

(10) ARE SALMON AN IMPORTANT FOOD SOURCE FOR INTERIOR ALASKA WOLVES?: EVIDENCE FROM STABLE ISOTOPE ANALYSES

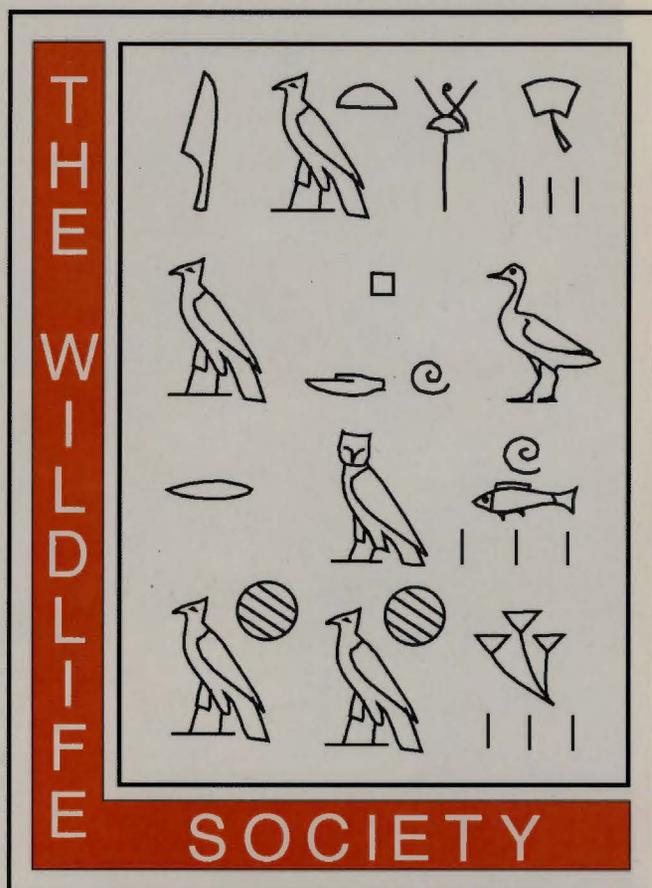
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Abstract: Gray wolves (*Canis lupus*) are commonly viewed as obligate predators of ungulates with alternative prey providing little to their annual diets. However, salmon (primarily chum [*Oncorhynchus keta*], chinook [*Oncorhynchus tshawytscha*], and coho [*Oncorhynchus kisutch*]) are widely available from summer to early winter throughout much of Interior Alaska. Although recent studies have shown that coastal wolf populations utilize salmon, there has been no assessment of use of salmon by non-coastal wolves. We hypothesize that this relatively abundant, and risk-free, food source should be an important component of interior wolf diets. As a part of wolf research conducted at Denali National Park and Preserve, we analyzed the isotopic signatures of carbon and nitrogen of bone collagen from radiocollared wolves that died during 1986–2002, and of tissues from their ungulate prey (moose [*Alces alces*], caribou [*Rangifer tarandus*], and Dall sheep [*Ovis dalli*]) and locally-spawning chum salmon. Stable isotope analyses have been used in environmental studies to estimate the contributions from several sources (prey species) to a mixture (wolf tissue) when the isotopic composition of the sources are distinct. In some portions of Denali National Park, we estimated that the biomass of salmon exceeded the biomass of all ungulates combined in autumn/early winter. Where salmon were abundant, they composed approximately 12% of the annual diets of wolves, compared to < 2% in other regions of the park. However, salmon are only available during 3–4 months each year, during which wolf diets may include 36%–48% salmon. We suspect that salmon, as an important alternative prey, may have profound effects on wolf/ungulate relationships in much of Interior Alaska where salmon are seasonably abundant and ungulate densities are low.



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