BIOL 697, LABORATORY 2

INTRODUCTION TO THE ALASKA ARCTIC VEGETATION ARCHIVE (AVA-AK), VERIFYING FIELD VOUCHER COLLECTIONS, AND DATA ENTRY

Introduction:

This lab will introduce you to the processes involved in bringing field data into data matrices appropriate for vegetation classification and ordination. You will become familiar with:

(1) Alaska Geoecological Atlas plot data and map data sets.

(2) Organization of the Alaska Vegetation Archive and Turboveg data file.

(3) The process of verifying species information contained on the field data sheets.

(4) Entering the species and environmental data into Excel species and environmental data matrices in preparation for entry to PC-Ord.

Alaska Geoecological Atlas (AGA) plot data and map data sets

The AGA is comprised of archives of maps and plot-based vegetation data, and associated information. The Map Archive contains map products at several scales and numerous themes. The maps range from detailed geoecological maps, which are polygon-based integrated terrain maps at relatively fine scales, to raster-based map products derived from satellite data and digital elevation models. The Vegetation Plot Archive contains vegetation-plot data, associated environmental data, and other related information from over 3,000 plots in Arctic Alaska. We will familiarize you with the Map and Plot Archives.

Organization of the Alaska Vegetation Archive and Turboveg data file — Lisa Druckenmiller

Lisa will go over the process of preparing the raw species and environmental data files for entry into Turboveg.

The process of verifying species information

We will go over the process of verifying and/or determining the species names of voucher collections from field samples, and then preparing the data sheets for data entry.

Students should first go through each of the relevé data sheets and check the plants collected in the voucher collections against the names on the data sheet. Put a small check in the upper right corner of the data cell with the cover-abundance score for each verifiable species. Unknown plants should be tagged with a piece of tape with the relevé number followed by a dash and a consecutive number, (e.g. 1-1, 1-2, etc. for unknowns in Plot 1; 2-1, 2-2, etc. for unknowns in Plot 2.) The same number should be entered on the data sheet in the corresponding cell (you will have to write small). New species that were not noticed in the field that are in the voucher collections, should be entered at the bottom of the list and given a "+" or other appropriate cover-abundance score and a note added to the data sheet regarding how the specimen was treated.

[Note: Shawnee has used a slightly different procedure, for numbering her specimens and organizing the voucher identification, so we will adapt to her procedures.]

Spend some time checking against the plant, lichen and moss keys, but keying out species is hard and not something we can learn in one lab. Many of the unknowns will have remain unknown for the exercises that follow. We will learn how to handle them for this eventuality.

We will not have time to verify all the vouchers, and check all the data sheets against the vouchers during the class time. Shawnee will organize how to get as far as possible and then move on to data entry.

Normally, once all the vouchers are checked against the data sheet plots, we collect the labeled unknowns on new sheets that contain the same and similar unknowns, so that we can most efficiently check these against the keys and specimens from the Herbarium. For example, all the unknown grasses with tags would be put into a newspaper sheet or several sheets labeled BIOL 697 2017 unknown grasses. Other sheets might contain all the unknown sedges, willows, forbs, etc. Group together specimens that look similar.

Entering the species and environmental data into Excel data matrices in preparation for PC-Ord.

Each student will enter the species from 14 of Shawnee's plots into Excel spreadsheets. One for the species data and one for the environmental data.

Species data should be entered with the columns as the plot numbers and rows containing the species names, and cells in the table containing the cover-abundance scores for each species in the plot. We will enter the six-letter field codes for each species and the cover value.

Environmental data will be entered with rows as the plot numbers and the columns the environmental and soil variables.

We will eventually have to combine the three sets of plot species data into one raw species data matrix, and the three sets of environmental data into a single raw environmental data matrix. Soils data will be added to the environmental matrix once we have the completed the soil lab.