High Altitude Soil Testing abstract

We investigate the distribution of plant species and their functional traits with respect to soil conditions and their positions on alpine periglacial patterned ground and distances from the edges of summer snowfields. To do so, we currently monitor soil temperature with an array of individual soil temperature sensors buried underground at periglacial patterned ground and near snowdrifts in the Anaconda-Pintler Wilderness at Goat Flat in SW Montana. Sensor positions are recorded via GPS, line-of-sight photography, and painted rocks for later retrieval. Because the sensors can be difficult to locate and sensor data can only be retrieved at the site, we are working to expand our capabilities by utilizing sensors that read temperature as well as soil moisture, implementing satellite communication so that data can be received without having to locate the sensors, creating a method in order to make retrieval of the sensors easier, and applying a power management system to ensure that the sensors can operate for years at a time.