

Associations Between Public Lands Cattle Grazing and Long-term Trends in Vegetation

Christopher Hansen, University of Montana, Missoula

*Indicates Presenter

**Indicates Student Presentation

Cattle grazing is a common practice on public lands in the western United States; however, it is largely unknown how cattle grazing on public lands has affected rangelands. Thus, our primary objective was to identify whether grazing practices were associated with changes in herbaceous vegetation productivity on public lands. To address this objective, we acquired billed Animal Unit Month (AUM) data and above-ground herbaceous biomass data for 12,628 Bureau of Land Management BLM grazing allotments for the past 36 years. We fit linear mixed effects models with annual change and 36-year trends in vegetation biomass as response variables, and grazing intensity (AUM/ha), precipitation, and temperature as predictor variables. Trends in precipitation and temperature had the strongest effects on trends in perennial and annual herbaceous biomass, with allotments that got warmer and drier over time having the largest decreases in biomass. Grazing intensity had weak to no associations with trends in herbaceous biomass. Our results suggest that current cattle grazing practices on BLM allotments were not strongly associated with vegetation productivity for the past 36 years, when considering allotment-scale effects across the range.