(53) DECIPHERING GPS COLLAR DATA FROM CAPTIVE MOOSE

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Abstract: Advancements in GPS collars have significantly increased our ability to collect a wide range of data (i.e., temperature, activity) associated with a GPS location. Deciphering this data can be troublesome as collar manufactures continually improve their collars and associated sensors. Furthermore, discrepancies in collar temperature and local weather stations indicate that animals or their associated habitat is influencing the collar temperature sensor. We used 1 captive moose, over 2 years, to test differences in Telonics GEN 3 and Telonics GEN 4 GPS collars. Collar temperature was on average warmer than the local weather station for both collar models during summer and winter, implying that the moose's radiant heat was increasing the temperature reading on the collar. Comparing between seasons, collar temperature was warmer in summer than winter when compared to the weather station. Differences between collar and weather station temperatures were greatest from midnight to 06:00, indicating that during the coldest part of the day there was the greatest variation between collar temperature and the weather station. We also assigned habitat values to each GPS location, and we found differences in habitat selection based on season, solar radiation, and ambient temperature measured at the weather station. Summer habitat use was influenced mainly by solar radiation and thermal break points in temperature (14°C and 20°C); whereas winter habitat selection was influenced only by thermal break points in temperature (−5°C). Future studies using GPS collars and associated sensors need to validate how the animal and its associated habitat may influence data collected.

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