Project Title: Juvenile foraging and growth responses to climate change in hibernating squirrels

Project Mentors:

Dr. Caitlin Wells (primary mentor), Fish Wildlife and Conservation Biology, Warner College

Dr. Lise Aubry (co-mentor), Fish Wildlife and Conservation Biology, Warner College

CSU Extension co-mentor, TBD

Climatic shifts to warmer and often drier conditions are occurring more rapidly at higher elevations and latitudes, and are therefore likely to disproportionately affect the mammalian hibernators that occur there. In general, hibernator active seasons are lengthening, as hibernation phenology tracks shorter winters. However, we still lack a mechanistic understanding of how these longer active seasons are affecting intraspecific life history variation such as accelerated juvenile growth and rate of maturity; these processes are key to predicting both individual fitness, population-level resilience, and species persistence. Are juvenile squirrels able to track changing vegetation phenology associated with shorter winters- by increasing amount of time spent foraging, and/or changing diet of plants consumed - or not? We will use an elevational gradient, with associated differences in growing season length and phenology, to compare (1) activity budgets (i.e. proportion of time spent foraging), (2) diet diversity, and (3) growth rates of juvenile ground squirrels in the weeks following emergence from the natal burrow. This internship will take place partially at CSUʻs Mountain Campus (5 weeks) and partially on campus (5 weeks). The intern will engage with K-12 students, CSU faculty, and other researchers at Mountain Campus, with the potential to collaborate with Rocky Mountain Biological Laboratory researchers collecting similar data on ground squirrels of the Western Slope. The intern will gain field expertise in safe small-mammal handling and measurement, behavioral observations, and biological sample collection; and lab expertise in basic molecular techniques including DNA extraction, fecal metabarcoding, and qPCR. If they want, the intern will also be invited to collaborate on manuscript writing for academic publication, and present their work at a local or national conference.