# **Effects of Timber Harvest on Elk Summer Nutrition

Trevor Weeks*, Wildlife Biology Program, University of Montana, Missoula
Kelly Proffitt, Montana Fish, Wildlife & Parks, Bozeman
Chad Bishop, Wildlife Biology Program, University of Montana, Missoula

*Indicates Presenter

**Indicates Student Presentation

As disturbance regimes change, it is vital that wildlife managers understand how different disturbances affect habitats and the wildlife that live in them. We conducted research in northwestern Montana to understand the role of timber harvest in altering the summer nutritional landscape available to elk (Cervus canadensis). We performed sampling during May-August of 2023 and 2024, which involved three main efforts. First, we performed vegetation surveys at random plots stratified across a heterogenous landscape of landcover type and, for forested landcover, timber harvest strategy and time-since-harvest. We estimated ground cover and phenological stage proportions of all understory plants at intervals along a 40m transect and clipped and dried herbaceous biomass to estimate forage biomass (kg/ha) at eachplot. Second, we collected elk fecal pellets and used DNA metabarcoding to develop a comprehensive summer forage species list. Lastly, we collected samples of each forage species in each phenological stage and used sequential fiber analysis to estimate digestible energy (kcal/g). Using these data, we created nutritional landscape models predicting forage biomass and digestible energy. We found that harvested sites had higher digestible energy than unharvested sites, and under certain conditions provided some of the highest levels of forage biomass on the landscape. We found that combinations of landcover type and time-since- harvest informed predictions of both forage biomass and digestible energy. Harvest strategy informed predictions of forage biomass, but not digestible energy. Our research provides new insights into elk nutrition in an understudied region of Montana with implications for habitat manipulation and management.