

## BREEDING OF THE SNOWY OWL IN SOUTHEASTERN BAFFIN ISLAND

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The Snowy Owl (*Nyctea scandiaca*) bred in considerable numbers in the vicinity of the Royal Canadian Air Force Base near the head of Frobisher Bay, southeastern Baffin Island, in the summer of 1953. We did not often see this bird at the Base proper, but in the high land to the east, northeast, and north we saw or heard it frequently. We were attacked so fiercely by one pair that we came to look upon all owls with misgivings; however, no owl attacked wholly without warning. Pairs whose nests we approached hooted at us either from a distant hilltop or while flying from one lookout post to another; they usually did not attack until we were within 100 yards of the nest or young. When attacking, the birds usually flew low rather than diving from high in air. In ordinary flight the wing-beats were exceedingly deep, the head and front of the body rising perceptibly with the downstroke and sinking with the upstroke.

The owls' cries were a simple *whoooooo*; a terse *who-who*; a deliberate *who, who, who, whoooooo*, given only by the male, the last note wonderfully rich and full; a thin, high squeal, usually given by the female, and invariably accompanied by "rocking" distraction behavior; a barking *ha, how, howk, or quock*, which sometimes became a volley of whooping similar to that of a Barred Owl (*Strix varia*); and a raucous *ca-ca-oh*, given only by the female, which reminded us of the crowing of a rooster. Males often hooted, with throats puffed out, from a favorite perch near the nest. The section dealing with the Snowy Owl's voice in "The Handbook of British Birds" (Witherby, 1948:310) is wholly inadequate. In this work the Snowy Owl is represented as being a rather silent bird.

Within a mile or so of the Base there were four nests, one of which we never examined, for it was just west of the Sylvia Grinnell River, which we had no means of crossing. North and northeast of the Base, within a radius of six or seven miles, were several more nests, four of which we found. Most of this high interior was "desert tundra." Soper (1940:16) calls the Snowy Owl a "widely dispersed" inhabitant of this sort of country.

The areas defended by pairs of owls seemed to be roughly circular and about one mile each in diameter. We often walked through certain of these areas, and, while passing along the edge of one defended area, we must occasionally have been on the edge of another also, for one pair of owls hooted behind us and another in front. Several of the territories fitted closely together. Never, however, were we attacked by more than two owls in any one place. In late June and early July, male owls seemed to do all the hunting and also to be more aggressive than females in defending territories. Thereafter, possibly because we had shot at some of the males, the females seemed to be the more pugnacious.

Male owls were white whereas females were gray. The grayness of the females was dirtiness to some extent, but their plumage was more heavily marked than that of the males. Females became dirtier as the season advanced. All the males we observed were, so far as we could tell, monogamous. In the Owl River region, inland from Padle Fjord and well north of Frobisher Bay, members of the Baird Expedition found one bigamous male as well as "at least four" monogamous males in the summer of 1953 (Watson, 1953:246).

Near the mouth of the Jordan River, 16 miles west of the Base, we made observations at two additional owl nests. At one of these nests we saw only one adult owl, almost certainly the male, since it was very white. We were in the vicinity of this nest for several hours, and the owl hooted and flew at us repeatedly, but as the mate did not appear, we concluded that she had been killed (see nest 10).

The abundance of owls at the head of Frobisher Bay was made the more notable because we failed to find them on Hill Island, Bishop Island, and other islands west and southwest of the Base, across the bay. We found pellets on Hill Island on July 18, but we did not see any owls there. We did not see owls in the Wordie Bay district on August 8, nor did we see a hare, ptarmigan or lemming, and we saw only a few lemming droppings. Men stationed there had seen no owls, but they had seen arctic foxes (*Alopex lagopus*). At least one pair of owls nested along the southeastern shore of Lake Amadjuak (latitude 64° 38' N., longitude 70° 28' W.). On August 8 we saw two adults there, perched on hummocks not far apart. On August 15 we saw two adults and two young in the same area, the latter flying strongly. At Cape Dorchester, near a lake at latitude 65° 20' N., longitude 77° 10' W., August 11, we saw an adult owl but heard no hooting and found no young birds.

Apparently the breeding population of owls near the Base in 1953 was exceptionally dense. This dense population may have been due to two factors: the relative absence of enemies, and the abundance of food supply. It is true that the Rough-legged Hawk (*Buteo lagopus*), Peregrine (*Falco peregrinus*), Glaucous Gull (*Larus hyperboreus*), and Herring Gull (*L. argentatus*), all of which prey on lemmings, were present in sufficient numbers to furnish the owls some competition. However, there were no jaegers, and the absence of these predatory gulls surely favored the owls. Bailey (1948:265) reports the killing of an adult owl by two Pomarine Jaegers (*Stercorarius pomarinus*) in Alaska. The lemming-eating habits of jaegers are well known (see Pitelka, Tomich, and Treichel, 1955:87). Where there are many lemmings and no jaegers, the owl's chances for surviving and increasing are good. Also there were no foxes, and weasels (*Mustela erminea*) were extremely rare. Ravens (*Corvus corax*), which are normally lemming eaters, fed regularly at a dump near the Base and were not observed foraging at or near any owl's nest.

Both the collared lemming (*Dicrostonyx groenlandicus*) and brown lemming (*Lemmus trimucronatus*) were abundant. We saw burrows, old nests, heaps of droppings in the wet snow, flattened nests on the moss, piles of dry grass neatly sectioned for food, and entrances to fresh burrows in the turf. Many times daily we saw lemmings running ahead of us or heard them splashing along wet runways under rocks. V. C. Wynne-Edwards, who was at the Base from July 11 to 24, considered the lemmings "not really abundant." Nevertheless we continued to feel that their presence plus the complete absence of jaegers, foxes, and gyrfalcons, and the great rarity of weasels furnished the most plausible explanation for the local abundance of owls.

#### OBSERVATIONS AT NESTS

*Nest 1.*—This nest was found on June 11 about a mile east of the Base on a mossy eminence on a steep slope about 400 feet above the "HBC" River. The nest-site had an eastern exposure, and little snow was left near it. Above us the two owls circled, snapping their bills and hooting. The nest contained nine eggs, one almost hatched. On June 16, there were four young and five eggs. The largest chick, between five and six days old, was becoming gray; the other chicks were pure white. Bent's statement (1938:363) that chicks are white "probably for the first eight or ten days" is apparently in error. Even in the six-day-old chick the incoming dark gray plumage shows clearly through the white natal down. The chicks chirped and whistled. They were dirty about the face from being fed. The smallest tried to crawl under its fellows. Near the chicks lay six lemmings, and the whole area was strewn with feathers of adult owls. Not far away, on another eminence, were quantities of owl feathers, droppings and pellets.

On June 22 the nest held seven young and two eggs, one pipped. The largest chick, though very gray and able to stand, preferred to lie prone, with eyes half closed. Its facial feathers were dark gray, almost black. About the young owls lay 10 lemmings. No other prey remains were in evidence.

On June 25 the last egg was hatching. Several of the chicks were large and gray. The sun was out and the wind gentle, and most of the chicks were panting heavily (maximum temperature: 51.1°F.) (Bailey, 1926:126). A need for keeping cool may be one of the reasons for the scattering of the young from the nest about the time they become wholly gray. On the nest's rim lay 11 lemmings, but there were no other prey remains.

The last egg in this nest hatched on June 25. Some authors report an incubation period of 30 to 38 days (Pleske, 1928:166; Murie, 1929:8; Sutton, 1932:209; Brandt, 1943:420). The egg-laying period at nest 1 was probably at least 18 days; hence the first egg there must have been laid on May 8 or earlier. The hatching period was about 15 days. The average period between hatchings of the nine chicks was about 40 hours. Pleske (*loc. cit.*) reports a period of 41 hours between hatchings of seven chicks.

We last visited the nest on July 10 and found five chicks, none of them in the nest. The smallest was at nest level, about two feet from the rim. Unlike the others it stood high, peeped continuously, and moved its head about as if watching for the return of a parent. The next largest was a few feet downslope, crouched in the moss. The three largest were scattered widely; the largest was farthest from the nest, being about 30 yards away. The old birds were fiercer than they had been. After banding the young, we fed a lemming to the smallest. The nest bottom was thickly carpeted with lemming remains and soggy owl feathers.

We do not know how many of the brood at nest 1 survived. Murie (1929:9) reports a "high mortality among the young. Most of the broods numbering 7 or 8 were eventually reduced to 4 or 5, while some were still further decimated." Gross (1947:595) says: "Ordinarily the mortality is great, with only two or three of the owlets reaching maturity." Brandt (1943:421) suggests that older chicks may eat the younger.

*Nest 2.*—This nest was about one mile north of nest 1 on a huge rock in the high, barren interior. The nest rock was not the highest point in the vicinity, nor was the nest on the highest part of the rock. Murie (1929:3), discussing Alaskan nests, reports that they "were seldom . . . on the highest elevations." On June 17 this nest contained seven chicks and two eggs. The largest chick was gray all over, the three next largest were partly gray, and the three smallest were pure white. On the rim of the nest were two lemmings. The parent owls were so fierce that we dubbed them "the vicious pair."

There were six chicks in the nest on June 24, and three large gray ones prone on the rock close by. The male parent seemed to be the fiercer. With an unexpected swoop, he pulled hair with his talons (neither of us wore a hat); then he circled quickly and struck, causing a considerable flow of blood. This convinced us that the owls could be dangerous so we covered our heads. Before we left we had been hit several times, usually on the head, sometimes on the shoulder or back, and more often by the male than by the female.

On July 4 six chicks were scattered over the nest rock or at its base, all lying prone, an attitude probably indicating a well-fed condition. We could not find the other three, and we suspected that they were no longer alive. The parents were very aggressive in their attacks on us. The young were a curious mixture of docility and animosity. They refused to beat their wings, bite, or claw. We could not force any of them to stand up, yet even the smallest popped its beak when handled. Despite their large size, they flopped down, as if unable to move, no matter how or where we placed them.

The five young were widely scattered on July 9, although three were still on or at the base of the nest rock. The mother owl attacked repeatedly, often giving her queer *ca-ca-oh* cry. Having found four of the young, we set out to find the fifth by walking away from the nest rock in various directions. If the parent owls attacked less and less frequently, we assumed we were not going in the right direction. Finally, several rods out on the tundra, we found our "chick"—a large, handsome bird, lying prone on the moss and wholly unable to fly, but it was white of face and powerful of foot. The white-barred scapulars of this bird were obviously not of the first winter plumage (fig. 1). Just before we found this chick, the female parent attacked (fig. 2) immediately after an attack by the male, taking us by surprise and inflicting a long scalp wound despite the head-covering of a tough coat. We banded the brood.

As late as July 26 we saw both of these "vicious owls" and at least one of their young. By this time the female parent had become very dirty.

*Nest 3.*—This nest was on a low ridge just west of the mouth of the Sylvia Grinnell River. We

found it on June 18. As we were climbing a gravelly slope that day, we saw a very white male owl flying toward us. The bird did not swerve in the slightest and passed low overhead. Its eyes were narrowed to slits. From its claws, tucked up under its tail, swung a lemming. It crossed the river, making for the nest ridge. We saw the nest long before the owl reached it, for another owl, a much grayer bird, was standing there. The male alighted beside his mate and presently the female flew off with something dark in her claws, probably the lemming. Carrying this burden to a higher ridge a few rods away, she alighted. The male followed closely and copulation took place. The male now flew to one side and alighted. The female lingered in a crouching position, with tail raised, then flew back to the nest. Murie (1929:6-7) describes behavior of this sort. Watson (1953:246) reports "coition, hunting, and tearing up of prey" among displacement activities frequently observed by himself and others.



Fig. 1. Young Snowy Owl, well developed but still unable to fly, several rods from nest 2. The white wing, tail, and facial feathers, but not the barred scapulars, are of the incoming first winter plumage. Photographed near the head of Frobisher Bay, Baffin Island, July 9, 1953.

On June 30 we saw the brooding female on the nest. On several occasions thereafter we saw adult owls in the vicinity and they probably reared several young. On July 15 we saw two adult owls several hundred yards upriver from the nest. We never visited the nest proper because we could not cross the river.

*Nest 4.*—We found this nest on June 19, on a high slope just west of Quarry River, about a mile northwest of the Base. It held four young and five eggs. We found the nest while looking for a Rough-legged Hawk nest on a cliff just east of the river. The screaming of the hawks attracted a very white male owl, which flew up and down the valley. Hardly had we noted this male owl when we saw the gray female, motionless on a distant hummock. The male flew toward his mate; she squatted and copulation took place. The owls' nest was only a rod or so from the spot where this union took place. The owl nest and the hawk nest, although several hundred yards apart, were in plain sight of each other. The owl nest was on a slight eminence well below the highest part of the ridge. A knob nearby was littered with owl feathers, droppings, pellets, and lemming bones. The grass here was luxuriant, probably because of the highly nitrogenous droppings of the owls.

The old owls were not very fierce. While we were on our knees at the nest, they perched close by or flew in narrow circles about us, popping their beaks. Occasionally one drifted out over the valley. If it flew too close to the Rough-leg eyrie, down came a hawk, screaming wildly. Twice we saw a Rough-leg make a direct hit hard enough to cause the owl to throw its feet forward, turn its head, and pause in midair, while its assailant, also staggered, shook itself vigorously before shooting upward for another attack. The owls and hawks probably were at peace with each other most of the time, but whenever we visited the owl nest the owls invaded the hawks' territory.



Fig. 2. Female Snowy Owl attacking. Photographed at nest 2, near head of Frobisher Bay, Baffin Island, July 4, 1953.

On June 21 the nest held six chicks and three eggs (fig. 3), one hatching. The four largest chicks' eyes were open, but slitlike, the irides being pale grayish or greenish yellow. The eyes of the two youngest chicks seemed to be sealed shut. At the edge of the nest was the posterior half of a lemming.

On June 23 we saw the female owl fly to this nest. On alighting she promptly squatted, covering the chicks and eggs. The day was gray and disagreeable (maximum temperature, 40.8°F., minimum 32.2°). The snow, melting as it fell, was in effect cold, hard rain.

On June 26 two eggs were still unhatched. The male parent dived at us for a time, then became quiet. The female, a remarkably gentle bird, alighted about 70 paces from us, put her head down, puffed out her plumage, half spread her wings and tail, and rocked slowly from side to side.

Six chicks were in the nest on July 11, and we found no others in the vicinity. One was too small for banding, so we banded only five.

On July 15 we found three of the banded young, unable to fly, in a group 81 paces upslope from the nest. We could not find the rest of the brood. The parent owls, although not far away, did not attack. On August 6, an unbanded young owl, barely able to fly, was captured not far from the nest-site.

*Nest 5.*—This nest was on the steep, east bank of Quarry River, about two miles north of nest 4. It was on a narrow rocky outcrop 150 feet above the water, but below the top of the rise. On June 21 it contained six young and four eggs. A few feet from the nest, in a much grassier spot at a slightly lower elevation, was another basin carpeted deeply with lemming remains. This was evidently the site of a previous nest.

The male owl, having failed to drive us off with swooping, hooting, and bill-popping, fluttered past us downslope, alighted in a sort of heap, and, with head low and wings flopping, uttered high, thin squeals. Above us sounded more squeals, then a weird squawk. Looking up, we saw the female, with feathers puffed out, wallowing in the snow. The drift was so slippery that the great bird slid a yard or more downward. Surprised, she stood upright, glared at us, and resumed her wing-flopping and wallowing. The male was exceedingly white; in the bright sunlight he looked almost pink.

On July 3, the nest held seven young and it looked wet and neglected due to bad weather. The male parent, though clean and fit looking, did not attack; instead, he wallowed and squealed in the manner of the female. The smallest two chicks looked half starved.

On July 11, the nest held five young, four of which we banded. The smallest bird looked sick. Under the skin of its side and belly was a great air-pocket. The male parent was more pugnacious than he had been on July 3. Several times he wallowed and squealed at close range. Once, after gliding down the opposite bank of the river and flying slowly toward us, he alighted within an incredibly short distance, bowed low, and rocked from side to side. We threw pebbles at him. He looked at us quizzically but did not wince when the pebbles struck near him.



Fig. 3. Snowy Owl nest 4. The three eggs are hardly distinguishable from the six young. The scattering of adult owl feathers made the nest visible from afar. Photographed June 21, 1953, near head of Frobisher Bay, Baffin Island.

*Nest 6.*—This nest was on the top of a small hill one mile northeast of nest 2, not far from the junction of the "HBC" River and a swift tributary. It was surrounded by a stand of lush grass about a foot high. On June 24, it contained six eggs and three young. On the rim were six lemmings. We found the nest by hearing hooting ahead of us, seeing first the white male alighting, then the female, a much grayer bird, as she left the nest hill. As we approached, not quite sure where the nest was, the male attacked. Eventually, to protect ourselves, we shot twice at the male owl, taking care not to hit him.

On July 6 the nest held seven chicks and one egg which was hatching. The male flew at us several times without striking, but he was so fierce that we shot at him again. The female continued to be shy. She watched from a distant hilltop, but she did not attack.

We last visited the nest July 9, finding five chicks, four of which we banded. The two smallest tried repeatedly to swallow our fingers.

*Nest 7.*—This was on a big, sprawling rock topping a low gravelly hill near the "HBC" River, about two miles northeast of nest 6. On July 6 there were six, good-sized, gray young and one egg. The egg probably never hatched, for on our final visit, July 9, no member of the brood was obviously much younger than the rest. We banded the six young.

*Nest 8.*—This nest was in a sort of basin in a rock well below the crest of a ridge. It was among

high hills and ridges northeast of the Base, two miles north of nest 2. On July 9, three good-sized chicks were in it and a still larger one was about 20 feet away. We collected the adult male, the only adult owl we took all summer. There was no brood patch. The plumage was almost immaculate, beautifully clean, and quite unworn despite the late date. On a ridge about 200 yards from the nest we found pellets, feathers, and a slightly broken owl egg, but no nest-basin of any sort.

We last visited this nest on July 11. When we arrived no adult owl was there, but presently the female flew in with a lemming in her claws. She came straight for us, barking hoarsely. We banded three chicks, but the fourth was so weak we decided not to band it. Our killing of the male parent may have been the direct cause of the starvation of the youngest chick.

*Nest 9.*—This nest was discovered by V. C. Wynne-Edwards on July 13 when he found four young scattered in the immediate vicinity. The nest was just west of the mouth of the Jordan River, along the crest of the bold eastern front of Silliman's Fossil Mount, a crumbling, plateau-like mass of Ordovician limestone flanked to north and south by higher land. The parent owls did not attack. The male, a very white bird, alighted on the ground, lifted his wings, and rocked from side to side.

We visited the nest on July 18, finding it empty. An egg, with a small hole in its side, lay about two yards away. The adult owls hooted but did not attack. The male alighted on a big rock just above a cliff on which Peregrines were nesting. A Peregrine attacked fiercely, towering and plunging, hitting so hard that the owl ducked and dodged. The owl finally rose in clumsy counterattack and threw its feet up as the falcon stooped. Nicholson (1930:309) reports that an owl, set upon by Parasitic Jaegers (*Stercorarius parasiticus*), shielded itself by "thrusting its wings forward and flapping them."

The young owls must have been scattered widely. We found one of them, a large, white-faced bird, several rods north of the nest, lying prone near a rock, its plumage wet from recent rain. It was very savage and popped its beak, struck out with its feet, and beat its wings when lifted from the ground for banding. It probably would have been flying strongly within a day or so.

*Nest 10.*—This nest was near the mouth of Jordan River, at the end of a low, rocky ridge rising from grassy tundra, about a mile northeast of nest 9. On July 19 it contained two large gray chicks which were so well developed that much of the white natal down had worn off, yet the facial plumage was dark, wholly without white, and the remiges and rectrices were mere stubs. We failed to find any more young near the nest. We suspected that only the male parent was alive, for we were in the vicinity for several hours and saw one very white owl repeatedly. We were never attacked by more than this one bird. We banded the two chicks.

It is to be noted that the chicks, although large, were not white-faced. According to our experience at several nests, chicks do not become white-faced until after leaving the nest. The highly interesting plate 33 in Pleske (1928) probably is misleading, for here a white-faced bird is shown *in the nest*. The artist did not make this drawing direct from life. He based it on specimens, and we feel sure that the white-faced bird shown, admittedly part of the brood, was collected at some distance from the nest proper.

*Other probable nestings.*—On July 24, we learned that we had missed a nest along "HBC" River not far from nests 1 and 2. Above a steep slope near a narrows and low cataract, we noted ahead of us a flashing of white and saw a young owl practicing for flight. Several times it rose high enough for us to see its feet and tail, but it never flew forward and we were not sure that it even left the ground. Its feet seemed to clutch the grass. Suddenly we realized that there were several young owls. Running forward, we found five owls within a radius of about 20 feet. Two of the youngest sank to the ground, inert. The oldest flew, but never for more than a few yards at a stretch; another flopped along, only occasionally getting both feet off the ground at once; the third hobbled and flopped, crossed a brook, shoved through the grass, and finally jumped into a pool where, with wings outspread, it floated. Caught at last, this young one popped its bill and struck out with its feet, but it soon became docile. Its plumage was remarkably waterproof. The oldest was the only one of the five which did not quiet down on being stroked. To our surprise, we were not attacked by the old owls. The female finally appeared, but did not lunge at us. The oldest chick was white around the eyes. The rest of the brood were darker, the contrast between the firm white feathers of the face and the gray down of the head and chest being very sharp. We banded all five.

On July 28, we found three of these birds together not far from the spot at which we had banded them. Two could not fly, but one which we stood on a rock and photographed flew about ten feet.

That same day we walked through an area defended by a pair of owls we had seen only infrequently. This was in high country several miles northeast of the Base. We saw a white owl flying low overhead, carrying a lemming in its feet. It alighted at the base of a massive dome of rock, nibbled at its prey, and flew on. As it rounded the dome a gray owl appeared, flying toward it. The two birds swung gracefully upward as they met, and the white bird passed the lemming from its claws directly to the claws of the gray bird. The white owl now alighted on a rock, while the gray one flew behind the dome. Soon the gray one reappeared and the two birds flew for a distance, then alighted on rocks several hundred yards apart.

On August 4, several miles east of Tarr Inlet, adult owls hooted at us several times. Two young owls, both flying well, rose together from a slope near a wide marsh. This area was far east of any of the defended areas we had visited earlier in the season.

From August 1 to 18 we heard the squealing of young owls daily. Broods were scattered far and wide by this time, and the old birds were apt to appear anywhere—even close to the Base. An unbanded young owl, captured August 6 near nest 4 was barely able to fly. From that date on, young birds seemed to be flying strongly and were difficult to approach. As late as August 18 we saw sooty-chested, white-faced, white-bellied young. Birds of this description flew strongly, but their only cry, a shrill squeal, led us to suspect that they were still being fed.

We did not collect any of these sooty-chested young birds, so do not know how the molt was progressing. Bent (1938:363) states that the white body feathers of the first winter plumage push through the gray down, finally concealing it. In our opinion much of the dark gray plumage is actually replaced, but specimens in critical stages should be carefully examined.

Observations from mid-July on convinced us that although broods may scatter temporarily about the time they leave the nest, they do not disband. Having reconvened, the young move about together until they have learned to fly. In the course of the long fledging period of "51-57 days" (Witherby, 1946:310), there is a highly interesting development-differential. The oldest chick is about two days ahead of the next oldest, the youngest is about two days behind the next oldest, and so on. The oldest leaves the nest first and travels a considerable distance afoot while its siblings, one by one, also desert the nest. Being the largest, this oldest bird may consume the most food, but by the same token it learns to fly first and thus is on its own in advance of the others. Statements to the effect that the hatching period is so protracted that the oldest young is "fledged" by the time the youngest is hatching (Collett in Bent, 1938:362) are, of course, very misleading. The oldest of the brood may be large enough to leave the nest by the time the youngest hatches, but weeks will pass before it is truly fledged.

#### NEST SUCCESS

Table 1 admittedly is not very satisfactory. Nest 3 we never visited. Nest 11 we did not find. Nests 8, 9, and 10 almost certainly held more than four, five, and two eggs, respectively. Clutches in nests 1, 2, 4, 5, and 6 were considered to be complete; the average clutch size for these five nests was 9.2 eggs. How many young fledged from these five nests is not known. We know that at least 69 eggs were laid in 11 nests, and that in these nests 62 chicks hatched. We banded 40 chicks, a significant statement, for chicks large enough to band properly have passed a critical stage in their lives. We obtained no evidence that parent owls killed sickly or half-starved chicks, or that older chicks ate younger ones. At no nest did we find the slightest evidence of molestation by a predator. Some scattered chicks we probably failed to find.

No nest of the nine that we studied was wholly unsuccessful. We believe that most of the young owls banded by us fledged. We are reasonably sure that of all the adult owls near the Base only two were killed (one by us, one by an Eskimo).

To the best of our knowledge the owl population subsisted wholly on lemmings. We examined nests repeatedly for remains of passerines, ptarmigan, or hares. The only ptarmigan we recorded during the summer was the Rock Ptarmigan (*Lagopus mutus*). This species was exceedingly rare near the Base, although we frequently found remains of winter-killed individuals. Some of these may have been killed by owls. We saw the



arctic hare (*Lepus arcticus*) occasionally in rough country between the Hudson's Bay Company post and Tarr Inlet, but it was not at all common.

Table 1  
Data Concerning Snowy Owl Nestings on Baffin Island in 1953

Nest number	Date found	Contents on that date	Estimated date for first egg	Minimum clutch size	No. eggs known to have hatched	No. eggs believed not to have hatched	Number young banded	Minimum no. young believed to have fledged
1	June 11	9 eggs	May 10	9	9	0	5	5
2	June 17	2 eggs, 7 young	May 4	9	9	0	5	5
3	June 18	?	?	?	?	?	?	?
4	June 19	5 eggs, 4 young	May 11	9	7	2	5	5
5	June 21	4 eggs, 6 young	May 10	10	7	2	4	4
6	June 24	3 eggs, 6 young	May 13	9	9	0	4	4
7	July 6	1 egg, 6 young	?	7	6	1	6	6
8	July 9	4 young	?	4	4	1 <sup>1</sup>	3	3
9	July 13	1 egg, 4 young	?	5	4	1 <sup>2</sup>	1	4
10	July 19	2 young	?	2	2	?	2	2
11	July 24	5 young <sup>3</sup>	?	5	5	?	5	5

<sup>1</sup> Egg found 200 yards from nest. <sup>2</sup> Egg found two yards from nest. <sup>3</sup> Nest not found.

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#### SUMMARY

Many Snowy Owls nested near the head of Frobisher Bay, southeastern Baffin Island, in the summer of 1953. Ten nestings studied by us were all more or less successful. Clutch-sizes in these nests were: 10, 9, 9, 9, 9, at least 7, at least 5, at least 5, at least 4, at least 2. From 69 eggs, 62 chicks hatched, and we banded forty of these chicks.

Nests were on eminences, but not on the highest eminences available. Sites chosen afforded the owls a good view of their surroundings and some protection from the wind.

Nest territories were roughly circular and about a mile in diameter. When we approached nests, parent owls began hooting when we were a long way off but did not attack until we were within about a hundred yards. We were never attacked by more than two owls at once. In late June and early July only male owls attacked us, but later in the season some females attacked us savagely and some males did not attack at all.

Call notes included various hoots; a high, thin squeal (usually the female, but at one nest the male); a barking *ha, how, quack, quock, or quawk*, sometimes repeated in a wild volley (usually the male); and a crowed *ca-ca-oh* (female only). Defense included "rocking" distraction behavior accompanied by squealing but not by hooting.

The hatching period for a clutch of nine eggs was about 15 days (June 11–25); the chicks hatched about 40 hours apart. Estimated date for earliest egg-laying was May 4. The latest date for observed hatching of a chick was July 6. Latest date for observed young in the nest was July 19. The latest date for young unable to fly well was August 6. The latest date for young still partly in gray plumage was August 18.

The newly hatched chick was pure white, and its eyes were shut. At five to six days of age, dark gray plumage began pushing out the natal down, but the down clung tenaciously, giving the gray plumage a white tipping. The chicks left the nest when about two weeks old, long before being able to fly. At this stage they were gray with blackish gray facial mask. As white-and-gray-barred flight feathers appeared, a white facial mask replaced the dark. About the time the mask became wholly white, the chicks learned to fly. Dark plumage was visible on chest and back long after they were on the wing.

The owls fed exclusively on lemmings. These rodents were common in the area of greatest concentration of owls. Here there were no jaegers, foxes or gyrfalcons; weasels were very rare; and Rough-legged Hawks, Peregrines, Glaucous Gulls, and Herring Gulls were not common. The Raven, normally a lemming-eater, fed extensively at a dump near the Base and was not observed foraging at or near any owl's nest.

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