
CLIMATIC DATA FOR WILDLIFE RESEARCH AND MANAGEMENT

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There is generally a poor correlation between climatic variables at lower elevations and higher elevations. It is imperative that this relationship be understood when evaluating climatic effects on species that move from lower to higher elevation during different seasons. It is also important that valley climatic conditions are not used to define relationship of species that occupy higher elevations. Using data from NRCS SNOTEL (SNOW TELEmetry) sites and NWS climatic stations can help define climatic conditions at locations occupied by concerned species. Daily data is generally more useful than monthly or seasonal averages. There are approximately 90 SNOTEL sites across Montana that typically report daily SWE (snow water equivalent), precipitation, maximum, minimum and average temperatures year-around and data is available in real-time. SWE can be related to travel, soil temperature, forage production and availability, migration and predator-prey relationships. Some SNOTEL sites also report snow depth. NWS stations typically report daily precipitation, maximum and minimum temperature but data for most stations is reported monthly. SWE can be estimated for NWS sites where daily air temperature, snow depth and precipitation are reported. Precipitation can be related to forage production, soil moisture and fall green-up. Maximum, minimum and average daily temperature can be related to forage production, phenology, the day plants break dormancy, fall green-up, critical temperatures for animals. Annual variability as well as elevational variability can be used to refine data to each area of interest. Some examples of the relationships described above will be presented.