

Corn Creek (B-877, male, left testis 8×4 mm, moderate fat, skull ossified) and 21 June 1966, Pine Creek Canyon (B-537, male, left testis 9×6 mm, light fat).

Tree Sparrow. *Spizella arborea*. This species has been reported in southern Nevada by Fisher (North Amer. Fauna, no. 7:90, 1893), Pulich and Gullion (Condor 55:215, 1953), and Gullion et al. (op. cit., p. 294). I have additional records for Tule Springs Park (13 miles northwest of Las Vegas), 26 March, 5 and 18 April 1967, and 20 September 1966, and Corn Creek, 20 October 1960 (B-659, female, light fat, skull incompletely ossified, found by Hansen).

Harris' Sparrow. *Zonotrichia querula*. Gabrielson (Murrelet 16:41, 1935) reports the single previous record for southern Nevada. A male (B-722, testes small, 29.8 g, light fat, skull incompletely ossified) was collected near Hiko, Lincoln County, on 12 November 1966.

Golden-crowned Sparrow. *Zonotrichia atricapilla*.

Gullion et al. (op. cit., p. 295), E. Austin (Audubon Field Notes 16:271), Hayward et al. (op. cit., p. 26), and Wauer and Russell (Condor 69:423, 1967) report the previous records for southern Nevada. Additional records for 11 January 1962, Las Vegas (two birds); 22 April 1966, Kyle Canyon, 7100 feet; 14 October 1964, Sheep Spring, Sheep Mountains (Hansen); 17 October 1966, Kyle Canyon, 5800 feet (immature dead on road); and 9 November 1966, Kyle Canyon, 7100 feet suggest that this species is a regular visitant in southern Nevada.

White-throated Sparrow. *Zonotrichia albicollis*. I have records for Las Vegas, 17 December 1967 and 7 and 9 January 1968 (immature in backyard); Tule Springs Park, 22 April 1966; Las Vegas, 2 May 1967; Lee Canyon, 8000 feet, 12 October 1966; and Corn Creek, 17-21 October 1960 (Hansen). These supplement the records of Gullion (Condor 55:160, 1953) and Gullion et al. (op. cit., p. 295).

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AVIAN REMAINS FROM THE KANGIGUKSUK SITE, NORTHERN ALASKA

EDWIN S. HALL, JR.

Department of Anthropology
Ohio State University
Columbus, Ohio 43210

The importance of the avifauna in the historic Eskimo culture of northern Alaska has been documented by the extensive research of Irving (1960). Relatively little is known about the exploitation of various bird species during prehistoric times in this area, mostly because complete analyses of the faunal material found in archaeological sites are rare. One notable exception is the work of Friedmann (1941)

on material excavated at Cape Prince of Wales. An example of the kinds of information available from archaeological sites and some of the conclusions that can be made on the basis of such data is best illustrated by considering a single site.

The site is Kangiguksuk, located at the confluence of Kangiguksuk Creek and the Noatak River ($67^{\circ} 57' N$, $161^{\circ} 50' W$), in the Brooks Range of northern Alaska. This site was excavated between 1963 and 1965. An analysis of the cultural and faunal remains recovered by completely excavating the site indicates that the single house was inhabited by an Eskimo family for about four years around A.D. 1578. The date of occupation was determined by dendrochronological analysis of one of the house posts. All of the faunal remains found in the house and surrounding midden deposit were preserved. Analysis of this material, and the many artifacts also found, allowed

TABLE 1. Avian species represented in Kangiguksuk faunal remains.

Species	Skeletal part identified	Minimum number of individuals	Remarks
Red-throated Loon <i>Gavia stellata</i> :	rostrum and lower jaw	1	None.
Arctic Loon <i>Gavia arctica</i> :	rostrum	1	None.
Whistling Swan <i>Olor columbianus</i> :	humerus	1	Humerus cut off at both ends.
Rough-legged Hawk <i>Buteo lagopus</i> :	left tarso-metatarsus	1	None.
Falcon <i>Falco</i> sp.:	femur	1	Either <i>F. peregrinus</i> or <i>F. rusticolus</i> .
Willow Ptarmigan <i>Lagopus lagopus</i> :	humerus	250	250 left humeri, many other skeletal parts present. Some may be <i>L. mutus</i> , Rock Ptarmigan.
Common Raven <i>Corvus corax</i> :	humerus	2	Left coracoid, radius, ulna, femur, carpo-metacarpus and tibiotarsi also present.
Gull or tern	humerus	1	None.

a relatively complete reconstruction of the way of life followed by the Kangiguksuk Eskimos (Hall 1966). The avian species found at Kangiguksuk are listed in table 1. The modern species known from the Noatak Valley are noted by McLenegro (1887) and Hines (1963). Observations by Richard Morlan, who accompanied me during the summer of 1963, added a few more species.

Kangiguksuk bird hunting primarily emphasized the ptarmigan. The other species represented were taken only incidentally and quite likely with the same weapons used for ptarmigan. Though a number of different techniques for capturing ptarmigan are inferable from the archaeological collection, most were probably captured with snares and nets. The historic Eskimos of the Noatak River Valley made use of several different types of snares in the winter. In spring and fall, when ptarmigan flock, birds exhausted by continual flushing were driven into a willow-bark or sinew net. At Kangiguksuk, positive evidence of bird hunting includes blunt arrowheads, bolas weights, and prongs for bird spears. The blunt arrowhead, tipping a wooden arrowshaft, would have been used most often for larger birds such as the Whistling Swan and Rough-legged Hawk. Bolas would have been effective on flocked ptarmigan. Historically they were used on migrating waterfowl, but there is little evidence that ducks and geese were of much importance at Kangiguksuk. Similarly, the bird spear historically was used with a throwing board to kill molting ducks and geese. Men in kayaks would drive the flightless birds towards women waiting on shore to catch them. The spear was cast at birds that tried to turn back. At Kangiguksuk the throwing board and bird spear may have been used for killing ducks, but the paucity of waterfowl remains suggests the alternate hypothesis that they, too, were used on ptarmigan, despite the lack of an ethnographic parallel.

The bird species present offer a clue to the time of year the site was occupied. Ravens and ptarmigan (and possibly Rough-legged Hawks and falcons) spend the entire year in the Noatak Valley, but the other species are only summer residents. Thus the site was occupied during the summer. Ptarmigan can be hunted profitably only during the time of year when they flock, between late fall and early spring. Kangiguksuk also must have been occupied during this period. Other evidence supports the conclusion that the Kangiguksuk site was occupied year around.

The importance of birds in the life of the Kangiguksuk people is difficult to assess on the basis of the archaeological remains. Bird skins may have been sewn into parkas. The cut swan humerus (table 1) could have served as a case for storing needles or as a drinking tube. Historically the Noatak Eskimos used Goshawk (*Accipiter gentilis*) feathers to fletch their arrows. The presence of Rough-legged Hawk and falcon bones in the site suggests that the feathers of these species were thus used at Kangiguksuk. Ravens played a part in the

folklore of most Eskimo peoples, but individuals of this species usually were not killed.

Most of the species represented at Kangiguksuk served as food. It has been estimated (Hall 1966: 199) that 1.2 per cent of the protein available to the Kangiguksuk people came from the various birds they killed. In terms of the totality of their subsistence requirements this is not a substantial contribution, but the ability to capture birds when larger sources of food (caribou, moose, sheep) were unavailable could have been crucial for survival. However, the total faunal remains indicate that caribou were plentiful in the area while the site was occupied. Hence, birds were not as important to the Kangiguksuk people as they might have been.

A determination of the avian species utilized by prehistoric peoples provides important information for use by both archaeologists and ornithologists. A single site analysis, as described here, helps the archaeologist to reconstruct the culture represented by the archaeological remains. Ornithologists learn that species presently known for a particular area were also found there at a given time in the past. As long ago as 1919 Wintenberg plotted the prehistoric distribution of the wild turkey in North America on the basis of its occurrence in archaeological sites (Wintenberg 1919). Faunal analyses of a large number of archaeological sites from northern Alaska would indicate the distribution of certain species, and perhaps their relative abundance, in both time and space.

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