

Guidance Document for Using National Resources Inventory Grazing Land On-Site Data Tables for Developing Pasture State Groups

March 2022

Background

The National Resources Inventory (NRI) Grazing Land on-site data tables presented on this website were constructed only for use in developing Pasture State Groups (PSG) by individuals receiving approval through a confidentiality agreement provided for this project. Individuals should contact NRI Grazing Land Help Desk (NRI-Grazing-Land-Help@iastate.edu) to obtain a copy of the confidentiality agreement. These data are considered sensitive and are not to be distributed or used for other purposes.

The table contents are summarized from NRI data collected on pasturelands during 2009-2011 and 2013-2020. The tables include those points (referred to as locations in the remainder of this document and in the tables) for which all or only part of the 150-ft circular macroplot was located on pastureland. The zip files, linked on the web page by State, contain XML files with locations sorted by MLRA. A series of tables with data summaries are labeled on tabs for each worksheet.

More information about the NRI Grazing Land data collection protocols is available in the handbook of instructions (<https://grazingland.cssm.iastate.edu/reference-materials>).

Description of Tables

The first worksheet tab is **GENRL (site information)**. Column A lists data elements that describe the site, the data and time data were collected (Capture Date), or some condition on that location. These elements will help the examiner sort locations into groups based on some criteria, data elements, or threshold conditions. Column B and those columns to the right contain information associated with the individual locations, organized by MLRA. The locations follow the same order in each worksheet. The geographic position of the location is protected information but is provided, where available, as land survey Township and Range. The location of the data collection site occurs somewhere within that 36 square mile area.

CLIMATE - The climate table is included among the worksheets. The climate table displays precipitation in inches and temperature is in degrees Fahrenheit. National maps of the climate data are also posted on the site. Use the maps to get regional insights to the 31 variables described in the row Headers of Column A. These climatic variables have some potential to affect growth. Most are explanatory by name so each state needs to research which variables or combination of variables are most important for growing conditions on an annual basis. This analysis will help explain signals collected in the location data (e.x. Bare Ground). Some variables show seasonal differences which may be validly considered for growing conditions. Because the variable's effect on growth vary by location, the PRISM geospatial model data is displayed for each location so that a

blank means that the climatic variable was MORE than the 30-year measurement means 1991 to 2020. Depending on the variable, more than the mean may be good or poor growing conditions. Difference is included if the survey year measurement is LESS than the 30-year measurement mean. The summary variables are taken from the NRCS National Range & Pasture Handbook, and from the BIOCLIM set of variables used for species modeling (<http://www.worldclim.org/bioclim>). Daily PRISM data from 1991-2020 provided the raw values (<http://www.prism.oregonstate.edu/>).

The **BIOMASS** worksheet provides estimates of total herbaceous and woody biomass (lbs/ac), harvested weights of herbaceous plants (g) and woody plants (kg) by subplot and for the location. The herbaceous subplot sizes vary by location and are provided in the worksheet. All woody subplots are 1/100 ac in size. Where woody biomass models/equations were used to obtain estimates of weight, the **WOODY** worksheet provides total woody biomass (lbs/ac) for the location, and the number of plants and average diameter by species group and subplot.

The **FCAN (first canopy cover)** worksheet contains the top-most canopy hits from the line point intercept (LPI) protocol as a percent of the number of 101 marks along the transects where the LPI readings are taken. Percent by species, subtotal by functional group, and total foliar cover for the point is included. FCAN and other tables contain a summary of Minimum, Maximum, Mean, Constancy, and Percentage for species across all locations. Constancy is the frequency with which a species occurs in all locations. These summaries are located in the right-most columns.

The **BASL (basal hit)** worksheet contains the bottom-most (basal) LPI hits as a percent of the number of marks along the transect where the LPI readings are taken. Functional group subtotals are provided. Please note that the 'soil' row is not bare ground. Bare Ground, where the LPI mark has no canopy hits and the basal hit is soil, is summarized in the GENRL worksheet.

The **LPI (Line Point Intercept)** worksheet summarizes all plant and litter hits throughout the canopy. This plant list column is more extensive than the FCAN. Additionally, this worksheet contains a constancy measure which will aid in decisions as to which plant codes are most common and best to list in PSG descriptions.

The Dry Weight Rank method is a non-destructive visual estimation procedure to evaluate species percent composition by weight. The **DRYWTR** worksheet summarizes these percentages by species and functional group.

Starting in 2015, data collectors describe the depth, soil texture, soil texture modifier, effervescence class and unusual features for each soil horizon in a minimum 20-inch hole for all data locations. The **SLHORIZ** table provides this information. Please see chapter 7 of the handbook of instructions (<https://grazingland.cssm.iastate.edu/reference-materials>) for tables with codes and classes shown in this worksheet.

PLNTHT (Plant Height) provides the average measured height (in inches) by species and functional group.

The **PSTCOND (Pasture Condition Score)** worksheet contains the indicator ratings (1-5), where lower ratings generally indicate less desirable conditions.

The **DIST (disturbance)** worksheet lists past (over a year) and present (within the past year) disturbances visually observed at the site. Some blanks are due to changes in this protocol. Use the dropdown sort button in the upper right corner of the column. Check the Y in the bottom box. Disturbances may help explain unexpected numbers (e.g., higher percentages of bare ground if livestock heavy use is present).

The **Conservation Practices** worksheet lists practices that are Present (applied, maintained, and functioning according to the State practice standard) or Needed (if a practice is not present, but is needed to treat a resource concern or facilitate other conservation practices in a resource management system).

NOTES displays all notes recorded in the field or during review. Notes are identified to protocol screen.

PLANT_INFO list the species codes from the 2013 USDA Plants database; scientific names and Author; common name; and synonym code for the plants recorded for the locations presented in the tables. Since the other tables list the species by plant code, this table may be used to reference the associated names.

Contact Kevin Ogles Kevin.Ogles@usda.gov for comments.