,Y,Table 6 Walker et al. 1997. Cover values of less than 1 were rounded up to 1 to crosswalk to Turboveg.

COVER BARE SOIL (PERCENT),Y,Y,Table 6 Walker et al. 1997. Cover values of less than 1 were rounded up to 1 to crosswalk to Turboveg.

COVER WATER (PERCENT),Y,Y,Table 6 Walker et al. 1997.

COVER FROST SCARS (PERCENT),Y,N,Table 6 Walker et al. 1997.

COVER TOTAL DEAD (PERCENT),Y,N,Table 6 Walker et al. 1997.

HEIGHT OF VEGETATION (CM),Y,Y,Table 6 Walker et al. 1997.

ELEVATION (M),Y,Y,Appendix 1 Walker et al. 1997. Elevation is to the nearest 100 ft. Converted to meters to crosswalk to Turboveg 'Elevation.'

HORIZON-AT 10 CM (SOIL SURVEY STAFF 1974),Y,N,Appendix 1 and Table 7 Walker et al. 1997.

SOIL ORGANIC DEPTH (CM),Y,Y,Appendix 1 Walker et al. 1997. L. Druckenmiller used soil descriptions to estimate soil organic layer depths for Turboveg.

SOIL PH-AT 10 CM (PASTE),Y,Y,Table 7 Walker et al. 1997.

ELECTRICAL CONDUCTIVITY-AT 10 CM (MMHOS/CM),Y,N,Table 7 Walker et al. 1997.

LIME-AT 10 CM (ESTIMATE),Y,N,Table 7 Walker et al. 1997.

ORGANIC MATTER-AT 10 CM (PERCENT),Y,N,Table 7 Walker et al. 1997.

N03-N--NH4HC3-DTPA EXTRACT-AT 10 CM (PPM),Y,N,Table 7 Walker et al. 1997.

P--NH4HC3-DTPA EXTRACT-AT 10 CM (PPM),Y,N,Table 7 Walker et al. 1997.

K--NH4HC3-DTPA EXTRACT-AT 10 CM (PPM),Y,N,Table 7 Walker et al. 1997.

ZN--NH4HC3-DTPA EXTRACT-AT 10 CM (PPM),Y,N,Table 7 Walker et al. 1997.

FE--NH4HC3-DTPA EXTRACT-AT 10 CM (PPM),Y,N,Table 7 Walker et al. 1997.

MN--NH4HC3-DTPA EXTRACT-AT 10 CM (PPM),Y,N,Table 7 Walker et al. 1997.

CU--NH4HC3-DTPA EXTRACT-AT 10 CM (PPM),Y,N,Table 7 Walker et al. 1997.

SAND-AT 10 CM (PERCENT),Y,N,Table 7 Walker et al. 1997.

SILT-AT 10 CM (PERCENT),Y,N,Table 7 Walker et al. 1997.

CLAY-AT 10 CM (PERCENT),Y,N,Table 7 Walker et al. 1997.

TEXTURE-AT 10 CM (SOIL SURVEY STAFF 1974),Y,N,Table 7 Walker et al. 1997.

TEXTURE-TOP MINERAL HORIZON (SOIL SURVEY STAFF 1974),Y,Y,"Table 7 Walker et al. 1997. Soil texture is primarily from the top mineral horizon per the soil descriptions; secondarily from 10 cm, or are assigned 'organic' when no mineral horizon is present. Crosswalked to the Turboveg field 'Soil texture.'"

CA-AT 10 CM (MEQ/L),Y,N,Table 7 Walker et al. 1997.

MG-AT 10 CM (MEQ/L),Y,N,Table 7 Walker et al. 1997.

NA-AT 10 CM (MEQ/L),Y,N,Table 7 Walker et al. 1997.

K (MEQ/L),Y,N,Table 7 Walker et al. 1997.

SODIUM ABSORPTION RATIO,Y,N,Table 7 Walker et al. 1997.