USDA United States Department of Agriculture

Natural Resources Conservation Service

Soil and Plant Science Division

Soil Survey Region 10

MLRA Soil Survey Office, Havre, Montana

Rangeland Health Worksheet Development

Purpose

Soil scientists and ecological site specialists from all corners of Soil and Plant Science Division Region 10 provided Technical Soil Services at the request of the Bureau of Land Management (BLM) to document soils, vegetation, and rangeland health indicators. The information will be used by the Havre Soil Survey office to create and provide the BLM with Rangeland Health Worksheets. BLM will use the worksheets while conducting grazing allotment assessments with the recently developed provisional ecological site descriptions.

From left to right: Mike England, Andrea Williams, Stuart Veith, and Mike Rokus describe a soil pedon for sampling.

Background Information

The BLM administers over 1 million acres of public grazing lands on the Brown Glaciated Plains (MLRA 52) of north-central Montana. This includes large areas of critical core habitat for the northernmost population of Greater sage-grouse, which is considered a species of concern. Preventing this bird from being listed as an endangered species is a top priority, not only for the BLM and Natural Resources Conservation Service (NRCS) but for other government agencies and non-governmental organizations as well.

Scott Brady (ecological site specialist) and Diana Ball (student intern) staking out a shrub production plot for Swale (Sw) Dry Grassland Ecological Site in Toole County, MT.

The recently developed MLRA 52 provisional ecological site descriptions, while being a major improvement over previous draft ecological sites, critically lack Rangeland Health Worksheets. These worksheets are foundational tools for rangeland condition assessments and are required for both BLM grazing allotment assessments and NRCS conservation plans on rangelands.

The BLM urgently needs these worksheets and requested that these documents be developed, providing Region 10 with reimbursable financial resources to complete the highest priority sites. The number of sites was ambitious and spread over a geographically extensive and remote area. Region 10 staff from Montana, North Dakota, Minnesota, and Wisconsin as well as staff from the Montana NRCS and BLM cooperated in this endeavor.

Key Outcomes

As a result of the field effort, 30 individual sites were thoroughly documented. The information is currently being used to create worksheets for the 10 most highly prioritized sites and will be available for use by the spring of 2019. These worksheets will provide users with updated, data-supported rangeland health assessment tools using established planning procedures and protocols to better manage grazing lands for both livestock and wildlife.

The concurrent collection of soils laboratory data on each site will aid in determing and documenting the significance of specific physical and chemical soil properties and their impact on plant communities and characteristics. An important example is correlating the effects of soil salinity and structure with the height and canopy cover of Wyoming Big sagebrush. The combined plant and soils information collected will be used to establish a data-supported baseline for cover and structure information as well as habitat potential for ecological sites.

Future Goals/Conclusions

Due to the success of this year's effort, the BLM is requesting that Region 10 continue collecting data for Rangeland Health Worksheets. Not only is this work providing updated tools to land managers, but the process itself is strengthening the working relationship between the NRCS and BLM.

The documentation collected this summer and in following years will also assist in the future approval of these ecological sites. Once this significant milestone is completed and geospatially correlated, these sites can be used as a regional planning tool and assist in prioritizing conservation efforts.

Soils lab data will be used to help classify soils, document their properties, and support future MLRA work to populate the National Soils Information System (NASIS) database and thereby provide more accurate interpretations based on actual field data to public and private land managers.

Loamy (Lo) Dry Shrubland Ecological Site in southern Phillips County, MT. Wyoming big sagebrush (Artemisia tridentata *ssp.* wyomingensis) *provides critical habitat for the Greater sage-grouse* (Centrocercus urophasianus).

Sampling of Dimmick soils for the Kellogg Soil Survey Laboratory (KSSL) at a Recharge Closed Depression (Cdr) in the Cherry Patch Moraines, Blaine County, MT. Background (from left): Mike Rokus, Scott Brady, Dan Wing, Briana Wegner, Amos Stead, Alex Gajdosik. Foreground (from left): Andrea Williams and Mike England.