
NOTES AND LETTERS

SAW-WHET OWLS NESTING NEAR PRINCE ALBERT, SK, IN 2008



Nestling Northern Saw-whet Owl
H. Fisher

During the spring of 2008, we found two nests of Northern Saw-whet Owls (NSWO) in the Nisbet Forest northeast of Prince Albert, Saskatchewan. This article describes the two nesting events and the human intervention that occurred to ensure the success of one of these.

During the spring of 2006, we installed three NSWO nestboxes in the Nisbet Forest and surrounding farmland northeast of Prince Albert. We installed another 10 boxes early in 2007 for a total of 13 that could possibly be active by the spring of 2008. We checked the 13 nest boxes on 30 April 2008, and found Nestbox #7 (hereafter called #7) occupied. This nest box is located well inside the Nisbet forest in a mixture of predominantly White Spruce and Trembling Aspen. It faces a small natural clearing to the southeast and is 4.9 m from the ground in a Trembling Aspen. We did not check the contents of the nestbox at this time for fear of disturbing the birds. On 15 May, we found a second NSWO nest 3.4 km northeast of #7. This nest was in a natural cavity, apparently created by a Pileated

Woodpecker, in a dead Trembling Aspen at a height of 4.3 m.

Studies on NSWO nesting phenology in Alberta show that incubation and fledging days are 28 and 32 days, with an average egg-laying date of 12 April.¹ Based on the fledging dates of the young at these two nests, we estimate nest initiation to have occurred around 22 April in #7 and a week earlier in the natural cavity.

On 5 June, we captured and banded the females at both nests and examined the nest contents. The natural cavity held four healthy, feathered young and a Meadow Jumping Mouse.

The female was plump and well-groomed. We examined her pectoral muscle mass and rated her body condition as 5, which is the top of a 5-point scale used to assess body condition.

The female at #7 was found to be emaciated with matted and disheveled plumage. She weighed 102 g, which is within the range for a female NSWO, but her poor condition suggested that she should have been heavier. We rated her body condition as 1. The nest contained three chicks of quite different sizes and two unhatched eggs. There was no prey in this nest. We held little hope for the survival of the nestlings based on their apparent condition and that of the female.

We decided to provide the nestlings in #7 with supplementary food. On 7 June, we dropped three feeder mice

into the nest cavity using an extendible painter's pole. For the next 5 days, we continued the daily feeding of three mice or voles, or one pocket gopher (dismembered).

When we opened the nest box on 12 June, we found three healthy chicks and the adult female, who appeared well-groomed and now weighed 117 g. All food items that we had placed in the nest had been consumed. The chicks weighed 74 g, 97 g, and 116 g. One of the two unhatched eggs was found to be infertile and the other contained a partly formed embryo.

We continued supplemental feeding, and by 15 June, the female would appear in the nest hole and take the mice from the feeding pole. On 17 June, the female was not present in the nest cavity and was not seen again. We verified the presence of young in the nest by the sound of clicking of beaks as we presented food to the nest opening. On 21 June, we opened #7 and found three well-feathered chicks, the smallest now

weighing 84 g and the other two likely capable of flight. On 23 June, a chick was visible in the nest opening when we arrived, but retreated inside as we presented food. On 26 June, at least one chick was clicking its beak inside the nest box. On 27 June, the nestbox was empty.

The chicks in the natural cavity were much more even in size. When we banded them on 12 June, they weighed 100 g, 106 g, 107 g, and 110 g. The female was not in the nest at the time, but I captured her on the night of 13 June carrying a jumping mouse into the nest. On 18 June, I inspected the nest and found it to contain only two young that were capable of short flight. On 20 June, the cavity was empty, and I assume that all four young fledged successfully.

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DIVISION OF LABOUR IN A PAIR OF SNOW BUNTINGS WHILE RAISING OFFSPRING ON THE ARCTIC TUNDRA

Snow Buntings are a common to abundant winter visitor on the open prairies of Canada and the northern United States. In Saskatchewan, Snow Buntings arrive on the prairies in flocks of approximately 30 birds from late September to mid-October. Their flocks increase in size during February and March. The majority of Snow Buntings have left the prairies by mid-May, migrating northward to breeding grounds on tundra areas across the North.¹

The breeding pairs are believed to be monogamous and raise one brood of four to seven offspring, occasionally two

broods in the southern parts of their range.² The males arrive on the breeding grounds 3 to 4 weeks before the females. The pair builds its nest in a cavity, underneath or amidst rocks, occasionally under moss or in a ground depression. The nest is a loose mass of grass, moss, or lichen and is lined with grass, plant down, or feathers. The male feeds the female during egg laying and incubation.³ There is considerable variation concerning how much food provisioning each parent contributes to the nestlings^{4,5}, and more details on their parental and rearing behaviours are needed. Experimental removal of the male from a breeding pair has

shown that widowed females increase their rate of food delivery to the nestlings⁶ but raise broods that are on average only 55% the mass of broods where both parents are feeding the offspring.⁷

While conducting ecological research in Quttinirpaaq National Park on northern Ellesmere Island, I observed a striking division of labour in a single pair of Snow Buntings while raising their offspring. These observations were made during July 1997 near a field camp on the north shore of Lake Hazen (82.5°N, 71.0°W). Near the camp, I discovered a breeding pair of Snow Buntings. The male exhibited striking plumage: clean white on his head, neck, chest, stomach, and ventral tail, with inky black areas on his back, primaries, and dorsal tail. The female was more muted in colouration: white on her throat, chest, stomach, and ventral tail, with a dusty grey head, nape, wing linings, and primaries, and a mottled back and dorsal tail. Because of this difference in plumage, the male was readily observed at greater distances and was more easily followed as he flew or hopped across the tundra compared to the less conspicuous female.

The pair was raising a brood of several chicks in a burrow under an earthen hummock. The nestlings constantly remained in their burrow during this phase, and the male made most of the trips to provide food for the young. During a bout of feeding that usually lasted more than 2 hours, the male arrived at the burrow every 10 to 15 minutes with his beak stuffed with insects, mostly mosquitoes. Over a number of days, he made hundreds of trips to feed the nestlings. On the other hand, the female made only occasional feeding trips and spent most of her time either in the burrow or on more distant parts of the territory. The male would come out of the burrow after feeding

the chicks and immediately fly away. The female would come out of the burrow and alight on several hummocks and investigate the surrounding area.

Their parental behaviour changed abruptly when the chicks emerged from the burrow. On the morning of 14 July, the female arrived with a beak full of food. She went inside but came out with the food still in her mouth, looking behind her, apparently trying to lure the chicks outside with the promise of food. Three of them did come out. She concentrated on one chick, hopping farther away but looking back at it with her head low as if to offer it the food. After 5 minutes of luring the chick away from the burrow and pecking the ground in front of the chick, she finally gave it the food in her beak. She flew off but quickly returned carrying more food. She repeated this sequence several times, luring all five chicks outside. Then she flew off and did not return. During this time the male did not appear anywhere near the burrow. I returned in the afternoon and evening, but the burrow appeared to be abandoned.

The next day I observed several female buntings scattered widely, each tending a brood of chicks. I observed in detail the brood that was closest to the abandoned burrow, but I also observed similar patterns in several other family groups. The chicks were covered in grey down and had a few small wing feathers and stubby tail feathers. When they sat and remained motionless, they were very well camouflaged on the tundra. The chicks of this brood were spread out over approximately an acre of tundra, and only the female approached them. During the hours that I observed them, the male bunting did not approach the chicks. The female bunting hopped or flew from chick to chick, pecking the ground, perhaps encouraging them to eat

vegetation. On occasion she would look at a chick and flutter her wings. The chick would do the same, and one of the chicks flew 3 to 4 m.

Thus in this pair of Snow Buntings, it was clear that the male provided most of the food to the nestlings while they were in the burrow, but as soon as the chicks emerged the female became the primary caregiver and remained with them. At this point, the male retired to more distant parts of the territory perhaps so as not to draw attention to the chicks and perhaps to replenish his energy reserves. There is considerable variation in the parental behaviour of Snow Buntings.^{3,4,5} However, if this division of labour in raising offspring is frequently observed in other pairs of Snow Buntings, this pattern suggests that the conspicuous breeding plumage of the male, with its possible tendency of attracting predators, might act as a selection pressure that has influenced how the parental behaviour of this species has evolved.

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ATYPICAL WARBLING VIREO NEST: LIKELY CAUSE OF HATCHING FAILURE

Characteristic of most species of vireos, Warbling Vireos build nests that are usually described as pensile or hanging baskets.^{4,6} The nest is typically attached by its rim to two branches of a Y-shaped fork in a horizontal branch (Fig. 1).¹¹ These branches provide the only support for the suspended cup-shaped nest that is composed of plant down, grasses, and various plant and animal fibers.⁶ Here, I describe an atypically constructed Warbling Vireo nest, whose construction abnormality likely led to egg-hatching failure.

On 15 June 1999, I found an active Warbling Vireo nest at Delta Marsh, Manitoba, by locating the male singing

on the nest. The nest was 5.5 m high in a Manitoba maple tree (*Acer negundo*). Using a ladder, I examined the nest's contents and counted a clutch of four eggs. However, upon closer inspection, I was surprised to discover that the inside of the nest cup and the clutch were divided by a branch that ran through the middle (Fig. 2). I monitored the nest by checking its contents almost daily with a mirror attached to an extendable pole. At each visit through 27 June, an adult vireo was flushed from the nest and a check of the contents revealed four eggs with at least one egg separated from the rest of the clutch by the branch. The vireos deserted the nest shortly after this nest



Figure 1. Top view of a Warbling Vireo nest characteristic of those from Delta Marsh, MB.



Figure 2. Top view of an atypical Warbling Vireo nest from Delta Marsh, MB.

check, because they were not observed at the nest over the next 4 days. On 29 June, two eggs were missing from the nest, and the nest held only a single egg on 1 July when I collected it. The nest was photographed and deposited in the University of Manitoba Zoology Museum (UMZM #2682). Out of >150 Warbling Vireo nests I have observed at Delta Marsh, this nest was the only record of a nest supported from the bottom or with a branch inside the cup.

During my observations, the vireos incubated this clutch for a minimum of 12 days. The incubation period of Warbling Vireos ranges from 10 to 16 days, with an average incubation period of 12.5 days.⁶ Therefore, if properly incubated, these eggs would have been ready to hatch or soon would hatch. However, when the single remaining egg was cracked open after the nest was collected, there was no evidence of any embryonic development. It appears that the branch through the nest likely prevented proper incubation. The top of the branch was 14 mm higher than the bottom of the nest where the eggs sat. Warbling Vireo eggs average 14.05 mm wide and have a range of widths from 13.30-14.86 mm.⁶ Thus, the branch probably did not allow optimal contact between the brood patch and the eggs, which led to hatching failure. I suspect the vireos deserted this nest due either to the presence of the branch or to the failure of the eggs to hatch within the normal incubation period.

The popular and ornithological literature is replete with examples of unusual nests. Most examples of unusual nests fall into one of two categories. Nests in the first category are odd because of the materials used in their construction, such as a Rock Pigeon nest made entirely of nails¹⁰ and a Least Flycatcher nest lined with dragonfly wings.⁵ Nests in the second category are atypical because of their location or site of attachment, such as Barn Swallow nests suspended from a wire or tree branch^{14,15} and a Loggerhead Shrike nest in a tangle "shrub" of wire.⁸ In addition, there are numerous examples of nests of typically ground-nesting birds in trees or of arboreal-nesting birds on the ground.^{1,16,18}

By comparison, nests with an atypical construction or engineering abnormality, other than weaver birds that build elaborately woven nests,¹⁷ appear to be rare. Nickell examined variation in nest construction of eastern and central North American birds.¹¹ For Red-eyed Vireos, Warbling Vireos, and Yellow-throated Vireos, he seldom found their nests to be supported by a branch on the bottom of the hanging cup. Of the vireos breeding in North America, only Gray Vireos are known to occasionally construct nests that are supported from below.^{3,13} Other oddly constructed nests have been reported in vireos. For example, side-by-side "double nests" have been reported for Bell's and Red-eyed Vireos.^{2,4} Although

there are occasional variations in vireo nest construction, I found no other record of a vireo nest with a branch through the actual nest cup.^{4,11,13}

Atypical nest placement has occasionally been identified to be the direct cause of hatching failure. For example, Hooded Oriole nests placed within streetlights with high temperatures experienced hatching failure.⁶ Records of odd nest materials leading to hatching or nest failure appear to be uncommon. The use of sheep's wool as a nest lining material was found to lengthen the incubation period of Cave Swallows.⁹ Individual swallow eggs became embedded in the wool separate from the rest of the clutch and were not incubated optimally.⁹ A Rock Pigeon nest built largely of pieces of wire was suggested to have caused nestling mortality by interfering with normal brooding.¹² Despite the few records of hatching failure or interference from unusual nest placement and materials, I found no other example of a nest engineering abnormality such as the one I described in Warbling Vireos that led to hatching failure.

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NEW BREEDING RECORD FOR PASSENGER PIGEONS EAST OF PRINCE ALBERT, SK, IN 1852

A recent examination of the personal journal of Rev. Robert Hunt has revealed two new records, including a breeding record for Passenger Pigeons along the North Saskatchewan River east of Prince Albert on 8 and 9 July 1852.

The Church Missionary Society of England sent Rev. Robert Hunt to the Canadian Northwest in 1850. He was to establish an Anglican mission in the Lac La Ronge area and to minister to the First Nations people of the region. In 1851, he established a mission across the Churchill River from present-day Stanley Mission and oversaw the construction of the impressive church on the site between 1854 and 1860. The church still stands and is the oldest standing building in the province.

While traveling along the Saskatchewan River on 8 July 1852, Hunt wrote "At breakfast I shot a pigeon and one of the Indians found one pigeon's eggs." Starting traveling around 5:00 a.m., they traveled until 2:00 p.m. when his group stopped at the confluence of the North and South Saskatchewan Rivers where Hunt "enjoyed my pigeon and egg." The group continued their travels up the North Saskatchewan River, and on the morning of 9 July, they encountered pigeons again as they "passed a tree liberally covered with pigeons at roost."

Aside from the pigeons, Hunt noted that late in the day on 8 July they encountered large banks of sand and gravel where "myriads of sand martins were burrowing: & house swallows, as we call them, still more numerous, were hung – coating the surface with

nest of mud. As we passed under them the multitudes issued from their nests and spotted filled the firmament, high and low, as thickly as flakes of snow."

Robert Hunt was not a naturalist, and he did not seem to be overly interested in natural life around him, as these three sightings were the only references to bird life throughout 70 pages of his journal covering almost a year of his life. For that reason, as well as his recent arrival to the Northwest, it is not surprising that he does not mention the Passenger Pigeon by its proper name. However, based on 21 historical records of the Passenger Pigeon in Saskatchewan, the Northeast was where the birds were most common in the province.² As well, farther downstream at Cumberland House, the pigeons were regularly observed nesting, making it likely that what he referred to as "pigeons" were Passenger Pigeons.² This assumption is further bolstered by the facts that birds of similar appearance, such as Mourning Doves, were either absent or extremely rare in Saskatchewan during the period,^{1,3} and Rock Doves had yet to colonize the province, as well as the observation of the pigeons in a large flock, which was the most conspicuous behaviour of Passenger Pigeons.

Only Rev. Hunt's journal entries from 29 November 1851 and 9 October 1852 were examined, as they were the only entries immediately available to the author. Investigation of his journal for the remainder of his tenure in Saskatchewan (1850-1864) may reveal additional information.

Acknowledgments

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MYSTERY PHOTO

MARCH 2009 MYSTERY PHOTO



Can you identify the mace-like structures pictured in this photo?

ANSWER TO THE DECEMBER 2008 MYSTERY PHOTO

Trish Barker from North Poratl, SK, correctly identified the December mystery photo.

She writes, "The picture shows a pocket gopher and its exterior cheek pouches give it the name." Indeed, the Northern Pocket Gopher is named for its fur-lined pockets, which are quite obvious in the photo.



Northern Pocket Gopher

Thanks to Wayne Lynch for submitting the photo and to Trish for correctly solving the mystery.