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A STUDY OF THE NESTING AND FAMILY LIFE OF THE RED-THROATED LOON

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The following notes on the Red-throated Loon are taken from our study of the birds of the North Shore of the Gulf of St. Lawrence during two summers spent in the vicinity of Cape Whittle in Saguenay County, Quebec. In 1931 we were at Wolf Bay, some nine miles west of the Cape for nine weeks, and for ten days on the St. Mary Islands which are located approximately twelve miles east of Cape Whittle. For a six week period in 1934 we made the St. Mary Islands our headquarters while working there and on the Boat Islands near by.

Eleven nesting pairs of birds were studied: one on the mainland in 1931 and ten pairs during 1934, six of which were within the St. Mary Island Sanctuary and four outside its protection on the Boat Islands. Observations were made from a blind, of incubating birds at the Wolf Bay nest in 1931, and at one nest in the sanctuary in 1934.

The Wolf Bay nest was typically located on the bank of a fresh water lake a few yards long and half as wide. While this lake was on the mainland all other nesting lakes observed in 1934 were insular. On one island two occupied lakes were not more than fifty yards apart. All nests were placed so near the brink of their lakes that the loon could slide into and under the water with one "push off". The laying date for one early nest in the sanctuary was May 25, and for another on the Boat Islands was June 29. This latter one was a second nesting attempt for the season, as the one at Wolf Bay on June 28, 1931, may also have been.

While the two drab colored eggs were laid in a slight hollow of a nest which had only enough depression to keep them from rolling into the water, there was, in every case, collected nesting material—usually sphagnum moss, crowberry vine, and reindeer moss.

Three pairs of the birds observed in 1934 attempted to re-nest after losing their eggs during the early incubation period. In each case a second nest was made a few feet from the location of the old

one. In other cases the birds which lost their eggs remained in possession of the lake but did not, apparently, try to re-nest.

An adequate description of the size and color of the eggs has been given by Bent¹. In every instance known to us two eggs were laid in each nest. From the Wolf Bay nest one egg was lost in some unknown way, but the remaining egg was cared for and hatched.

Incubation begins when the first egg is laid, so that the chicks hatch from twenty-four to thirty-six hours apart. Both sexes share in the duties of incubation and it may be said that they are quite devoted to the nest. Unless disturbed one or the other of the pair will be found on the nest throughout the day and night. When one egg is lost the

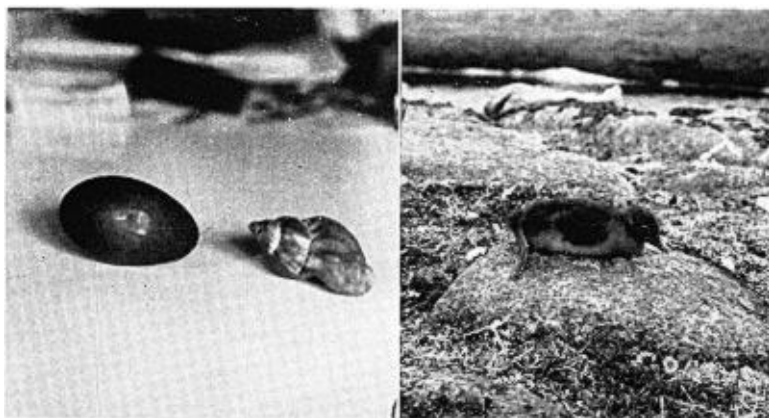


FIG. 9. Left, sea-shell found in Red-throated Loon's nest with egg.
Right, young loon about three weeks old.

birds continue incubation as shown in two cases observed. But the most remarkable instance of their devotion to the nest was shown by an incident observed in August, 1934. A pair of birds incubating on the second nest site had lost their eggs or had had none—no eggs were seen—and they were faithfully sitting on a spiral shaped sea shell of about the same size as a loon's egg. (See figure 9). We cannot explain how the shell got into the nest and was adopted. It may have been dropped near the nest site by a gull, but this seems unlikely since the shell was not fresh but very old and worn. Apparently the pair of birds had been sitting on the shell for several days as it was polished quite smooth. To make certain of this record, the nest was visited five times in three days, twice before dawn. In all cases an

¹Life Histories of North American Diving Birds, by Arthur Cleveland Bent, United States National Museum Bulletin 107, 1919.

incubating bird was at the nest. Three times it was seen hovering the shell. Finally on August 2 the shell was collected to encourage the faithful pair in a more profitable occupation.

The incubation period of the Red-throated Loon is thirty-eight to forty days. This was determined in the summer of 1934 in the following manner. On June 30 a nest containing one fresh egg was found on the Boat Islands. By August 2 this nest had not hatched so the two eggs were taken and placed under a broody chicken hen which had been brought from the States for that purpose. One of these two loon eggs hatched under the chicken on August 7, thirty-nine days after the first egg was laid.

The incubating bird always faced the water. As it sat on the nest it was often seen to pull twigs of crowberry, labrador tea, and moss about its breast or to rearrange them to better advantage. When returning to the nest lake the bird did not always go onto the nest at once. Although no sound was made in the blind the loon might suddenly fly from the water and its wail could be heard as it circled about the nest lake. This action might be repeated two or three times before the bird attempted to climb the bank from the water to its nest. Failing to gain the brink the first time, the bird would swim along the shore several feet, trying at several places until it gained a foothold. Coming to the nest from the back or side the bird turned in such a manner as to face the lake, lowered its breast onto the front rim of the nest and, with its feet, attempted to adjust the position of the eggs to the incubation spot which is far back on the long body. If this position failed to satisfy, the bird would raise up and with the mandibles slightly parted, push the eggs into the desired position. Again lowering itself onto the eggs, it settled with the usual rolling motion of an incubating bird. Once settled to its liking, the bird sat quietly, even dozing now and then; caught a passing fly in its bill or picked at its wings and back. At the least note of warning from a passing gull the loon would stretch its neck upward turning the head from side to side. At such times a slight expansion of the throat muscles could be seen, and if the alarm continued the bird would stretch head and neck flat along the ground, to escape detection, apparently. Slight notice was taken of a visiting Eider Duck on the nest lake.

The young of the Red-throated Loon is black over the upper portions of the body and smoky black beneath with a merge of both shades about the neck and over the head. After three weeks it appears lighter and more blue-black in color.

The chick seems to have but one call which is a low, rasping, drawn out "*cru-ee-ep*", that can be heard from only a short distance. This cry is heard when the bird is chilled and wants to be hovered or when it is hungry.

The chicks were never carried on the parent's back, although one young bird was occasionally seen attempting to climb onto the back of a parent while in the water. Hovering always took place on the bank of the nest lake. So far as protection is concerned the young are dependent upon their color which makes them nearly undiscernible along the lake shore, and upon their ability to dive, an accomplishment at which they are most adept.

When young the chicks need hovering more often than in later life. The parent bird left the water many times a day, climbing onto the bank at the nest site or that of an old nest and settling itself comfortably facing the water. The chicks followed but were never seen to climb onto the bank unless preceded by the adult although they frequently went back to the water alone. A quotation from our notes, taken from the blind in 1934 while observing a four-day-old chick, is of interest in describing the life of the young loon. "6:50 P. M., July 6, one parent and one chick are swimming about in the center of this small nest lake keeping close together. Once the parent dived, so did the chick, and they swam together again; 7:00 o'clock, chick began to whimper. Temperature is 52° F. Soon the parent bird swam to an old nest site on the opposite shore of the lake, climbed out and settled itself. The chick immediately followed, went to back of parent, crawled forward and up under the wing which was held out for it. The chick then hovered as observed before, up on the crural feather tract under the tips of the secondaries from where its head sometimes protruded above the back feathers of the adult. After ten minutes of hovering the second adult alighted on the lake with a fish approximately five inches long, swam near to the hovering bird and gave a low throaty '*car-ou-ow-w*'. Meanwhile it kept dipping the fish below the surface of the water. Soon the chick came to the edge of the water but turned back and was hovered again as before. The adult with food continued to call. In three minutes the young one swam out some three feet, took the fish and struggled with it for a minute; then started to shore, dropped the fish, and went back to be hovered, this time under the other wing of the old bird. The adult which brought the fish, recovered and ate it, then remained on the lake for ten minutes. During this time both old birds exchanged cooing notes sounding similar to the courting calls of the male Eider Duck, except

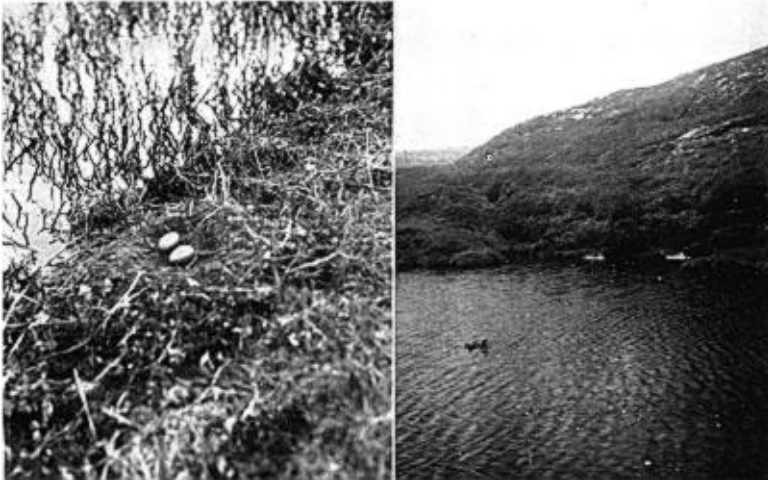


FIG. 10. Left, nest of Red-throated Loon. Right, young loon, about four weeks old, swimming alone in lake.



FIG. 11. Nest of Red-throated Loon, with newly hatched young and egg.

that they were pitched much lower. The hovering bird then slid into the water, gave two 'car-ow-ow-w's and both adults flew from the lake. In three minutes one adult returned and hovered the chick."

Numerous observations were made from the blind on the food and feeding of the young at different stages of growth. So far as we could determine whole fish were fed from the beginning. These were unbelievably large for the size of the young bird. On two occasions a bird three weeks old seemed to be taking Caddis Fly larvae from the lake. This note, however, could not be verified. Among the fish fed the Sand Lance (*Ammodytes americanus*), Gunnel (*Pholis gunnellus*), and Capelin (*Mallotus villosus*) were identified. One adult loon was observed on several different days fishing in a sandy harbor where Lance were numerous and carrying her catch to an island about two miles away.

The growth of the young of the Red-throated Loon is comparatively slow. One chick was observed periodically from the day it hatched until it was five weeks old. At this time it was about two-thirds grown but had only begun to show feathers about the shoulders. The flight plumage appeared to be pins about one inch long. Mr. Fred Osborne, the Sanctuary keeper at St. Mary Islands, believes that these young do not fly before they are two months old. Our studies indicate that his estimate is fairly accurate. When we left the Sanctuary on August 7 no young birds had as yet flown from the nest lake. The oldest one at that time was approximately seven weeks old.

One young loon three weeks old weighed 152 grams and showed primary pins one quarter of an inch long. No other feathers were showing in this bird. On another lake a young bird of about three weeks of age weighed 185 grams. The tarsus measured $1\frac{1}{8}$ inches, the wing spread nine inches. The eye was chocolate brown color with a black pupil.

Like most other forms of bird life the Red-throated Loon has many natural enemies. But in this study only two could be seen to play a very important rôle. These were the Great Black-backed Gull and man. The gull is a notorious egg eater and will usually take the loon's eggs if they are found unprotected. The fact that they are so nearly the color of the ground is of course some protection. Young loons are undoubtedly taken by gulls. On one occasion we visited a lake where a three weeks old bird was swimming about, apparently normal. After the bird had dived three or four times it could not get under the water again until it had rested for a few moments. This bird was lost that day probably to a gull. It may be that this loon

had been weakened from some other cause and should not be charged entirely against the gulls. On another lake two birds not more than three weeks old were lost, presumably to gulls. There were no other predators on the island. Two nests of eggs were known to have been taken by gulls and others were thought to have gone the same way.

Man is also a notorious egger but, in case of the loon, his damage is, for the most part, unwittingly committed as an ally of the gull. When the loon is frightened at the approach of man, it will, as a rule, leave the nest, often staying away for some time. As soon as man leaves the island the gulls settle down to the business of securing any available food. If the loon has not returned to its nest the eggs may be taken. The Great Black-backed Gull seems to be a very intelligent bird. We have seen individuals which appeared to learn to give a false alarm as a means of getting a chance at the eggs of nesting birds of other species which have come to depend upon the gull to announce an approaching enemy.

With the incubation of this loon known, and the length of time spent on the nest lake approximately determined, it is safe to assume that the late hatched birds from second nests which do not fly until about October 1, have but a poor chance to survive. The one such nest in 1931 was hatched August 6 and one in 1934 on August 7.

The ten pairs of birds observed in 1934 made thirteen nests. One late nest was collected. An egg in one nest was left addled. Presumably two other eggs should have hatched, since their mates did. Twelve eggs were lost before incubation was completed. Three young loons were raised, each from a different nest. The four young that were lost went at the following ages: one at one day of age, three at approximately three weeks, although no two went at the same time. Thus the twelve nests produced three birds this year. We believe that this is far below the normal production and that the severe damage done by gulls must be considered in light of the fact that the natural food (fish) for gulls was so scarce that at least seventy-five per cent of their young starved to death.

Any attempt to evaluate the nesting success of a species should consider the effect of the study as a factor. Accordingly, of the total damage done by gulls, two nests of eggs and one young bird were lost when the old loons were away from the nests due to our activities or those of other people on the island. Perhaps this loss should be charged to the study. Certainly we were the indirect cause of the loss although some of it might have occurred in any case.

ONEONTA, N. Y.