

THE CONDOR

VOLUME 48

NOVEMBER-DECEMBER, 1946

NUMBER 6

OBSERVATIONS ON THE BIRDS OF MOUNT MCKINLEY NATIONAL PARK, ALASKA

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Mount McKinley National Park, in interior Alaska, lies mainly on the north side of the Alaska Range. It is characterized by rolling, treeless tundra with numerous small ponds, by streams flowing over broad gravel bars, and by mountains with a multitude of ridges and peaks varying from elevations of 4000 to as much as 20,300 feet. Narrow strips of spruce that border the streams extend for considerable distances into the park but they generally play out at an elevation of 3000 feet.

The observations recorded here were made chiefly from 1939 to 1941 but a few of them date back to 1922, and a few were obtained in the course of a brief stay in the fall of 1945. They are of a miscellaneous nature and were made incidental to other studies. All the birds seen in the park are not listed but only those on which data were obtained that appear to be either of special distributional or seasonal interest or of significance to the local ecology. Since Mount McKinley National Park has been set aside as an area to be left in a natural condition, the accumulation of many observations will in time afford a valuable faunal history.

Dixon (1938) records 107 species of birds for the park and places five others in a hypothetical list. The following species, herein reported on the basis of sight records, are new to the park check-list: Shoveller (*Spatula clypeata*), Barrow Golden-eye (*Glaucionetta islandica*), Bonaparte Gull (*Larus philadelphia*), Violet-green Swallow (*Tachycineta thalassina*), Tree Swallow (*Iridoprocne bicolor*), Dipper (*Cinclus mexicanus*), and White-winged Crossbill (*Loxia leucoptera*). One of these, the Dipper, is in Dixon's hypothetical list and all of them are species which would be expected to be found in McKinley Park from our knowledge of their distribution in interior Alaska.

Colymbus auritus. Horned Grebe. On June 13, 1940, a Horned Grebe was seen skimming in a straight line over the surface of a small pond, bearing down on a pair of Old-squaw Ducks that had just settled on the water. The ducks dived in time to avoid the attack, and the grebe followed them under water. When it emerged near the ducks, they flew a short distance and waited alertly for the reappearance of the grebe, which had again dived. After this maneuver had been repeated about ten times, the pair of ducks left the pond. Later a lone Old-squaw lit on the pond and flew away the second time it was chased by the grebe.

At one end of the pond the mate of this grebe was found near a nest in the reeds. On June 29 at least five young had hatched and one egg remained in the nest. The young rode on the backs of both parents. One of the parents was molting on the head but the other appeared to still be in full breeding plumage. On the same pond a Green-winged Teal (*Anas carolinensis*) swam with her brood of seven young, unmolested by the grebes.

In 1941, July 17, a pair was seen with four young on the same pond and this time there was also an Old-squaw with seven young. Both adult grebes on that date were in breeding plumage, while the year before one of the grebes was molting on June 29.

Spatula clypeata. Shoveller. On May 25, 1940, two pairs were seen in a pond near Wonder Lake; on June 11, 1940, five males were on a pond in the East Fork River area; on May 18, 1940, a pair was seen on a pond near Igloo Creek.

Glaucionetta islandica. Barrow Golden-eye. Frequently seen on the small ponds, and several broods were noted.

Clangula hyemalis. Old-squaw. Found nesting on a number of ponds each year. On May 24, 1939, two drakes, each in possession of a female, were busy chasing away a third unmated drake; the mated drakes did not resent each other. On June 4, when most of the males were in breeding plumage, a male was noted in full winter plumage. On this date a male was feeding on a small species of fly, thousands of which were on the water. It obtained flies by swimming with its bill held at the surface of the water.

Aquila chrysaetos. Golden Eagle. Observations made between 1939 and 1941 have already been reported (Murie, 1944). The 632 pellets gathered and examined in that period showed that the ground squirrel was the main food of this eagle in McKinley Park; it occurred in 86 per cent of the pellets. In 1945 ground squirrels occurred in all 27 pellets that were collected. Other items in the 27 pellets were ptarmigan, mouse (*Microtus*), and bird (unidentified); each of these occurred in only one pellet. Although the Golden Eagle has been accused of preying on mountain sheep lambs by many, no studies so far reported have shown this eagle to be a significant enemy of lambs. In McKinley Park where sheep and eagles were both common, the studies showed that seldom are lambs eaten. No record of an eagle killing a lamb was obtained.

Falco rusticolus. Gyrfalcon. In 1941, at Polychrome Pass, a pair of Gyrfalcons nested on a ledge near the top of a perpendicular drop of 40 or 50 feet. The nest, composed of large sticks, was partially protected above by a slightly overhanging rock. The bluff on which this nest was located was apparently a favorite nesting site, for two other nests were found on it which had been occupied in recent years. Although a nest was not found in 1939 and 1940, the birds were frequently seen on these same cliffs and no doubt were nesting. In September, 1945, Gyrfalcons were observed several times at the nesting area. All the birds seen were gray, streaked with blackish markings.

In 1941 the two birds were first seen at the nesting site on May 12, on one of my first trips to the area. In 1939 they had been seen there on April 24. On May 14, 1941, one of the birds dropped what appeared to be a ground squirrel to its mate, who easily grasped it in mid-air. On May 27 one of the birds was harassing a Golden Eagle.

On June 5 at least 3 recently hatched young were in the nest. Later 4 young were seen. On June 7 and 14 an adult was seen standing on the edge of the nest. On June 21, when I climbed down to within a few feet of the nest from above, both parents called vigorously as they circled high overhead. Two or three times one of the birds came out of the sky in an almost perpendicular dive with wings set, but each time swooped upward again when 40 or 50 feet above me.

On July 7 the young appeared to be fully feathered. They became noisy when they saw me a few feet away. On this day and on the following day when the nest was approached, the adults remained out of sight. The young were still in the nest on July 16, but were flying on July 24. The birds were still near the site on August 3, the last day I visited the area.

The falcons frequently perched on the home cliff and on cliffs across a narrow gulch from the nest. On the favorite perches were many pellets and the remains of ground squirrels and ptarmigan upon which the falcons had fed. In the two years, 1941 and 1945, 194 pellets were gathered. They ranged in size from $\frac{5}{8}$ to 1 inch in diameter and from 2 to $2\frac{3}{4}$ inches in length. The occurrence of the food items in the 194 pellets was as follows: ground squirrel in 129 pellets; mouse (probably all *Microtus*) in 53; bird (small birds, so far as known) in 32; ptarmigan in 9; duck in 1.

It is apparent that the Gyrfalcons were living mainly on ground squirrels and mice, the most abundant food species available. The ptarmigan were probably chiefly Rock Ptarmigan (*Lagopus mutus*). The "bird" remains were not identified except that some sparrows had been eaten. Savannah and Tree sparrows were rather common in the area and probably were represented in the bird remains. The carcass of what appeared to be a Western Sandpiper was found below the Gyrfalcon nest.

Falco columbarius. Pigeon Hawk. These falcons could usually be found during the summer in the timber near Igloo and Toklat cabins and in a patch of dead timber one mile east of Toklat cabin. A large stick nest near the top of a spruce growing beside the bunk house at Toklat was used in 1941, and a similar nest was occupied at Igloo. On July 10, 1941, the 3 young in the Toklat nest were almost feathered out.

Pigeon Hawks were frequently observed chasing Magpies (*Pica pica*). Often the Pigeon Hawks came in contact with the Magpies and caused them to squawk. However, it appeared that the Pigeon Hawks only harassed the Magpies, for the latter were not enough annoyed even to retreat from the area. On September 11 three different Pigeon Hawks chased a Magpie in relays before it alighted. Several times Magpies flew down at perched Pigeon Hawks, but the latter then took the offensive.

Canachites canadensis. Spruce Grouse. More common in the low country along the north

boundary of the park than in the higher country. A few were seen on Igloo Creek and near park headquarters, but the birds were generally scarce.

On September 13, 1945, I watched a pair of Spruce Grouse with their 3 well-grown young. When first seen, about noon, they were out on the road eating gravel. They soon moved into the spruces where they moved about in the shadows. Spots of sunlight were avoided or generally crossed in a hurry. When a bird flew to a tree and lit on a sunny terminal twig, it would at once move into the shade near the trunk.

Once the male was observed strutting and the female moving about on the ground near him. When I approached, he flew to a tree and stood in a strutting posture. One of the grouse fed extensively on spruce needles while I watched. One-half to 5/6 of a needle was removed, and where the grouse had fed the needles were all nipped. Other foods eaten were sedge seeds, crowberry (*Empetrum nigrum*) fruit, and leaves of *Hedysarum*.

Lagopus lagopus. Willow Ptarmigan. The population of this ptarmigan fluctuates extremely over a period of years. In 1922 and 1923 we found the birds very plentiful, and flocks numbering two or three hundred were commonly seen. On Upper Savage River scores of them ran before us as we walked along the river bars. After 1923 the ptarmigan continued to be plentiful until 1926, when their numbers were probably even greater. After 1926 ptarmigan became scarce, but reached another peak in 1933. They were reported very abundant from 1933 to 1936. I have no data for 1937 but they were scarce in 1938. From 1939 to 1941 the Willow Ptarmigan was common in its typical habitat, but was far from the abundance I observed in 1923. They were on the increase, though, being more plentiful in 1941 than in 1939. In 1943 they were reported very plentiful, so apparently they were nearing another peak in the cycle. In 1945 they appeared to be only slightly more plentiful than in 1941.

The males begin to acquire the brown nuptial plumage on the head and neck in late March. On March 27, two males were seen with a few brown feathers on the throat. On April 7 many males had acquired the brown feathers on the neck and head. The winter feathers persisted longest on the top of the head. The nuptial plumage (winter plumage except for brown head and neck) of the males is worn through April and May. In late May brown feathers make their appearance on the back, and in early June the males are in the full brown plumage. The females retain their winter plumage until early May at which time brown feathers give them a speckled appearance. By the middle of May only brown females were observed.

In the fall the change to winter plumage takes place largely in the last half of September. Specimens taken on September 12 had well developed white feathers hidden by the brown plumage. On October 9 in a flock of 70 birds only a few brown summer feathers were noted.

Coincident with the plumage changes in late March the males begin to crow and cackle, and many of them appear to have secured mates. In early May, and possibly earlier, the males begin to strut, with spread tail and wings lowered. The eggs are laid as early as the middle of May at a time when the inconspicuous summer plumage has been acquired by the females. Newly hatched young were reported on June 16. A nest containing six eggs was found on June 23.

In early May the feeding habits of the females differed strikingly from those of the male. While the male was feeding on the buds of willow and dwarf birch, which he neatly removed along the length of a twig, the female hunted and picked among the short ground vegetation, apparently feeding on insect life. She fed actively while the male moved along slowly and fed deliberately. Possibly the feeding habits of the female differed from those of the male because she was soon to lay a clutch of eggs and required a food richer in protein.

On April 7, 1941, three carcasses of birds in winter plumage were found under a short stretch of telephone wire. Two of the crops contained the tips of willow twigs, and a third the tips of willow twigs and blueberries. The twigs were about 1/2 inch long. The males observed in May fed only on the buds of willow and did not eat any of the twigs. Possibly the twigs were not eaten in May because the buds are larger than in winter. The stomach and crop contents of a male found dead on May 22 consisted of the following: *Empetrum nigrum* (seeds plus a few free skins) 70 per cent; *Vaccinium vitis-idaea*, 10 per cent; staminate cones of *Betula* (probably *nana*), 20 per cent; 1 coleopteran pupa (examined by A. C. Martin). On September 12 a group of ptarmigan was observed feeding on the buds and the terminal green portions of the twigs of dwarf willow.

Lagopus mutus. Rock Ptarmigan. This ptarmigan is generally found at an elevation a little higher than that occupied by Willow Ptarmigan, in more open country, but ranges of the two overlap broadly. The heart of the Willow Ptarmigan's range is the willow growth along streams and in low areas, but these ptarmigan commonly spread out into the more open tundra. The Rock Ptarmigan are usually found in the open tundra and range up the ridges, sometimes to their tops.

The Rock Ptarmigan populations, so far as my information goes, are rather stable. At no time did I observe the drastic fluctuations so common with the Willow Ptarmigan.

Late in April the female begins to attain the brown summer plumage. On May 20 a female was noted that was brown except for a few white feathers. On the other hand, white males were observed throughout May.

On June 28 during a light shower a female was discovered hovering nine newly hatched young. She feigned injury and the young scattered to hide.

Lagopus leucurus. White-tailed Ptarmigan. In 1922 and 1923 we always saw a few of these birds when hiking over the ridges at the head of Savage River—usually from one or two to a half dozen in a day. In 1939-41 only a single bird was seen in the summer. This one was on Sable Mountain. Whether this species was scarcer than formerly, I cannot say, for not much time was spent in its favorite habitat, which is on the higher, more barren ridges. At all times this ptarmigan appears to be scarce. On April 8, 1941, five of these birds in winter plumage were seen in Sanctuary Canyon,



Fig. 56. Golden Plover feigning injury after running from the nest; July 22, 1939.

feeding on the slopes adjacent to the river. Ranger John Rumohr said that he had often seen a few of them in the canyons of the Outside Range in winter. On September 8, 1945, 9 birds were seen along the stream in Savage Canyon.

On July 22, 1923, O. J. Murie and I found a family of one adult and 7 young, fairly well feathered. We herded them a hundred yards into the sunlight in order better to photograph them. As is usual with the White-tailed Ptarmigan, they were tame, the mother permitting us to approach within three feet of her while she continued feeding. A young one was easily captured and when released showed no indication of being nervous. Although tame on the summer range, this ptarmigan was quite wild when observed on the winter range.

Pluvialis dominica. Golden Plover. A few were seen near Sable Pass, Thorofare Pass, west of

Muldrow Glacier near Clearwater Creek, and on a broad flat near the top of the Outside Range, between Savage and Sanctuary rivers.

In 1941 two nests were found in the Thorofare Pass area. The nests were located in short *Dryas*, one of them beside a small clump of grass on a gentle slope, and the other on a level area near Stony Creek. The four eggs that each nest contained rested in a slight depression on a few dry leaves of *Dryas*. Apparently no nest material had been brought to the depressions.

One of the nests was found on June 4. A parent ran up the slope calling and flew away, only to return and retreat again. The bird returned to the nest to brood the eggs as I stood about 50 feet away, and when again flushed, it ran off with outstretched wings and spread tail pointed toward the ground. After a run it lay on the ground fluttering its outstretched wings. A little later the other



Fig. 57. Wandering Tattler on its nest; June 13, 1939.

parent was near the nest for a short time. On other occasions the birds often met me some distance from the nest and called. On June 29 one of the young had hatched and was in the nest, but an hour later it was lying four feet from it; both parents were near-by. On July 1 three of the eggs were still in the nest but one of them was pipped. This egg had been incubated at least 27 days.

The second nest was found on June 22. The bird at the nest ran off with head drawn in and held low and tail spread and pointed downward. It stopped 50 feet away and lay fluttering its outspread wings against the ground. Then it returned within 15 feet of me and ran off as before except that its wings were held extended. This was repeated five or six times. A little later both birds were at the nest when I approached and both ran off with wings outspread and tail held spread and lowered. Sometimes the wings were only partially spread and slightly lifted away from the body. On July 1, 1941, three of the young were hatched.

One of each of the two pairs had a much narrower band of black on the breast than its mate. On July 25 an adult was seen which had lost the black band running down the breast.

Aphriza virgata. Surf-bird. The Surf-bird is of special interest because the only nesting records are a downy young collected by O. J. Murie in the Forty-mile country in 1921 (O. J. Murie, 1924) and a nest found in McKinley Park by Dixon (1927) in 1926.

Surf-birds were observed several times near the summits of the Outside Range and on ridges between East Fork and Big Creek. On June 23, 1939, two Surf-birds were observed on a ridge west of Big Creek. One of the birds had flushed about ten feet from my companion. For two hours the two birds stood about a foot apart, preening and sleeping. Before leaving we searched for young or a nest but found neither.

On May 21, 1940, three birds fed together near the top of Sanctuary Mountain. These birds were calling considerably, especially when flying. The call given at this time of year, apparently a courtship call, differed from the usual one. It sounded like *throi-dee, throi-dee*. On one occasion in 1941 one of three birds feeding together flew several hundred feet into the air, circled widely, and called at intervals.

Capella delicata. Wilson Snipe. In May these birds were occasionally seen and heard in their nuptial flights. On September 14, 1940, a flock of a dozen was seen in a marshy area a mile or two south of Wonder Lake. In 1939 and 1940 the species was first seen on May 15; in 1941 on May 14.

Bartramia longicauda. Upland Plover. In the nesting season these birds were observed in a number of places. The birds sometimes appeared to be nesting in small colonies. In a broad swale, south of Mile 55 on the highway, at least six or seven pairs were nesting in a small area where the grass and sedge was rather tall and a scattering of tall willows grew. In another area, on June 14, six adults were much concerned over my presence. In some places only a single pair was found nesting. The birds appeared to be nesting in about the same localities each year.

Heteroscelus incanus. Wandering Tattler. The tattler is a common summer resident in McKinley Park. The birds are frequently seen in pairs on the gravel bars, generally along the smaller creeks, at elevations up to 3000 feet or more.



Fig. 58. Nest and eggs of Wandering Tattler; June 13, 1939.

The first set of eggs of the Wandering Tattler known to science was found in the park, on a gravel bar bordering Savage River on July 1, 1923 (O. J. Murie, 1924). On June 13, 1939, I discovered a nest on a narrow gravel bar bordering a small creek which flows into Igloo Creek just north of Sable Mountain. The bird flushed from the nest about six feet from me, alighted 20 feet away, and stood teetering and calling. The nest contained four greenish eggs, speckled with brown.

This nest differed in two particulars from the first one that we discovered in 1923. Its structure was much less elaborate; it consisted of only a few fine twigs laid in a shallow natural depression. It was located in a growth of mountain avens on a high, stable part of the bar, while the one at Savage River was on a part of the gravel bar where no vegetation was present.

Four newly hatched young with their parents were in the vicinity of the nest on June 29. From a distance I marked the spot where the young were feeding, but when I approached they hid and I did not find them. I moved off and tried again, unsuccessfully. The third time I hid nearer the birds and when they became active, I marked the spot where I had last seen movement of one of the young and searched carefully for it. Finally it was found in a cavity under a rock where it was completely hidden. When released, it took refuge in cavities under rocks, except once when it descended about a foot into a ground squirrel hole.



Fig. 59. Young Long-tailed Jaegers; June 28, 1940. Young on left had been running about, foraging, and was placed in nest with recently hatched young.

On June 30, 1939, two other families of tattlers were seen only a half mile apart. One of the young was found with its head and half its body concealed under a rock. When the rock was lifted, the bird held its position; when placed on a rock, it squatted and remained quiet. After being held in the hand for a few minutes and released, it ran along a small stream, part of the time in the shallow water. Both parents scolded while we were with this young one, and when we left, they accompanied us about 200 yards up the bar.

On May 26, 1941, a Wandering Tattler was seen flying back and forth across the sky calling at intervals. It remained in the air three or four minutes before descending to the narrow gravel bar. This was apparently a nuptial flight.

Stercorarius longicaudus. Long-tailed Jaeger. This jaeger nests regularly in the high open passes. There were three or four places where the birds were to be found each year. Between Savage and Sanctuary rivers they were often perched on the edge of the highway, where they had a good view of the slope below them. Only once was a jaeger seen on the water.

Three nests were seen: one contained a single egg; another two eggs; and at another were two young. The nests consisted of natural depressions. Two of the nests were situated on slight rises on dry ground where the vegetation consisted of mountain avens and short grass, and one was on a soft mossy hummock. Whenever the nests were approached, the parents became noisy, hovered above the intruder, and a few times administered a light peck on the head. Once both parents met me 150 yards from their nest and circled and hovered over me as I approached. One of the parents often returned to the nest when I was only five or ten yards away.

On June 28, 1940, a jaeger was brooding a young one about a day or two old. The bird doing the brooding was larger and richer colored than its mate. Once, when the smaller parent brought an insect to the nest, the young one pushed its head out from under the breast of the parent on the nest to receive it. Later, about 30 yards from the nest I saw a second brown downy bird, three or four times as heavy as the one being brooded. It was moving about quite spryly, feeding, and apparently catching insects. The smaller of the parents fed this young one once while I watched.

Three Mew Gulls (*Larus canus*) were attracted by the calling of the jaegers and did not leave until they had been driven away three times by the jaegers.

On June 26, 1941, one of two eggs in another nest was pipped and two days later both eggs had hatched. One of the young, although out of the egg no more than two days, was already travelling in the vicinity of the nest to forage. The other young one had apparently hatched later. It was still in the nest and was somewhat smaller than the one foraging. Brooding obviously begins as soon as the first egg is laid. In 1940 the first bird was seen on May 13; in 1941 on May 12.

Once a jaeger was seen chasing a sparrow, but after the sparrow had dodged three or four times, the jaeger gave up the chase. One of the jaegers was seen feeding on a mouse. On one occasion a jaeger was seen hovering in the air, in the manner of a sparrow hawk, as it watched the ground. After hovering briefly, apparently to watch for prey, it moved 10 or 15 yards and hovered again. This procedure was repeated many times. Several times it swooped near the ground, but no strike was noted.

Larus philadelphia. Bonaparte Gull. One was observed feeding on a small pond near Wonder Lake on May 25, 1940. Another was seen on July 13 at Mile 72.

Surnia ulula. Hawk Owl. Scarce in 1939, 1940, and 1941. A few were seen in the spring of 1941 but none in the two previous years. In 1922 the Hawk Owl was seen several times. Dixon (1938) found these owls plentiful in 1926 but was unable to find a single one in 1932.

Asio flammeus. Short-eared Owl. Sheldon (1930) reported this owl to be plentiful in 1908, and Dixon (1938) reported similarly in 1926 but saw none in 1932. I saw only two in 1939, one in 1940, none in 1941, and one in 1945.

Tachycineta thalassina. Violet-green Swallow. Three were seen flying near cliffs opposite Copper Mountain.

Iridoprocne bicolor. Tree Swallow. A few of these swallows, apparently migrating, were seen flying up Igloo Creek on May 14, 1939.

Pica pica. Magpie. Resident in the park. In the fall it fed mainly on berries, and berries are probably an important item in the winter diet.

Cinclus mexicanus. Dipper. Not observed in the park in the summer, but in winter it was frequently seen on Savage River just above the Canyon and also on Riley Creek. In winter, when feeding, the Dippers often disappear under the ice overhanging the borders of the open water.

Oenanthe oenanthe. Wheatear. A common nesting bird in McKinley Park. After the nesting season, during August, many small scattered flocks move over the gentle slopes in the high passes. On June 21, 1941, a nest was found just inside the opening of a crevice among loose rocks on Polychrome Pass. The opening was just large enough for an entrance. Both parents brought food to the young, which were about two days old. The nest was rather firmly constructed, six inches in diameter and about $2\frac{3}{4}$ inches from base to top of rim. It was built of roots, twigs, grass stems, mountain sheep hair, and feathers. When I was near the nest, the male sometimes alighted on the slope below me. When I moved out of his view, he almost invariably flew into view and hovered in the air for some time, apparently to watch me.

Anthus spinoletta. Pipit. A common summer resident. In 1922 one was seen at Savage River as late as October 21.

Bombycilla garrula. Bohemian Waxwing. In 1941 the first waxwings were seen at McKinley Park headquarters about the first of April. On April 14 two birds were observed billing. At intervals the birds would feed a little, then resume billing. They were feeding on cottonwood buds and the snow under the tree where they fed was littered with chaff from the buds.

Lanius excubitor. Boreal Shrike. This shrike is a common nester in McKinley Park. On May 13, 1939, on Igloo Creek, a pair had almost completed a nest in the top of a spruce about 30 feet from the ground. Both birds were carrying recently molted ptarmigan feathers to the nest. One of them entered the nest with its load of feathers and later received the feathers brought by its mate. Another nest was found in a spruce top about 20 feet from the ground, and two nests were found in willows, 12 to 15 feet from the ground. One of these was located two or three miles above timber line. All the nests were the usual bulky structures, loosely built of sticks, grass, and feathers.

On May 26, 1939, a shrike chased a Tree Sparrow across a 300-yard river bar, pressing the sparrow so closely that it had to dodge continuously to avoid being captured. The sparrow dropped into some willows when it made the shore, but a few minutes later it was driven out by the shrike and captured three from the ground and brought to earth.

On May 8, 1940, a shrike gave up chasing a junco among some willow brush and started after another which it followed with great persistence. Whenever the junco hid in the willows, the shrike went in after it. Six or seven times the junco was forced to fly forth from the willows. The last time it was almost taken but managed to dodge and fly into the dark recesses of a low bridge. The shrike

followed it under the bridge. Both birds quickly emerged and then the junco disappeared under the bridge a second time, followed closely by the shrike. The shrike came out alone and sat on a willow. After a time it went under the bridge for another try but the junco was apparently safely hidden, for the shrike came out and gave up the search. It appeared that the junco would not have escaped had it not been able to take refuge under the bridge. Shrikes were seen chasing sparrows on two or three other occasions in the open country above timber line.

On June 8 one of two young birds left a nest which I had discovered on May 12. One of the parents snapped its bill like an owl while I was examining the nest. Beneath the nest 23 pellets were found. All contained *Microtus* remains; in addition one contained remains of a beetle and another contained a wasp. So far as could be determined the mice were all immature, not over half grown. The pellets ranged in length from $\frac{3}{4}$ inch to $1\frac{1}{2}$ inches and averaged about $\frac{1}{2}$ inch in diameter.

Loxia leucoptera. White-winged Crossbill. In late October, 1922, many of these crossbills were seen between park headquarters and Savage River. These birds winter in interior Alaska.

Spizella arborea. Tree Sparrow. Apparently more plentiful than any other sparrow. In May and June it filled the air with song. Some birds were heard singing as late as September 5. The birds were last observed in the fall on October 24 and were first observed in the spring the last week of April. In 1939 each of five nests found in early June contained five eggs.

Passerella iliaca. Fox Sparrow. Found on the slopes bordering Savage Canyon, in the vicinity of thick alder growths. They occurred near the top of Sanctuary Mountain in a similar habitat. They were first observed in the spring on May 13. On September 22 one was found which had recently died.

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