ESTIMATING FORAGE QUALITY AND ABUNDANCE TO BETTER UNDERSTAND MULE DEER RESOURCE SELECTION

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To identify the environmental factors limiting growth of herbivore populations, researchers need to understand how benefits (like forage quality and abundance) and costs (like risk of predation) vary across a population's range, and how individuals select habitat with respect to those resources. For mule deer (Odocoileus hemionus) living in northwest Montana, predicting forage quality and abundance over large extents is difficult, since much of their habitat use occurs within dense conifer forest where remote-sensed metrics (like NDVI) are of limited use. Therefore, we are developing a landscape forage model using field-collected vegetation data to estimate how digestible energy per area varies across 3 mule deer population ranges. Preliminary evidence has shown that forage resource availability varies with landcover-type. With this forage model, and along with previously developed predator resource selection functions (RSFs), we will develop an RSF to assess how mule deer make tradeoffs between nutrition and predation risk. This will allow us to identify the mechanisms driving mule deer resource selection, and will guide more effective management of mule deer populations and habitat in western Montana.