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FOODS AT A GOLDEN EAGLE NEST IN CENTRAL ALASKA

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There is apparently a single published account of foods used by North American Golden Eagles (*Aquila chrysaetos*) north of 60°N Latitude, that of Murie (1944). With the present interest in northern development and with the subsequent need for information relating to all aspects of northern ecology, it seems useful to provide some additional records.

THE STUDY AREA AND NEST SITE

Observations were made at a nest near mile 99 on the Steese Highway (65°24' N, 145°35' W) in central Alaska. The nest was 6 miles by road from the ptarmigan research study area of Weeden (1965), and his description of the terrain and vegetation pertains to this study as well. In general, timberline is low, at about 865 m, and much of the area is alpine tundra. The nest site was a north-northwest-facing cliff ledge near the summit (about 1000 m) of one of the low, rounded hills typical of the area. The nest itself had reportedly been used several years in succession and at the time of my first visit, 21 July 1963, was nearly 2 m high. It appeared to consist of alternating strata of sticks and ptarmigan (*Lagopus* sp.) feathers. Two large eaglets, near fledging, occupied the nest ledge at that time. The adults were not seen.

MATERIALS AND METHODS

Prey items in and near the nest were noted on the first visit, and three regurgitated pellets were examined macroscopically. On 30 August, after the

eagles had left, I made a more intensive search of the nest area, again noting prey remains. At this time I collected an additional 50 pellets; these were later crumbled and analyzed dry. Prey identifications were made by comparisons with known specimens, including pellets of known composition obtained from a captive eagle. Slides of mammal hairs from the University of Alaska Museum helped in some cases. Data were recorded as frequency of occurrence and estimated percentage volume.

RESULTS AND DISCUSSION

Prey remains. On the July visit, two freshly killed, unplucked, juvenile Willow Ptarmigan (*L. lagopus*) lay at the eaglets' feet and feathers from previous kills were evident over the nest ledge. Ptarmigan remains, mostly plucked feathers, also predominated at the nest and feeding promontory sites at the end of August. At that time I also found some snowshoe hare (*Lepus americanus*) remains and the skull and bits of hide of a marten (*Martes americana*).

Pellet analyses. Table 1 lists the incidence and relative importance of foods identified in the pellets. Ptarmigan constituted the most used item, but it was not possible to determine which of the two species in the area was the more important. Rock Ptarmigan (*L. mutus*), which occur mostly in exposed habitats above timberline, would appear to be more vulnerable, but the high incidence of snowshoe hare in the food pellets suggests that the eagles did effectively hunt Willow Ptarmigan habitats (brushy, lowland areas). Where species identification was possible, four were *L. lagopus* and three were *L. mutus*. There were at least 130 pairs of Rock Ptarmigan present on the 15-square-mile study area just a few miles north of the nest during the year of this study (Weeden 1965). McGahan (1968) cited several reports of bird-dominated eagle diets in Europe, particularly in the heather uplands of the British Isles where, again,

TABLE 1. Foods in 53 pellets cast by a pair of Golden Eagles in central Alaska in 1963.

Food items	Frequency occurrences		Occurrences alone ^a		Pellets dominated (volume) ^b	
	No.	%	No.	%	No.	%
Ptarmigan	43	81.1	18	34.0	26	49.1
Snowshoe Hare	27	50.9	5	9.4	17	32.1
Marten	6	11.3	1	1.9	5	9.4
Weasel	1	1.9			1	1.9
Microtine	1	1.9	1	1.9	1	1.9
Passerine	1	1.9	1	1.9	1	1.9
Duck	1	1.9	1	1.9	1	1.9

^a Pellets in which the item was the only item.

^b Pellets in which the item predominated over other items (if any) with which it occurred.

Lagopus sp. were taken frequently. However, no previous North American study has recorded such a high incidence of birds in Golden Eagle food habits.

Hares were not common along the upper Steese Highway in 1962 or 1963, although there was a small concentration at mile 102, well within the range of the nest, and I regularly saw hares there. The proportion of hares to ptarmigan in the pellet analyses was almost certainly greater than their proportional occurrence in nature during the time of the study. Thus it seems evident that the eagles hunted hares preferentially. This is not surprising since lagomorphs have predominated in most previous food studies of North American Golden Eagles (see McCahan 1968).

The fact that marten remains constituted 75% or more by volume in five of the six pellets in which it occurred strongly suggests that more than one of these animals was taken. Rukovskii and Kupriyanov (1968) found marten remains at nests and speculated that food residues around the nests initially attracted the martens which were then killed by the eagles, perhaps more as nest-defense responses than as acts of food-getting. However, martens commonly occur above timberline (Streeter and Braun 1968) in typical Golden Eagle hunting habitat, and they are therefore subject to predation. During my study, tundra voles (*Microtus oeconomus*), the probable identity of the single microtine occurrence listed in table 1, were abundant in local uplands and they may have been the attractors of the prey martens in this case.

CONFIRMATION OF THE NESTING OF THE GRAY JAY IN NEW MEXICO

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Although grown young have been seen and the species is known to be a resident in the state, no actual nests of the Gray Jay (*Perisoreus canadensis*) have ever been reported from New Mexico (Bailey, Birds of New Mexico, NM Dept. of Game and Fish, Santa Fe, 1928; Hubbard, Check-list of the Birds of New Mexico, NM Ornithol. Soc., Albuquerque,

Short-tailed weasels (*Mustela erminea*) were common predators of ptarmigan nests in neighboring hills. The unidentified passerine listed here was almost certainly a Gray Jay (*Perisoreus canadensis*), a common species in the area, and the duck was probably a Harlequin Duck (*Histrionicus histrionicus*), a regular though not common summer resident along mountain streams in the area. I have seen this species on Birch Creek, within a mile of the nest site.

In the only other northern study I have reference to, that of Murie (1944), foods taken differed significantly from those reported here. As in most other North American studies, mammals predominated, but in this case by far the majority were ground-dwelling sciurids. Ptarmigan and lagomorphs, combined, occurred in less than 3.5% of Murie's total sample; he points out that both were rare in the areas he covered. Summarily, Cameron (1908) is probably correct when he suggests that individual Golden Eagles are opportunistic in their feeding, relying largely on items most convenient to their eyrie.

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1970). On 9 June 1972, I observed such a nest in the Sangre de Cristo Mountains of north-central New Mexico and was able to photograph two nestlings. The exact locality was in the subalpine on West Truchas Peak, Rio Arriba County, which is about 15 miles E of Truchas, New Mexico and at an elevation of 3470 m (11,400 ft) above sea level. The nest was located in spruce-fir forest and was placed in a 15-m spruce (*Picea engelmannii*), about 4.2 m above the ground. The nest measured 20 cm at its greatest diameter, with a cup 9 cm in diameter. Its composition was of spruce twigs, with an inner layer of lichens and grasses and a lining of wool, red thread, and feathers, including gray down and blue quills apparently from a Steller's Jay (*Cyanocitta stelleri*). The nest was free of fecal material.