Estimating the Natal Origins of Migratory Golden Eagles Using Stable-Hydrogen Isotopes

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The difficulty in determining geographic origins of migratory birds and identifying their regional, source populations has limited researchers in better understanding the migratory ecology of many North American species. Species such as the Golden Eagle (*Aquila chrysaetos*), are widely distributed and well studied on their breeding grounds in a few areas of the lower 48, as well as in Denali National Park, Alaska. However, there is still much to be learned in the area of their migratory and wintering ecology. Currently, there is a need for more study of this species in Western North America. Recent point count analysis show a significant 10 year decline in the number returning spring migrant Golden Eagles counted annually in Alberta, Canada. In 2004 and 2005, Raptor View Research Institute (RVRI) sampled feathers from 22 fall migrant hatch-year (HY) Golden Eagles 12 and 10, respectively, captured along the Rocky Mountain Front (RMF) in west-central Montana. We analyzed feathers using stable-hydrogen isotope analysis; specifically we looked at deuterium a stable isotope found in hydrogen. Numerous researchers have recently described the use of this technique as a means of deciphering the breeding origin of many migratory avian species. By analyzing feathers collected from unknown origin migrants, we set out to answer three primary questions. First, what latitude did the eagles originate from? Second, are there distinct temporal patterns of migratory movements annually, e.g., leap-frog or chain migration? Third, could we identify regional source populations?