

The owls of the central Brooks Range, Alaska.—Irving (U. S. Natl. Mus., Bull. 217: 82, 1960) discusses occurrences of owls in the area about Anaktuvuk Pass, central Brooks Range. The following account refers mainly to regional nesting and other activities he does not mention.

Noteworthy are their diurnal activities and their transgressions of the forest-tundra boundary. All the localities noted below enjoy 24-hour broad daylight from May to August. It therefore seems imperative that the owls become diurnal in summer, and our observations support this proposition. The summer climate of the central Brooks Range is characterized by frequent periods of cloud cover. Perhaps this factor relates to the wide range of daylight foraging and other activities of the supposedly more nocturnal species.

The northernmost boundary of the regional tree line is marked by scattered white spruces (*Picea glauca*) growing on valley floors of southward-flowing streams. The terrain north of the tree line contains few plants more than a few inches tall. Among the tallest the most notable are willows (*Salix* sp.), some of which attain heights of 12 feet or more. The largest willows, often growing in thickets, occur only in favorable riparian localities.

Southward from the tree line the forest is generally open and impoverished, but spruces and other trees are scattered in the bottoms and low along the sides of the major valleys, and they increasingly occur in relatively small but fairly dense stands. In the John River valley, noted below, the northernmost relatively dense spruce grove, occupying several acres, lies only 5 air miles south of the northernmost trees.

This apparently rather abrupt transition from boreal forest to arctic tundra raises the question of why all the known forest-dwelling Brooks Range owls have been observed in the barren mountains and on the arctic prairies well beyond the tree line. The data recorded here may provide an answer, for they imply that the several species have wider behavioral potentials or ranges than previously known. Given that the summering owls of this region have adapted to diurnal activity in what for the most part is an open forest, they also appear to have become similarly capable of surviving on the tundra.

Great Horned Owl (*Bubo virginianus lagophonus*).—This is the most common owl in the wooded John River valley south of the central Brooks Range divide. Bailey (Colorado Mus. Nat. Hist., Popular Ser. 8: 262, 1948) refers to three individuals taken in arctic Alaska north of the tree line, and Irving (ibid.) cites Nunamiut Eskimo accounts of capturing the species in the tundra zone of the central Brooks Range. An additional regional record of its occurrence north of the forest is my discovery of a wing covert on the Itkillik River at Ulu, or Itkillik, Lake (68° 24' N, 149° 55' W) 6 July 1961.

The John River, forested for most of its length, heads at the summit of Anaktuvuk Pass at 68° 08' N, 151° 45' W and flows generally south to the Koyukuk River at 66° 55' N, 151° 39' W. In 1956, 1958, 1959, and 1963 between the dates of 19 May and 4 August inclusive, members of my field parties and I recorded 23 adults and 3 juveniles in the forest of the John River and in the neighboring forest of the Koyukuk River. Probably fewer than one-fourth of these observations refer to birds counted more than once. Our northernmost John River record is a nest on an island above the mouth of Hunt Fork at about 67° 47' N, 152° 24' W. This locality is 13 air miles south southwest of the tree line in the John River valley.

One adult and two juveniles in my collection conform fairly well to specimens of *B. v. lagophonus* in the U. S. National Museum. With one exception, other adults observed appeared to belong to this race. A very pale individual (paler, for example, than any of the numerous *B. v. pallascens* I saw and collected in New Mexico) was seen

on the John River near the mouth of Timber Creek (67° 04' N, 151° 50' W) 25 June 1958.

Regional nesting dates apparently vary by about 40 days. A juvenile male taken at the mouth of Timber Creek 16 June 1963 was accompanied by an adult, and although feathered and flying still wore much natal down. A juvenile female taken beside the nest above the mouth of Hunt Fork on 28 July 1959 was also accompanied by an adult, and was nearly the same age as the individual taken at Timber Creek. The bulky, flattened nest, originally that of a *Buteo*, was 30 feet above the ground in a white spruce. It appeared to have been used for several seasons by Great Horned Owls. The tree stood in a dense, mature stand of spruces and cottonwoods (*Populus balsamifera*) on a large island in the John River. This is apparently the northernmost Alaska nesting record of the species.

Partial molting, at least, occurs in late May and June. A breeding adult male collected 30 May 1956 at Bettles Field (66° 55' N, 151° 30' W) on the Koyukuk River had molted most of its tail. The tail of another adult, closely observed in the same locality 28 June 1958, was largely composed of new feathers in various stages of growth.

The only recognizable stomach contents in four specimens examined consisted of a red squirrel (*Tamiasciurus hudsonicus*) found in the juvenile taken above Hunt Fork. In the central Brooks Range, the species apparently catches fish in addition to other prey. The adult collected at Bettles Field was taken from a limb overhanging a shallow slough occupied by many grayling (*Thymallus arcticus*), and the breast, belly, and feet of the owl were wet. Several pellets found at the nest above Hunt Fork consisted largely of fish scales which I identified in the field as those of the shee (*Stenodus leucichthys*).

Snowy Owl (*Nyctea scandiaca*).—In summer this species is uncommon in the central Brooks Range and on the central Arctic Slope. Irving (ibid.) states that it has been reported to occur occasionally in summer at Chandler Lake (68° 15' N, 152° 40' W). His latest specific record is of a single bird seen in Anaktuvuk Pass 25 May. Reed (Canadian Field-Naturalist, 70: 133, 1956) reports three individuals seen on the western Arctic Slope in late June 1955. On 2 June 1956 I found the remains of an adult at Chandler Lake. Almost certainly the bird had died there the preceding winter. This is the only trace of the Snowy Owl that my companions and I have found in several summer explorations of those parts of the central Range and Slope lying between Chandler Lake and the Itkillik River. Most recently Edwin S. Hall, Jr. (pers. comm.) saw only three, all adults, during more than 60 hours of low level flying over the slope west of Chandler Lake in early July 1967.

Hawk Owl (*Surnia ulula caparoch*).—This species is probably fairly common in the central Brooks Range forest. Occasionally it occurs beyond the tree line; on 1 July 1958 the Nunamiut Eskimos showed me the remains of an adult shot a few weeks earlier at the summit of Anaktuvuk Pass, 19 air miles northeast of the forest in the John River valley. In 1958 during a reconnaissance of the lower 70 stream miles of the John River, my companions and I saw a single adult 7 stream miles above the mouth of the river on 16 June. The bird sat in the very top of a white spruce early in the evening during a few minutes of relatively clear weather between prolonged, heavy rains. In 1959 during a descent of the total length of the John River (more than 100 stream miles of which is wooded) we saw no Hawk Owls.

On 26 May 1963 Richard E. Morlan took an adult male at Bettles Field, where I took another adult male 6 June 1963. The birds weighed 317 g and 346 g, respectively. The male taken 6 June was in worn plumage and had molted most of its tail.

On 9 June 1963 Morlan and I collected an adult male, an adult female, and four downy young at a nest on the John River near the mouth of Mashooshalluk Creek (67° 35' N, 152° 12' W). The adult male and adult female weighed 319 g and 418 g, respectively. The largest of the downy young, a female, weighed 124 g; the smallest, sex not determined, weighed 61 g. We were attracted to the nest site in the early afternoon by the loud, woodpecker-like call of one or both of the adults. The nest, in an open stand of white spruces and cottonwoods, occupied the hollow top of a cottonwood trunk that had broken off 30 feet above the ground. The cavity, open to the sky, was 14 inches deep and 6 inches by 8 inches wide. The young rested on damp wood punk which smelled strongly of ammonia, and which was infested with blow fly (*Calliphoridae*) larvae. This is apparently the northernmost Alaska nesting record of the Hawk Owl.

The specimens taken, including one of the downy young, are in the Museum of Biology, University of New Mexico and this writer's collection. Plumages and measurements of the four adults are typical of specimens of *S. u. caparoch* in the U. S. National Museum. Stomachs of the birds were either empty or contained unrecognizable remains. No prey species were found at the nest.

Great Gray Owl (*Strix nebulosa*).—Anderson (*in* Stefansson, *My life with the Eskimo*, New York, Macmillan Co., 1913, p. 479) remarks that he took two in the forest of the central Brooks Range and that one of his Eskimo companions saw another far north of the tree line. In reference to Nunamiut Eskimo accounts of the central region, Irving (*ibid.*) states that the species "is well known in the spruce forests and is occasionally seen at the northern limits of spruce between Hunt Fork and Publatak Creek."

My only, rather unsatisfactory, records are as follows: In the evening of 2 August 1959 an owl, identified as being of this species by the Nunamiut, Simon Paneak, flew low over one of our boats on the John River about 4 stream miles above the mouth of Timber Creek. Thomas H. Follingstad and I pursued the bird for some distance but failed to confirm the identification. Late in the evening of 3 August 1959 Paneak and Follingstad heard an owl calling 10 stream miles above the mouth of the John River and Paneak identified it by its voice as a Great Gray Owl.

Short-eared Owl (*Asio flammeus flammeus*).—In summer Short-eared Owls are fairly common on the tundra of the central Range and central Arctic Slope, and they also occur in the open forest. Our regional tundra records are as follows: Between 7 July and 20 August 1961 we saw one adult on the Itkillik River approximately 6 air miles north of Ulu Lake; three adults about Lunar Lake (68° 32' N, 151° 29' W) on the Arctic Slope north of Anaktuvuk Pass; and one adult at Akvalutak Lake, 5 air miles northeast of Chandler Lake. The Itkillik River record of 7 July refers to fragmentary remains that Hall and I found 150 yards from a well-used bank perch of a Golden Eagle (*Aquila chrysaetos*). It occurred to us that the eagle may have killed and eaten the owl. The Akvalutak Lake record of 20 August is a molting female collected by Hall.

On 15 August 1967 I found a family group on Little Chandler Lake, which lies between Chandler and Akvalutak Lakes. The remains of one individual of undetermined sex and age, a live adult, and two very tame birds of the year were encountered on the lake shore. The adult, while flying across the shallow, northern end of the lake, hovered twice low over the water, very much in the manner of the Arctic Tern (*Sterna paradisaea*). I assume the owl was fishing.

In addition to these observations, Morlan saw a Short-eared Owl hunting along the Koyukuk River in the forest at Bettles Field 15 May 1963. I collected an adult male

in the large burn at Bettles Field 4 June 1963. It weighed 337 g. The stomachs of the two birds taken were empty. Plumages and measurements of the specimens are typical of examples of *A. f. flammeus* in the U. S. National Museum.

Boreal Owl (*Aegolius funereus richardsoni*).—We have found this species to be most uncommon in summer in the central Range, although Irving (*ibid.*) reports an October specimen from the northernmost spruces on Savioyok Creek about 12 air miles south of the summit of Anaktuvuk Pass, as well as May and September sight records from localities north of the forest; and the Nunamiut Eskimos told me that the species is common in winter among the spruces of the John River near the mouth of Hunt Fork.

Our only certain regional record of the Boreal Owl is that of an adult female and four fresh eggs Morlan and I took from a nest on the Koyukuk River at Bettles Field 2 June 1963. The nest tree, a cottonwood in a mixed stand of cottonwoods and white spruces, stood 10 feet from the south bank of the River. The nest entrance was a natural opening 4 inches high, 3 inches wide, and 13 feet above the ground on the east side of the tree. The floor of the nest cavity, 7 inches in diameter, was 18 inches below the entrance.

The eggs lay on a bed of clean, dry wood punk, chips, and finely shredded cottonwood bark. Also present were quite a number of dry, leafy shoots of moss of the genus *Mnium*, a few dry basal tufts and stem and blade fragments of grasses (*Gramineae*), and several very small fragments of old fragile cloth. In addition the nest contained more than 300 fluffy breast and belly feathers of the parent, a few flank feathers of ptarmigan (*Lagopus* sp.), various feathers of Spruce Grouse (*Canachites canadensis*), Horned Lark (*Eremophila alpestris*), and Lapland Longspur (*Calcarius lapponicus*), and a few tufts of fur (probably of vole, *Microtus* sp.).

The stomach of the incubating female contained only mud and sand. The bird weighed 194 g and was quite fat. It is typical of specimens of *A. f. richardsoni* in the U. S. National Museum. An intensive search of the nearby woods failed to reveal the male. This is apparently the northernmost Alaska nesting record of the Boreal Owl.

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The Blue-backed Tanager (*Cyanicterus cyanicterus*), a genus new to Venezuela, with notes on its plumages.—The little-known Blue-backed Tanager, *Cyanicterus cyanicterus* (Vicillot), sole member of its genus, has been recorded primarily as an inhabitant of the Guianas, with an outlying record in Brazil on the lower Rio Negro near Manaus (Meyer de Schauensee, The species of birds of South America, Narberth, Pennsylvania, Livingston Publ. Co., 1966: 483). It will undoubtedly be found eventually in the part of Brazil, ornithologically poorly known, lying south of the Guianas and north of the Rio Negro and the Rio Amazonas. Thus far it has not been reported from Venezuela.

Carnegie Museum has a pair of Blue-backed Tanagers the late M. A. Carriker, Jr.