Natural Resources Conservation Service
U.S. DEPARTMENT OF AGRICULTURE

SOIL AND PLANT SCIENCE DIVISION

Technical Soil Services

Southwest Soil Survey Region, Davis, CA

Minden, Nevada, Major Land Resource Area (MLRA) Soil Survey Office (SSO)

SPSD Instructs the Bureau of Land Management at Annual Assessment, Inventory, and Monitoring Training

Purpose

The Minden MLRA SSO (Chris Savastio, Meghan Krueger, Jessica Castiblanco, and Matt Cole) recently provided soils instruction to the Bureau of Land Management (BLM) at its annual Assessment, Inventory, and Monitoring (AIM) training. The purpose of the AIM training is to provide seasonal contractors with techniques to accurately inventory and collect soil and plant data.

Background

The Minden MLRA SSO has been assisting the Carson City, Nevada, BLM office with the state-wide AIM training for soils over the last six years. The most recent AIM training was held the week of April 24, 2023. The goal of the AIM program is to provide scientific data to use as a basis for land management decisions on BLM land throughout the western United States. To accomplish the data collection on the large amount of BLM land, seasonal contractors are utilized.

MLRA SSO staff showed students in the AIM training how to select representative spots on the landscape to place soil pits, dig the pits properly and efficiently, and accurately describe soil properties. After the students dug the pits, they collected a variety of soil properties, including soil texture, color, rock fragments, effervescence, and restrictive layers. Finally, the students correlated the soil profile description to a soil component in the published soil survey.

The students described a subset of soil properties that Natural Resources Conservation Service (NRCS) soil scientists typically gather in the field, which allow students to be more efficient. It also means students must rely heavily on published soil survey information and that it is critical that they correctly correlate a sample location to a soil component.

The MLRA SSO staff emphasized the process of using the soil properties collected from the soil pit to choose a representative soil component for interpretive purposes. They discussed the many factors that affect this process, including the scale of soil survey mapping, consideration of adjacent soil map units, and understanding minor soil components. With extensive soil survey experience, the MLRA SSO staff were extremely helpful in teaching students how to properly use and understand soil survey information.

Another part of the AIM data collection scheme is for the students to correctly identify the landform where the soil pit is located and to choose a representative soil component. MLRA SSO staff introduced the concept of geomorphology to the students, particularly the relationship between soil properties and landscape position. Although not something that can be fully understood in one training day, the students now know to expect different soils at different positions on the landscape because they are subject to different soil forming factors. Keeping this concept in mind, the students will broaden their understanding of soils as they collect AIM data.

Key Outcomes

BLM collects AIM data to have a scientific basis for land management decisions which can be controversial at times. By providing expert guidance on soil data collection and the use of soil survey information, NRCS is helping to ensure that accurate AIM data is collected.

The students are provided a solid introduction to soils. Most of the students had never thought about the relationship between soil formation and geomorphology; they now have a more soils-focused mindset for future field work. Students who did show interest in the soils portion of the training could be the next generation of soil scientists and may even end up working for the NRCS or other government agencies.

The AIM training is an excellent example of the cooperation of NRCS with other government agencies and is a fantastic opportunity to communicate with the BLM instructors to ensure soil survey information is being used correctly and to discuss future training needs for BLM employees. Overall, the technical soil services impacted 25 students and 5 BLM employees.

Figure 1. AIM students look at the differences in soil profiles at different landscape positions.

Figure 2. Jessica Castiblanco (NRCS soil scientist) explains soil profile development as it relates to data collection to a group of AIM students.

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