

with constructive interest, and it does not seem that anyone ever got more out of life or scattered his influence more generously than Will Saunders. Though advancing years slowed his physical activity, they touched him but lightly and he retained his youthful energy and enthusiasms in a remarkable degree. His mental alertness never flagged and he remained a veritable Peter Pan with a kindly humor and sincerity of purpose that never grew old. He leaves a place in ornithology, especially in that of his own country, that it is difficult to fill, and he will long be missed by his intimate friends, casual associates, and others.

Ottawa
Ontario

BIRDS OF THE KATMAI REGION, ALASKA

BY VICTOR H. CAHALANE

INTRODUCTION

IN September, 1940, I was detailed by the Fish and Wildlife Service, by which I was then employed, to make an inspection of the Katmai National Monument on the Alaska Peninsula. The National Park Service, which supplied funds for my travel, has administrative responsibility for the area, and needed general information on natural features, as well as possible illegal occupancy, poaching, and any other violations of regulations. My opportunities for observations of the bird life were therefore limited to those afforded by official travel and the necessity for covering many other subjects. Although it was not possible to make collections of specimens, the sight records and other observations seem worth recording. The area is extremely isolated, and previous observations are few and were usually made earlier in the season when danger of storms is less. I have also tried to include previous records from the region since the original publications are now generally difficult to obtain.

Facilities for my travel in that part of the Monument area west of the Aleutian Range were made possible through arrangements by Dr. Ira N. Gabrielson and Charles E. Jackson, Director and Assistant Director, respectively, of the Fish and Wildlife Service, and Fred R. Lucas, in charge of the Service's Marine Ways at Naknek. Mr. Lucas did everything possible to facilitate the work, and accompanied us during the first few days of our journey in the Monument. He assigned to us the best available boat and an engineer-pilot, Charles Sullivan, whose willing help was much appreciated.

The Shelikof Strait coast of the National Monument, from Katmai to Hallo bays, was visited in the chartered seiner, 'Hazel M.' of Kodiak. My companion on this voyage was N. J. Benson, Wildlife Agent of the Alaska Game Commission. Without his knowledge of the coast, able seamanship, and friendly assistance I could not have covered this region.

During the period of September 1 to 28 I was accompanied by Frank T. Been, Coördinating Superintendent of National Park Service areas in Alaska. Mr. Been is deeply interested in the wildlife and especially the birds of the Monument, and his constant interest and assistance in making many arrangements for our travel were indispensable.

GENERAL DESCRIPTION OF THE REGION

With one or two exceptions, the bird records or observations cited in this paper were made on the base of the Alaska Peninsula, as far south as the portage between Ugashik and Kanatak. The northern half of the area is included in the Katmai National Monument (approximately 2,697,590 acres), established by presidential proclamation in 1918 to protect extraordinary volcanic and other natural phenomena. It is a strikingly beautiful wilderness, featured by the chain of mountains known as the Aleutian Range, many of whose peaks rise more than seven thousand feet above sea level. These mountains are relatively close to the eastern edge of the Peninsula. The coast of Shelikof Strait is, therefore, frequently abrupt, rising as cliffs and running back steeply to the glaciers and snow fields on the mountains. Evidences of volcanism are common and several of the peaks smoke intermittently. The culminating feature of interest is Mount Katmai, which exploded on June 6, 1912, in one of the greatest eruptions of historic times. One result of this cataclysm was the devastation of the basin on the western slope of the Range now known as the Valley of Ten Thousand Smokes.

West of the Aleutian Range proper is an irregular mass of hills and mountains, some of which are about a mile in height. Many are plainly extinct volcanoes, such as Mount Ikagliuk. A feature of this region is the extensive system of beautiful, clear lakes: Naknek, Brooks, Coville and Grosvenor, and Iliuk Arm. These lakes, with their rocky islands, bold and sometimes grotesque shore formations, and steep, overhanging mountains, make a very beautiful scene in peaceful contrast to the forbidding snow-covered and smoking volcanoes.

North of the eastern end of Becharof Lake, the Aleutian Range decreases markedly in elevation and width, until the mountains are

squeezed into a narrow strip between Shelikof Strait and Becharof and Ugashik lakes.

Extending from the western foothills to the shore of Bristol Bay is a nearly level tundra. This plain is littered with thousands of lakes, ranging in size from small ponds to the large Becharof Lake, some 33 by 12 miles in extent. Many creeks and rivers wind their slow way across the flats in great serpentine curves, becoming briefly hurried only on a 'Fall Line' some 20 to 30 miles east of Bristol Bay.

LIFE ZONES AND ASSOCIATIONS

The Katmai region is the meeting ground of two life zones: the Hudsonian, which is characterized by white spruce forest (*Picea canadensis*), and the Arctic (in modified form), which is distinguished by *Calamagrostis* grassland.

This area contains the westernmost natural stands of spruce in southwestern Alaska. Along the coast, spruce extends in patches to Hallo Bay, where a stand of considerable extent forms the outpost. A few dead spruces, about six inches in diameter, still stand near the northern end of Takli Island in Amalik Bay. These trees were evidently smothered as a result of the Katmai eruption. On the west side of the Aleutian Range, the true spruce forest spreads south of Iliamna Lake to surround Iliuk Arm and the eastern end of Naknek and Brooks lakes. Considerable spruce also exists at the western end of Brooks Lake, where it follows the principal feeder stream, probably for a considerable distance. A narrow band of spruce is found also along the banks of the Naknek River to a point below the rapids, about twenty miles air line from the river's mouth on Bristol Bay. These isolated stands, however, are outposts of the forest which is moving westward and southward into the grassland.

Within the true spruce forest are found other habitats. Secondary groves of balsam poplar (*Populus balsamifera*) are numerous. In places the paper birch (*Betula kenaica*) is also common. Small ponds and lakes exist in potholes and on flats; their borders are frequently marshy or formed of quaking mats of *Vaccinium* and other small plants. The zone as a whole is characterized by the red squirrel, the marten, and the Spruce Grouse.

West and south of the spruce forest is the sub-climax alder-grassland, which has been well described by Griggs in 'The Vegetation of the Katmai District.' He has grouped with this sub-climax association several habitats: the strand or beach, characterized by the beach rye (*Elymus mollis*); the river-bank poplar forest (transitional between

Populus tacamahaca and *P. trichocarpa*); the salt marsh, with its practically pure stands of one grass, *Puccinellia paupercula alaskana*; the acid feld-mark (on knolls); and the heath, with its blueberries, dwarf birch, and *Empetrum*. Most of the region, however, is covered by a uniform, rank growth of practically pure grass, *Calamagrostis scabra*, with here and there clumps of alder (*Alnus sinuata*). On the deep sandy humus the grass grows five to seven feet tall, from sea level to elevations of 1200 to 1500 feet on the mountain sides. Set in this tundra are literally innumerable ponds, their margins bordered by sedge marshes, willow copses, or bogs, as the circumstances of drainage may determine.

Among the characteristic animals of the tundra region and coasts are the lemming, Arctic hare, Arctic fox, Willow Ptarmigan, Parasitic Jaeger, and several eiders.

The high mountains extend well into true Arctic Zone. They are covered with perpetual snow whose lower limits, even in early September, extend to about 5,000 feet on south-facing slopes. Between the snow-line and the grassland is a zone of rock and the sparse, small plants that maintain a precarious existence in such places. The snowfields feed many glaciers. Some of these ice-rivers are of considerable size and, as in the southern portion of Hallo Bay, almost reach sea level.

ITINERARY

I left Anchorage about noon of September 1, 1940, and flew via the Lake Clark pass, Lake Iliamna, and the Kvichak River to Naknek, arriving late that afternoon. After outfitting, we proceeded by boat up the Naknek River, September 3-4, turning into Naknek Lake and spending the night of the fourth at the mouth of Brooks River. The period of September 5 to 10 was spent along Brooks River, on a round trip of Brooks Lake, and along the south shore of Iliuk Arm. A pack trip was made from the head of the Arm to the lower portion of the Valley of Ten Thousand Smokes, in the Aleutian Range. With the necessary preliminary exploration, relaying of supplies, and bad weather, this required from September 11 to 18. Unfortunately, a terrific windstorm on the 15th tore our boat from its moorings and drove it across Iliuk Arm and fast on the beach near the outlet of the Savanoski River. Here we were stranded until the 27th. A few trips were made on foot in this region, although storms and the work of relaunching our boat prevented our doing much field work. The trip back to Naknek, by boat, was made on September 27-28.

Two plane flights were made over the Monument. The first, on

September 3, covered the lakes region, the Ukak River and the Valley of Ten Thousand Smokes. The second trip was from Naknek to Kodiak via Katmai Pass and Mount Katmai. Bird observations were, of course, limited.

At Kodiak a seine boat was chartered and the period of October 3-7 was spent in cruising along the coast of Katmai National Monument, from Katmai to Hallo bays. Brief excursions ashore were made in Katmai, Amalik, Kinak, Kafia and Kukak bays, and in Geographic Harbor. This portion of the trip afforded a fine opportunity to observe the teeming waterfowl assemblage on this portion of the waters of Shelikof Strait.

PREVIOUS WORK

Published observations on the birds of the Katmai region are few. McKay and Johnson made collections at Ugashik between 1881 and 1886. In the autumn of 1902, Osgood made the trip across the Alaska Peninsula from Egegik to Kanatak and Cold Bay via Becharof Lake. In the course of the National Geographic Society's explorations of the Katmai region, a member of the 1919 party, James S. Hine, made observations and small collections of summer birds in Katmai and Kashvik bays, on the Katmai River and in the Valley of Ten Thousand Smokes. Apparently very little work has been done in addition to the above.

LIST OF SPECIES

YELLOW-BILLED LOON, *Gavia adamsi* (Gray).—Osgood records a large loon, "either this species or *G. immer*," that was killed and eaten by natives at Cold Bay, October 17, 1902. The species evidently is scarce. I did not see it.

PACIFIC LOON, *Gavia arctica pacifica* (Lawrence).—We found this species common on the Naknek River on September 3 and at Brooks Lake on September 9. Two birds were seen on the latter date at Brooks Falls, watching for food. On the western shore of Shelikof Strait, I recorded loons as "common" between Amalik and Katmai bays, October 4, and "abundant" on the following day in Amalik and Kinak bays and Geographic Harbor. Numbers of these birds were feeding on herring off Cape Nukshak on October 7. They were absent from the interior of the Alaska Peninsula, even where suitable habitats existed. I did not see a loon on Iliuk Arm during the two weeks of late September that I was again on and near that body of water. Loons had also disappeared from the Naknek River when we returned from the National Monument to Naknek village on September 28.

Hine states that "the common loon of the region" (presumably either this species or *G. stellata*) was seen frequently during summer in the Katmai Bay and River area.

RED-THROATED LOON, *Gavia stellata* (Pontoppidan).—As we traveled along the coast of Shelikof Strait from Amalik to Katmai bays, October 4, this species appeared to be rather numerous.

HOLBOELL'S GREBE, *Colymbus grisegena holboelli* (Reinhardt).—Two birds were seen on Brooks Lake on September 9, and four or five on the lower Naknek River on September 28. On Shelikof Strait, the species was abundant between Katmai and Kinak bays on October 4 and 5, and off Cape Nukshak on the 7th.

HORNED GREBE, *Colymbus auritus* Linnaeus.—This bird was scarce west of the Aleutian Range; only one individual was seen, on Brooks Lake on September 9. The species was abundant, however, east of the mountains. Great numbers were found in early October along the Shelikof Strait coast of the National Monument, and in most of the inlets from Katmai to Kinak bays.

Osgood assumed several small grebes, seen at the upper end of Becharof Lake on October 6-7, 1902, to be of this species.

SHORT-TAILED ALBATROSS, *Diomedea albatrus* Pallas.—Osgood states that "two specimens were taken by McKay on Bristol Bay near the mouth of the Ugashik River July 20, 1881."

SLENDER-BILLED SHEARWATER, *Puffinus tenuirostris* (Temminck).—"One specimen of this bird was taken near Ugashik by McKay September 15, 1881." (Osgood.)

FORKED-TAILED PETREL, *Oceanodroma furcata* (Gmelin).—Specimens were taken at Ugashik by McKay. (Osgood.)

LEACH'S PETREL, *Oceanodroma leucorhoa leucorhoa* (Vieillot).—One was taken by McKay at Ugashik on December 3, 1881. (Osgood.)

WHITE-CRESTED CORMORANT, *Phalacrocorax auritus cincinatus* (Brandt).—We saw cormorants, presumably all of this species, in some numbers in early September on the Naknek River and on Naknek Lake, as well as on the south shore of Iliuk Arm and at the mouth of the Savanoski River. A flock of 50 to 75 was noted flying east on September 9 over Brooks River, and the birds were abundant on Brooks Lake on the 9th. Two large flocks were seen near the mouth of the Savanoski River, September 22. Cormorants were relatively scarce on Naknek Lake and River by September 27 and 28. On the Pacific side of the area the species was much more numerous. Cormorants were "common to abundant" in the bays of the Katmai coast, October 4 to 7. On the latter date I saw numbers feeding on herring off Point Nukshak.

On September 27, while on a Fish and Wildlife Service patrol boat near the eastern end of Naknek Lake, a cormorant twice investigated our craft. The bird approached from the rear, flying up rapidly and then slowing down over, or to one side of, the stern until it was moving at our speed of perhaps ten or twelve miles per hour. It showed no signs of fear of the roaring boat, or of two of us who were standing on the afterdeck. I secured several photographs at a distance of fifteen to twenty feet.

PELAGIC CORMORANT, *Phalacrocorax pelagicus pelagicus* Pallas.—Small numbers were seen by Osgood in early October, 1902, on Becharof Lake. Hine states that "colonies of this cormorant nested on the shelves of the sea wall along Katmai and Kashvik bays during the 1919 season."

WHISTLING SWAN, *Cygnus columbianus* (Ord).—While we were flying south above the shore of Bristol Bay from the Kvichak River to Naknek, the noise of our plane's motor startled several flocks of swans into flight from the many tundra ponds. All the birds seen were strikingly white, mature specimens. All headed in a southerly direction. Although it was only the first day of September, these may have been 'bachelor' birds and already on their way southward.

Two swans were seen from the plane on Lake Grosvenor on September 3; two were seen resting on a bar of volcanic ash in the mouth of the Savanoski River on the 5th; and two were found September 11 on a little lake west of the Kukak River between Iliuk Arm and Mount Katolinat. Although showing alarm by bowing their heads and twisting uneasily in the water, these birds allowed me to approach to within a hundred yards before taking off. These three localities are less than fifteen miles apart and the swans seen may have been the same birds.

In descending the Naknek River on September 28 I counted a total of about fifty swans above New Savanoski village. One pair of adults was accompanied by three grayish cygnets, all of which were quite capable of flight.

BLACK BRANT, *Branta nigricans* (Lawrence).—Several flocks of geese, probably of this species, were seen between September 23 and 26 near the eastern end of Iliuk Arm. On the first date, a flock of about fifty circled several times, calling, around our boat which was aground near the mouth of the Savanoski River. The birds came quite low and seemed desirous of landing on a flooded area near us on the sand delta. They finally decided against dropping so close to possible danger and, without breaking their rough V-formation, went on north-

west in the direction of Mount LaGorce where I lost sight of them against the mountain. Two large flocks flew over the same area on the 25th and several more on the following day. All were flying in an easterly direction at a considerable height, probably headed for Cook Inlet.

COMMON MALLARD, *Anas platyrhynchos platyrhynchos* Linnaeus.—I found Mallards numerous on the Naknek River on September 4 and recorded "several" on Iliuk Arm on September 5, on Brooks Lake on the 9th, and again on the Naknek River on September 28. Later than this date, Mallards were numerous in suitable places in the Shelikof Strait area. A flock of thirty to forty was flushed from the sloughs near the abandoned Katmai village, October 4. Hundreds of Mallards, together with other species of waterfowl, were seen at the head of Geographic Harbor, where they were resting, feeding, and preening their feathers in the sunshine. Mallards were numerous in Amalik and Kinak bays.

In Hidden Harbor, at the head of Kinak Bay, I observed an interesting example of predator-prey relationship. As our seiner noisily chugged across the still water between the steep mountain walls, arousing lusty echoes, it disturbed a small bunch of Mallards that had been floating about a hundred feet from shore. As the ducks started to swim, rather slowly, toward the opening of the harbor, a brown object began to move unevenly in a parallel direction along the rocky shore. It proved to be a wolverine that was galloping hopefully after a duck supper. The Mallards appeared to feel quite secure from attack by land but they hurried away when our boat approached them. The wolverine, realizing that we had frightened his meal away, snarled at us, slowly loped up the talus slope of broken rock, and disappeared into a 'forest' of alders.

Osgood saw a few flocks of Mallards around Becharof Lake in October, 1902, and one was killed at the head of that lake as late as October 16. He also reported high-flying flocks of ducks, apparently Mallards, at Cold Bay on October 20.

BALDPATE, *Mareca americana* (Gmelin).—Osgood records several taken at Ugashik in September, 1881. Hine saw this duck occasionally in the Katmai Bay region in the summer of 1919, and secured specimens from small bodies of fresh water near the mouth of Katmai River.

AMERICAN PINTAIL, *Dafila acuta tzitzihioa* (Vieillot).—We saw a number on the Naknek River, September 4, and seven were counted on Brooks River a few days later. Frank Been identified one on Sep-

tember 19 near the mouth of the Savanoski River. For several days around the last date a flock of about 100 ducks, too far away for me to identify positively but which appeared to be Pintails, stayed in the mouth of the Savanoski. All day they stood in a dense group, duck almost touching duck, on a narrow, low, sandy island in the stream. At about 4 P. M. they moved off into the water and began feeding, still maintaining a fairly compact, much elongated formation. The river was rather swift and loaded with volcanic ash and sand. It was difficult to understand how the birds could find or distinguish food in that turbid water. By September 24, only one Pintail could be found in the area.

When we descended the Naknek River on September 28, we found that Pintails were present in some numbers, but the species was the least numerous of the several ducks noted.

I did not identify a single Pintail in the Shelikof Strait region during my travels there in October.

GREEN-WINGED TEAL, *Nettion carolinense* (Gmelin).—A flock of twelve was seen in flight near the outlet of the Savanoski River, September 24. This was the only positive identification of the species in the Katmai area.

SHOVELLER, *Spatula clypeata* (Linnaeus).—One Shoveller was seen on September 7 on Brooks River. I was rather close to the bird before it flew, and could even see the large bill distinctly.

GREATER SCAUP DUCK, *Nyroca marila* (Linnaeus).—Scaups, presumed to be of this species, were abundant on the Naknek River, being the second most numerous duck seen on the down-stream trip on September 28. The species was common on Brooks Lake on September 9, but was not seen in the more interior portions of the Monument. I saw several flocks between Katmai and Amalik bays on the western side of Shelikof Strait on October 4.

BARROW'S GOLDEN-EYE, *Glaucionetta islandica* (Gmelin).—I found this species numerous in the upper portion of the Naknek River, September 4. Several Golden-eyes were seen September 9 standing on some rocks below Brooks Falls. They were abundant in Amalik, Kaffia and Kukak bays, October 5 and 7. On the former date hundreds of them were resting on the mud flat at the head of Geographic Harbor.

Hine concluded that this was a rather common species in the Katmai Bay region in the summer of 1919. He observed it at times, and took a specimen on August 20 from "a small lake," presumably situated in the lower Katmai River valley.

BUFFLE-HEAD, *Charitonetta albeola* (Linnaeus).—Osgood reported seeing two specimens at Cold Bay, October 17, 1902, among some ducks killed on the bay by natives.

OLD-SQUAW, *Clangula hyemalis* (Linnaeus).—Several parties of this duck were seen by Osgood on the lower Egegik River on September 29, 1902.

WESTERN HARLEQUIN DUCK, *Histrionicus histrionicus pacificus* Brooks.—Harlequins were numerous in the upper Naknek River at the time of my up-stream trip on September 4, and abundant when I came down on the 28th. Scattered birds were recorded on Brooks River, on Iliuk Arm, and at the mouth of the Ukak River. Large numbers were seen on Brooks Lake. A huge flock of ducks, all of which appeared to be Harlequins in eclipse plumage, was resting in the mouth of the Savanoski River on the evening of September 5. In early October I found Harlequins common to abundant on the Shelikof Strait coast of Katmai National Monument from Katmai to Kukak bays. They were especially abundant at the head of Amalik Bay, and hundreds were resting on the mud flats at the upper end of Geographic Harbor.

Osgood, in 1902, saw small flocks along the Egegik River and in and about the mouths of the larger streams that empty into Becharof Lake. The species was also common on salt water at Kanatak and Cold Bay. Hine states that it was one of the commonest species of the Katmai Bay region in the summer of 1919.

STELLER'S EIDER, *Polysticta stelleri* (Pallas).—We saw a flock of six on October 4 in Amalik Bay and the same or another group on the following date. Several lone birds were observed at various places along the coast as far as Katmai Bay.

Osgood records specimens collected at Ugashik, on the Bristol Bay shore, by McKay and Johnson on July 17, November 12, and November 28.

PACIFIC EIDER, *Somateria v-nigra* Gray.—Good-sized flocks were seen by Osgood all along the Egegik River as well as on Becharof Lake. He took one specimen, a young male in transition plumage, near the head of Becharof Lake on October 7, 1902. He also saw large flocks at Kanatak and at Cold Bay.

KING EIDER, *Somateria spectabilis* (Linnaeus).—McKay took several specimens at Ugashik. Specimens were shot by Hine near the mouth of the Katmai River, June 25, 1919. He believed that many of the hundreds of ducks, seen fishing far out in Katmai Bay, were of this species.

WHITE-WINGED SCOTER, *Melanitta deglandi* (Bonaparte).—In early September we found this bird abundant on the Naknek River, but by the end of the month none were to be seen. On the Pacific side of the area, scoters were very numerous during the first half of October. They were "abundant to very abundant" along the entire mainland coast from Katmai Bay to Point Nukshak.

SURF SCOTER, *Melanitta perspicillata* (Linnaeus).—All of the Surf Scoters seen were on the Shelikof Strait coast of Katmai National Monument, October 4 to 7. They were "common" in Kinak Bay, but were abundant from Katmai to Amalik bays and in Kaffia and Kukak bays.

AMERICAN SCOTER, *Oidemia americana* Swainson.—This bird was numerous along the coast from Katmai to Amalik bays, but as we went northward the numbers decreased noticeably. Only a few were seen in Kaffia and Kukak bays.

Osgood found scoters common at Cold Bay, and specimens of this species were killed while he was there in October, 1902.

AMERICAN MERGANSER, *Mergus merganser americanus* Cassin.—My only observation of this species was on September 4, when several birds were seen on the Naknek River.

Osgood states that, with the exception of one adult male among a number of ducks killed by natives on Becharof Lake, none of the mergansers that he saw were referable to this species; all others were *M. serrator*.

RED-BREASTED MERGANSER, *Mergus serrator* Linnaeus.—I observed comparatively few mergansers on the Bristol Bay drainage, at least in early September. Several were seen on the Naknek River, September 3-4, and an adult accompanied by three flightless young splashed out of our way south of Reindeer Point on Naknek Lake. Three or four were seen on September 9, standing on the rocks in Brooks River below the Falls, perhaps watching for spent salmon. A number of flocks numbering three to fifteen birds were encountered on Brooks Lake. Late in the month this species was far more numerous on Naknek River, being the most abundant duck. In the Shelikof Strait area, this merganser was "common" only in Amalik Bay.

Osgood states that this species was exceedingly abundant on all the lakes and rivers he visited in 1902. This includes the Egegik River-Becharof Lake route across the Alaska Peninsula, not far west of Katmai National Monument. Hine, in 1919, found the Red-breasted Merganser common in the Katmai Bay area.

AMERICAN ROUGH-LEGGED HAWK, *Buteo lagopus s.johannis* (Gmelin).

—I made a number of observations of this species, all during September, on the west side of the Aleutian Range. Two birds were seen on the Naknek River at Big Creek, several miles below the rapids and in tundra type. The others were seen near Three Forks (junction of Windy and Knife creeks and Lethe River) at the margin of the sandflow. As the observations were made on successive days, September 14–17, they may represent some duplication of individuals. Five birds, however, were seen hunting at one time in a loose group.

NORTHERN BALD EAGLE, *Haliaeetus leucocephalus alascanus* Townsend.—Eagles may be more numerous in this region at present than they were forty years ago. In the course of slightly over a month's time in the Katmai area I noted a number of eagle records, most of which were certainly of different individuals.

My 'first' eagle on the Peninsula was seen on September 1 while I was flying by plane from Anchorage to Naknek. It was perched in the top of a sparsely-branched, stunted spruce near the north shore of Iliamna Lake. As we thundered directly overhead at an elevation of less than a thousand feet, the bird turned its head but did not look up.

Several eagles, as well as two nests, were seen on September 4 along the Naknek River. Near the rapids I saw an adult quietly perching on a lower branch of a cottonwood close to the trunk. It paid no heed to us as we went past in a gasoline-driven motor boat—apparently resting, for considerable foliage made the spot a poor observation point. Lone eagles were noted on September 5 on Brooks River (where an eagle tail, probably used as a brush or broom, also was seen in a trapper's unoccupied cabin), at the mouth of the Ukak River, and on the north slope of Mt. Katolinat (September 6).

At least six eagles were observed in a complete circuit of Brooks Lake, September 9. One of these, an immature bird, when approached was standing on a salmon head that had been washed up on the beach at the west end of the lake. An immature (Glaucous-winged?) gull stood by the eagle's side, in no evident fear of the powerful talons or heavy beak. The third member of this hungry trinity, a magpie, preserved a more careful distance. As we approached in our outboard-driven boat, the magpie flew away first. The eagle waited until we were about a hundred yards away and the gull remained until the distance had decreased to only a hundred feet.

The desolate base of the Aleutian Range seemed to be well populated by eagles. Several were seen around the middle of September on lower Windy Creek, along the southern edge of the great sandflow of the Valley of Ten Thousand Smokes. Other eagles were ob-

served in the upper Ukak Valley and around the outlet of the Sava-noski River.

Along the Shelikof Strait coast of the National Monument in early October, several eagles were seen from Amalik to Katmai bays. One of these was perched on an eroded rock spire on the north side of the latter bay, while the next column supported a nest. Eagles were common also in Kinak Bay.

Osgood reports that only one eagle was seen during the month he spent on the Alaska Peninsula in the fall of 1902. This was observed on October 6 on Becharof Lake. Hine saw Bald Eagles at various times in the summer of 1919 between Katmai Bay and the Valley of Ten Thousand Smokes. He states that, "This was one of the few birds seen flying over the Valley of Ten Thousand Smokes. It was not flying high but apparently was not inclined to linger over and was soon out of sight in more productive territory."

MARSH HAWK, *Circus hudsonius* (Linnaeus).—I noted four records of this species. All were within the boundaries of Katmai National Monument, as follows: Brooks River outlet, September 7; over marsh west of the mouth of Ukak River, September 11; edge of sandflow at the lower edge of the Valley of Ten Thousand Smokes, about two miles below Three Forks, September 17; and over marshes surrounding Katmai village site, October 4. Two birds (the first and third recorded above) were males. When seen, all of the Marsh Hawks were engaged in cruising, undoubtedly searching for mice which were abundant.

OSPREY, *Pandion haliaëtus carolinensis* (Gmelin).—I noted only two Ospreys. One was at the rapids in the Naknek River, September 4; the other was seen flying over the outlet of Brooks Lake on the 7th. One of these—probably the latter bird—was seen several times at the head of Brooks River, where it watched for an opportunity to capture some of the salmon and rainbow trout that were then running in great numbers.

BLACK GYRFALCON, *Falco rusticolus obsoletus* Gmelin.—A specimen of undetermined sex was taken by C. L. McKay at Ugashik in 1881, and is now in the National Museum.

Several Gyrfalcons were seen by Osgood flying about a high volcanic cliff on Becharof Lake on October 4, 1902. They were presumed by him to be *F. r. uralensis*, but may have been *obsoletus* as both sub-species probably occur on the Alaska Peninsula during migration.

WESTERN PIGEON HAWK, *Falco columbarius bendirei* Swann.—I saw only two Pigeon Hawks, both on the west side of the Aleutian Range.

The first was on the lower Ukak River, September 9, while the second was on Windy Creek above Three Forks, September 16. When first seen, the latter bird was hunting over the grassy slopes south of Windy Creek, probably searching for mice. As I watched, it swung north across the creek and began cruising over the sandflow. Seemingly, it was continuing to look for rodents on the flat, sterile flow where possibly no mouse has ever ventured.

In the region of Katmai Bay, Hine saw this species commonly during the summer of 1919. About August 1 he saw two adults and four young of the season in flight on the south side of the bay. Hine cites two instances of relationships between the Pigeon Hawk and magpie. One of these occurred on August 15 on Cape Kubugakli (south side of Kashvik Bay). The hawk, which had been in an encounter with magpies, had received such severe treatment that it was unable to fly away and allowed Hine to walk up to it. The single magpie, which was engaging the hawk when Hine first approached, flew gracefully away to join six others of its kind. These, he considered, had probably been helping in the attack on their enemy.

ALASKA SPRUCE GROUSE, *Canachites canadensis osgoodi* Bishop.—We found this species to be quite abundant in the spruce forest north of Mount Katolinat, in the angle between Ukak River and Iliuk Arm. The largest number of birds seen together was five, but the thick growth may well have concealed others. In similar forest north of the Savanoski River and Iliuk Arm, the only trace of Spruce Grouse that I found was a feather. A poacher had occupied a cabin in this region during the previous winter, and the grouse may have suffered accordingly.

WILLOW PTARMIGAN, *Lagopus lagopus albus* (Gmelin).—This bird was recovering from a period of extreme scarcity on the Alaska Peninsula. I saw only three flocks, all late in September and near the extreme western edge of the National Monument between Naknek and Brooks lakes. On September 27, while on the patrol boat on the southern part of the former lake and about ten miles west of Brooks River, I noticed a flock of twenty to twenty-five ptarmigans flying up the slope. Even when they settled on the ground a good quarter-mile away I could still make them out distinctly with binoculars—their white plumage conspicuous against the yellowish-brown tundra. The following day, from a plane, I saw two flocks, of fifteen to twenty birds each, south of the above locality and within a couple of miles of the north shore of Brooks Lake. Even though the sky was heavily clouded and the light very dull, these birds stood out apparently pure white against the rocks and pale brown grass.

NELSON'S PTARMIGAN, *Lagopus rupestris nelsoni* Stejneger.—Rock Ptarmigans were seen by Osgood in the mountains on the Kanatak portage and about Cold Bay, October 12 to 26, 1902. At that time both species of ptarmigans (*albus* and *nelsoni*) were to be found in the same flock. They also were rapidly losing the dark summer plumage, so that as they rested on the browned vegetation, their white bodies were very conspicuous.

The only individual seen by Hine in the Katmai Bay region was taken "on the mountain side just back from Kashvik Bay, August 23," 1919. He inferred that the species was not common in that area—a conclusion that still appears to be true, at least as far north as I was able to explore (Hallo Bay), for I saw no ptarmigans along the entire coast.

PACIFIC GOLDEN PLOVER, *Pluvialis dominica fulva* (Gmelin).—Several were seen by Osgood at Egegik, and others occasionally along the Egegik River as far as the mouth of Becharof Lake. Hine observed small flocks on the mud flats and sandy stretches of Kashvik Bay. He took one specimen on August 24, 1919.

BLACK TURNSTONE, *Arenaria melanocephala* (Vigors).—The main migration of turnstones had passed on to the south before I reached the Shelikof Strait region. I saw one lone bird, October 5, in Amalik Bay.

Specimens have been taken at Ugashik in June and July (by McKay and Johnson). According to Hine's observations in 1919, the species "first appeared along the shores of Kashvik Bay about the first of August, and increased in numbers later. August 25, flocks of a hundred or more were seen and at this time it was one of the most abundant shore birds in the locality." He took specimens, showing some variation in color, August 7 to 21.

WILSON'S SNIPE, *Capella delicata* (Ord).—We saw this species in a number of places within the Katmai National Monument: outlet of Brooks Lake, September 5; west of outlet of Ukak River, September 11 (Frank Been, who was crossing the marsh at some distance from my course, saw three birds, while I flushed one); Old Savanoski village, September 13; upper Ukak River, September 14 (two birds); and head of Geographic Harbor, October 5.

HUDSONIAN CURLEW, *Phaeopus hudsonicus* (Latham).—A flock of seven curlews flew in an easterly direction over the U. S. fisheries station on the Naknek River about five miles above Naknek village, September 2. They were calling and apparently disturbed over the presence of a small unidentified hawk that was flying in the same

general direction at a lower elevation. The hawk, however, paid no heed to the curlews.

WANDERING TATTLER, *Heteroscelus incanus* (Gmelin).—A pair of these birds was observed by Hine along a rocky coast on Katmai Bay, August 3, 1919. He took one specimen, and secured a second on August 25. The latter was a bird of the season with white under parts.

GREATER YELLOW-LEGS, *Totanus melanoleucus* (Gmelin).—This species nests commonly along the shore of Katmai Bay, according to Hine, who saw several pairs.

LESSER YELLOW-LEGS, *Totanus flavipes* (Gmelin).—I saw considerable numbers of these birds, September 28, on mud flats exposed by falling tide on the Naknek River below the rapids.

ALEUTIAN SANDPIPER, *Arquatella ptilocnemis couesi* Ridgway.—One flock of about twenty birds was found by Osgood at Cold Bay, October 16, 1902, and specimens were secured. Hine states that only two or three of these sandpipers were seen by him at any one time along the shore in the region of Katmai Bay. He took three specimens, August 20 to 23, 1919.

LEAST SANDPIPER, *Pisobia minutilla* (Vieillot).—A few were observed by Hine on the beach near the mouth of Katmai River and one specimen was taken on July 23, 1919.

RED-BACKED SANDPIPER, *Pelidna alpina sakhalina* (Vieillot).—Several small flocks were seen by Osgood flying up and down the Egegik River, September 29, 1902. He notes that McKay took several specimens in May and July, 1881, at Ugashik. Hine records the taking of one specimen (misnamed Red-breasted Sandpiper) August 23, 1919, on a sandy beach near the mouth of Katmai River. He did not find it in numbers at any time.

WESTERN SANDPIPER, *Ereunetes maurii* Cabanis.—On sandy beaches in the Katmai-Kashvik Bay area, according to Hine, large flocks were common for several days. He took specimens on July 23 and August 2, and observed the species frequently for a longer period.

MARbled GODWIT, *Limosa fedoa* (Linnaeus).—According to Osgood, two immature specimens of the Marbled Godwit were taken by McKay at Ugashik, July 16–18, 1881.

RED PHALAROPE, *Phalaropus fulicarius* (Linnaeus).—A single phalarope, supposed to be of this species, was seen by Osgood on Becharof Lake, October 6, 1902.

NORTHERN PHALAROPE, *Lobipes lobatus* (Linnaeus).—In the Katmai National Monument I noted two occurrences of Northern Phalaropes—one on Brooks Lake on September 9 and one at Cape Nukshak on Shelikof Strait, October 7.

Osgood's party did not see this species, but he noted that two specimens were taken by McKay at Ugashik, July 15 and August 10, 1882. Hine saw the birds in small groups swimming in pools adjacent to the mouth of Katmai River, July 25, 1919, and took specimens. He saw flocks on different occasions over a period of three or four weeks.

PARASITIC JAEGER, *Stercorarius parasiticus* (Linnaeus).—One specimen, in the dark phase, was taken by McKay on the Ugashik River, July 28, 1881. (Osgood.)

LONG-TAILED JAEGER, *Stercorarius longicaudus* Vieillot.—Specimens were taken by McKay at Ugashik, July–August, 1881. (Osgood.)

GLAUCOUS-WINGED GULL, *Larus glaucescens* Naumann.—Nearly everywhere that I went, this species was common to abundant. Along the Naknek River were many gulls, perched on rocks in the water or feeding on dead salmon that had been washed ashore. The eyes of every dead salmon seen in and near the rapids had already been devoured. These prized delicacies are the first parts of the fish on which the gulls begin to feed. A number of immature gulls were seen on September 5 on the small rocky islands in the coves along the south shore of Iliuk Arm. Although slow to fly, those that were approached closely seemed quite capable of taking to the air. These islands are probably important as nesting places for gulls and cormorants, although we were unable to land to look for evidences of past use.

Glaucous-winged Gulls were common on Brooks River and Lake. At the southwestern corner of the lake, on a little sandy bar, I found the fresh remains of a juvenile gull, probably of this species. Tracks in the sand which had been smoothed by the previous day's rain indicated that an adult gull had fed upon the carcass. A large wolf had walked along the beach to within ten or fifteen feet of the spot, then, turned away.

This gull was usually present in some numbers at the head of Iliuk Arm. As we approached on September 27, veritable clouds of the birds rose from the piles of salmon refuse accumulated near the Aleuts' drying station at the outlet of Brooks River. Gulls were also abundant on Naknek River during our return passage down-stream.

In the Shelikof Strait region, Glaucous-winged Gulls were rarely out of view. They were common to abundant in all bays from Katmai Bay to Cape Nukshak. Concentration points were Kinak Bay and the head of Geographic Harbor.

During Hine's stay on the shore of Katmai Bay in the summer of 1919, this gull was also common. It nested all along the sea where suitable rock walls were present and fed its young mainly on the common brittle-shelled clam (*Siliqua patula* Dixon).

Osgood saw many Glaucous-winged Gulls at Egegik and on Becharof Lake, where they were said to breed in some numbers. He observed them about the lake only in scattering numbers, except at the mouths of the small salmon streams where they fairly swarmed. The species was also seen at Kanatak and Cold Bay.

HERRING GULL, (?) *Larus argentatus smithsonianus* Coues.—A number of large gulls that I studied closely with 8-power binoculars, at distances of about 100 feet, carried every characteristic of this species. Wing-tips especially were densely black instead of dark gray as in the Glaucous-winged Gull. These birds were common on Naknek River September 3 and 4. A few were seen on Naknek Lake at Brooks River on September 5 and several on Brooks Lake on the 9th. The species was not identified thereafter.

SHORT-BILLED GULL, *Larus canus brachyrhynchus* Richardson.—A few small gulls, supposed to be of this species, were seen by Osgood at Egegik and thence across the Alaska Peninsula to Kanatak and Cold Bay. Hine noted numbers of Short-bills among the thousands of gulls at Kashvik Bay during the latter half of August, 1919. He took a specimen in immature plumage on August 23.

BONAPARTE'S GULL, *Larus philadelphia* (Ord).—I found Bonaparte's Gull common on the Naknek River on September 3 and 4, but saw only one bird thereafter, at the outlet of the Savanoski River on September 20.

Specimens were taken at Ugashik by McKay and Johnson. Hine states that about the first of August, 1919, large flocks appeared on the rich feeding grounds in Kashvik Bay. He secured several specimens on August 2.

PACIFIC KITTIWAKE, *Rissa tridactyla pollicaris* Ridgway.—I found Kittiwakes common on the Naknek River, September 3 and 4 and, later, on Brooks Lake, Brooks River, and Iliuk Arm. Most of those seen on Brooks Lake (about ten) were in a single group in a little bay about midway of the southern shore. The species was fairly common at the outlet of the Savanoski River and, while our boat was beached there from September 15 to 27, afforded us considerable amusement.

The bird's small bill and short, thick neck gave it a placid, hen-like appearance, but its disposition was that of the typical gull. The first Kittiwake on a patch of sand resented the arrival of newcomers and drove them off with ruffled threats and raucous shouts. During most of one afternoon, while we were working to refloat our boat, one Kittiwake pattered curiously about us. Sometimes it came as

close as fifty feet if no obvious attention was paid. If one of us turned toward it, however, the bird hurried away with a ludicrous, waddling gait. This Kittiwake appeared to be very inquisitive about us and our actions; it may, however, have been hoping that our activities would stir something edible out of the sand.

On the Shelikof Strait coast of the Monument, Kittiwakes were abundant from Katmai to Hallo bays, October 4 to 7. Many were seen on the mud flat at the head of Geographic Harbor, and great numbers were feeding on the herring that were jumping off Cape Nukshak.

Two specimens were taken at Ugashik by McKay on September 11, 1881. Osgood failed to record the Kittiwake on his trip across the Alaska Peninsula in the fall of 1902. Hine did not see the species at Katmai Bay until about the tenth of August when it appeared in large flocks of hundreds of birds. He states that at times it composed a large percentage of the gulls present in Kashvik Bay.

ARCTIC TERN, *Sterna paradisaea* Brünnich.—I saw a number of Arctic Terns fishing in the Naknek River about five miles above Naknek village, September 2. Several were noted on Naknek Lake on September 4, and one was seen on Brooks River on the 6th.

CALIFORNIA MURRE, *Uria aalge californica* (Bryant).—I found Murres common along the coast of Shelikof Strait, from Amalik to Katmai bays (October 4) and in Kukak and Hallo bays (October 7).

MARbled MURRELET, *Brachyramphus marmoratus* (Gmelin).—I saw these birds commonly along the Shelikof Strait coast, from Katmai Bay northward. They seemed to be most abundant in Kukak and Hallo bays.

Several murrelets (apparently this species) were seen by Osgood on Kanatak Bay, October 13, 1902.

CRESTED AUKLET, *Aethia cristatella* (Pallas).—There is one specimen from Ugashik, taken by McKay.

RHINOCEROS AUKLET, *Cerorhinca monocerata* (Pallas).—I observed a number of these auklets on October 4 between Amalik and Katmai bays.

HORNED PUFFIN, *Fratercula corniculata* (Naumann).—We found this species to be common along the rocky coast from Amalik to Katmai bays, October 4.

TUFTED PUFFIN, *Lunda cirrhata* (Pallas).—On the evening of October 3, as we sailed into Amalik Bay to our anchorage in the gathering dusk, great numbers of Tufted Puffins and Harlequins and other ducks took wing to let us pass. They made a spattering and splash-

ing that we could hear above the sound of our boat engine. As the dusk deepened, some of the birds left luminous wakes in the phosphorescent waters. A few of the waterfowl were extraordinarily tame, or bewildered, and let us pass within a hundred feet.

SNOWY OWL, *Nyctea nyctea* (Linnaeus).—Osgood states that this species is said to be a regular winter visitant at Egegik and Becharof Lake.

AMERICAN HAWK OWL, *Surnia ulula caparoch* (Müller).—Been and I were given a fine view of two Hawk Owls at close range on September 11. The scene of the encounter was in a grove of mature cottonwoods at the northern base of Mount Katolinat, about two miles above the outlet of the Kukak River. The owls flew to meet us and perched in the half-dead tree tops within a hundred feet. They showed a lively curiosity with no evidence of fear. A light rain that was falling caused them no concern but, after four or five minutes of staring and shifting about, the birds flew off into the woods.

Medium-sized owls, probably of this species, were seen on two occasions at night. One bird, while hunting over the marshes at the outlet of Brooks River on the evening of September 6, flew within ten feet of me. I was able to see it quite distinctly in the light from our boat. The other bird made several circles around me late in the evening of September 17 as I lay in my sleeping bag on the sand dunes west of the Ukak River, on the south shore of Iliuk Arm. It called once or twice in a soft, inquiring tone.

SHORT-EARED OWL, *Asio flammeus flammeus* (Pontoppidan).—This owl was seen by Osgood in considerable numbers. It was attracted by lights and came about several of his camps on Becharof Lake. He saw a number at dusk flying over houses in Egegik. Numerous specimens were taken by McKay and Johnson at Ugashik.

WESTERN BELTED KINGFISHER, *Megaceryle alcyon caurina* (Grinnell).—We found kingfishers to be fairly common in the lake country of the Katmai region, as well as in the bays off Shelikof Strait. Birds were recorded on Naknek River at Big Creek (September 4); Brooks River (September 5 and 9); and on Naknek River (September 28). On the coast, a kingfisher rattled at us as we sailed into the narrow passage between Amalik Bay and Geographic Harbor on October 5, and another bird was seen in Kinak Bay on the same date.

NELSON'S DOWNY WOODPECKER, *Dryobates pubescens nelsoni* Oberholser.—I saw only one bird, a male, in the spruce-cottonwood forest between Iliuk Arm and Mount Katolinat, September 19.

ALASKA THREE-TOED WOODPECKER, *Picoïdes tridactylus fasciatus*

Baird.—One bird, a male, was seen at close range September 12 at the outlet of the Ukak River. It was looking for food in a fringe of dead spruce that had been smothered by ash washed down from the Valley of Ten Thousand Smokes.

ALASKA JAY, *Perisoreus canadensis fumifrons* Ridgway.—Jays were common in the spruce-aspen 'forest,' and wherever even scattered trees occurred. A flock of six or eight hung about the camp of Fish and Wildlife Service employees engaged in counting salmon at the head of Brooks River. Trappers' cabins that had been occupied during the previous winter seemed to hold some promise of future food supplies for the jays, for they clung tenaciously to the two such cabins that we visited. Other localities where the species was seen were: west end of Brooks Lake (several, September 9); lower Ukak River (common, September 10, 11, 18); Old Savanoski village (several, September 13); middle portion of Ukak River (September 14); north slope of Mount Katolinat (common, September 20); and north of outlet of Savanoski River (common, September 23).

AMERICAN MAGPIE, *Pica pica hudsonia* (Sabine).—In the regions that I visited, magpies occurred nearly everywhere sparingly to commonly. They lived in the forest and on the open tundra. Records noted west of the Aleutian Range were as follows: Brooks River (several around Scott's camp near head of the river, September 5 and 7); Brooks Lake (noted in a number of places around the shore, and about two miles above the head of the lake on the principal feeder stream, September 9); lower Ukak River (common, September 9, 10, 14); Old Savanoski village (two, September 13); lower Windy Creek (several seen on vegetated slopes near edge of sandflow, September 15); mouth of Ukak River (several, September 18); north slope of Mount Katolinat (common, September 20); north of outlet of Savanoski River (common, September 23). On the Shelikof Strait coast, I saw three magpies at Katmai village, October 4. Other birds were noted on Takli Island and in Hidden Harbor, October 5, and in Kafia Bay and at the ruined clam-cannery buildings in Kukak Bay, October 7.

Osgood concluded that this species occurred "sparingly throughout the entire region" in 1902. He took a specimen on Becharof Lake on October 6, and saw a small flock at Kanatak on October 12. Hine found the magpie rather plentiful (flocks of five to eight birds) in wooded areas of the lower Katmai River valley and Kashvik Bay.

NORTHERN RAVEN, *Corvus corax principalis* Ridgway.—I saw ravens in a number of localities on both sides of the Aleutian Range. Single

birds were noted at Brooks River (September 5), Savanoski River (September 6), and at Old Savanoski village (September 13). On the late afternoon of September 25 we saw three or four ravens flying in a northerly direction over the outlet of the Savanoski River. One bird was 'performing'—reversing onto his back, then turning upright again—and croaking at intervals as if to call attention to these aerial gymnastics. Ravens were seen in the upper Ukak River valley on September 14. I recorded them as "common" at the outlet of that river, September 18. Several birds were seen on the lower Naknek River on the 28th.

In the lower Katmai River valley, on October 4, I saw a couple of ravens. One of these croaked for some time while floating very high in the air over the bay. Single birds were also noted in Geographic Harbor and in Kinak Bay, October 5, and at Kukak Bay, October 7.

Large flocks of ravens were seen by Osgood at Kanatak, doubtless attracted by the carcass of a right whale that had drifted ashore near there. He saw a few at Cold Bay, and found them to be common on the north side of the peninsula at Egegik.

YUKON CHICKADEE, *Penthestes atricapillus turneri* (Ridgway).—Although I did not run across any chickadees during my brief stay on the coast of Shelikof Strait, I found them quite frequently and in some abundance west of the Aleutian Range. This species was noted on Naknek River at Big Creek, September 4; in the spruce-cottonwood forest east of Brooks Lake, September 5; and along Brooks River, September 7. I found a few in the spruce woods along the principal feeder stream flowing into the western end of Brooks Lake, September 9. Chickadees were recorded as abundant along the lower Ukak River, September 10, 11, and 20, and were seen in scattered cottonwoods along the upper Ukak on the 14th. In the dismal tundra grassland south of Windy Creek, chickadees sang quite frequently around our camp.

After Been and I had found it impossible, because of flooded streams, to reach the main part of the Valley of Ten Thousand Smokes, we returned to the beach at the head of Iliuk Arm. While waiting on the dunes for our boatman, September 18, we were entertained by three chickadees. The birds were hunting for insects on the scrub willows, and at times came within ten feet of us. A few days later, I found chickadees common in the forest north of the outlet of the Savanoski River.

Osgood found chickadees sparingly all along his route in 1902, and collected specimens at Cold Bay. At the National Geographic So-

ciety base camp on Katmai Bay in 1919, flocks of chickadees appeared in wooded areas just before the middle of July. Hine took specimens here July 12.

DIPPER, *Cinclus mexicanus unicolor* Bonaparte.—I saw my one Dipper in the Katmai region at Brooks Falls on September 5. The bird, an adult, was feeding on the very brink of the waterfall about thirty feet from the southern bank. It took no apparent notice of our four-man party as we stood and moved about on shore. For ten minutes after our arrival the bird continued to probe for insects, with the water slipping over its back in a silvery sheet as it quickly dipped under. After taking some still pictures, I set up a movie camera. As I was completing focusing, however, the Dipper flew to the north end of the falls, 200 feet away, where it commenced another search for food on a jutting mossy ledge.

One specimen was taken October 18, 1902, by Osgood on a small mountain stream at Cold Bay.

EASTERN ROBIN, *Turdus migratorius migratorius* Linnaeus.—I found that robins were numerous in the willow-cottonwood-spruce thickets on Naknek River at Big Creek on the early morning of September 4. They were probably migrating. I did not see any after leaving the river on that date and passing into the lake region in the National Monument.

ALASKA HERMIT THRUSH, *Hylocichla guttata guttata* (Pallas).—Hine considers that this species was not common in the Katmai River region. He took a specimen on July 25, 1919, at the extreme eastern end of Katmai Bay "in a very wild locality." Nesting was probable although a nest was not actually observed.

AMERICAN PIPIT, *Anthus spinoletta rubescens* (Tunstall).—Although not observed until about the first of August, 1919, it was common for the remainder of that season on the beaches along Katmai and Kashvik Bays. Hine took specimens on August 10.

NORTHWESTERN SHRIKE, *Lanius borealis invictus* Grinnell.—I found shrikes to be fairly common on the west side of the Aleutian Range. At the outlet of Brooks River one was seen September 5, and a pair on the 7th and 8th. Shrikes were numerous along the lower Ukak River on September 10, 11, and 14. I saw one bird on lower Windy Creek on September 15, and several in the open spruce-cottonwoods, on the lower northern slope of Mount Katolinat on September 19.

Two specimens were taken by McKay at Ugashik September 20, 1881.

ALASKA YELLOW WARBLER, *Dendroica aestiva rubiginosa* (Pallas).—Hine saw this species often in the wooded areas near the Katmai Bay

camp of the 1919 expedition of the National Geographic Society. There was every evidence that it was nesting although the nest was never found. A specimen was taken on July 12.

NORTHERN PILEOLATED WARBLER, *Wilsonia pusilla pileolata* (Pallas).—This was the most plentiful warbler of the lower Katmai River valley, according to Hine. He secured specimens on July 12 and 23.

HOARY REDPOLL, *Acanthis hornemanni exilipes* (Coues).—I saw one group of Hoary Redpolls on the dunes at Katmai Bay, near the outlet of the river, October 4.

Osgood found this species commonly about Becharof Lake and at Kanatak and Cold Bay, October 1–26, 1902. He secured several specimens on Becharof Lake and at Cold Bay.

COMMON REDPOLL, *Acanthis linaria linaria* (Linnaeus).—According to Hine, flocks of Common Redpolls began to appear around his camp on Katmai Bay about the middle of July. The birds were soon found everywhere in the Katmai River valley and in the surrounding mountains. He once saw a large flock flying about over the Valley of Ten Thousand Smokes. He took specimens on July 23, 1919.

WESTERN SAVANNAH SPARROW, *Passerculus sandwichensis alaudinus* Bonaparte.—Common in the vicinity of Katmai Bay and a characteristic bird of the region, according to Hine. He took specimens on June 22 and July 8, 1919.

WESTERN TREE SPARROW, *Spizella arborea ochracea* Brewster.—I saw Tree Sparrows in the scrubby willow-cottonwood clumps on the north bank of Naknek River at Big Creek, September 4; and in the spruce-cottonwood forest north of the outlet of the Savanoski River, September 6.

GOLDEN-CROWNED SPARROW, *Zonotrichia coronata* (Pallas).—I found one flock of Golden-crowned Sparrows in the lower Ukak River valley, September 11.

Hine found this species quite common "over much of the Alaskan territory visited" (presumably Kashvik Bay, Katmai River valley, and the surrounding mountains, as well as the Ukak River system). He secured one specimen on August 15, 1919.

SHUMAGIN FOX SPARROW, *Passerella iliaca unalaschcensis* (Gmelin).—In the Katmai River valley, Hine saw Fox Sparrows in woodland margins. One specimen was taken on July 9, 1919.

ALEUTIAN SONG SPARROW (?), *Melospiza melodia sanaka* McGregor.—I identified Song Sparrows at two places in the Katmai region. One bird, probably *sanaka*, was in a willow thicket on the bank of the Naknek River at Big Creek, September 4. In the other instance, two

Song Sparrows were flitting about among the buildings and ruins of the burned clam cannery in Kukak Bay, October 7. The latter birds may have been *insignis*.

Hine states that "a few specimens [were] observed along the rocky coast of Katmai Bay . . . Specimen taken July 25" [1919]. If this specimen was correctly identified, it presumably establishes the race to which the Song Sparrow of this coast should be assigned. It would be assumed, however, that the form so common on Kodiak Island (*M. m. insignis*) would occur also on the adjacent coast of the Alaska Peninsula.

ALASKA LONGSPUR, *Calcarius lapponicus alascensis* Ridgway.—This was practically the only small land bird found by Osgood in the tundra about Bristol Bay during middle and late September. He saw longspurs daily at Egegik, along the Egegik River, and at various points along Becharof Lake. A few were seen at Kanatak and several at Cold Bay as late as October 25, 1902. In tundra in the Katmai River valley, Hine found nesting longspurs plentiful in summer. He secured specimens in breeding plumage on July 12, and "other specimens" on August 15.

EASTERN SNOW BUNTING, *Plectrophenax nivalis nivalis* (Linnaeus).—Osgood saw a small flock on Becharof Lake on October 6, and a few more in the mountains between the lake and Kanatak. He adds that the species "also breeds at Cold Bay, where Maddren found it nesting in high rocky cliffs in the summer of 1903."

Hine and other members of the 1919 National Geographic Society expedition to Katmai often found "snowflakes" on the tops of peaks, and on several occasions found them in Katmai Canyon. A pair of these birds was seen and heard singing in upper Mageik Creek. At the time, these localities were still devastated as a result of the eruption of Mount Katmai in 1912, and even tufts of green grass could rarely push through the thick layer of ash.

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