aava_hacgrncabin_2008_readme_metadata.pdf

AAVA readme file for High Arctic Canada - Green Cabin, Banks Island Vegetation Plots (February 17, 2020)

Dataset Title: High Arctic Canada Green Cabin, Banks Island Vegetation Plots

Dataset Author: Corrine Vonlanthen

Alaska Arctic Vegetation Archive Dataset Name: higharcticcanadagrncabin_cvonlanthen (HACGRNCABIN_CV)

Dataset Description:

The vegetation at Green Cabin on Banks Island, Canada were studied as part of a multi-year project focused on the bicomplexity of patterned-ground plant communities. Patterned ground includes circles, polygons, nets, hummocks, and other features caused by differential freezing processes in soils. Vegetation plot data were collected at Green Cabin, during July 8-12, 2003. The primary source document for the data is a report by Munger et al. (2004). An analysis and summary of all the High Arctic Canada sites (Green Cabin, Banks Island; Mould Bay, Prince Patrick Island; and Isachsen, Ellef Ringnes Island) are included in Vonlanthen et al. (2008). Funding for this project was provided to D. A. 'Skip' Walker through a U.S. National Science Foundation Grant from the Office of Polar Programs, OPP-0120736.

Thirty-three plots were subjectively located on patterned ground complexes associated with three grids with different soil moisture conditions including a zonal site with sorted circles located in a small saddle between two hills, a dry area with sorted stripes, a wet meadow with non-sorted circles in the valley bottom, and a few additional locations outside the grids. Riparian and other less common vegetation types were not sampled. Plot data were collected from the centers of patterned ground features and the areas between the features, and included: (a) dry zonal habitats with base-rich soils (23 plots), b) mesic zonal habitats, in base-rich soils (4 plots), (c) early-melting base-rich snowbeds (4 plots), and d) wet sedge-brown-moss fens on peaty mineral soils (2 plots).

Species cover was recorded following the old Braun-Banquet cover-abundance classes: [r (rare, single occurrence); + (multiple occurrences, less than 1% cover); 1 (1–5% cover); 2 (5–25% cover); 3 (26–50% cover); 4 (50–75% cover); 5 (75–100% cover)]. Plots were located in homogeneous areas of vegetation but did not have discrete boundaries. The approximate area required to achieve a complete species list for the community was recorded. GPS coordinates were obtained for all plots and plots were permanently marked with a stake with the plot number in the approximate center of the area surveyed.

Percentage cover of plant growth forms, and additional environmental data were also recorded. Soil samples were obtained from the top mineral horizon for physical and chemical analysis. Soil pits for each grid were described although every individual plot did not have a soil description. Plots were clipped and plant biomass data were obtained for the study plots. Photographs are available for all but one plot. Complete descriptions of the methods are in Munger et al. (2004) and Vonlanthan et al. (2008).

References and publications resulting from the study are included below.

References

Epstein, H. E., D. A. Walker, M. K. Raynolds, G. J. Jia, and A. M. Kelly. Phyotomass patterns across a temperature gradient of the North American arctic tundra. Journal of Geophysical Research. 113:G03S02. doi:10.1029/2007JG000555, 2008

Michelson, G. J., C. L. Ping, H. Epstein, J. M. Kimble, and D. A. Walker. 2008. Soils and frost boil ecosystems across the North American Arctic Transect. Journal of Geophysical Research 113:G03S11. doi10.1029/2007JG000672

Munger, C. A., M. K. Raynolds and D. A. Walker. 2004. Biocomplexity of Frost-Boil Ecosystems, July 2003 Banks Island Expedition. Data Report. Alaska Geobotany Center, University of Alaska Fairbanks, Fairbanks, Alaska, USA. 70 pp.

Ping, C. L., G. J. Michelson, J. M. Kimble, V. E. Romanovsky, Y. L. Shur, D. K. Swanson, and D. A. Walker. 2008. Cryogenesis and soils formation along a bioclimate gradient in Arctic North America. Journal of Geophysical Research. 113:G03S12. doi:10.1029/2008JG000744, 2008

Raynolds, M. K. 2005. Addendum to the 2003 Green Cabin, Banks Island Data Report. Data Report. Alaska Geobotany Center, University of Alaska Fairbanks, Fairbanks, Alaska, USA. 39 pp.

Raynolds, M. K., D. A. Walker, H. E. Epstein, J. E. Pinzon and C. J. Tucker. 2012. A new estimate of tundra-biome phytomass from trans-Arctic field data and AVHRR NDVI. Remote Sensing Letters, 3:403-411. doi:10.1080/01431161.2011.609188

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Walker, D. A., H. E. Epstein, V. E. Romanovsky, C. L. Ping, G. J. Michaelson, R. P. Daanen, Y. Shur, R. A. Peterson, W. B. Krantz, M. K.

Raynolds, W. A. Gould, G. Gonzalez, D. J. Nicolsk:y, C. M. Vonlanthen, A. N. Kade, P. Kuss, A. M. Kelley, C. A. Munger, C. T. Tarnocai, N. V. Matveyeva, and F. J. A. Daniëls. 2008. Arctic patterned-ground ecosystems: A synthesis of field studies and models along a North American Arctic Transect. Journal of Geophysical Research. 113:G03S01. doi:10.1029/2007JG000504, 2008

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Walker, D. A., P. Kuss, H. E. Epstein, A. N. Kade, C. M. Vonlanthen, M.K. Raynolds and F. J. A. Daniëls. 2011. Vegetation of zonal patterned-ground ecosystems along the North America Arctic bioclimate gradient. Applied Vegetation Science 14:440-463.

Walker, D. A., H. E. Epstein, M. K. Raynolds, P. Kuss, M. A. Kopecky, G. V. Frost, F. J. A. Daniëls, M. O. Leibman, N. G. Moskalenko, G. V. Matyshak, O. V. Khitun, A. V. Khomutov, B. C. Forbes, U. S. Bhatt, A. N. Kade, C. M. Vonlanthen, and L. Tichy. 2012. Environment, vegetation and greenness (NDVI) along the North America and Eurasia Arctic transects. Environmental Research Letters, 7:17pp. doi: 10.1088/1748-9326/7/1/015504

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Primary Agency: Alaska Geobotany Center, University of Alaska Fairbanks

Direct Plot Archive Record Link: http://alaskaaga.gina.alaska.edu/catalogs/11852-alaska-arctic-vegetation-archive-high-arctic-c

Data prepared by: Lisa Druckenmiller (ladruckenmiller@alaska.edu) and Ksusha Ermokina (diankina@gmail.com>)

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 High Arctic Canada - Green Cabin Modified Source Data

1a) AAVA High Arctic Canada - Green Cabin Species Cover Data
aava_hacgrncabin_cvonlanthen_2008_spp_modsrc.csv
aava_hacgrncabin_cvonlanthen_2008_spp_modsrc.xlsx

These files contain species cover data for the High Arctic Canada - Green Cabin plots in both comma separated values (.csv) and Excel (.xlsx) format. The source for these data are a data report by Munger et al. (2004). The original dataset presents the species cover classes according to the old Braun-Blanquet 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 species 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. 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) AAVA High Arctic Canada - Green Cabin Environmental Data
aava_hacgrncabin_cvonlanthen_2008_allenv_modsrc.csv
aava_hacgrncabin_cvonlanthen_2008_allenv_modsrc.xlsx

These files contain modified environmental data for the High Arctic Canada - Green Cabin in .csv and .xlsx format. The source of these data is a data report by Munger et al. (2004) and an analysis by Vonlanthen et al. (2008). 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.

During data entry changes to the environmental data included: 1) latitudes and longitudes recorded as degrees, minutes, seconds were converted to decimal degrees, and 2) texture was determined using sand, silt and clay percentages and the U.S. Department of Agriculture, Natural Resources Conservation Service Soil Texture Calculator.

2) AAVA High Arctic Canada - Green Cabin Turboveg Database
aava_hacgrncabin_cvonlanthen_2008_tv.zip

This file is the High Arctic Canada - Green Cabin 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 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.

During the entry species data into the Turboveg database, in two instances, species were lumped into a single taxon in the PASL: 1) Ceratodon purpureus (Ceratodon purpureus and Ceratodon purpureus v. rotundifolius), and 2) Philonotis fontana (Philonotis fontana and Philonotis tomentella).

For the cross-walk from the environmental source data to the Turboveg database, we made the following changes: 1) written aspects were crosswalked to the nearest degree available for the field ‘Aspect’ in Turboveg; 2) for entry into Turboveg decimal values in the fields prostrate dwarf shrubs, algae, vegetation height, and moss depth were rounded up to the nearest percent; 3) methods used for recording forb cover, lichen cover, and moss cover were not compatible with Turboveg, but these data are available in the source data; 4) the 10 site moisture scalar values recorded in the field were crosswalked to the 4 classes available for Turboveg; 5) with the aid of D. A. ’Skip’ Walker, site topographic positions were crosswalked to the classes available in Turboveg; 6) for the Turboveg field ‘Soil texture’, only the major soil classes are retained from the calculated texture; and 7) 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 High Arctic Canada - Green Cabin Ancillary Data

3a) High Arctic Canada - Green Cabin Plot Location Map
aava_hacgrncabin_cvonlanthen_2008_plotmap_anc.jpg

This aerial photograph shows the location of the Green Cabin plots on Banks Island, Canada.

3b) High Arctic Canada - Green Cabin Photos
aava_hacgrncabin_cvonlanthen_2008_photolog_anc.pdf

This file contains labeled digitized photos of individual plots from Munger et al. 2004. Images of all but one plot are included here.

3c) High Arctic Canada - Green Cabin Publications
epsteinh_2008_jgeophysres_phytomass_arctic_gradent.pdf
michaelsong_2008_jgeophysres_soils_arctic_gradient.pdf
mungerc_2004_datarpt_grncabin_banksisle_patterngrnd.pdf
pingc_2008_geophysres_cryogenesis_soils_arctic_gradient.pdf
raynoldsm_2005_datarpt_grncabin_banksisle_soils.pdf
raynoldsm_2012_remotesenslett_biomass_est_ndvi_.pdf

vonlanthanc_2008_phytocoenologia_patterngrnd_higharct.pdf
walkerd_2008_abhandlungen_westfälischen_museum_subzone_a.pdf
walkerd_2008_jgeophysres_patterngrnd_naat_eurasionat.pdf
walkerd_2011_appvegsci_veg_zonal_pattgrnd_naat.pdf
walkerd_2012_environreslett_ndvibiomass_naat_eat.pdf

These are .pdf files that include data or analysis of the High Arctic Canada – Green Cabin plots.

3d) High Arctic Canada – Green Cabin Soils Data
aava_hacgrncabin_cvonlanthen_2008_soils_physchem_anc.csv
aava_hacgrncabin_cvonlanthen_2008_soils_physchem_anc.xlsx

These files contain the soil physical and chemical data in .csv and .xlsx format. The source of the soils data is Munger et al. (2004; Tables 12 and 13) which are also included in a report by Raynolds (2005). Soil samples were collected in the top mineral horizon at 10 cm. Soil texture was determined using sand, silt and clay percentages and the U.S. Department of Agriculture, Natural Resources Conservation Service Soil Texture Calculator. Soil descriptions from the grids provide a basic understanding of soils specific to the vicinity of the plots (Munger et al. 2004). Soils data were analyzed and published by Ping et al. (2008).

e) High Arctic Canada – Green Cabin Biomass Data
aava_hacgrncabin_cvonlanthen_2008_biomass_anc.csv
aava_hacgrncabin_cvonlanthen_2008_biomass_anc.xlsx

The source of the biomass data is Raynolds et al. (2006; Table 10). All aboveground biomass (living and standing dead) was clipped within a 20 x 50 cm frame (0.1 square meter) at releves in 2003. Samples were sorted by plant functional type (moss, lichen, forb, horsetail, deciduous shrub, evergreen shrub, and graminoid) in the field. Samples were frozen for transport and later in the lab were oven dried. Oven dried weights are recorded. These were analyzed and later published by Epstein et al. (2008) and Raynolds et al. (2012).

4) AAVA High Arctic Canada – Green Cabin Metadata
aava_hacgrncabin_cvonlanthen_2008_envlegend_metadata.pdf
aava_hacgrncabingrncabin_cvonlanthen_2008_readme_metadata.pdf
aava_hacgrncabin_cvonlanthen_2008_readme_metadata.txt
Folder: Habitat_type_history_metadata_2013-2019

These are the metadata files for the High Arctic Canada – Green Cabin vegetation plots. The ‘envlegend’ describes the variables in the header data for the source environmental file (aava_hacgrncabin_cvonlanthen_2008_allenv_modsrc.xlsx, and .csv), while the readme describes all of the data. 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 value format indicates the modifications made to source data in the preparation of the AAVA High Arctic Canada - Green Cabin Modified Source Environmental Data files (aava_hacgrncabin_cvonlanthen_2008_allenv_modsrc.csv and aava_hacgrncabin_cvonlanthen_2008_allenv_modsrc.xlsx) and fields that were used to crosswalk these data to the Turboveg database (aava_hacgrncabin_cvonlanthen_2008_tv.zip).

VARIABLE,IN MODIFIED SOURCE ENVIRONMENTAL DATA FILE,IN TURBOVEG FILE AS SAME NAMED FIELD,SOURCE AND CHANGES MADE TO DATA

VARIABLE,IN ENVIRONMENTAL MODIFIED SOURCE DATA FILE,IN TURBOVEG FILE AS THE SAME NAMED FIELD,DATA SOURCE AND CHANGES MADE TO DATA
RELEVE NUMBER,YES,YES,From Munger et al. (2004; Table 8).
CHARACTERISTIC SPECIES,YES,YES,From Munger et al. (2004; Table 8). Included in the Turboveg field 'Remarks.'
STUDY SITE,YES,NO,From Munger et al. (2004; Table 8).
LATITUDE (WGS84 DD),YES,YES,"From Munger et al. (2004; Table 8). Source data was converted from degrees, minutes, seconds to decimal degrees."
LONGITUDE (WGS84 DD),YES,YES,"From Munger et al. (2004; Table 8). Source data was converted from degrees, minutes, seconds to decimal degrees."
ELEVATION (M),YES,YES,From Munger et al. (2004; Table 8).
ASPECT (DEGREES),YES,YES,From Munger et al. (2004; Table 8).
SLOPE (DEGREES),YES,YES,From Munger et al. (2004; Table 8).
RELEVE SIZE (SQUARE METERS),YES,YES,From Munger et al. (2004; Table 8).
YEAR,YES,YES,From Munger et al. (2004; Table 8). Part of the Turboveg field 'Date.'
MONTH,YES,YES,From Munger et al. (2004; Table 8). Part of the Turboveg field 'Date.'
DAY,YES,YES,From Munger et al. (2004; Table 8). Part of the Turboveg field 'Date.'
SUBZONE,YES,YES,From Munger et al. (2004; text).
ERECT DWARF SHRUB COVER (PERCENT),YES,YES,From Munger et al. (2004; Table 10).
PROSTRATE DWARF SHRUB COVER (PERCENT),YES,YES,From Munger et al. (2004; Table 10). Values were rounded to the nearest percent as this Turboveg field requires a whole number.
EVERGREEN SHRUB COVER (PERCENT),YES,NO,From Munger et al. (2004; Table 10).
DECIDUOUS SHRUB COVER (PERCENT),YES,NO,From Munger et al. (2004; Table 10).
ERECT FORB COVER (PERCENT),YES,NO,From Munger et al. (2004; Table 10).

Forb cover was collected separately for erect and matted forbs and is available in the source data. Turboveg requires total forb cover to be estimated in the field and as these are unavailable the data were recorded as absent (-9).
MATTED FORB COVER (PERCENT),YES,NO,From Munger et al. (2004; Table 10). Forb cover was collected separately for erect and matted forbs and is available in the source data. Turboveg requires total forb cover to be estimated in the field and as these are unavailable the data were recorded as absent (-9).
NON-TUSSOCK GRAMINOID COVER (PERCENT),YES,YES,From Munger et al. (2004; Table 10).
TUSSOCK GRAMINOID COVER (PERCENT),YES,YES,From Munger et al. (2004; Table 10).
FOLIOSE LICHEN COVER (PERCENT),YES,NO,"From Munger et al. (2004; Table 10). Foliose, fruticose and crustose lichen cover are available in the source data recorded as the sum of individual species cover calculated in the office. An estimate of total cover of lichens was not recorded in the field as required for the Turboveg column 'Lichen Cover' and is thus recorded as being absent (-9)."
FRUTICOSE LICHEN COVER (PERCENT),YES,NO,"From Munger et al. (2004; Table 10). Foliose, fruticose and crustose lichen cover are available in the source data recorded as the sum of individual species cover calculated in the office. An estimate of total cover of lichens was not recorded in the field as required for the Turboveg column 'Lichen Cover' and is thus recorded as being absent (-9)."
CRUSTOSE LICHEN COVER (PERCENT),YES,NO,"From Munger et al. (2004; Table 10). Foliose, fruticose and crustose lichen cover are available in the source data recorded as the sum of individual species cover calculated in the office. An estimate of total cover of lichens was not recorded in the field as required for the Turboveg column 'Lichen Cover' and is thus recorded as being absent (-9)."
PLEUROCARPOUS MOSS COVER (PERCENT) ,YES,NO,From Munger et al. (2004; Table 10). Pleurocarpous and acrocarpous moss and liverwort cover are available in the source data recorded as sum of individual species cover calculated in the office. An estimate of total cover of mosses and liverworts was not recorded in the field as required for the Turboveg column 'Mosses and Liverwort Cover' and this column of data is recorded as being absent (-9).
ACROCARPOUS MOSS COVER (PERCENT),YES,NO,From Munger et al. (2004; Table 10). Pleurocarpous and acrocarpous moss and liverwort cover are available in the source data recorded as sum of individual species cover calculated in the office. An estimate of total cover of mosses and liverworts was not recorded in the field as required for the Turboveg column 'Mosses and Liverwort Cover' and this data is thus recorded as being absent (-9).
LIVERWORT COVER (PERCENT),YES,NO,From Munger et al. (2004; Table 10). Pleurocarpous and acrocarpous moss and liverwort cover are available in the source data recorded as sum of individual species cover calculated in the office. An estimate of total cover of mosses and liverworts was not recorded in the field as required for the Turboveg

column 'Mosses and Liverwort Cover' and this data is thus recorded as being absent (-9).
HORSETAIL COVER (PERCENT),YES,YES,"From Munger et al. (2004; Table 10). Horsetail cover data were used for the Turboveg field 'Seedless Vascular Plant"" cover. Values were rounded to the nearest percent as this Turboveg field requires a whole number."
ALGAE COVER (PERCENT),YES,YES,From Munger et al. (2004; Table 10). Values were rounded to the nearest percent as this Turboveg field requires a whole number.
ROCK COVER (PERCENT) ,YES,YES,From Munger et al. (2004; Table 10). Values were rounded to the nearest percent as this Turboveg field requires a whole number.
BARE GROUND COVER (PERCENT),YES,YES,From Munger et al. (2004; Table 10). Values were rounded to the nearest percent as this Turboveg field requires a whole number.
SALT CRUST COVER (PERCENT),YES,YES,From Munger et al. (2004; Table 10).
WATER COVER (PERCENT),YES,YES,From Munger et al. (2004; Table 10).
DEAD VEGETATION COVER (PERCENT),YES,YES,From Munger et al. (2004; Table 10). Dead vegetation cover values were rounded to the nearest percent as the Turboveg field 'litter' requires a whole number.
LIVE VEGETATION COVER (PERCENT),YES,YES,Calculated. Live vegetation is presented here as a sum of individual species cover. An estimate of total live vegetation cover by plot as required by Turboveg for this field is not available and the data is thus recorded as absent (-9).
TOTAL (LIVE AND DEAD) VEGETATION COVER (PERCENT),YES,NO,Calculated. Live and dead vegetation cover is presented here as a sum of individual species cover and dead vegetation cover estimates.
VEGETATION HEIGHT (CM),YES,YES,From Munger et al. (2004; Table 12).
MOSS HEIGHT (CM),YES,YES,From Munger et al. (2004; Table 12). From field datasheets. Values were rounded to the nearest centimeter as the Turboveg field requires a whole number.
ORGANIC HORIZON DEPTH (CM),YES,NO,From Munger et al. (2004; Table 12).
A HORIZON DEPTH-THICKNESS (CM),YES,NO,From Munger et al. (2004; Table 12).
MICRORELIEF (CODE),YES,NO,From Munger et al. (2004; Table 12).
LANDFORM (CODE),YES,NO,From Munger et al. (2004; Table 12).
SURFICIAL GEOLOGY (CODE),YES,NO,From Munger et al. (2004; Table 12).
SURFICIAL GEOLOGY (CROSSWALKED TO TURBOVEG),YES,YES,From Munger et al. (2004; Table 12).
SURFICIAL GEOMORPHOLOGY (CODE),YES,NO,From Munger et al. (2004; Table 12).
MICROSITE (CODE),YES,NO,From Munger et al. (2004; Table 12).
SITE MOISTURE (SCALAR),YES,YES,From Munger et al. (2004; Table 12). The ten scalar values from the source data were crosswalked to four site moisture classes available for the Turboveg field 'Site Moisture.'
SITE MOISTURE (CLASSES FOR TURBOVEG),YES,YES,From Munger et al. (2004; Table 12).
SOIL MOISTURE (SCALAR),YES,NO,From Munger et al. (2004; Table 12).

GLACIAL GEOLOGY (CODE),YES,NO,From Munger et al. (2004; Table 12).
TOPOGRAPHIC POSITION (CODE),YES,NO,From Munger et al. (2004; Table 12).
TOPOGRAPHIC POSITION,YES,NO,From Munger et al. (2004; Table 12).
SOIL UNIT (CODE),YES,NO,From Munger et al. (2004; Table 12).
SNOW DURATION (SCALAR),YES,NO,From Munger et al. (2004; Table 12).
DISTURBANCE DEGREE (SCALAR),YES,NO,From Munger et al. (2004; Table 12).
DISTURBANCE TYPE (CODE),YES,NO,From Munger et al. (2004; Table 12).
STABILITY (CODE),YES,NO,From Munger et al. (2004; Table 12).
EXPOSURE (SCALAR),YES,NO,From Munger et al. (2004; Table 12).
PH (PASTE),YES,Yes,From Munger et al. (2004; Table 12). Values were rounded to the nearest decimal point as required for the Turboveg field 'soil pH.'
TEXTURE (FROM ANCILLARY SOURCE DATA: SOILS),YES,YES,"From Munger et al. (2004; Table 12). Texture was determined using sand, silt and clay percentages and the U.S. Department of Agriculture, Natural Resources Conservation Service Soil Texture Calculator. For Turboveg, only the major soil classes are retained."
PLANT COMMUNITY NAME (VONLANTHEN ET AL. 2008; TABLES 10–14).,YES,YES,From Munger et al. (2004; Table 12). Included in the Turboveg field 'Plant Community.'
SUBZONE,YES,YES,From Munger et al. (2004; text).
HABITAT TYPE (PROVIDED BY D. A. 'Skip' Walker),YES,YES,Assigned by D. A. 'Skip' Walker May 2017.