

(61) DIETS OF NORTHERN GOSHAWKS IN SOUTHEAST ALASKA INFERRED FROM STABLE ISOTOPES OF CARBON AND NITROGEN

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We used stable isotope analysis to explore diets of individual Northern Goshawks during the early summer molt period. We predicted that while there would be high variability in diet composition across the population, individual goshawks might specialize on specific prey during our sample period. Based on $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ ratios of goshawk feathers ($n = 107$ samples) compared with stable isotope ratios from prey species, we found high variation among diets. Using a multi-source mixing model, we found that the most common prey types at the population level were canopy-dwelling species including Red Squirrels (*Tamiascurius hudsonicus*) and passerines. However, one group of goshawks fed mainly on intertidal marine birds while another focused on ptarmigan. Feathers from goshawks collected in the same geographic location did not necessarily have similar isotopic signatures, suggesting individual variation at a local level. For six goshawks, we had samples in ≥ 2 years. Four of the six birds had shifts in their diets that might be related to seasonal or inter-year movements to different home ranges with differing prey. Our results generally agreed with a concurrent, intensive study of goshawk nesting season diet, except for the high marine diet of some birds. This marine component might be related to the analysis of feathers molted by females early in the nesting season because some goshawks forage in intertidal areas before and after the nesting period. Because of the coastal nature of our study birds and their varied avian and mammalian prey, stable isotope analysis was an effective method to further describe broad diet patterns of Queen Charlotte Goshawks. Researchers that handle goshawks during the nesting season can collect feathers that grow outside of the nestling period, expanding their knowledge of goshawk diet during the periods when other methods of diet analysis are not feasible.



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