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by *Christine Kerrigan*

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Articles

The Sharp-tailed Grouse in Thunder Bay District

Nicholas G. Escott

The Sharp-tailed Grouse (*Tympanuchus phasianellus*) is known to be a permanent resident in three widely separated areas of Ontario: the Hudson Bay Lowland; the Rainy River/Fort Frances and Dryden areas in the northwest; and Sault Ste. Marie and Manitoulin Island (Lumsden 1987). Even though the species is thought probably to range all across northern Ontario (Peck and James 1983, Lumsden 1987), there are large gaps in the distribution of records of this species there. Since 1993, however, we have found evidence of breeding populations of this grouse in this gap, north of Lake Superior. In this paper, I review the historical occurrence of the Sharp-tailed Grouse, and the current status of this species, in Thunder Bay District.

Subspecies of the Sharp-tailed Grouse

Two subspecies have been identified in the province of Ontario (James 1991): the Prairie Sharp-tailed Grouse (*T. p. campestris*), and the Northern Sharp-tailed Grouse (*T. p. phasianellus*).

The Prairie Sharp-tailed Grouse is a bird of the brushy plains and aspen parklands of the centre of the North American continent. This subspecies expanded its range eastward and northward toward the end of the 19th century, as it disappeared from its original range due to intensive agricultural practices that destroyed its native habitat (Roberts 1936). It entered northwestern Ontario in the wake of settlement and land clearing, aided by construction of two railroads: the CPR line, north of Lake of the Woods; and the Canadian Northern Railway, south of Lake of the Woods. The latter was completed in 1902, and both brought Canadian prairie wheat to the Lakehead. The grain cars of the time were leaky wooden boxcars that left a trail of grain across the forested wilderness (Miller 1963).

The other Sharp-tailed Grouse subspecies that has been recorded in Ontario is the Northern Sharp-tailed Grouse. It breeds across northern Canada and Alaska, and is darker than *campestris*, with more dark markings ventrally, and less tawny on the back (Roberts 1936). It inhabits open bogs and fens (Lumsden 1987). This race is known for its occasional southward irruptions, which are detailed in a subsequent section of this paper.

Lake Superior and northwestern Ontario are located between the historical ranges of the two subspecies, but due to the northward range expansion of the one and the southward irruptions of the other, it is an area where they have come into contact with each other. It is difficult to categorize all specimens as to race, and there have been contradictory identifications made (for example, see Isle Royale, below), so it is not entirely clear which subspecies has been seen, or is being presently recorded, in this area. The Royal Ontario Museum (ROM) has about 40 specimens from northwestern Ontario (Glenn Murphy, pers. comm.). All but one of the specimens from Kenora District have been identified as *phasianellus*; these are from more northerly locations in the Patricia portion. The exception is a bird from Melgund Township, near Dryden, taken in the fall of 1958 (the Dryden population is discussed below). All of the Rainy River District specimens are *campestris*, except for two from Fort Frances taken in the fall of 1934. All 14 Thunder Bay District specimens, most of which are from the Lake Nipigon area, are *phasianellus*, except for three *campestris* from Port Arthur (Port Arthur and Fort William are now known as the city of Thunder Bay) which are described below.

Campestris is the subspecies that presently occurs on Manitoulin Island and the north shore of Lake Huron (Lumsden 1987). South of Lake Superior, *campestris* is found in scattered locations from Minnesota through northern Wisconsin and the Upper Peninsula of Michigan, linking to some extent the two Ontario populations. It has disappeared from many U.S. states due to habitat loss and hunting pressure, and many populations still may be declining (Connelly et al. 1998). Several states have active management programs to try to preserve the Prairie Sharp-tailed Grouse's habitat and population.

An isolated population of Sharp-tailed Grouse was discovered on Isle Royale in 1904, the first to be confirmed in the state of Michigan (Barrows 1912). They were found in clearings around old mines and townsites. Specimens taken from there in 1905 were initially identified as *phasianellus* by H. C. Oberholser, but specimens from there now are considered to be *campestris* (Wood 1951). A small population is still present there (Brewer et al. 1991).

The Dryden population also is isolated, inhabiting a large agricultural area along the CPR rail line and Highway 17 from Dyment west to Vermilion Bay. They moved into the Dryden area in the early part of the century as the settlers cleared the land, reaching their peak abundance in the 1920s (Olsen 1960). Their numbers diminished thereafter, and by 1959, only occasional single birds or small flocks were seen, usually in the late fall or winter. A concerted search that year, however, found sev-

eral resident flocks (Olsen 1960), and repeat surveys in 1962 (McGillivray 1963) and 1963 (McGillivray 1965) found birds at 26 locations, including eight dancing grounds. Four specimens taken during the hunting season were identified as *campestris* by H. Lumsden. The dancing grounds were all in cultivated fields: seven stubble fields and one ploughed field. Interestingly, some of the flocks in 1962 were observed in cutover areas adjacent to large "muskegs", and helicopter surveys in 1963 flushed several flocks in "muskegs" (*phasianellus* habitat). Sharptails still are present in the Dryden area, but we are not aware of any recent comprehensive surveys.

Historical Occurrence of the Sharp-tailed Grouse in Thunder Bay District

The Prairie Sharp-tailed Grouse appeared in the southwestern part of Thunder Bay District about the turn of the 20th century (Fleming 1906). Its preferred habitat of brushy clearings, and fields with scattered shrubs and trees, was a common landscape south and west of the Lakehead in the first part of the century, as settlers cleared the forest for pastureland and farming. The first known record of the Sharp-tailed Grouse in Thunder Bay District is a specimen, now at the ROM, that was collected by George Atkinson at Port Arthur in November 1893; it has been identified as the Prairie subspecies. Other specimens of *campestris* from the Thunder Bay area at the ROM include two adult males collected on 12 April 1933, 60 miles southwest of Port Arthur. The only nest record was of a clutch of nine infertile eggs found by J. Jacob in July 1930, 60 miles southwest of Port Arthur (Dear 1940).

Sharp-tailed Grouse apparently were common in clearings and cutovers on the Sibley Peninsula until about 1940. This information is based on an interview with James Cross, a long-time resident of the area, recorded in the Sleeping Giant Provincial Park files (A. Wormington, pers. comm.). If the observations of Mr. Cross are correct, these birds were most likely of the prairie subspecies.

It is not clear whether the Prairie Sharp-tailed Grouse was ever numerous at the Lakehead, but by 1940 they were "uncommon and very local" (Dear 1940) around Port Arthur and Fort William (now Thunder Bay). They persisted in low numbers through the 1940s and 1950s, with occasional sightings of one or a few birds in the farmlands surrounding the Lakehead. Dr. A. E. Allin, in his annual summary of Lakehead birds for 1950, described the species as being "very scarce" (Allin 1951). Reports ceased altogether about 1958. Since there have been no reliable sightings from the populated agricultural areas around Thunder Bay for over 40 years, it is assumed that the Prairie Sharp-tailed Grouse now is extirpated from Thunder Bay District.

The historical distribution of the Northern Sharp-tailed Grouse in Thunder Bay District is not well documented. Thomas McIlwraith (1886) listed its range as "from the northern shore of Lake Superior...to Hudson's Bay territory and Alaska". John Macoun (1900) indicated a similar distribution, but went into more detail: "Since the building of the Canadian Pacific railway this bird has been seen frequently on the line between Mattawa, on the Ottawa River, and Fort William, west of Lake Superior. It has been supposed to be the prairie species working east, but its dark colour shows that it is the northern bird."

Where exactly these birds were seen, and during which years, is not clear, but by the 1930s, it was evident that the normal range did not extend as far south as Lake Superior. P.A.Taverner (1934) indicated the range in Ontario to be "from the vicinity of the Canadian National Railway tracks northward to James Bay". In Thunder Bay District, the CNR tracks run west along the southern edge of the Hudson Bay Lowland and north of Lake Nipigon. Snyder (1935) corroborated this railway line as the normal southern limit of the Northern Sharp-tailed Grouse. Albert Allen's 1949 address to the Minnesota Ornithological Union reiterated that the Northern Sharp-tailed Grouse is found at the upper end of Lake Nipigon (Allen 1949).

More recently, Lumsden (1987) stated in *Atlas of the Breeding Birds of Ontario* that this subspecies occurs as far south as Upsala and the north shore of Lake Superior, although the accompanying map showed a lack of Atlas records in this area.

Southward Irruptions of the Northern Sharp-tailed Grouse

Periodically, the northern subspecies appears in large numbers south of its normal range in Ontario. An irruption occurred in the fall of 1896, with birds being seen as far south as Parry Sound and Muskoka Districts (Fleming 1906).

The best documented invasion occurred 36 years later, in the fall and winter of 1932–33, at which time birds appeared as far south as Bracebridge, Gravenhurst, and Bancroft (Snyder 1935, 1951). The main flight was in northeastern Ontario, south of James Bay, but the western edge of the irruption reached Thunder Bay District at Rossport on Lake Superior.

Snyder (1935) refers to a Sharp-tailed Grouse that was shot at Sault Ste. Marie in the winter of 1865–66 as a possible indication of a southward irruption of the northern subspecies in that year, 31 years prior to the 1896 irruption, leading to speculation that there may be a cyclic pattern to their southward movement, with a periodicity of about 30 to 35 years.

Further support for such a theory came in the winter of 1967–68. In the fall of 1967, thousands of sharptails could be found in the Geraldton area (Zroback 1968, Elder 1979),

and small flocks were seen farther south to the north shore of Lake Superior, at such places as the mouth of the Pukaskwa River, Port Coldwell, and Hurkett (Denis 1968). Numerous birds were seen and shot in the vicinity of White River. The area of greatest abundance was around Kapuskasing and Cochrane; birds moved as far south as Swastika and Chapleau (Wolfe 1967). There were so many sharptails across northern Ontario that the hunting season was extended to the end of March. This irruption occurred 35 years after the previous one, fitting the pattern exactly.

If this is a repeating cycle, the next irruption should have occurred between 1998 and 2003. It has not happened (yet). However, there was a minor movement into the area north of Nipigon in the fall of 1994, with several reports of birds seen, and shot by hunters, in areas where they were not usually encountered. One year later, in the fall of 1995, none were reported.

Following the 1932–33 irruption, breeding colonies were established south of their usual range, but these colonies disappeared in a few years (Snyder 1935).

Recent Sightings of Sharp-tailed Grouse in Southern Thunder Bay District

After the 1932 irruption, Snyder sent questionnaires to observers throughout the province to obtain information on the flight, and concluded that reports of birds from Armstrong and Nakina (both on the CNR line in Thunder Bay District) were attributable to the irruption, which suggests that observers in those communities did not regularly see this species. However, Sharp-tailed Grouse are now seen every fall and early winter in the Geraldton and Longlac area, east to the District boundary. They vary in number from year to year, but are often plentiful, especially in the last five years. They are assumed to be migrants from farther north, and are not believed by local outfitters to nest in the area since they are seen only from September to February.

A few are reported in the fall, farther south, in clearcuts and upland areas, south to Orient Bay, Black Sturgeon Lake, and Dog Lake; and rarely to the shore of Lake Superior. These reports are sporadic and do not occur every year.

There have been very few sightings of sharptails in the breeding season in these areas, and usually only one or a few birds. Despite searching early in the morning, we have not been able to find any lek sites in these cutovers.

Breeding Populations of Sharptails in Southern Thunder Bay District

As outlined above, the least known and least documented aspect of the occurrence of the Sharp-tailed Grouse in Thunder Bay District has been the breeding status of *phasianellus* south of the CNR rail line. We have now confirmed that

this species does breed locally as far south as Lake Superior. Evidence for breeding includes the presence of a lek of dancing males, since the nests are usually located within 1.2 km of the lek site (Miller 1963).

The first record of a lek of dancing sharptails was on 6 May 1949, 10 miles west of Beardmore, at the southeast corner of Lake Nipigon. They were discovered by District Forester R. Boultbee while inspecting a tree plantation in Eva Township (Boultbee 1950). At least five males were dancing on a sandy knoll in an area that had been logged and twice burned. This location is only about 50 km south of the CNR rail line.

There has been one recent record of a lek in a clearcut south of Lake Nipigon: a group of 15 dancing Sharp-tailed Grouse was found on 10 May 1993 in a clearcut, 120 km north of Thunder Bay (Dennis Bonner, pers. comm.). This was a Jack Pine (*Pinus banksiana*) plantation site; the trees are now tall enough to make the site unsuitable and no grouse were found there on a subsequent visit.

West of Thunder Bay, from Raith to English River, the Canadian Pacific Railway traverses an area of bogs, fens, swamps and meandering rivers. Tom Perrons (pers. comm.), a CPR engineer and a naturalist, frequently saw sharptails while driving the train along this section of the track from 1956 through 1979. He noted them at all times of the year, including the breeding season. We have now found leks of sharptails in several "muskeg" fens in this area.

East of Thunder Bay, we have found a group of sharptails in a large open peatland near the shore of Lake Superior, at the base of the Black Bay Peninsula. We first found grouse dancing there in 1994, but a local trapper states that he has seen Sharp-tailed Grouse in the area as long as he can remember, and at least since the 1967 invasion. On 23 July 2001, a female with four young was seen in this fen (Robert Foster, pers. comm.).

Following is a list of the leks that we have found in fens, in chronological order of discovery. The locations are marked on the map of Thunder Bay District (Figure 1). Most of these observa-

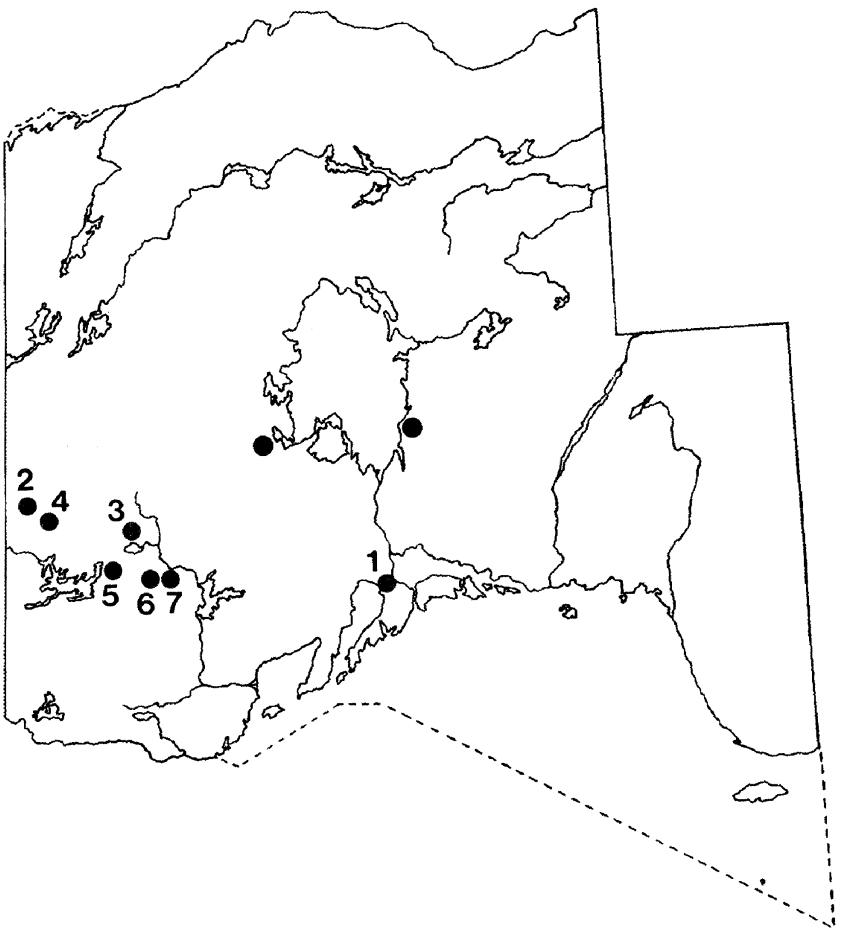

Figure 1: Map of Thunder Bay District showing Sharp-tailed Grouse lek sites in clearcuts (black dots) and fens (grey dots). See text.

tions are my own; where the sighting was made by another observer, I have acknowledged that person in brackets following the record. None of the sites has been visited every year, and as can be seen from the dates of the visits, some have been checked only once or twice.

(1) Lyon Township fen, base of Black Bay Peninsula (Figures 2 and 3)
1994: March 26 – at least 14 males dancing
1995: April 17 – 12 males dancing
1996: April 21 – 10 males dancing
1997: February 3 – 22 birds in fen
2000: March 19 – at least 30 birds at lek site

(2) Trewartha Township peatland, west of Upsala (Figure 4)
1994: April 10 – at least 15 birds at lek, males dancing, 2 probable females
1995: March 26 – 11 males dancing
1996: April 13 – 12 dancing males
1997: April 13 – 7 dancing males
2001: April 13 – 11 dancing males
2002: April 14 – 13 birds in lek (Allan Harris)

(3) Muskeg Lake fen, north side of Muskeg Lake (Figure 5)
1996: June 8 – flock of 6 seen
1997: April 12 – 17 birds dancing

(4) Meinzinger Township fen
1998: March 22 – 10 birds flushed from lek site

(5) Near Savanne River, small lake with wide floating bog mat in Black Spruce "muskeg"
1998: March 22 – 9 birds dancing
2001: April 15 – 6 birds at lek site, some dancing

(6) Small fen west of Raith
2001: April 1 – 6 males dancing

(7) Small fen north of Raith
2001: May 15 – a group of 5 birds in the fen, not dancing

We have been observing these colonies for up to eight years now, and it appears that these are permanent breeding grounds. The lek site is in approximately the same location in each fen every year.

The fens are open grass/sedge peatlands with moss hummocks separated by small pools of water, which, at least early in the courtship season, are frozen, with or without some snow cover (Figure 5). There are few if any shrubs at the lek site, but there is a zone of stunted Black Spruce (*Picea mariana*)/Tamarack (*Larix laricina*)/ White Cedar (*Thuja occidentalis*) around the periphery of the fen, blending into Black Spruce bog behind that. When alarmed, the grouse fly back into the spruce woods.

The Sharp-tailed Grouse in these colonies seem to stay close to the fen year-round, and when the

snow is on the ground, their tracks indicate that they are feeding on the catkins of Dwarf Birch (*Betula glandulosa*), a common shrub in these wetlands. This is probably their main winter food source. The buds and catkins of Dwarf Birch were found to account for 90 percent of the food in the stomachs of Northern Sharp-tailed Grouse shot in the Winisk area in 1977 (Thomas 1984). When the grouse migrate to upland forested areas, they are often seen feeding on the buds and catkins of White Birch (*B. papyrifera*).

Conclusion

Sharp-tailed Grouse are a very local and uncommon breeder in the southern part of Thunder Bay District. They probably are of the northern subspecies *phasianellus*, and inhabit the "muskeg" fens that are found in widely scattered locations in this otherwise rocky Canadian Shield habitat. They tend to stay close to their home fen and surrounding Black Spruce bogs. Since these areas are relatively inaccessible, inhospitable, and lumber-poor, the grouse have been safe from human disturbance, and are seen infrequently. They have been in these fens since at least the invasion in 1967; more likely, they have been here for hundreds or thousands of years. Their numbers may be replenished by occasional irruptions from farther north.

Northern Sharp-tailed Grouse probably come south from the Hudson Bay Lowland in variable numbers every fall, and may stay as small breeding colonies in suitable habitat such as clearcuts or burns. These colonies seem to be very few in number, and temporary. Alternatively, some of the fall and winter birds seen by hunters may be from local, undiscovered breeding colonies in nearby fens.

The Prairie Sharp-tailed Grouse has disappeared from Thunder Bay District, but still survives in the Rainy River/Fort Frances and Dryden areas, and at Sault Ste. Marie/Manitoulin Island.

Little is known about the population or biology of the northern subspecies, since much of its range is in inaccessible parts of northern Canada. Numbers are thought to be stable, but there are no regular monitoring programs. The disjunct populations described in this paper may be vulnerable to human disturbance since they are closer to populated areas; their wetland habitat may be threatened by logging, road construction and peat extraction.

The Black Bay Peninsula colony is the most isolated, the most southeasterly, and consequently the most unique. The lek site in the fen is on a 65-hectare lot that is now a nature preserve owned by the Thunder Bay Field Naturalists. However, there is no protection in place for the surrounding fen and Black Spruce forest, and there is currently a proposal to put a permanent road through the edge of the wetland to open up the Black Bay Peninsula to year-round timber harvesting.

Figure 2: Sharp-tailed Grouse dancing at the Black Bay Peninsula lek site during snow flurries on 1 April 1994. Photo by *Nicholas G. Escott*.

Figure 3: Displaying Sharp-tailed Grouse at the Black Bay Peninsula lek site on 30 April 2000. Photo by *Nicholas G. Escott*.

Figure 4: Group of Sharp-tailed Grouse dancing at the Trewartha Township peatland on 10 April 1994. Photo by *Nicholas G. Escott*.

Figure 5: Sharp-tailed Grouse facing off on the ice at the Muskeg Lake fen on 12 April 1997. Photo by *Nicholas G. Escott*.

Northern Sharp-tailed Grouse are probably resident in all large fens in Thunder Bay District. Such fens are few and far between, but become more widespread farther north and east. As forestry roads extend farther north, more of these potential breeding sites will become accessible to be monitored.

It would be interesting to study in more detail the differences between the two subspecies. In addition to the subtle plumage differences, there are different habitat and winter food preferences. There may be genetic differences also. If so, the Dryden and Isle Royale populations would be the most likely to show evidence of intergradation.

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Many people have helped me gather data and references for this paper, and have accompanied me on sometimes arduous winter hikes. I wish especially to thank Stan Phippen who was with me when we found the first two leks, Allan Harris and Dave Elder for numerous helpful references, and Rob Swainson, Linda Melnyk-Ferguson, Michael Moroz and Brian Lacroix for sightings of sharptails north of Lake Superior.

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Nicholas G. Escott, 650 Alice Avenue, R.R. 14, Thunder Bay, Ontario P7B 5E5

Ontario Gray Jays Help on the World Stage: Part 2

Dan Strickland

In Part 1 of this article (*Ontario Birds* 20: 130–138), I stated that a common Ontario bird, the Gray Jay (*Perisoreus canadensis*), provides what may be a useful insight into the worldwide phenomena of communal breeding and allofeeding in birds.* I pointed out that in Algonquin Park about 20 percent of Gray Jay pairs have a single nonbreeder associating with them at the beginning of the breeding season in late February. This is the basic recipe for communal breeding to occur (nonbreeders still at home with Mom and Dad) but nevertheless, in Gray Jays, the nonbreeders do not feed nestlings. This is puzzling because many helpful advantages have been proposed for communal breeding and Gray Jays seemingly could benefit much more than most birds. After all, they nest in hostile, late-winter conditions with no obviously reliable food in the forest. Why wouldn't a nesting pair of Gray Jays benefit from an extra forager? Why wouldn't the nonbreeder benefit as well, either by gaining valuable experience, or by improving the production of younger siblings, each carrying half its genes (the same fraction that its own young would have if the nonbreeder could breed itself). Even more surprising, the breeding pair actively *harasses* any nonbreeder that may be present, even when the nonbreeder is one of its own offspring from the year before. I ended Part 1 by inviting readers to formulate their own hypotheses to answer these questions before I summarized, in this issue, the explanation proposed by me and my Gray Jay partner, Tom Waite, of Ohio State University (Strickland and Waite 2001).

Let me take up the story again from Part 1 by repeating that, for years, I was completely at a loss to understand the absence of allofeeding in the Gray Jay nestling period. In 1994, however, Tom Waite made the amazing discovery that non-

* Found in over 200 species around the world (Brown 1987), mostly in tropical areas and especially in Australia, communal breeding is characterized by three or more adults participating in at least some parental activities, including courtship feeding, nest building, attacking nest predators, and feeding young. Allofeeding is a feature of communal breeding and refers to the feeding of young birds by adults other than their parents. Communal breeding and allofeeding are both commonly and misleadingly called "helping" on the (often unsubstantiated) presumption that they are beneficial to the individuals receiving or exhibiting such parent-like attention.

breeding Gray Jays sometimes feed young in the fledgling period (Waite and Strickland 1997). This was a thunderbolt! After all, why would nonbreeding Gray Jays refrain, or be prevented, from helping in the wintry nestling period and yet be allowed to help in the fledgling period? Why would "helping" be permitted to begin precisely when new food is starting to become available and extra help from a nonbreeder would seem to be less important?

After Tom's initial discovery, we observed four more cases of nonbreeders (at least one of them completely unrelated to the family involved) starting to feed young in the fledgling period. We have also observed at least one case where a nonbreeder refused to feed his younger siblings, even though he was not prevented from doing so by the adults and in spite of the fact that the fledglings often begged at him. The fact, then, that nonbreeding Gray Jays may or may not feed young in the fledgling period but apparently never do so in the nestling period (when the need is apparently so much greater) forced us to conclude that such feeding cannot be particularly important for successful reproduction in this species. It finally dawned on me that the so-called "help" that nonbreeders can give is probably not helpful at all—at least not in Gray Jays. I had been fooled all those years by the use of the word "helping" and its unquestioned—at least by me—implication that feeding another bird's young necessarily had to be beneficial. Still, facing up to my error did nothing to explain why adult Gray Jays seemed actively to prevent "helping" in the nestling period and only relax their opposition in the fledgling period. After all, it's one thing to have little or no need for the allofeeding services of a nonbreeder; it's quite another to go to all the trouble of actually shutting such behaviour down.

As we watched fledgling Gray Jays being fed by adults and nonbreeders in the late 1990s, we noticed something that suggested a possible answer to the mystery. I had spent many hours in the past watching Gray Jay nests and had always been struck by how infrequently the adults came to the nest and how, when they did come, that their expandable throats were always filled to overflowing. In marked contrast, feeding trips in the fledgling period seemed to be much more frequent and often seemed to involve very small amounts of food. The thought occurred to me that, in the nestling period, Gray Jay parents were doing their best to reduce trips to the nest to an absolute minimum. They were doing this by preventing any nonbreeder from going to the nest and, on their own visits, by bringing the biggest loads possible, thereby minimizing the number of trips they needed to make to the nest. In the fledgling period, on the other hand, it seemed that Gray Jays were not motivated to minimize the number

of feeding trips. The adults did not stand in the way of any nonbreeders who wanted to feed or otherwise visit the fledglings and they themselves often brought small amounts of food in a consequently large number of individual feeding trips.

But what could account for such a dramatic switch from minimizing visits to nestlings to suddenly relaxing this constraint in the fledgling period? The answer, we suggest, is that there is a predator (or predators) that finds nests by observing flights to the nest and/or hearing the sounds of nestlings begging and being fed. The predators, furthermore, are probably flightless or otherwise much less of a threat to fledglings than to nestlings. That would explain why Gray Jay parents work so hard to minimize visitation to nestlings but then abandon this vigilance as soon as the young birds leave the nest. Everything seemed to fit. We even had a likely predator in the Red Squirrel (*Tamiasciurus hudsonicus*). Although squirrels are not popularly thought of as meat-eaters, more and more studies have been showing that the Red Squirrel, in particular, is a devastating predator on eggs and nestlings, and even on young mammals. Even worse, Red Squirrels are so common in the coniferous forest habitats of the Gray Jay (sometimes at more than one per hectare) that it is difficult to imagine how a jay nest can escape detection by the local squirrels in the 20 days from first egg to hatching and then the 23 day nestling period.

Coming up with a plausible hypothesis, however, is not the same thing as actually testing it. Fortunately, we were able to evaluate our idea by comparing Gray Jays with the many other corvid species that have been studied in detail, including a few with behaviour similar to that of the Gray Jay. This, then, was the basis of the paper Tom and I published in the *Canadian Journal of Zoology*. We proceeded in six steps, as follows:

Step 1. The fundamental premise of our predator avoidance hypothesis was that adult Gray Jays would succeed in reducing the number of visits to the nest if they prevented nonbreeders from going there. For all we really knew, however, it might not make any difference. If adults needed to feed the young less often, for example, because the nonbreeders were doing some of the work for them, the total number of visits to the nest might well be the same, whether or not the nonbreeders were permitted to participate. Ideally, the way to settle this question would be to compare the feeding visitation rates of Gray Jays assisted by nonbreeders with pairs that were unassisted. Unfortunately, we couldn't do such a comparison because Gray Jay pairs are never assisted by nonbreeders in the nestling period. Settling for second best, we compared the visitation rates of assisted versus unassisted pairs in other corvids where both situations really do occur. We found relevant data for six species and, with-

out exception, the visitation rates were lower at unassisted nests than at assisted nests. Therefore, it seems highly likely that the same would be true in the Gray Jay, and that Gray Jay parents really do lower the visitation rates to their nests by preventing nonbreeders from going there. The fundamental premise of our predation avoidance hypothesis is, therefore, likely to be correct.

Step 2. Our second step was to take a close look at the hostility Gray Jay parents show to their associated nonbreeders in the nesting season to see if it is consistent with our hypothesis. We found, for example, that in the breeding season, Gray Jay nonbreeders were much more likely than before the breeding season to be off by themselves. And, when they actually were with the adults, the nonbreeders were chased much more during the nesting season than beforehand. In addition, such chasing was much more frequent when the nonbreeders were close to the nest than when far away. Interestingly, it made little difference whether the nonbreeders were the young of the adults from the previous year or unrelated strangers. Both nonbreeder classes were treated in a hostile manner in the nesting season and both were effectively excluded from the nest area. All of these findings were more consistent with our predation avoidance hypothesis than with other possible ideas to explain the nesting season hostility of breeders towards nonbreeders, including their own young.

Step 3. In the remaining steps of our evaluation, we examined four predictions stemming from our predation avoidance hypothesis. In general, we reasoned that if the suppression of allofeeding in the nestling period of the Gray Jay is driven by the advantage of lowering the number of predator-attracting visits to the nest, then the Gray Jay and other jay species with similar behaviour should do other things as well to lower nest visitation. For example, these jays might be expected to have smaller clutches than jays that do not suppress allofeeding. All things being equal, fewer mouths to feed should mean fewer visits to the nest and this would make another contribution to hiding the nest from predators. This idea originally was suggested by Skutch (1949) as an explanation for the very small clutches (often only two eggs) of birds living in neotropical forests, a habitat well known for its extremely high nest predation rates. It turns out that the Gray Jay and similar species that suppress allofeeding in the nestling period do indeed have significantly smaller clutches than jays that permit allofeeding.**

Step 4. Skutch (1949) also described how some tropical bird parents, such as antbirds (Formicariidae), seemed to bring the largest food

** This is a bit of an oversimplification. For a more complete discussion of the significance of clutch size in jays, see Strickland and Waite (2001).

items that their nestlings could possibly swallow. He specifically suggested that the adults were maximizing their food load sizes so as to minimize the frequency of their predator-attracting nest visits. Similarly, we predicted that Gray Jays and other corvids that suppress allofeeding should—if predator avoidance is the critical factor—also maximize their food load sizes. Sure enough, this appears to be the case. The adults of jays that suppress allofeeding apparently load up as much as possible when they are feeding young and consequently visit them much less frequently.

Step 5. We proposed that Gray Jays suppress allofeeding in the nestling period because of the need to minimize predator-attracting visits to the nest. This suppression is relaxed after the young fledge, presumably because the predator(s) no longer poses a threat to the young when they can fly. If it is also true that adult Gray Jays suppress their own feeding visitation rates in the nestling period because of the same need to avoid attracting predators, then we might expect this feeding rate suppression to be relaxed after the young fledge—just as the suppression of allofeeding by nonbreeders is relaxed at the same time. Not many bird species have had their fledgling feeding rates measured (we found 14), but in almost all of them, adults feed fledglings at a faster rate than nestlings. The feeding rate increase from the nestling period to the fledgling period was much greater for the Gray Jay than for the other species, however. We also were able to show that the big increase was due, not to an exceptionally high feeding rate in the *fledgling* period but, rather, to an exceptionally low feeding rate in the *nestling* period. Once again, our comparisons with other species supported the idea that Gray Jays do whatever they can to minimize feeding visits to their nests.

Step 6. The final prediction stemming from our predation avoidance hypothesis was that the Gray Jay and other corvids that prevent allofeeding would have less ability to confront nest predators than jays that allowed allofeeding. Our reasoning was that if Gray Jays and similar species could not successfully drive predators away, then they should do everything possible to avoid the predators detecting their nests in the first place. To assess defensive abilities of different corvids, we compared their body weights and group sizes. Sure enough, the Gray Jay and other species that suppress allofeeding are significantly smaller and live in smaller groups than species that allow allofeeding. The Gray Jay, in fact, is the smallest jay that regularly has nonbreeders associating with breeding pairs and rarely does it have more than one nonbreeder per pair, for a typical group size of three (Strickland 1991). If you were a nest predator, you might not be deterred

Figure 1: Nonbreeding Gray Jays are excluded from the nest area by the breeding pair. Such behaviour probably helps to minimize the number of predator-attracting trips to the nest. Photo by *Dan Strickland.*

by three wimpy little Gray Jays, each weighing 75 grams or so, but you might very well be intimidated if you were trying to get to a nest defended by 10 or 11 Brown Jays (*Cyanocorax morio*), each weighing 210 grams.

Overall then, we found strong inferential support for the idea that Gray Jays and other species that suppress allofeeding in the early parts of their nesting cycle do so to reduce the risk of predators finding their nests. Indeed, we see the suppression of allofeeding and allowing it to occur as alternate anti-predator strategies. For species like the Gray Jay that are small and live in small groups, the best strategy is to do everything possible to conceal the nest. This means building it to be as inconspicuous as possible, of course, but it also means reducing trips to the nest that could tip off the location of the nest to predators. Feasible measures include any or all three of: (i) having a small clutch size (to lower the number of mouths to be fed); (ii) maximizing food load size (to minimize visitation frequency); and (iii) preventing nonbreeders from feeding nestlings or otherwise visiting the nest.

For large species that occur in large groups, however, the best strategy may be just the opposite—actually to enhance allofeeding. The food brought by the nonbreeders

may not be very important but, merely by bringing it, especially in small quantities in numerous trips, the nonbreeders are that much more likely to be near the nest and therefore to detect and confront any approaching nest predators.

Tom and I believe that the predator avoidance hypothesis provides a reasonable and well-supported explanation of why Gray Jay parents actually spurn the "help" that nonbreeders could bring to the task of feeding nestlings under difficult, late-winter conditions. And with it, we think we have solved this perplexing aspect of Gray Jay behaviour that had stymied me for many years. The real significance of the predation avoidance hypothesis, however, may lie in its ability to help understand much more than Gray Jay behaviour. In 1961, A.F. Skutch (who else!) sought to explain the rarity of communal breeding in birds by suggesting that the increase in nest traffic caused by allofeeders would be dangerously attractive to predators (Skutch 1961). Skutch believed that communal breeding therefore tended to be confined to birds with inaccessible nests or which were large enough (like corvids) to dissuade most nest predators. Skutch accordingly came up with the predator avoidance hypothesis long before we hit upon the idea in a slightly different context to explain Gray Jay behaviour. Almost no one picked up on Skutch's idea, however, and even Skutch himself apparently failed to realize the full potential of his idea to explain the presence and absence of communal breeding around the world.

Recall from Part 1, for example, that the Green Jays (*Cyanocorax yncas*) of Texas are not communal breeders but those in Colombia are. Might this difference be explained by different suites of predators in the two locations? Alternatively, or as additional contributing factors, the smaller size of the disjunct Central American races, including the Texas race (Gayou 1986, Madge and Burn 1994), and their smaller group sizes, may make the northern birds less able to deter nest predators and less likely to allow allofeeding than South American forms that are larger and occur in large groups.

Similarly, allofeeding in the nestling period of the Florida Scrub-Jay (*Aphelocoma coerulescens*) may be permitted by the scarcity of squirrels in that species' oak scrub habitat (G. E. Woolfenden, pers. comm.), and the prevention of allofeeding in the nestling period of the Western Scrub-Jays (*A. californica*) of Oaxaca may be related to the probable presence of squirrels in the pine-oak forests used by that population (Hall and Kelson 1959, Burt and Peterson 1993). On a broader scale, the absence of allofeeding in all mainland forms of the highly social white-eyes (Zosteropidae) and its occurrence in only a few island species (Skutch 1999) may correspond to mainland-island differences in exposure to predators. Similarly, the abundance

of allofeeding species in Australia, including very small ones (Dow 1980, Brown 1987), and the very high nest-visitation rates that have been reported in some of them (Dow 1978, 1980) may be related to that continent's lack of squirrels and possibly other diurnal nest predators that hunt in a similar manner.

We don't know if the predation avoidance perspective will be the key to understanding why allofeeding is distributed around the world the way it is. Nor do we know if it will explain why the behaviour is so common in Australia. But clearly, four decades after Skutch first underlined its importance, it is not too soon to ask if predation or its absence may be a possible explanation for the existence of so many allofeeding species down under. And if, as we suspect, it turns out that the absence of diurnal, squirrel-like predators in the island continent goes a long way towards clearing up the big Australian question, we will be well pleased. A little bird on the other side of the world, in far-off Ontario, will have provided a useful insight. Or to put it another way, Gray Jays may not allofeed very much but, when it comes to understanding why some birds do and some birds don't, maybe they can help a lot.

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Dan Strickland, R.R. 1, Oxtongue Lake Road, Dwight, Ontario P0A 1H0

First "Greenland" Dunlin for Ontario and Canada

Bob Curry, Kevin McLaughlin and Bill Crins

On 31 July 1994, Bill Crins and Bob Curry, along with Jim Heslop and John Olmsted, were birding at the southeast corner of Hamilton Harbour in the former Regional Municipality of *Hamilton-Wentworth*, Ontario. At that time, there were some shallow pools on the landfill areas with mud margins that attracted shorebirds and afforded close viewing. We were examining a mixed flock of about 165 shorebirds of 10 species when a Dunlin (*Calidris alpina)* in breeding (alternate) plumage was announced. The very early date made this noteworthy but it took several minutes of searching before we all got onto the bird. The reason Curry passed over the bird several times was because it had essentially no rufous on the dorsal surface and was very small (for a Dunlin). When we got the bird in the scope, we were immediately struck by the lack of dorsal red. Rock Sandpiper (*C. ptilocnemis*) was considered for a moment, but proportions and bare part colours quickly eliminated this possibility. Over the next hour or more, we examined the bird in detail, took notes and sketches, and consulted Hayman et al. (1986) and Jonsson (1992). That evening, Curry phoned McLaughlin, who visited the site on 1 August, and saw and studied the bird.

Description: Notes by Curry

Size and shape: About 20%, at most, larger than adjacent Semipalmated Sandpipers (*C. pusilla*). To me this was a very small Dunlin – I usually perceive them to be one third larger than this. The bill was about as long as the head with only a shallow droop. Many if not most *hudsonia* have a bill 1.5x as long as the head and with a much more sweeping downcurve.

Underparts: The breast was heavily streaked with black. Between the breast and black belly patch there was a slight break. The lower belly and undertail were pure white.

Upperparts: The face, crown and nape were, as shown in the sketch (Figure 1), densely streaked grey-brown. There was a slightly lighter superciliary stripe. In bright light, there was a warm brown hue to the centre of the crown. The back was streaked in the same grey-brown. The tertials and wing coverts were a smooth grey-brown with virtually no lighter margins (worn off?). The most striking pattern on the upperparts was two rows of scapulars (the upper rows were covered by the back feathers). These were chevron-shaped, black-centred feathers with off-white fringes. Close scrutiny revealed that the first (forward) two or three scapular feathers had gold-buff margins. The general impression was that the upperparts were in fact quite like Semipalmated Sandpiper and quite unlike *C. a. hudsonia.*

Description: Notes by Crins

Habits: Observed standing and feeding among Semipalmated Sandpipers and, when flushed, flying low across pond, circling back to same mudflat. No calls heard.

Size and shape: Slim and small for a Dunlin. Body only slightly larger (ca. 20%) than adjacent Semipalmated Sandpipers. Short-necked.

Underparts: Head, breast, belly, undertail coverts, base colour dull white. Breast streaked from chin to black breast patch, but with band of less intense streaking just above black patch. Black breast patch extending back beyond legs on both flanks, but not as far back as legs on chest.

Upperparts: Back, wings, head generally brown in colour; no evidence of rufous anywhere in plumage. First two wing coverts somewhat richer brown than others, but not rufous. Wing coverts with distinct dark-centred chevrons and pale (cream to tan) edges. Tail with white stripe on each side of brown central rectrices. Rump brown (as back).

Wings: Wings as long as tail (not longer), at rest. White wing stripe evident in flight.

Head and Bill: Facial pattern nondescript, with very faint supercilium, streaked, between slightly darker, browner cap and cheek; also slightly darker patch behind eye. Cap brownish, nape only slightly paler brown. Bill relatively straight, with only slight downward curvature.

Bare Parts: All soft parts (eyes, bill, legs) black.

Description: Notes by McLaughlin

Bill: Black, short, about the length of the head, thick at the base and tapering to a thin tip. It was slightly curved at the tip.

Head: Crown had a brownish cast, contrasting to the rest of the head. A small brown patch in the rear auriculars. A brown area at the base of the bill was probably due to staining. Ground colour of the head or at least the side of the head was white with extensive fine dark streaking. A poorly defined eyebrow with thin streaks. Nape seemed grey-brown contrasting to the browner crown. Eye was small and dark.

Upperparts: Mantle had slaty feather centres with grey fringes. All of scapulars had large blackish centres, the upper scapulars with thin whitish fringes, the lower and rear scapulars with broad white fringes creating a very contrasting pattern. Only the forward-most upper scapulars had several feathers with thin rust or tawny fringes. Also noted in one of the hindmost rear scapulars were two gold or rich buff bars in the black centre of the feather. Contrasting to the scapulars were the coverts and tertials which were dull grey-brown with no apparent pale fringes.

Underparts: White base colour. Chin and throat unstreaked (?). Upper breast was heavily and sharply streaked dark with the streaks meeting the belly patch in the centre but not at the side. There was a small gap of white at the front side of the belly patch. The black belly patch was small and solid in the centre and a bit mottled or irregular at the side above the legs. There was an even narrow gap of white at the side of the patch between it and the folded wings. The patch curved down evenly over the breast centre and extended back at the side, ending at the legs. The vent and undertail was white except for three thin dark streaks visible on the lower right flank.

Legs: Black.

Size: Perhaps one quarter larger than Semipalmated Sandpipers. Seemed slenderer than typical *C. a. hudsonia.*

Subspecies of the Dunlin

Of all the sandpipers in the genus *Calidris,* the Dunlin is by far the most morphologically diverse. In fact, the situation with respect to subspecies (= races) is quite confusing. Depending on the author, there are between five (Wenink 1994) and nine (Warnock and Gill 1996) races. Such variation is unusual, as only two of its congeners, Red Knot (*C. canutus*) and Rock Sandpiper, have recognized subspecies (Hayman et al. 1986).

Browning (1977) opined that three races should be recognized as breeding in North America. He recognized *C. a. arcticola* from northern Alaska, *C. a. pacifica* from western Alaska, and *C. a. hudsonia* from northern Canada. This classification was followed by Warnock and Gill (1996). However, analysis of mitochondrial DNA by Wenink (1994) concluded that only two races breed in North America: *C. a. pacifica*, which breeds in coastal Alaska, and *C. a. hudsonia*, which breeds in Arctic Canada. The large familiar rufous-backed sandpiper which some of us remember from our youth as Red-backed Sandpiper is *hudsonia*. See pages 157–158 in Saunders (1947) for a delightful description (and a drawing by Terry Shortt) of an encounter with "red-backs" at Ashbridge's Bay in Toronto. The subspecies *pacifica* winters along the west coast of North America and is, in any case, so similar to our "Red-backed Sandpiper" that it is unlikely even in breeding (alternate) plumage to be distinguishable outside its known range.

Of the races which breed outside the Americas, the two (*C. a. alpina* and *C. a. sakhalina*) which breed in Fennoscandia and Russia (Cramp 1983) are slightly duller in breeding (alternate) plumage and slightly smaller than our *hudsonia* (Hayman et al. 1986) but, again, the differences are so subtle that they would not likely be distinguishable in the field. However, two races, *C. a. arctica* and *C. a. schinzii*, breed in Greenland and are medium distance migrants which winter in Europe and North Africa (Cramp 1983).

From the perspective of this paper, these latter two are the most interesting. Not only are they the closest non-*hudsonia* breeding races to Ontario, but also they are the subspecies most distinctly different in morphology from our *hudsonia*. *C. a. schinzii* breeds as far west as southeast Greenland and Iceland (Cramp 1983). Compared to *C. a. hudsonia*, it is smaller and shorter-billed with the upperpart fringes yellowish-red (Ferns 1981, Hayman et al. 1986). *C. a. arctica* breeds in northeast Greenland (Cramp 1983) and is the smallest and shortest-billed race with pale reddish-yellow fringes above (Ferns 1981; Hayman et al. 1986). Colour illustrations of most of the recognized races of Dunlin can be found on Plate 84 in Hayman et al. (1986).

Discussion

There is no doubt that the Hamilton Harbour bird was not of

the expected *hudsonia* subspecies. The small size and relatively short, straight bill do not fit *hudsonia*. Although the bird was in worn breeding plumage, the feather fringes remaining were variously described as "tawny", "cream", "tan", and "gold-buff". None of these colours fits the rich rufous of *hudsonia*. Finally, the black breast streaks on *hudsonia* extend to the black belly patch (Ferns 1981, Hayman et al. 1986), whereas the sketch (Figure 1) and descriptions clearly note that this was not the case with the Hamilton bird.

The two subspecies to which the descriptions come closest are *C. a. schinzii* and *C. a. arctica*. Excellent in-hand colour photographs of the dorsal view of the breeding (definitive alternate) plumage of *C. a. schinzii*, *C. a. arctica* and *C. a. alpina* can be found in Ferns and Green (1979). The vast majority of North American populations molt near the breeding grounds, whereas Eurasian populations, as a rule, molt within their wintering areas (Cramp 1983). Nevertheless, a very few adult *hudsonia* Dunlins do migrate to southern Ontario to undergo their prebasic molt (Alan Wormington, pers. comm.). Such birds sometimes remain for an extended period of time at one location. For instance, four alternate plumaged adults lingered at Hamilton Harbour in 1961 (North 1961), and another remained at Grimsby Sewage Lagoons, *Niagara*, in 2002 (Dobos

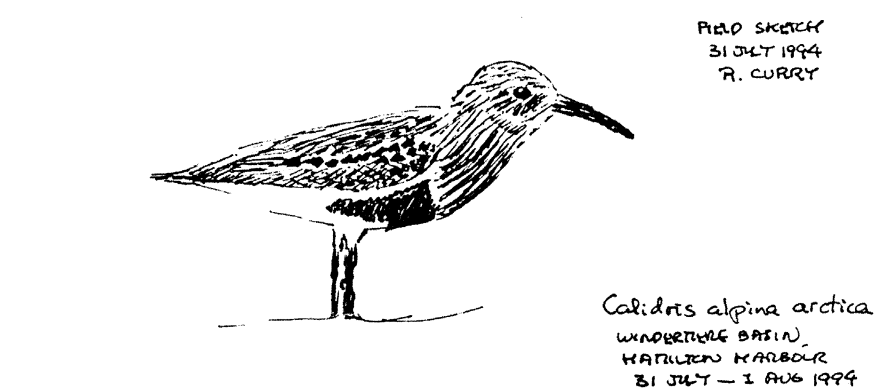

Figure 1: Field sketch of "Greenland" Dunlin at Hamilton Harbour, Ontario on 31 July 1994. Drawing by *Bob Curry*.

2002a, 2002b). The 1994 "Greenland" Dunlin appeared on 31 July at a site that was being monitored almost daily and, presumably, left two days later at the latest.

As noted by McLaughlin, *hudsonia* Dunlins at the end of July differ somewhat from fresh May birds, and would be strikingly different from the 1994 Hamilton Harbour bird. Due to abrasion, the scapulars would lose any pale fringing and become a dark red, with some black mixed in, and the belly patch would perhaps become a more intense black. As evidenced by the Grimsby bird in the summer of 2002, prebasic molt in *hudsonia* would commence by about the third week of August. Thus, one can visualize the contrast in appearance between the "Greenland" Dunlin and a *hudsonia*, with both birds being in worn alternate plumage by 31 July.

Curry submitted our descriptions to shorebird expert, John H. Marchant, who is co-author of the definitive shorebird guide, *Shorebirds: An Identification Guide to the Waders of the World*. The key points of his response were as follows (Marchant, pers. comm.): "This was a Dunlin at an unexpected season that also was surprisingly dull above, small and short-billed. There is a lot to be said in favour of this being *arctica*. This is the smallest and shortest-billed of the races on average, and also the dullest above. Dunlin is a short-hop migrant not much prone to vagrancy but, since *arctica* breed in east Greenland, a vagrant in Ontario would not be outrageously off-course. It would be normal for an adult *arctica* to be well south of the breeding grounds at this season."...."A bird like this would not be identified confidently as *arctica* in Britain, however. ... In autumn, when adults return to Britain still in breeding plumage, *schinzii* and *arctica* are both worn and faded considerably, but to variable extents, and no attempt would generally be made to separate them."...."To me, this bird could be either of the two races *arctica* and *schinzii*, although the former is more likely. Males of either of these two races would be surprisingly small and short-billed to observers used to seeing *hudsonia*."

While researching Dunlin specimens at the Royal Ontario Museum (ROM), Curry made an interesting observation. There are no specimens of Dunlin in the collection that are labeled as *C. a. arctica*. However, four specimens collected about mid-July 1992 at sea level in Iceland (all without bills!) and labeled *C. a. schinzii* are, in Curry's opinion, misidentified. These look quite different from *C. a. schinzii* and appear to be *C. a. arctica*. Perhaps these birds were called *C. a. schinzii* because this is the subspecies known to breed on Iceland. However, these birds were collected at sea level where one might expect to find *C. a. arctica* from northeast Greenland en route to their Eastern Hemisphere wintering grounds.

Non-*hudsonia* Dunlins in North America

There is just a handful of non-*hudsonia* Dunlin records from eastern North America. Griscom (1937) documented two non-North American subspecies of Dunlin from Massachusetts: 1. *C. a. arctica*, Monomoy, 11 August 1900, an adult male in worn breeding plumage. In examining this bird (a specimen), Griscom noted its very small dimensions, upperparts devoid of any rusty tone, and that it agreed minutely with two early August specimens of *C. a. arctica* from East Greenland. He further noted that it was easily separable from specimens of *C. a. schinzii* in comparable plumage. In so far as description and date of occurrence are concerned, this bird is very similar to the Ontario bird under discussion herein. 2. *C. a. alpina*, Monomoy, 8-16 August 1936. It is not clear that this bird collected by Griscom is the subspecies claimed. For instance, he described it as lacking cinnamon tone on very dark upperparts, which is not a character of this race. Rather, *C. a. alpina* is quite rufous above, although not so much so as *C. a. hudsonia*. Even at this late date, *C. a. alpina* ought to have had some remaining unworn rufous feather edges; see Plate 84 on page 205 in Hayman et al. (1986). Moreover, the bird was in some type of confused molt state as a result of disease. Finally, the bill length of 37.2 mm is beyond the maximum for female *C. a. alpina* of 36 mm listed in Cramp (1983). Nonetheless, it should be noted that Veit and Petersen (1993) included both these subspecies in *Birds of Massachusetts*.

Bull (1974) mentioned an Old World subspecies taken in 1892 on Long Island, but as the specimen was lost he recognized no such subspecies in *Birds of New York State*. However, Davis (1983) discussed an early September bird at Jamaica Bay, New York, which, based on size and some plumage characters, he suggested was *C. a. schinzii*. The description is very brief.

The AOU Check-list, Fifth Edition (American Ornithologists' Union 1957), which included all described subspecies of North American birds, notes another *C. a. alpina* from Sullivan Island, South Carolina. It also, incidentally, lists two records of *C. a. pacifica* from the Gaspé and Newfoundland that surely were based on morphometrics of specimens from the era of extensive collecting.

Shanahan (ONTBIRDS, 22 October 2000) reported observing a small, short-billed Dunlin on 22 October 2000 at Presqu'ile Provincial Park, Ontario. As he suggested, this was quite possibly one of the two western "Palearctic" races under discussion. Only in-hand measurements could determine the identity of a bird in winter (basic) plumage.

It is possible that there are other documented sightings unknown to the authors. A check with some authorities revealed no others, e.g.,

Paul Lehman knew of none, nor did Angus Wilson. Thus, the present record is one of very few non-*hudsonia* Dunlin documentations for eastern North America.

Documentation of this observation was accepted by the Ontario Bird Records Committee as "Palearctic" Dunlin, *Calidris alpina arctica/schinzii*, (Dobos 1998). To our knowledge, it represents the first documented record of a "Greenland" Dunlin for Ontario and Canada. We utilize the term "Greenland" rather than "Palearctic" Dunlin for the *arctica* and *schinzii* subspecies since they breed in Greenland, and it is not part of the Palearctic.

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ONTBIRDS: Ontbirds@hwcn.org

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Bob Curry, 3115 New Street, Unit 30, Burlington, Ontario L7N 3T6

Kevin McLaughlin, 30 Bingham Road, Hamilton, Ontario L8H 1N4

Bill Crins, 170 Middlefield Road, Peterborough, Ontario K9J 8G1

PUBLICATION NOTICE

Sibley's Birding Basics. 2002. By David Allen Sibley. Alfred A. Knopf, New York. Softcover, 154 pages. $23.95. ISBN 0-375-70966-5.

Following on his very popular *Guide to Birds* (2000) and *Guide to Bird Life & Behavior* (2001), David Sibley has now put together an extensive overview of what birders need to know to more effectively identify birds. Bird identification by experts involves a greater understanding of what is being seen and more knowledge of what should be seen, as much as heightened senses of sight and hearing, according to Sibley. He contends that most birds are easily identified if one knows how to "gather and weigh the evidence". *Birding Basics* is "about interpreting what you see and hear in order to make better judgements".

Chapter headings and their featured concepts include: Getting Started (seeing details and patterns, experience and learning from mistakes, equipment, field guides, further reading); Finding Birds (field skills, pishing, going where the birds are, keeping records); The Challenges of Bird Identification (sorting differences and similarities, field marks, relative and proportional differences, gestalt, partial cues); Misidentification ("group hysteria", judging size and proportions, color perception, abnormal birds, escapes); Taxonomy (bird names, the Species Concept); Using Behavioral Clues (foraging, flight, seasonal changes); Voice (structure of bird vocalizations, sonograms, vocalization types); Understanding Feathers (types of feathers, feather groups, topography and terminology); Feather Arrangement and Color Patterns; Structure of Tail and Wings; Bare Parts; Molt (four basic patterns of feather replacement, comparison of Life Year and Humphrey-Parkes systems of molt terminology); Feather Wear (variation due to wear and fading); Age Variation; and Ethics and Conservation.

This book would be interesting, instructive and an important ongoing reference for every Ontario birder, from beginner to advanced. Although novices may find the coverage of some topics such as molt to be "heavy going", there is much here of great value to everyone who enjoys finding and identifying birds. *Ron Tozer*

Notes

Common Ravens Kill a Common Loon

Kathy Irwin, Bob Irwin and Ron Tozer

On 4 December 2002, the only remaining open water on Baptiste Lake, *Hastings*, near Bancroft, Ontario, was some distance from shore. There had been several previous days with cold temperatures (down to –25°C), and the lake was freezing over. From their lakeshore home, Bob and Kathy Irwin noticed a large waterbird begin to run along the surface of the open water in attempting to take flight as three flying Common Ravens (*Corvus corax*) approached. Single ravens then took turns swooping to peck at the bird as it struggled to become airborne, and the ravens finally succeeded in knocking it out of the air and onto the ice. The ravens landed on the ice beside the still struggling bird, and pecked it until it stopped moving. The ravens then proceeded to feed on the carcass. Bob Irwin (Fisheries Consultant) and Kathy Irwin (OMNR Bancroft District Biologist) examined the remains of the victim on the ice of Baptiste Lake on 30 December, and determined that it was a juvenile Common Loon (*Gavia immer*).

Discussion

Bent (1946) reported ravens to be "not at all particular about their choice of food; almost anything edible will do, from carrion to freshly killed small mammals and birds or birds' eggs, other small vertebrates, insects, and other small forms of animal life; garbage and various forms of vegetable matter are also welcome". Raven researcher, Bernd Heinrich (1999), has described these birds as "opportunistic generalists that can feed on almost anything from fresh carcasses and the insects feeding on rotten carcasses, to tomatoes, Cheetos, and dog droppings". There are many published accounts of predatory behaviour by ravens, including attacks on live reindeer, bison, cattle, lambs, fish, and seal pups (Heinrich 1989, 1999). However, "most of the reported predations are on other birds" (Heinrich 1999).

There are numerous records of Common Ravens catching and killing birds (Boarman and Heinrich 1999), with the prey "often struck in midair" (Heinrich 1999). These included raven attacks on Rock Doves (*Columba livia*; Elkins 1964, Maser 1975, Jefferson 1989, Schmidt-Koenig and Prinzinger 1992), an eider (*Somateria* sp.; Watts et al. 1991), and Northern Fulmars (*Fulmarus glacialis*; Jensen 1991)

that were flying at the time. Interestingly, the American Crow (*Corvus brachyrhynchos*) has been observed catching small birds in flight and killing them, as well (Verbeek and Caffrey 2002), including the European Starling (*Sturnus vulgaris*; Cuccia 1984) and the House Sparrow (*Passer domesticus*; Putnam 1992). Other reports of Common Ravens attacking and killing adult birds have involved partridge (*Perdix* sp.; Madge and Burn 1994), Ruffed Grouse (*Bonasa umbellus*; Allen and Allen 1986), ptarmigan (*Lagopus* sp.; White and Cade 1971), Black-legged Kittiwake (*Rissa tridactyla*; Parmelee and Parmelee 1988, Klicka and Winker 1991), and puffin (*Fratercula* sp.; Madge and Burn 1994).

Ravens appear to recognize and attack birds that are sick, injured or otherwise disadvantaged with respect to escape, that may be too large to be preyed upon normally (see Goodwin 1976). Published examples of this type of situation include a raven chasing an injured Black Scoter (*Melanitta nigra*; Maguire 2000), and one that attacked and killed a Whimbrel (*Numenius phaeopus*) after this large shorebird had been repeatedly stooped on by a Peregrine Falcon (*Falco peregrinus*; Maguire 2000). The Baptiste Lake attack on the Common Loon may have been another example of this kind of raven predation.

Occasionally, Common Loons stay on lakes until freeze-up in central Ontario, and often, these lingerers are young-of-the-year (Ron Tozer, pers. obs.). Sometimes, these late loons even remain to the point where the reduced amount of open water prevents them from taking flight. At least some of these loons may involve juveniles that are still not capable of sustained flight due to a late hatching date, especially in years when lakes freeze over early. These factors may have been relevant in the Baptiste Lake loon incident reported here. The ravens may have recognized the loon's vulnerability and then pressed their attack.

Adult Common Loons are considered to have "few known predators on (the) breeding grounds", with Common Ravens reported as

nest predators only (McIntyre and Barr 1997). We found no previous published account of an adult-sized Common Loon being attacked and killed by the Common Raven.

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Kathy Irwin, 15 Irwin Lane, R.R. 1, Maynooth, Ontario K0L 2S0

Bob Irwin, 15 Irwin Lane, R.R. 1, Maynooth, Ontario K0L 2S0

Ron Tozer, 1017 Spring Lake Road, R.R. 1, Dwight, Ontario P0A 1H0

White-winged Crossbill Predation by Blue Jay

Brad Steinberg and Ron Tozer

On 22 February 2003, at 1100h, Steinberg was snowshoeing along a trail about 50 m north of Access Point #9 in Algonquin Provincial Park, on the Madawaska River between Whitefish and Rock Lakes in Nightingale Township, *Haliburton*, Ontario. The site was a mixed forest with several large Eastern Hemlocks (*Tsuga canadensis*) and White Spruce (*Picea glauca*), a few snags, some scattered White Birch (*Betula papyrifera*), and many small Balsam Firs (*Abies balsamea*). A male and female White-winged Crossbill (*Loxia leucoptera*) were heard vocalizing and then seen diving at something either on or near the ground, approximately 15 m away from the trail.

Steinberg snowshoed over to investigate, and after having travelled about 5 m, saw a Blue Jay (*Cyanocitta cristata*) fly up and come toward him with a dark object in its bill. As it approached him, the jay dropped what it was carrying, perhaps because his presence had startled it. The dropped object landed about 1 m in front of Steinberg on the snow. It turned out to be a dead, young White-winged Crossbill that was still warm to the touch (Figures 1 and 2). The young crossbill had a deep wound in the back of its head, probably inflicted by the Blue Jay. The adult crossbills and the Blue Jay stayed near as the dead young bird was examined, but were much quieter. A search for a nest was undertaken, but none was found.

Discussion

The young crossbill was preserved (frozen) at the Algonquin Park Visitor Centre, and weighed 17.3 g when measured two days later, on 24 February. It probably weighed a little more when fresh on 22 February. This young crossbill's weight and fully feathered state suggest a nestling near fledging, but it might just recently have left the nest (Craig Benkman, pers. comm.). By comparison, White-winged Crossbill fledglings with partially crossed mandibles (which begins after about two weeks out of the nest) had a mean weight of 23.5 g, while non-immature males and females from Ontario averaged 25.8 g and 24.9 g, respectively (Benkman 1992).

If the young crossbill was taken from a nest by the Blue Jay, the occurrence would apparently constitute the first published report of predation of a White-winged Crossbill nestling. Benkman (1992) noted in *The Birds of North America*

Figure 1: Dead young White-winged Crossbill with wound to back of head, probably inflicted by Blue Jay, 22 February 2003. Photo by *Kevin Clute.*

Figure 2: White-winged Crossbill young, showing uncrossed mandibles, Algonquin Provincial Park, Ontario, 22 February 2003. Photo by *Kevin Clute.*

that there was "no information on nest predators" of the White-winged Crossbill, but that they give an "alarm call when red squirrels (*Tamiasciurus hudsonicus*) or Gray Jays (*Perisoreus canadensis*) approach nests" and "both are potential nest predators". Hard mast (seeds and nuts), wild fruit, insects, and cultivated grains and fruit are the items most frequently eaten by Blue Jays, but they are known to consume some carrion and small vertebrates, including adult birds, their eggs, and nestlings (Tarvin and Woolfenden 1999).

The probable timing of the nesting that produced this young crossbill can be estimated roughly. Benkman (1992) reported the White-winged Crossbill incubation period as probably 12 to 14 days. Coady (2001) estimated incubation as 14 to 16 days. There is no information available on the period from hatching to departure from the nest for the White-winged Crossbill (Benkman 1992). However, Red Crossbills usually fledge at 18 to 22 days after hatching (Newton 1972), and the White-winged Crossbill may be similar. Utilizing these figures, the young crossbill reported here may have hatched in late January or early February, from an egg laid about mid January.

Nesting by White-winged Crossbills may occur in any month of the year (Godfrey 1986), with food availability being the most important factor influencing its timing (Benkman 1990). Benkman (1992) identified three main nesting periods during the year, corresponding to conifer cone ripening phenology, including one beginning in January and February and requiring big "spruce cone crops with large numbers of seeds held in cones through winter". White-winged Crossbills build a nest lined with "slender roots, moss, lichen, hair, cocoons and fine shreds of inner bark" that provides enough insulation to allow breeding during winter (Benkman 1992). Despite temperatures from mid January to late February 2003 that ranged from –38° C to only 4° C at the Lake Sasajewun weather station in Algonquin Park (Matt Cornish, pers. comm.), these crossbills were able to produce young.

White-winged Crossbills were

common in Algonquin Park during the winter of 2002–2003, feeding primarily on the abundant White Spruce cone crop. For example, a total of 2,060 White-winged Crossbills was recorded on the Algonquin Park Christmas Bird Count on 4 January 2003. Many pairs and singing/displaying males were observed through January and February, and widespread breeding was believed to have occurred.

Acknowledgements

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Brad Steinberg, Algonquin Park Visitor Centre, Box 219, Whitney, Ontario K0J 2M0

Ron Tozer, 1017 Spring Lake Road, R.R. 1, Dwight, Ontario P0A 1H0

Book Reviews

Lars Jonsson: Birds and Light. 2002. By *Lars Jonsson*. Translated and edited by David A. Christie and Erik Hirschfeld. Princeton University Press, Princeton, New Jersey. Hardcover, 232 pages. $49.50US. ISBN 0-691-11489-7.

It was in 1985 that I "discovered" Lars Jonsson in one of the numerous used bookstores on Queen Street West in Toronto. I came across a thin hardcover volume entitled, *Birds of Wood, Park and Garden.* Oh, I'd heard of Jonsson before. But here, staring out at me from within these pages were birds which were unbelievably alive! It was not just that they were accurately depicted, but the artist had captured them in the midst of their active lives. I'd found one book in Jonsson's series of habitat-based guides to the birds of Europe. Alas, I searched all the used bookstores over and over but it was not until years later that I managed to acquire three of the other four in this series.

Now comes this retrospective examination of the life and works of a genius. Of course, the paintings dominate. Many are full-page images, but there are also lots of smaller images, sometimes several to a page. I don't believe I've ever seen so many before in this style of book. And what images they are!

I'm not sure I can tell you what is so compelling about Lars Jonsson's drawings and paintings of birds. However, the not insubstantial text of the book explores the impressions and analyses of others, as well as delving rather deeply into the thinking and feelings of the artist. In fact, the tendency among readers will be to skim the text and pore over the lovely paintings. This is a mistake if you wish to have at least minimal understanding of this marvellous artist-naturalist and his works.

Art critics constantly put painters of nature on the defensive. The text begins with a foreword by Hans Henrik Brummer, Head Curator, National Museum (of art) of Sweden. His theme, as it inevitably is in discussing nature artists, I can paraphrase with the question, "yes, it is lovely, but is it art?". He refers to the long-established view of the supremacy of abstraction and rebukes the notion that the accurate depiction of nature is not art. Jonsson addresses the issue thusly: "I'm good at birds and I don't see that as a handicap". We know intuitively as we examine Jonsson's portrayals, and we learn from the reading of the text, that his work is far more than accurate, scientific illustration.

The "Looking at Nature" section is a reflection by Staffan Soderblom from a birder's point of view on the paintings and the painter. He goes some distance in explicating the magic of Lars

Jonsson's paintings. In his guides, Jonsson paints individuals, not representative models of each species. He paints the character and attitude, the "feel" of the birds. Like no other, he has incorporated the human element into his field guide illustrations–how it feels when we see the bird. The artist himself says, "I can't even make a definitive image of a House Sparrow...I seem repeatedly to be finding new lines and shapes, new colours and patterns, new types of behavior and posture, new angles of approach". Of course, the same can be said for all of his works. For example, there are seven illustrations of (Pied) Avocet and nine of (Common) Eider. The artist never tires of watching, studying and depicting these birds, his neighbours in Gotland in the south of Sweden where he lives. Neither do we exhaust our interest and fascination with these images.

The historical evolution of methods of the bird artist quite parallels that of the bird watcher. Earlier artists painted specimens or, to get something closer to life, used freshly shot birds just as did the scientific precursors to bird watchers. The binocular afforded birders closer studies of birds and, commensurately, paintings showed a combination of life and accuracy not seen before. Today is the age of the telescope. Jonsson has used his to perfection, allowing him unhurried entrance into the serene private lives of birds and at the same time enabling him to depict features which birders can now look for in their scope images. Put another way, the scope allows the artist to place himself within the landscape. He dissolves into the whole of the scene in an existential experience.

The bulk of the remainder of the text follows the format of a conversation with Bjorn Linnell. These questions and answers follow somewhat chronologically Jonsson's life from a very early age to the present. They accomplish much more than a recounting of adventures and accomplishments, however. Many questions delve into the influences and techniques of the artist. They draw out philosophies and feelings that help us appreciate the work and the worker. Photographs show Jonsson at the drawing board at the age of seven; his oil-pastel of a Green Woodpecker at the same age would have no trouble being accepted by the Ontario Bird Records Committee (OBRC).

A couple of amusing but absurd stories stand out from his youthful artist days. Apparently, many people were surprised that such a large and ungainly youth was the depictor of delicate birds and butterflies. In the third grade, his drawings were refused by a competition because traced or copied work was not acceptable!

Throughout the discussions, pages from Jonsson's diaries are presented to illustrate his feelings and points of view. The sketches and splashes of colour make it seem

as if we are looking over the artist's shoulder as he works. But it is not only the paintings that are wondrous. His prose reveals a depth of perception and reflection beyond all but a fortunate few. I cannot paraphrase these or quote them out of context. You must read them for yourself.

Linnell tenaciously inquires into Jonsson's artistic influences, his methods, his thoughts on his contemporary colleagues and, always, his feelings about his work. We learn that Jonsson had no professional art training. However, he has studied the work of nature artists and many other artists from China to England and all points in between. Two artists he greatly admires are the Swiss, Leo-Paul Robert, and the American, Louis Agassiz Fuertes. It is not surprising, given whence he hails, that earlier Swedish and Russian nature artists have strongly influenced his thoughts. However, his style and his results transcend all those who have come before. Jonsson has little regard for painters who paint from photographs. He quotes one of my favourite bird artists, the American, Don Eckelberry, who coined the expression for such illustrators as "the Kodachrome school". Jonsson states, "the simple replication in paint of a photograph is always a complete failure".

Of particular interest to the birder is the section entitled, "The Individual Bird and the Field Guides". Jonsson spent most of the 1970s producing his five-book, habitat-based series of guides to the birds of Europe. Jonsson elucidates his style and (for me) its attractiveness for the reader. In his field guide paintings, "the bird is perceived to have a will of its own" and "it has to have done something the moment before". During the 1980s, Jonsson compiled these five books into one field guide, *Birds of Europe with North Africa and the Middle East.* Most illustrations were re-worked and many new ones added. He created a classic guide that set the stage for the newer generation of guides on both sides of the Atlantic.

His discussion of the process of observing and drawing are particularly relevant to birders who wish to document a rare bird. My comments are in parentheses. His artistic method is to sketch with pencils and watercolours in the field. He says, "the sketchbook is everything" and "it is difficult to lie with a water-colour painting". Further, "there seems to be a limit to what we call the immediate short-term memory, seven or eight seconds... after which the impression is stored in the memory... If one paints (or describes a sighting in writing) from memory then the hand is guided by an experience already assimilated...not by the immediate first-hand impression". Has there ever been a more eloquent argument for in-the-field documentation of rarities than this? Even in these days of digital cameras, the interactions of the bird

in its environment and the perceptions and feelings of the observer noted as she/he is looking at the bird represent vital documentation in support of rarities.

What are my personal favourites among the paintings in the book? It's a bit like saying what is one's favourite duck or warbler. Usually it's the one I'm looking at right now. Nonetheless, I'll mention a few, although each reader will have her/his own. I love the ephemeral nature of the watercolour sketches and paintings. It is as if the birds could dissolve. In fact, the scenes portrayed by Jonsson are of one exquisite moment in time; a moment later and everything has changed. This is, in part, what the chapter and book title, *Birds and Light*, means. To pick two, try the American Woodcock on pages 27–28 and the (Eurasian) Golden-Plovers on page 149. Jonsson's oils capture the interplay of birds and light no less magically. Try for example, the (Pied) Avocets on page 109 or the (Common) Eiders on page 137.

I particularly enjoy his paintings of multiple birds. These depict active relationships among the birds and, at the same time, serenity. Again, to pick just a few from among many, I like the Black-bellied Plovers on page 136, the Northern Pintails on pages 134–135, and the Mistle Thrushes on page 69. Frequently, one or more birds or animals will directly face the artist (and the viewer of the painting). I have never before seen these "head-on" portrayals done as skillfully. The birds are staring unconcernedly "through" the painter and viewer. To me this is magical. Particularly excellent examples are the Sea Otters on page 115, the Shelducks on page 216, and the (Eurasian) Wigeons on page 218. Finally, I can't leave out the small Calidrids on page 75. This was one plate from the famous small *Calidris* genus sandpiper article which appeared in *British Birds* and *American Birds* in 1984. This paper and these paintings marked a huge advance in the field identification of 'peeps' and of bird identification in general. Many more paintings are truly outstanding.

In addition to the hundreds of drawings and paintings in the book, another treasure lies in a collection of small images of 73 lithographs he has produced in collaboration with a Swedish printer. Jonsson prepares the plates himself, painstakingly. One salivates at the prospect of hanging any of these on one's walls. There is a summary biography of four pages near the end of the book that, in a more straight-line fashion, takes the reader through this remarkably creative life. One telling passage recounts Jonsson's collaboration with The Mill Pond Press which published limited edition prints of his art. He broke off this association after a couple of years since Lars felt that, as an artist, he could not really develop within the limits of the American

ideas of what a wildlife picture should look like.

The book copies the traditional coffee-table format; it is 31 x 28.5 cm, with a strong hard cover and a paper dust jacket. The paper is of very fine quality and presents the paintings beautifully. It seems picayune to point out a few production flaws. I found a few typographical errors: towarads (should be towards) on page 68; cay (may) on page 82; obseved (observed) on page 110 and emendments (amendments) on page 136. On page 80, Jonsson speaks of Victoria Island when he means Vancouver Island. The most glaring error is a blank page 182 where there should be a Bullfinch. Fortunately, this painting is also lithograph 68 on page 219, so we have a small image of the painting.

If you want to be reminded why you started watching birds, you should buy this book. If you love evocative images of birds and landscapes, buy this book. It is the consummate bird watchers' bird art book. It is a magical blend of science and art. Lars Jonsson, himself, says this in discussing his ongoing studies of large gulls. Words are too imprecise to capture the nuances involved. But the eye and, in his case, the paintbrush can do so. It is here that his "science" and his "art" fuse.

Bob Curry, 3115 New Street, Unit 30, Burlington, Ontario L7N 3T6

OFO Annual Convention
Point Pelee National Park
20 and 21 September 2003

The OFO Annual Convention will return to Point Pelee this year, with a very interesting weekend of birding and presentations planned. On both Saturday and Sunday, experts will lead groups of convention participants to the many excellent fall birding spots in Point Pelee National Park and nearby areas. These field trips produced over 160 species at our Point Pelee convention in 2001, and we anticipate exceptional birding again this year. There will be a banquet and special program on Saturday evening at the Roma Club in Leamington. Watch for details in *OFO News* and on the OFO Website (www.ofo.ca). Don't miss this great event!

In Memoriam

William Earl Godfrey (1910–2002)

Ron Pittaway

W. Earl Godfrey died at the age of 92 on 8 June 2002 in Ottawa, Ontario. Godfrey was born on 18 March 1910 in Wolfville, Nova Scotia. He is survived by his first wife and daughter of Cleveland, Ohio, and was predeceased by his second wife.

Earl Godfrey came to Ottawa as Curator of Ornithology at the National Museum of Canada in February 1947, the same year that I was born in Ottawa. By the time I was 10 years old, Godfrey's name was well known to me. He was often mentioned or quoted in "Birds Eye View", a weekly Saturday column on birds in *The Ottawa Journal* newspaper by John Bird (real name).

Before coming to Ottawa, a young Godfrey roamed the shores, marshes and woods of Nova Scotia, and was mentored by Robie Tufts who was Chief Federal Migratory Bird Officer for the Maritime Provinces. Godfrey obtained a Bachelor of Science degree in 1934 from Acadia University in Nova Scotia during the difficult times of the Great Depression. On the recommendation of Robie Tufts, Godfrey was drawn to Ohio in the United States by Cyrus Eaton, a wealthy Cleveland industrialist and native of Nova Scotia. After working as a tutor for Eaton's son, Godfrey joined the Cleveland Museum of Natural History, later becoming Assistant Curator of Ornithology. It was at the Cleveland museum that Godfrey worked with the legendary taxonomist, Harry Oberholser. Godfrey told me that Oberholser had the most acute eyesight of any ornithologist, which allowed him to see subtle plumage differences in museum study skins. Oberholser clearly influenced Godfrey as a museum ornithologist.

Godfrey was an active birder who was in the field every weekend. He was a very competitive birder also, who enjoyed doing Big Days (called Century Runs when I was a boy) in May and Christmas Bird Counts with his good friend, botanist Doug Savile of the federal Department of Agriculture. During the 1950s and early 1960s, Earl led early morning bird walks in May for the Ottawa Field-Naturalists' Club at the Central Experimental Farm's Arboretum. Imagine birding with Canada's top birdman; I marvelled at his field skills and insights.

Although a private person, Earl

was always approachable when I visited him many times at his office in the old Victoria Museum in downtown Ottawa. I would often arrive at his desk without notice and he always welcomed me. He loved hearing about bird sightings and he would tell me about his birding adventures as a boy in Nova Scotia. His desk was beside the trays of bird skins and cupboards full of nests and eggs. He taught me (and others) to make careful identifications and to confirm my observations with reference to specimens and the literature. Whenever I needed to verify a tricky identification, he was just a phone call away. Today's young birders do not have easy access to professional museum ornithologists such as Earl Godfrey and the late Jim Baillie of the Royal Ontario Museum.

One of the many excellent pieces of advice Godfrey gave me was to read all the back issues of *The Auk*, *Condor*, *Wilson's Bulletin*, *Canadian Field-Naturalist* and other natural science journals. This provided me with an excellent historical context of what was known and unknown about birds and ornithology at that time. In that regard, I was particularly pleased a few years ago when he gave me his complete set of *The Auk*.

Perhaps surprising to many was Godfrey's strong knowledge and interest in mammals. Earl told me that he could have become a mammalogist instead of an ornithologist.

Earl Godfrey's main ornithological interests were taxonomy, distribution and identification. He described several subspecies, including a pale western race of the Long-eared Owl, *Asio otus tuftsi*, named for his own mentor, Robie Tufts. Godfrey started my own interest in geographical variation, which inspired a series of articles on Recognizable Forms (field identifiable subspecies and morphs) in *Ontario Birds*.

The Birds of Canada was Godfrey's greatest professional achievement. It was an immediate bestseller and eventually sold over 250,000 copies. The late Peter Whelan wrote on 18 October 1997 in his *Globe and Mail* bird column, "Godfrey's 1966 book *The Birds of Canada*, updated in 1986, remains the national standard. His text and artist John Crosby's paintings stand out among the least criticized of bird writing and art, in a field where errors are pursued with joy". I vividly recall my anticipation in waiting for the publication of the first edition of *The Birds of Canada* in 1966, which he signed in December of that year at an Ottawa Field-Naturalists' Club meeting held at the National Museum. The 1966 edition was the culmination of more than 15 summer field seasons of observation and specimen collection led by Godfrey across Canada. This activity resulted in the addition of 20,000 specimens to the national collection. Earl told me that he wrote the first edition of *The Birds of Canada*

Figure 1: This photograph of W. Earl Godfrey was taken in 1986. It first appeared on the dust cover of the revised edition of *The Birds of Canada* (1986). Photo reproduced with permission, *Canadian Museum of Nature, Ottawa, Canada.*

mainly after working hours because he was too busy during the day. Perhaps he was too occupied during office hours with inquisitive visitors to get much writing done! He prepared the revised edition in 1986.

One aspect I particularly like about *The Birds of Canada* is that it includes a complete list of Canadian subspecies, not otherwise available unless you have the 1957 edition of the American Ornithologists' Union's *Check-list of North American Birds*. Also, Godfrey's book is rich in normally obscure but useful information that is rarely included in such reference works. For example, *The Birds of Canada* notes that the Great Cormorant has 14 tail feathers whereas the Double-crested Cormorant has only 12. This seemingly arcane bit of information once helped to identify a vagrant Great Cormorant (perched, not swimming!) at the west end of Lake Ontario.

Earl Godfrey retired in 1977 from the position of Chief of the Division of Vertebrate Zoology at the National Museum of Natural Sciences. He remained active as Curator Emeritus. He was physically active until his last year, birding, riding his bike and driving his car. He loved ONTBIRDS (OFO's birding listserv) and was signed on at the time of his death.

What I and others will remember

most fondly about Earl Godfrey is not the exceptional and inspirational ornithologist, but that he was such a generous person who gave so freely of his personal time and knowledge to those who were fortunate to know him. He is greatly missed by his many friends and colleagues.

Awards, Memberships, Positions and Honorary Degrees

1942–2002: Member of the American Ornithologists' Union in 1942; Elective Member in 1949; Fellow in 1955.

1947: Appointed to the position of Curator of Ornithology at the National Museum of Canada.

1947–1976, 1990–2002: Associate Editor of *The Canadian Field-Naturalist.*

1969: Honorary Doctorate of Science degree from Acadia University in Nova Scotia in recognition of his first edition of *The Birds of Canada* (1966).

1973: Honorary Member of the Ottawa Field-Naturalists' Club.

1977: Upon retirement from the position of Chief of Division of Vertebrate Zoology at the National Museum of Natural Sciences, he became Curator Emeritus and continued his work as a Research Associate.

1986: The first recipient of the Doris Heustis Speirs Award given by the Society of Canadian Ornithologists in recognition of *The Birds of Canada* and his unique contribution to ornithology, and for encouraging an interest in birds among young people from across Canada.

1997: The first recipient of OFO's Distinguished Ornithologist Award for his outstanding contributions to the study of ornithology in Ontario and Canada.

1999–2002: Ornithology Consultant to *Ontario Birds*.

2000: The Ludlow Griscom Award of the American Birding Association for advancing a high level of ornithological knowledge.

Selected Publications

Earl Godfrey produced more than 200 publications, of which 75 contained new information on distribution, nomenclature and taxonomy. A selection of his works indicating the breadth of his ornithological interests is presented below.

Godfrey, W.E. 1938. Yellow-crowned Night Herons in Nova Scotia. Canadian Field-Naturalist 52:109. Godfrey's first ornithological publication.

Godfrey, W.E. 1947. A new Long-eared Owl. Canadian Field-Naturalist 61: 196–197.

Godfrey, W.E. 1949. Birds of Lake Mistassini and Lake Albanel, Quebec. National Museum of Canada Bulletin 114: 1–43.

Godfrey, W.E. 1950. Birds of the Cypress Hills and Flotten Lakes regions, Saskatchewan. National Museum of Canada Bulletin 120: 1–96.

Godfrey, W.E. 1951. Notes on the birds of southern Yukon Territory. National Museum of Canada Bulletin 123: 88–115.

Godfrey, W.E. 1952. Birds of the Lesser Slave Lake-Peace River areas, Alberta. National Museum of Canada Bulletin 126: 142–175.

Godfrey, W.E. 1953. Notes on the birds of the area of intergradation between eastern prairie and forest in Canada. National Museum of Canada Bulletin 128: 189–240.

Godfrey, W.E. 1954. Birds of Prince Edward Island. National Museum of Canada Bulletin 132: 155–213.

Godfrey, W.E. 1958. Birds of Cape Breton Island, Nova Scotia. Canadian Field-Naturalist 73: 7–27.

Godfrey, W.E. 1962. Order Gaviiformes. Pp. 20–61 *in* Handbook of North American Birds. Volume 1: Loons through Flamingos (R.S.Palmer, editor). Yale University Press, New Haven,Connecticut. Godfrey authored the detailed plumage and molt sections of the loon accounts.

Godfrey, W.E. 1966. Some Canadian Birds. Revised Edition. National Museum of Canada, Ottawa.

Godfrey, W.E. 1966. The Birds of Canada. National Museum of Canada Bulletin 203, Queen's Printer, Ottawa.

Godfrey, W.E. 1967. Some winter aspects of the Great Gray Owl. Canadian Field-Naturalist 81: 99–101.

Godfrey, W.E. 1973. A possible shortcut spring migration route of the Arctic Tern to James Bay, Canada. Canadian Field-Naturalist 87: 51–52.

Godfrey, W.E. 1973. More presumed hybrid gulls: *Larus argentatus* x *L. marinus* Canadian Field-Naturalist 87: 171–172.

Godfrey, W.E. 1986. The Birds of Canada. Revised Edition. National Museum of Canada, Ottawa.

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Ron Pittaway, Box 619, Minden, Ontario K0M 2K0

Nikon

Photo Quiz

Sponsored by Nikon Canada

Here, we are presented with a colorful passerine as it is moving out from among the shadows, but not yet quite out into full open sunlight—an observation setting very familiar and typical for Ontario field birders. I think it is fair to say that even fairly novice observers would recognize immediately that this small, compact, short-tailed, brightly colored passerine with contrasting wing bars, chest and flank streaking, an eye ring, and a short, pointed bill is a wood-warbler. More experienced observers would have already deduced from the general shape of the bird and the combination of contrasting plumage characters such as wing bars, tail markings, flank and chest streaking, and patterning around the eye, that this bird likely belongs in the genus *Dendroica.* However, let's not get ahead of ourselves. A review of this bird's field marks should quickly narrow down the list of potential candidates from the 44 species of wood-warblers on the Ontario checklist.

This bird has a fairly stout, pointed bill. However, it is not as finely or sharply pointed as in any of the wood-warblers of the genus *Vermivora*, and all of these can be ruled out immediately on this basis alone. It shows a general plumage pattern that is largely blue-grey dorsally and mostly bright yellow ventrally, except for obviously whitish undertail coverts. Lack of any yellow in the undertail coverts immediately rules out a wide variety of wood-warblers including all those in the genus *Oporornis*: Hooded Warbler, Wilson's Warbler, Yellow Warbler and Palm Warbler, none of which are likely to be mistaken for this bird anyway. Lack of any contrasting greenish tone to the back of the quiz bird effectively rules out the Northern Parula, of which the female is marginally similar in this general pattern of appearance. There is only a small set of the remaining wood-warblers that exhibit to *any degree* this general blue-grey dorsal/yellow and white ventral pattern in any age or plumage class (most other *Dendroica* warblers and all other wood-warbler genera being thus eliminated). This list would include: Canada Warbler, Yellow-rumped Warbler, Magnolia Warbler, Kirtland's Warbler, Yellow-throated Warbler and Grace's Warbler (which has not yet occurred in Ontario).

Our quiz bird has a complete, thin white eye ring and the head is otherwise unmarked, being almost uniformly blue-grey from above the level of the gape to the crown, nape, supercilium and lores (with perhaps some fine darker flecking in the crown). We would expect both the Yellow-throated Warbler and Grace's Warbler to demonstrate a strongly contrasting supercilium in any plumage, and thus we can eliminate them as candidates also. Neither of these species would be as extensively yellow beneath as this bird either, with the yellow extending beyond its legs, ending at the whitish undertail coverts.

Further examining our quiz bird, we see that it has a virtually unmarked bright yellow chin and throat area, and a bright yellow breast, liberally spotted with fine black streaks which extend onto the sides and to the rear flanks, where the streaks progressively become much heavier, longer, darker and more coalesced. Although the Canada Warbler is superficially similar in general appearance to this bird, it never exhibits such extensive streaking on the flanks, and it lacks both the prominent white wings bars and the black streaking on the back which are visible on our quiz bird.

So we are left with a choice of either Yellow-rumped Warbler, Kirtland's Warbler or Magnolia Warbler for this quiz bird. Obviously, with the quiz bird demonstrating a bright yellow throat, we need only concern ourselves with plumages of "Audubon's Warbler" (*Dendroica coronata auduboni* subspecies group), from populations of the western subspecies of Yellow-rumped Warbler, which is a very rare migrant in Ontario.

With another look at the quiz bird, we note that its wings are held up just enough to expose a reasonable portion of the rump, and that portion that we can see is clearly blue-grey and concolorous with the crown, back, wings and tail. In any plumage of both the "Audubon's" Yellow-rumped Warbler or the Magnolia Warbler, we would expect to see a contrasting yellow rump, and thus both of these species safely can be discounted, leaving us with the conclusion that this is a **Kirtland's Warbler**. Note that the relatively long tail (for a wood-warbler) on this bird, the largest of the *Dendroica* warblers, also appears consistent with that identification. The lack of any contrasting black markings in the lores or anterior cheek allows us to safely assign the sex of this bird as a female.

One aspect of this bird's field identification, not possible to ascertain from a still photograph, would have been most helpful in reaching a diagnostic identification. In the field, this bird was observed to habitually pump its tail with a quick downward jerk and a slower, smoother lift back up. This habit is very typical for Kirtland's Warbler and although Magnolia Warbler, Yellow-rumped Warbler and Canada Warbler all can exhibit some significant amount of tail-twitching (mostly side-twitching) while foraging, they do not exhibit the *habitual* tail pumping in the manner described above. Such habitual tail pumping in a species with this general appearance should draw intense scrutiny.

You will note I have not discussed the age of this bird. First spring females cannot, under even optimal field conditions, be reliably separated from adult females. However, if I had to hazard a guess, I would suspect this bird was an adult. I base this suspicion on the combination of its blue-grey head, nape and back (from field notes) with little

brown tones, the bold black streaking on the back, the large size of the streaking on its sides, the blue-grey primaries and rectrices (from field notes) which showed little in the way of both brown tones and feather wear, and the bright white (rather than buffy) edges to the rear scapulars. Interesting to note is that this bird tends to show a little more white to the sides than most female Kirtland's Warblers. This female Kirtland's Warbler was discovered by Denys Gardiner and later photographed by Glenn Coady at Point Pelee National Park on 21 May 1995.

I would caution that observers should not underestimate the definite potential for those that are inexperienced or careless to misidentify some Magnolia Warblers (particularly first spring females) and some "Audubon's" Yellow-rumped Warblers (particularly spring adult females and fall/winter adult males) as being female Kirtland's Warblers.

Some first spring female (and even some fall male) Magnolia Warblers are mistaken for female Kirtland's Warblers because they exhibit very similar plain blue-grey heads with fine white eye-rings and little or no contrasting supercilium, and limited black breast and flank streaking that can quite effectively mimic the pattern on female Kirtland's Warbler. However, even the most similar first spring Magnolia Warblers will show the following tell-tale clues that should keep them from being misidentified: a greenish wash to the dark-streaked back; a sharply contrasting yellow rump (although sometimes difficult to see); bolder white wing bars; and a strongly linearly demarcated undertail pattern with the basal half white and the distal half black. In Ontario, I would say first spring female Magnolia Warblers are the likeliest birds to be misidentified as Kirtland's Warbler.

Similarly, some spring adult female and fall/winter male "Audubon's" Yellow-rumped Warblers can be mistaken for Kirtland's Warbler, even though the two are very unlikely to occur in the same geographic areas with any regularity. This is primarily because of the very similar head and throat appearance of the two, as well as the similarly streaked back. Observed carefully, though, "Audubon's Warbler" should be easily separated in any plumage based on its contrasting yellow rump, its generally more prominent wing bars, its often obvious yellow crown patch, and its lack of yellow over a large portion of its breast, belly and flanks.

Glenn Coady, 604–60 Mountview Avenue, Toronto, Ontario M6P 2L4

Ontario Field Ornithologists

President: Jean Iron, 9 Lichen Place, Toronto, Ontario M3A 1X3
(416) 445-9297 E-mail: jeaniron@sympatico.ca

Ontario Field Ornithologists is an organization dedicated to the study of birdlife in Ontario. It formed in 1981 to unify the ever-growing numbers of field ornithologists (birders/birdwatchers) across the province, and to provide a forum for the exchange of ideas and information among its members. The Ontario Field Ornithologists officially oversees the activities of the Ontario Bird Records Committee (OBRC); publishes a newsletter (*OFO News*) and a journal (*Ontario Birds*); operates a bird sightings listserv (ONTBIRDS), coordinated by Mark Cranford; hosts field trips throughout Ontario; and holds an Annual Convention in the autumn. Current information on all its activities is on the OFO website (www.ofo.ca), coordinated by Sandra Eadie. Comments or questions can be directed to OFO by e-mail (ofo@ofo.ca).

All persons interested in bird study, regardless of their level of expertise, are invited to become members of the Ontario Field Ornithologists. Membership rates can be obtained from the address below. All members receive *Ontario Birds* and *OFO News*. Please send membership enquiries to: **Ontario Field Ornithologists, Box 455, Station R, Toronto, Ontario M4G 4E1**

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Editorial Assistance: Kevin Clute, Jean Iron
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