December 6, 2006 Kris Hazelbaker

This paper documents the process used to evaluate current vegetation conditions on the Nez Perce and Clearwater National Forests, to facilitate comparison to the desired vegetation conditions described in the proposed revised forest plans.

The data source for current conditions is the Forest Inventory and Analysis (FIA) data collected for these two national forests. Each forest has approximately 300 plot locations, of which 10% are remeasured annually. This data will, then, be refreshed every 10 years, providing current inventory information. 2006 was the second year of remeasurements.

The Northern Region extracts this data from the FIA database, and loads it into the R1 Summary Database, which follows the national protocols for common stand exam data. Once in the database, queries can be made that summarize the data by any number of different categories. Plots have been associated with planning classifications such as Bailey's ecological section, watershed and subwatershed and, for the Clearwater and Nez Perce, the ecosection setting they are found in. Ecosection settings were developed by combining similar Vegetation Response Units on the Nez Perce and similar Landtype Associations on the Clearwater.

To describe the existing vegetation on the Clearwater and Nez Perce National Forests, the following MS Access query was made to the data in the R1 summary database.

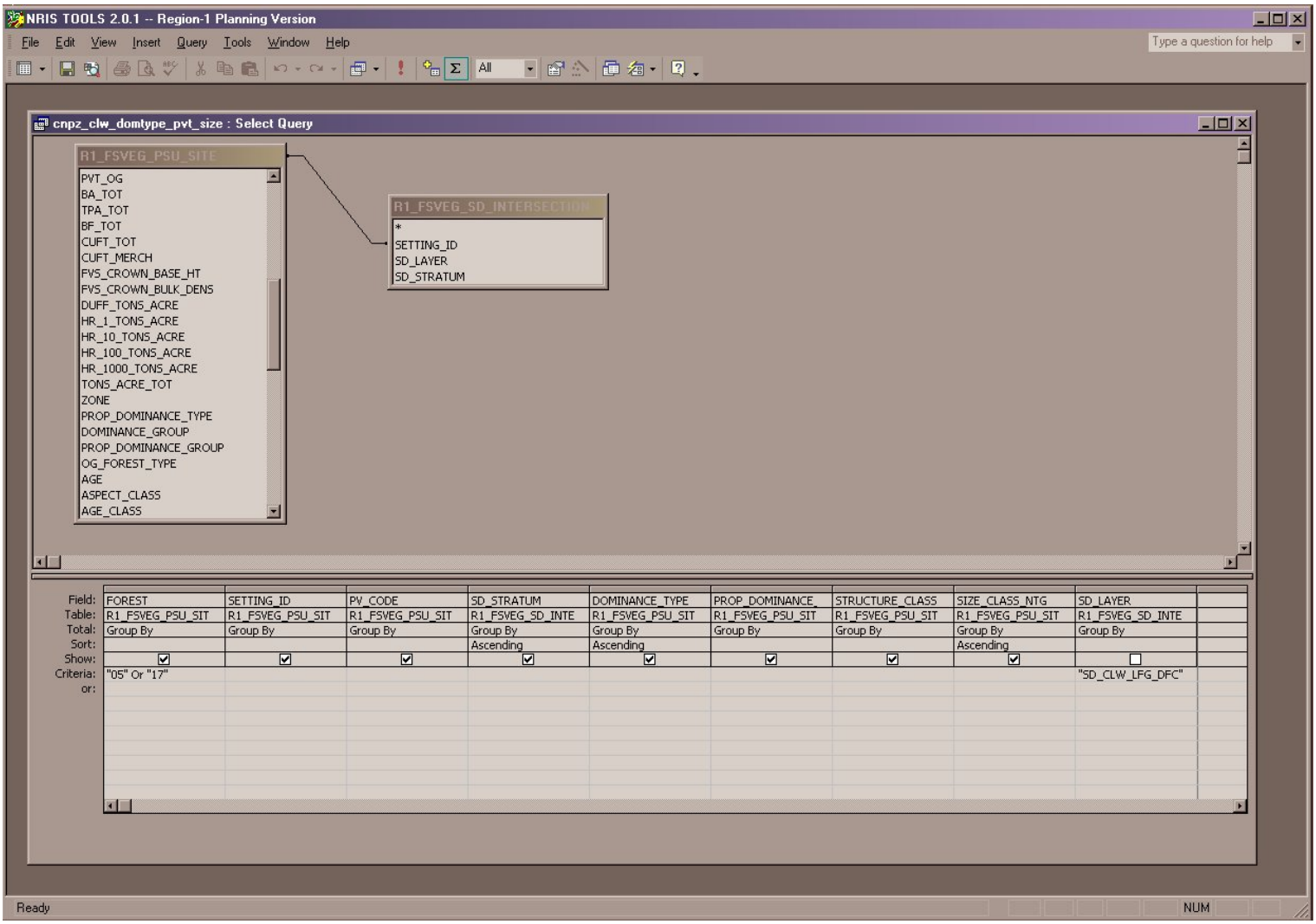
The following data items were used:

1) FOREST – 05 for Clearwater, 17 for Nez Perce
2) SETTING_ID – the FIA plot identifier
3) PV_CODE - potential vegetation code, which is the habitat type code for the plot
4) SD_STRATUM – this allows selection of the items in this field, including the ecosection setting.
5) DOMINANCE_TYPE - this identifies up to 3 species in a mixed stand, each of which has over 20% of the total basal area. The species are listed in order of dominance. See the R1 Vegetation Council Classification Algorithms paper (Numbered Report 05-01, revised June 2006) for a complete explanation of how dominance type is derived.
6) PROP_DOMINANCE_TYPE – this is the proportion of the basal area that is one of the species identified as the dominance type
7) STRUCTURE_CLASS – I didn't use this one, but it may be helpful in some of the wildlife monitoring in the future.
8) SIZE_CLASS_NTG – this is the basal area weighted size class for the plot, used to identify the size class of the plot.
9) ECO_SUBSECTION – from the SD_STRATUM field. I didn't use this one except as a comparison with our spectrum_group layer. This is based on the official subsection map, and was developed by overlaying the subsection map with the FIA plot locations. I did not use subsections in my analysis/assessment.
10) SPECTRUM_GROUP – also from the SD_STRATUM field, and filtered to select the SD_CLW_LFG_DFC item. This is the ecosection setting for each plot. It was used to develop the pivot tables for the Clearwater. For the Nez Perce, it shows two Bitterroot Mtns.

settings. They were used in early analysis, but were combined with Idaho Batholith settings when it became obvious that there were not enough plots in them to support robust statistical analyses.

11) SINGLE_ECOSECTION – this column was used to develop the pivot tables for the Nez Perce. It combines the Bitterroot Mtns settings with the Idaho Batholith settings in the SPECTRUM_GROUP column on the Nez Perce. This column is not in the Clearwater data, because no combinations were made on that forest.

This is the query that I used to extract the data from the R1 database:
(If you can't read it, increase the Zoom to 150% or more.)



Pivot Tables:
I put the data extracted from this query into a spreadsheet, and developed two tables to classify and assess the information. The first looks at the number of plots by dominance types and setting. 'Setting' goes across the top, 'dominance type' goes down the left side, and the data items are 'count of setting id'. The second looks at the number of plots by size

class and setting. 'Setting' goes across the top, 'size class' goes down the left side, and the data items are 'count of setting id'. I did a set of these for each forest.

Dominance Type

I color-coded the pivot tables to reflect the dominance types in the desired condition tables. I used the protocols in the Region One Vegetation Council Classification Algorithms paper to evaluate each dominance type, as that is the classification schema used to determine dominance type. I also used the tolerant/intolerant classification in that paper. I did not use the same protocol as the Vegetation Council to group mixes of species. Ponderosa pine and western larch are key restoration species on both forests. Plots that contained at least 20% of those species were grouped. Three species mixes were evaluated for presence of tolerant or intolerant species. Generally, if two of the three were tolerants, the plot went to the corresponding tolerant species group. If two of the three were intolerant, the plot went to the intolerant species group.

1) Orange indicates a PP or PP mix type. If there was enough PP in the stand that it showed up as part of the dominance type, I called it a PP mix, even if another species had greater basal area (the exception was one plot in the subalpine setting on the Nez Perce, which was primarily GF/DF with some PP). IMXS types on the breaklands on the Nez Perce were called PP mix.
2) Green indicates a DF or DF mix type. This includes all dominance type calls that were:
   a) just DF
   b) for a 2 species mix, DF had the higher basal area (a PSME-XXXX type)
   c) for a 3 species mix, DF had the highest basal area, and the other 2 species were not both shade tolerant (PSME-XXXX-XXXX). For example, PSME-ABLA-PIEN would not be a DF mix because at least 40% of the basal area is shade tolerant.
   d) for a 3 species mix with a shade-tolerant species having the highest basal area (for instance ABLA-PSME-PICO), if DF was second most dominant species in the mix, and the third species in the mix was also shade intolerant, I called it DF. Examples: ABLA-PSME-PICO is a DF mix because there is at least 40% of the basal area that is shade intolerant.
   e) If the dominance type was IMXS on upland or subalpine settings on the Nez Perce, I called it DF. Any IMXS on the Clearwater was classified as DF.
3) Yellow indicates WRC or GF or both. This includes all dominance types that were:
   a) just GF or just WRC or a mix of the two
   b) either GF or WRC as the first species in a 2-species mix
   c) either GF or WRC as the first species in a 3-species mix, and at least one of the other species is a shade-tolerant species
   d) either GF or WRC is the second species in and 3-species mix, and the third species is also shade tolerant.
   e) All TGCH dominance types.
4) Pink indicates WL/DF mixes. Any plot that was wholly larch, or had DF and WL as two of the species in the mix was classed as DF/WL mix.
5) Purple indicates LP or LP mix. This includes plots that have a dominance type of:

    a) just LP
    b) LP is the first species in a 2-species mix
    c) LP is the first species in a 3 species mix and at least one of the other species is shade-intolerant. If the other two species in the mix are shade tolerant, the plot is classed as either GF/WRC or AF/ES.
6) Blue indicates AF or AF mix. This includes plots that have a dominance type of:
    a) AF or ES as the only species
    b) AF or ES as the first species in a 2-species mix
    c) AF and ES are two of the species in a 3-species mix, regardless of which species is the first one listed.
    d) The dominance type is TASH.
    e) PIAL (whitebark pine) is included in this group.

This leaves a few plots not classified. They are plots with no trees, aspen or birch. Plots classed as "None" could be non-forest (most likely grassland or shrubland with some potential to be forest), or recently burned or harvested. They have no trees of any size on them.

Size Class

FIA size classes are grouped in 5" diameter classes. I further grouped these into 3 classes, consistent with the VMap product: seedling to 4.9", 5" to 14.9", and over 15". As in the dominance type grouping, this left those plots with "none" as the size class. They were not classified.