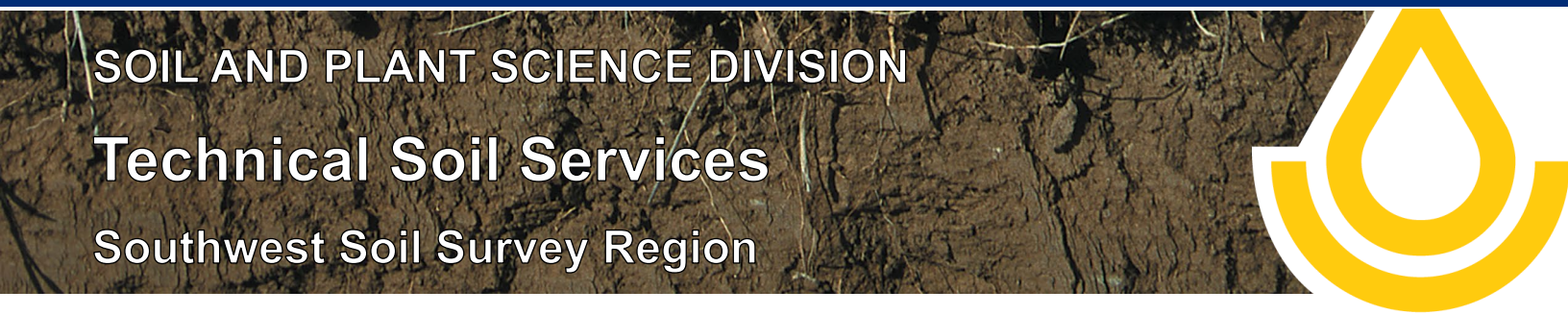

Klamath Falls, Oregon, Major Land Resource Area (MLRA) Soil Survey Office (SSO)

Soils Training in Jackson County, Oregon for the 2023 National Conservation Fund (NCF) Envirothon Competition

Purpose

On June 21, 2023, Klamath Falls MLRA SSO soil scientist, Brooke Hogan, traveled to Eagle Point in Jackson County, Oregon, to provide five high school students soils training as part of their preparation to compete in the NCF Envirothon Competition. Hogan was initially contacted by Christopher Van Ness, a teacher at the Logos Public Charter School in Medford, Oregon, to provide soil morphology training to his students. Jumping into help was Randy White, retired district manager of the Jackson County Soil and Water Conservation District, who dug two soil pits on his property near the Rogue River for Hogan to teach the students how to describe soils in the field.

Background

The NCF Envirothon aims to develop students' understanding of the natural environment and promote stewardship of natural resources. There are five main areas of study: aquatic ecology, forestry, wildlife, a current environmental issue (varies between competitions), and soils and land use. This year, the competition will take place July 23 to 29 at Mount Allison University in Tantramar, New Brunswick, Canada. During the competition, students' knowledge of soils will be tested as they answer questions regarding soil structure, soil ecology, soil morphology, and more.

Key Outcomes

The first soil pit Hogan reviewed with the students was on the flood plain of the Rogue River, in an area mapped as 23A, Camas-Newberg-Evans complex 0 to 3 percent slopes. Students observed first-hand how flooding changes the landscape. White told the students how the area had been affected by the Christmas flood of 1964. He pointed out a skeletal horizon at a depth of 75 centimeters, mentioning that he believed it used to be the surface prior to the flood. The students learned about Stokes' Law and how it applies to sediments deposited during a flood.

Hogan then demonstrated how to assess soil color, structure, and texture. She discussed the characteristics of master horizons and pointed out diagnostic horizons and features. After describing the pit as a group, the students compared their observations to the soil survey. The group determined that the soil series was Newberg. Brooke broke down the taxonomic classification of the Newberg series and how the group's observations matched.

At the second soil pit, Hogan put pins in the soil profile to identify the different soil horizons. The students then determined texture, color, structure, and horizon designations for each horizon. During this exercise, the students honed their texturing techniques by adjusting the amount of soil and water used for texturing. Their soil coloring skills improved as they learned to pick out the matrix color from mottles and clay films.

Throughout the day, students gained valuable hands-on experience describing soils that they will take to the Envirothon competition later this summer. They got to see a profound example of how the landscape influences soil formation at the first soil pit and at the second soil pit, how to read and interpret the soil survey like trained soil scientists.

Hogan and Van Ness, hope to work together with the Logos Public Charter School's Envirothon team to train for future competitions.

This map shows approximate locations of the soil pits used during the soils training. The first soil pit (red) is in map unit 23A and the second soil pit (blue) is in map unit 133A.

Students Adele, Charlotte, and Naomi (left to right) practiced the "pea method" for estimating sand content. MLRA SSO soil scientist Brooke Hogan assisted from the pit.