

one barn suffered a mortality rate of 64.7% during a cold, wet period.

Eighty per cent of the returns were adult when banded, 20% were nestlings.

From 381 adults banded, 34% returned with a sex ratio of 93:100. Only 2% of the nestlings banded returned, with a sex ratio of 2,000:100.

The entire adult population gave a sex ratio of 117:100.

An annual mortality of 73.44% is indicated for the species.

Three birds lived to at least 6 years, 2 to 7, and one to 8 years.

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HOME LIFE OF THE VEERY

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From 1926 to 1932 I made a special study of the habits of the Veery (*Hylocichla fuscescens fuscescens*) observed nesting in Holderness, New Hampshire. The material in this article is based on the records of thirty-two nests.

Banding Record. During the past fifteen years I have banded one hundred and five fledglings and one adult. The adult was banded by placing two of its young in a chardonneret trap as decoys the day they left the nest. So far I have not had a record of a return Veery.

Location of Nests. A hillside of about three acres sloping gradually to Lake Asquam was the nesting area used each year by the Veeries. It was heavily wooded with deciduous trees, principally beeches, maples and oaks, with large pines occurring at intervals. Beneath the trees was a continuous growth of mountain laurel (*Kalmia latifolia*) averaging from eighteen inches to five or six feet in height.

Seven nests were built on the ground, one without any shelter, four between stems of moose maple saplings, and two protected by large ferns.

Three were built on stumps from eleven to twelve inches from the

ground, and one in the cleft of a dead tree forty-two inches from the ground.

Twenty nests were all built in mountain laurel, ten ranging from six to seventeen inches in height from the ground, and five others from twenty to twenty-nine inches.

Two nests were built in unusual locations, one in a juniper bush and one in a tangle of blackberry vines twenty-one inches from the ground and well protected by sheltering leaves.

Type of Nest. The loose structure of the nests gave them an exceedingly bulky appearance.

They were built of slender twigs interwoven with strips of dry shredded bark, and a great many dried beech leaves were used both inside and outside the nest.

In several instances where oak leaves were in abundance close by these leaves were used instead of beech.

The inner cups of the nests averaged one inch and a half in depth and two inches in diameter. They were lined with strips of bark, pine needles and fine rootlets.

Nest Construction. I found a half built Veery's nest on May twenty-ninth. It was completed on May thirty-first. I spent five hours watching its construction from a blind. The nest was built close to the ground between the stems of moosewood maple saplings, and well protected by sheltering green leaves. The outer structure was built of slender sticks, shredded bark, and large dried oak leaves.

At 10:38 A.M., May twenty-ninth, a Veery flew to the nest with an oak leaf in its beak, placed it inside the rim, then completely vanished inside the nest except for its tail which was pressed down like a lever as the shaping of the nest took place. This process was repeated over and over again as new materials were brought to the nest. The bird constantly shifted its position in the nest from north to east, then south and west, in order to shape it evenly. Oak leaves, strips of shredded bark, dried grasses and pine needles were used.

The Veery was evidently out of sight of the nest while selecting materials, as a Wood Pewee that was building its nest close by kept stealing choice bits out of the nest and was not caught once by the owner during the time I was in the blind.

Owing to the similarity in coloring of both sexes it was not possible to determine whether only one bird took part in the nest construction or whether they made alternate trips. At no time did I see two Veeries at the nest at the same time.

Incubation Period. The period of incubation varied from ten to twelve days including the day the clutch was completed. Twenty-four nests contained four eggs each, seven nests had three eggs, and two nests had five eggs.

Spent an hour and a half waiting for a Veery to lay an egg. She remained motionless, maintaining the same position on the nest, except for an occasional turning of her head. Fifteen minutes before she left the nest she humped her back and then raised her tail slightly. The instant she left I examined the nest. The newly laid egg still had a

couple of shining patches of moisture on it. There was no sign of the male in the vicinity of the nest.

I watched a female incubating her eggs for an hour. She did not change the position of her body at all. Six times she raised her head to identify unusual sounds—such as loud gusts of wind sweeping through the trees, or the sharp rustling of leaves. Half a dozen of her feathers were fluttering from the stem of the sapling touching the nest, as if she had recently defended her nest from an intruder.

Description of Nest. On June fifth, 1926, I found the partially built nest of a Veery. It was on the ground between the stems of some striped birch saplings, on the edge of a swampy piece of ground about forty feet from Lake Asquam, New Hampshire. At least a dozen stiff yellow straws and some small sticks were used in the framework of the nest. The straws were an unusual choice of material for a Veery and I had never found them in previous nests. The strongly built inner wall was made of long strips of bark and the nest was both lined and thatched with dried beech, oak and birch leaves. One fruiting stalk of *Lycopodium* ornamented the outer wall. On June sixth the nest seemed to be completed. The inside diameter was three and a half inches, the outside diameter five inches, the outside depth eight inches, and the inner depth one and one half inches.

The first egg was laid on June seventh and was so well covered by a dried leaf that I almost missed recording its arrival. The second egg was laid on June eighth, and the clutch of four eggs was completed on the tenth of June.

Mr. A. C. Bent, who was staying at Camp Paugus, very kindly loaned me a blind which was placed about fifteen feet from the nest. On June sixteenth he took some photographs of the female incubating the eggs, and on June twentieth I moved the blind to within ten feet of the nest.

Hatching of Young. From previous records of Veeries' nests I had found that the period of incubation occupied from ten to twelve days including the day the clutch was completed. Therefore on the twenty-first of June I flushed the female at 12 M. and examined the eggs. Two of them had commenced to pip and the third egg showed a series of small holes evenly drilled around half the circumference. New holes appeared as I held the egg in my hand, and the surface between them became cracked. I returned to the blind, taking the egg with me, and a few seconds later it began to split open. The crack widened rapidly. The fledgling rested between efforts, then seemed to push with both legs and wings. Soon I could see a portion of its back. The youngster was packed inside the egg with its head doubled under its body. It freed its legs first,—then rested, and with a last mighty effort got its head out of the shell which was still held together in the centre by a hinge-like section. The first thing it did was to lift its head and open its mouth wide. A few black wisps of natal down, still wet, were visible on the head and back. Exactly five minutes had elapsed from the time the egg began to split open until the fledgling was out of the shell.

At 12:15 P.M. I put the young bird back into the nest and returned to the blind intending to get the egg shells. At that moment the female

lit on the rim of the nest. She looked at the fledgling, passed her bill over it several times, and settled down on the nest. Left the blind without flushing her.

2:45 P.M. Returned to the blind. The female was off the nest and as I drew near both parents gave sharp alarm cries showing great anxiety for the hatching fledglings. The acute tone of distress was noticeably different from the low plaintive call which the female used during the incubation period upon the approach of danger.

2:50 P.M. Female lit on the rim of the nest and fed the young a small, smooth green caterpillar about half an inch in length. She settled herself on the nest.

2:55 P.M. Female left the nest with half an eggshell in her beak.

2:59 P.M. Female returned and fed small insects to young, then settled upon nest and brooded young until 3:42 P.M. when she left the nest. I hurried out and found three fledglings had hatched, and the fourth egg was not yet pipped. Placed the eggshells of the fledgling that had hatched in my hand in the nest, and got back into the blind without any alarm cries from the parents.

3:45 P.M. Female returned with a small green caterpillar, fed the young and broke the shreds of the shell which hinged the two halves of the eggshell together. She left the nest and carried one half away toward the lake in the opposite direction from the course taken at 2:55 P.M.

3:59 P.M. Female returned, seized the other eggshell and carried it toward the lake.

4:03 P.M. Female returned hopping along the ground in short dashes, fed the young a small insect and brooded them.

4:10 P.M. Female left nest at the same instant the male lit on the rim and fed the young. This was his first appearance at the nest while I was in the blind.

From 4:15 P.M. to 5:40 P.M. the female fed the young five times and the male twice. The female brooded the young four times between feedings.

By 5:40 P.M. the light was very dim and I was about to leave the blind when a small hawk flew swiftly past the blind. A moment later I glanced out of the front aperture and saw a Sharp-shinned Hawk light on the ground about three feet from the nest and advance toward it. The female reared up in the nest in a defensive position with outspread wings. Not risking another instant's delay, I plunged out from the front of the blind, shouting loudly and waving my arms. In so doing I tripped on the mosquito netting bag which enveloped me from head to foot, and had some difficulty in extracting myself from it. By the time I had gotten up both the hawk and the female Veery had disappeared and I did not know whether the hawk had caught the Veery while I was bursting out of the blind.

The three fledglings were unharmed and the fourth egg not yet pipped. I gathered up my belongings and left the blind in the deepening twilight with many doubts as to the fate of the female.

June 22nd, 10:30 A.M. Entered the blind and was cheered to hear a Veery calling close by.

10:35 A.M. There was a rustle of dry leaves and a Veery came hopping toward the nest. As this was the female's usual method of approach I watched eagerly. The parent fed the young some insects and brooded them.

10:40 A.M. The Veery left the nest and at the same instant the male lit on the rim and fed the young.

10:44 A.M. Examined nest. The last egg had not yet hatched.

10:55 A.M. It showered lightly and the female brooded the young. She disposed of the faeces of the fledglings by swallowing them. The male followed the same procedure.

Examined one of the day old fledglings. Its eyes were closed, the head covered with gray natal down which extended along the spinal tract.

Upon leaving the blind I found half an eggshell thirty yards from the nest on the ground.

On June 23d I spent one hour in the blind from 4:55 P.M. to 5:55 P.M. During that period the male fed the young five times and the female twice. She brooded the young three times between feedings. The fledglings were much stronger than on the previous day and raised their heads vigorously to be fed.

Food. The newly hatched young were fed spineless green caterpillars half an inch in length, small insects and soft white grubs for three or four days. The parents bruised the caterpillars and grubs before feeding them to the young for the first two days. From the fifth day until they left the nest they were fed quantities of dragonflies, larger insects, dark colored slugs, smooth green caterpillars and occasionally large Black Swallowtail butterflies.

Disposal of Faeces. The faeces were consistently swallowed by the parents until the young were six days old. After that they sometimes carried them away—but frequently swallowed them.

Watched a brood of nine-day-old young for two hours. The parents swallowed the faeces four times and carried them away seven.

Development of Fear. The eyes of the fledglings were partially open on the fifth day, but did not appear to focus well until the seventh day, when with care the young could still be handled and yet remain in the nest. By the eighth day their sense of fear was fully developed and if touched they were almost certain to leave the nest instantly.

The fledglings usually left the nest when ten or eleven days old—occasionally remaining until the twelfth day. During the last three days in the nest they were very alert and aware of all unusual sounds, such as a Kingfisher calling, the rustling of the wind in the trees, or a motor boat on the lake. If one of their parents gave an alarm call they froze instantly.

Actions of Young. During the last three days of nest life the fledglings were very active, jostling each other, climbing onto the rim of the nest, flexing and flapping their wings, preening their feathers and snapping at mosquitoes.

Activities of the Parents. The female was constantly occupied with ridding the nest of parasites. The male guarded the nesting area and on one occasion drove away a Red Squirrel, flying at it with great

fury. Chipmunks and birds were also chased away unceremoniously. The male shared equally with the female in the feeding of the young and the disposal of the faeces.

Signal Calls. The clear flowing beauty of the Veery's song defies adequate description. The usual sequence contained five double notes with special emphasis on the last single one:—"Hee-Hew—Hee-Hew—Hee-Hew—Hee-Hew—Hee!"

The Veeries also gave a plaintive alarm call:—"Whee-You-Whee-You," when the nest was approached or danger of any kind threatened its safety. During the incubation period the female gave this call in low tones, when alarmed. As soon as the young hatched these cries were given at a sharper pitch, denoting great distress by both parents.

The last two days before the young left the nest these alarm cries again showed heightened anxiety for the safety of the fledglings. The female was especially apprehensive. This "Whee-You" call was also alternated with a harsh rasping sound given by both parents when disturbed.

One pair of mated birds signalled to each other several times shortly after the young had hatched. The male lit in a sapling near the nest and gave a soft cheeping call. The female at once left the nest and the male flew in and fed the young. An hour later as the female brooded, she opened her beak wide and gave a curious dry squeak. The male came instantly to the nest and lit on the rim. Then they both left. The female returned to the nest three minutes later and brooded the young five minutes. She again made the thin squeaking sound six times in rapid succession. Her mate answered from a distance—but did not come to the nest.

After the fledglings' eyes opened on the fifth day they became more active. They sometimes chirped softly when their parents were absent from the nest or when fed. On the eighth or ninth day and until they left the nest they chipped loudly when fed.

Young Leaving the Nest.

4:20 A.M. Entered the blind without alarming the parents who were away from the nest. A foggy, dark morning. The ground nest was sheltered by laurel and the light very dim. The four young were in the nest and very active flexing their wings and preening. They were fed by both parents.

4:40 A.M. One parent approached hopping along the ground and fed the young. One fledgling perched on the rim of the nest flexing its wings. The parents fed the young at five minute intervals and carried away the faeces.

5:15 A.M. Parent fed young. One fledgling hopped awkwardly around half the circumference of the nest, then settled down. Because of the dark foggy morning there were no dragonflies or butterflies on the wing. Dark colored slugs were being fed to the young. The interval between feedings was longer because the food supply was not as abundant as usual.

The young were fed at 5:30 A.M., 5:35, 5:37, 5:45 and 5:50 A.M. At 5:50 A.M. the young were very active, climbing over each other,

preening their feathers, "cheeping" softly when alone—clamoring loudly when fed. They were now eleven days old. Two of them stood on the edge of the nest balancing clumsily and spreading their wings. The other two crowded each other in the nest. One of the parents was calling nearby.

6:05 A.M. One lively fledgling hopped onto a horizontal dead branch which touched the nest at one end and protruded fifteen inches beyond it. It balanced clumsily, hopped along the branch and fluttered down on to the ground. It then scrambled off through the dense laurel.

6:06 A.M. A second fledgling hopped along the same branch and fluttered from it six inches to the ground. One of the parents encouraged the first fledgling to follow it through the laurel. The other parent in a tree overhead watched the progress of the two young who continued scrambling along and "cheeping."

6:09 A.M. Both fledglings were twenty-five feet away from the nest in dense laurel.

6:15 A.M. The two remaining birds were quiet in the nest. The parents did not feed them.

6:20 A.M. One of the parents called from a distance of forty feet.

6:27 A.M. The young became impatient. They preened and moved about in the nest, cheeping occasionally and gaping.

6:40 A.M. One fledgling vibrated its wings, standing on the rim of the nest. One parent kept on calling.

6:48 A.M. One parent gave a sharp warning signal. The young flattened down in the nest motionless. A red squirrel ran by not far off.

6:50 A.M. The squirrel chattered angrily as one of the parents flew at it fiercely and drove it away.

7:05 A.M. The young cheeped hungrily. One parent sat in a tree overhead watching them, but did not feed them.

7:19 A.M. The fledglings called loudly.

7:20 A.M. One parent fed the young. A fledgling perched on the rim of the nest, then fluttered across the nest twice. It hopped onto the same branch used by the others and soon fluttered to the ground, then went off into the laurel.

7:24 A.M. The last bird stood on the rim of the nest, then hopped on to the ground from the other side of the nest nearest to my blind. The parent was close by watching it as it made its way through the laurel.

Several years elapsed before I was able to observe a brood of Veeries leave their nest under natural circumstances. Many times nests which I was watching were robbed and often I missed the exact moment when the young chose to leave the nest.

Great care was necessary in order to observe the undisturbed sequence of nest activities, as the Veeries were easily alarmed by any sound or motion inside the blind and also by my arrival or departure. It was a much more difficult undertaking than watching the nest cycle of the Black Throated Blue Warblers—therefore it gave me great satisfaction to finally complete my observations.