

Using a multi-isotope approach to determine natal region for juvenile accipiters

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Identifying and protecting key natal grounds is crucial for conserving wildlife populations. This is particularly true for migratory species, such as raptors, that have large geographic ranges and are good environmental barometers. Isotope values in animal tissues record information about an individual's life history. Hydrogen isotope (δD) values in feathers are routinely used to estimate natal latitude for birds because geospatial gradients in δD values are closely tied to temperature and precipitation. Carbon ($\delta^{13}C$) and nitrogen ($\delta^{15}N$) isotope values, which are impacted by moisture availability, vegetation cover, coastal proximity, and latitude, may further pinpoint natal region. Here we use a multi-isotope approach to identify natal region for 10 juvenile Sharp-shinned Hawks (*Accipiter striatus*, SSHA) and 12 juvenile Cooper's Hawks (*Accipiter cooperii*, COHA) that were trapped and banded in Idaho, USA during their fall migration, 2016. H isotopes indicate that most COHA, and ~ half of the SSHA were relatively local. The remaining SSHA came from much further North. C and N isotope values are significantly more variable for COHA than SSHA; this difference is maintained when just the "local" individuals are compared. These data are consistent with observations that COHA have broader diets and can nest in a larger variety of habitats than SSHA. Increasing anthropogenic activity in northwestern USA and western Canada may have serious ramifications for forest-dependent accipiters.