

2024 National Soil Moisture Workshop - Field Day
 July 18th, 2024
 Logan Canyon - Uinta-Wasatch-Cache National Forest

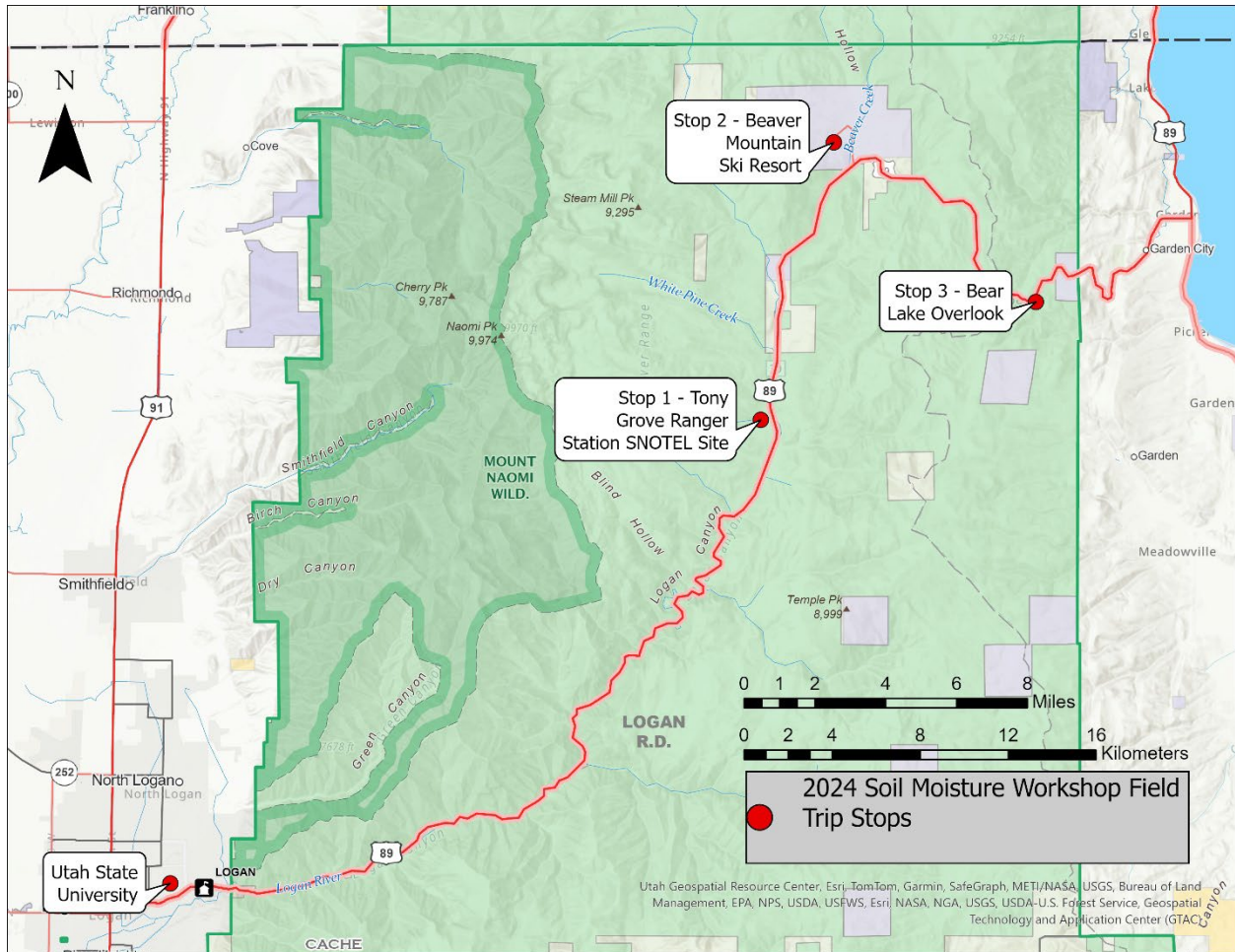


Figure 1. Map of the planned stops on the Uinta-Wasatch-Cache National Forest for the 2024 National Soil Moisture Workshop Field Trip.

Field Day Organizers & Hosts: US Forest Service in Collaboration with our National Soil Moisture Monitoring Network Partners

- ❖ **Shane Ylagan, Forest Soil Scientist, Region 4 Uinta Wasatch Cache National Forest**
- ❖ **Kristi Mingus, Region 4 Soil Scientist**
- ❖ **Marshall Alford, District Ranger, Logan Ranger District**
- ❖ **Charlie Condrat, Soil and Water Program Manager, Uinta Wasatch Cache National Forest**
- ❖ **Stephanie Connolly, Soil Scientist Field Liaison, Northern Research Station**
- ❖ **Scott Jones, Utah State University**
- ❖ **Jason Gerlich, National Atmospheric and Oceanic Observations Affiliate**
- ❖ **Michael Cosh, Research Leader/Research Hydrologist, USDA-ARS-Hydrology and Remote Sensing Laboratory**

Stop 1: Tony Grove Ranger Station Snow Telemetry (SNOTEL) Site

- **Talk 1: Area History**
 - **Speaker: R. Justin DeRose**, PhD, Certified Forester - Associate Professor, Silviculture and Applied Forest Ecology, Department of Wildland Resources, Utah State University, Logan, UT.
 - **Talk Summary:**
 - The history of scenic Logan Canyon is rich, originally the territory of the Northwest Band Shoshone, exploited early in the 1800s by fur trappers, and then exploited further by Mormon pioneers to build the town of Logan, and Cache Valley.
 - Justin intends to provide a cursory overview of this early history, its effect on local communities, and the long-term effects on the current vegetation and activity observed in Logan Canyon today.

- **Talk 2: Using Soil Moisture Data to Inform Land Management Decisions**
 - **Speaker: Stephanie J. Connolly** - Field Liaison Soil Scientist, Fernow Experimental Forest, Northern Research Station, United States Forest Service (USFS), Parsons, WV.
 - **Talk Summary:**
 - Stephanie will discuss the latest applications for forest management and range management that the USFS is considering for using soil moisture data to inform management actions and assist with assessing impacts of climate change on the resources.
 - Applications vary from the East to the West in the U.S.
 - Sources of data vary from global scale remote sensing data sets to local in situ soil moisture small watershed and site-specific monitoring.

- **Talk 3: SNOTEL Site Demonstration**
 - **Speaker: Jordan Clayton** - Data Collection Officer, Utah Snow Survey, Natural Resources Conservation Service (NRCS), Salt Lake City, UT.
 - **Talk Summary:**
 - Look at the SNOTEL structure and learn about its data collection.
 - Discuss some of the data and trends within the region.

Stop 2: Beaver Mountain Ski Resort

- **Talk 1: Area History**
 - **Speaker: R. Justin DeRose**, PhD, Certified Forester - Associate Professor, Silviculture and Applied Forest Ecology, Department of Wildland Resources, Utah State University, Logan, UT.

- **Talk 2: Soils within Conifer and Aspen Stands**
 - **Speaker: Janis Boettinger**, PhD - Professor of Soil Science (Pedology), Department of Plants, Soils, and Climate, Utah State University, Logan, UT.

- **Talk Summary:**
 - The profiles of two forest soils commonly found in northern Utah will be observed: a soil formed under conifer forest and a soil formed under aspen. Both soils are formed in colluvium (material moved downslope by gravity).
 - Conifer forest soils typically have an O horizon (layer of conifer needles) over a thin A horizon (mineral surface horizon with accumulation of humus), an E horizon (horizon of clay loss), and a Bt horizon (horizon of clay accumulation).
 - Aspen soils have a very thick A horizon over the Bt horizon (no O horizon).
- **Talk 3: Soil Moisture Sensor Issues within Forest Soils**
 - **Speaker: Scott B. Jones**, PhD - Professor of Soil Science (Soil Physics and Instrumentation), Department of Plants, Soils, and Climate, Utah State University, Logan, UT.
 - **Talk Summary:**
 - Water content sensor installation in forest soils – what should I do about all those stones and how do they impact sensor readings?
 - Sampling volume of water content sensors – how much soil is included in sensor measurements?
 - Profiling water content sensors – all the rage, so appealing, often so disappointing! What are the challenges for getting accurate measurements?
- **Talk 4: Xeric Soil Moisture Regime Study**
 - **Speaker: Kara Green** - Soil Scientist, Caribou-Targhee National Forest and Curlew National Grassland, US Forest Service, Soda Springs, ID.
 - **Talk Summary:**
 - Kara will present on a xeric soil moisture regime study, a University of Idaho graduate study in cooperation with United States Department of Agriculture (USDA) NRCS Soil and Plant Survey Division.
 - The project was initiated by Carla Rebernak with the USDA NRCS Soil and Plant Survey Division, and data was collected for the last two years by Daria Paxton, recent University of Idaho College of Natural Resources master's degree recipient, and Mark Kimsey, PhD. Research Associate Professor of Forest Resources and Director of the Intermountain Forestry Cooperative.
 - Goal of the project is to revisit the definition of xeric soil moisture regimes within the Inland Northwest and Northern Rockies regions.

Stop 3: Bear Lake Overlook

- **Talk 1: Area History**
 - **Speaker: R. Justin DeRose**, PhD, Certified Forester - Associate Professor, Silviculture and Applied Forest Ecology, Department of Wildland Resources, Utah State University, Logan, UT.

- **Talk 2: Three Creek Range Allotment Consolidation Project**
 - **Speakers**
 - **Megan Nasto** - Soil Science Program Director, Working Lands Conservation, Logan, UT.
 - **Kris Hulvey** - Lead Scientist, Working Lands Conservation, Logan, UT.
 - **Cassie Mellon** - Fisheries and Riparian Lead for the Aquatic Resources Program, Bureau of Land Management Utah, Salt Lake City, UT.
 - **Emily Jainarain** – Geologist, Utah Geological Survey, Salt Lake City, UT
 - **Hugh Hurlow** - Senior Scientist/Program Manager, Groundwater and Wetlands Program, Utah Geological Survey, Utah Department of Natural Resources, Salt Lake City, UT.
 - **Talk Summary:**
 - In partnership with federal and state agencies, and local ranchers, Working Lands Conservation is examining how improved livestock grazing - via managing the presence, duration, and timing of grazing - can improve ecosystem services across the Three Creeks Grazing Project in Rich County, UT.
 - Some of these ecosystem services include the capacity for riparian and upland soils to accept and retain water throughout the grazing season, and how the capacity to store water may create healthy soils that harbor active microbial communities and build organic matter.
 - The speakers will share some results from this project thus far and invite engaged conversation on the implications of these results as well suggestions on future studies.