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Articles

Brown-headed Cowbird Parasitism of Northern Mockingbirds in Ontario

Winnie Poon and Roy B. H. Smith

Starting about the mid 1800s, the Brown-headed Cowbird (*Molothrus ater*) began to spread eastward into Ontario in the wake of clearing of the original forests for agriculture. It was probably absent from the Port Hope region, somewhat east of the Greater Toronto Area (GTA), between 1817 and 1840, but was present in the southern counties of Ontario by 1886 (De Vos 1964). At that time, the Northern Mockingbird (*Mimus polyglottos*) had barely reached Ontario, having been first recorded in the Province in June 1860 (Wright 1921). But during the twentieth century, it gradually spread northward into Ontario as part of a general continent-wide expansion along the northern limits of its range. The colonization of southern Ontario by mockingbirds was initially very slow and erratic, and there were only a handful of breeding records for the GTA prior to 1950. Indeed, in his popular book, *Ontario Birds*, Snyder (1951) described the mockingbird as "too rare and restricted in its range in Ontario to be dealt with in any detail".

However, by the time of the first Ontario Breeding Bird Atlas in

1981-1985 (Cadman et al. 1987), the Northern Mockingbird had become well-established in the Niagara peninsula, although its contiguous breeding range ended at Hamilton. At that time, there were only ten 10-km squares with breeding evidence mapped across the GTA, and of those, only one square indicated confirmed breeding (Curry 1987). Published in the same year as the first Atlas, *Breeding Birds of Ontario: Nidology and Distribution, Volume 2: Passerines* (Peck and James 1987) contained no reference to Northern Mockingbird nests being parasitized by Brown-headed Cowbirds in Ontario. And to emphasize the point, a subsequent update commented that: "although the Northern Mockingbird is reported to be an acceptor species (Rothstein 1975), the absence of parasitism in Ontario is noteworthy" (Peck and James 1998a).

Prompted by the spread and increase in numbers of Northern Mockingbirds in the GTA, which had become apparent even before the first year of fieldwork for the second Atlas, we began a more intensive survey across the area, and

during the period 2001-2004, we found nine cases of cowbird parasitism among 483 active mockingbird nests, as described below. For convenience, the 10-km square reference for each nest site has been provided (North American Datum

1983) as used by the second Ontario Breeding Bird Atlas Project (2001-2005). Details concerning these nests will be provided to the Ontario Nest Records Scheme (ONRS) when the main findings of this study have been published.

Nest 1: 16 May 2002, York R.M. [17PJ25]. On 10 May, a completed and lined mockingbird nest was found at 1.0 m height in a small spruce (*Picea* sp.). Three mockingbird eggs and one cowbird egg were in the nest on 16 May. The eggs were warm and the female mockingbird was seen to be at the nest on 16 and 17 May. The first egg date for this clutch (assuming four mockingbird eggs) is estimated to have been between 11 and 13 May. When checked on 24 and 28 May, the eggs were cold, no adults were seen and the nest appeared abandoned. It may have been deserted because of an unseasonably cold spell from 17 to 20 May, which we believe caused several other nests to be deserted, as opposed to the presence of the cowbird egg. During the last visit on 4 June, one mockingbird egg was broken on handling, revealing a yellow yolk with a pinhead-sized embryo.

Nest 2: 1 June 2002, York R.M. [17PJ35]. An unhatched cowbird egg and three mockingbird nestlings about five days old were found in a nest at 1.1 m height in a 1.5 m spruce. Hence, the calculated first egg date would have been 13 May for a clutch of four eggs. These well-grown nestlings were accidentally disturbed on 5 June when they were nine or ten days old; the cowbird egg was still inside the nest. Assuming that it had been incubated together with the mockingbird eggs for the whole period, it was likely infertile. However, occasionally a female cowbird may lay an egg after the completion of the host's clutch or even after the host's eggs have hatched (Walkinshaw 1949).

Nest 3: 19 July 2002, City of Toronto [17PJ33]. A nest of a pair of mockingbirds was found to contain a single, cold cowbird egg. This nest was 1.2 m high in a small spruce and there were no mockingbirds in the area. On 14 August, the nest was found to be empty, with the cowbird egg missing and the nest lining loose and tossed up, perhaps indicative of squirrel depredation. Considering that the date of this nest does not conform with the other eight nests, it is possible that it was also initiated and parasitized much earlier, then subsequently abandoned. We also suspect that human interference might have occurred at this nest, as it was located near a well-used walking trail in a park.

Nest 4: 3 May 2003, York R.M. [17PJ25]. A mockingbird nest at 1.0 m height in a honeysuckle (*Lonicera* sp.) bush contained three warm eggs. Two days later, at 1030h, it was found that a cowbird egg had been deposited in this nest, which still had three mockingbird eggs. All these eggs were warm, and the female was on the nest but did not scold. On 10 May, there were only two mockingbird eggs (both with single 2 mm punctures on the side) and the cowbird egg (Figure 1). The nest was tidy and undisturbed, but the eggs were very cold. Although the pair was about 150 m away, they did not come to defend the eggs. On 15 May, the puncture on one of the eggs was larger than before (now about 5 mm long) and the egg yolk was visible through the hole. The cowbird egg was still intact and the nest was clearly abandoned. Assuming that the cowbird had not yet removed an egg on 4 or 5 May, the first egg date for this clutch of three was 1 May. This case is interesting in that it suggests the cowbird may have returned subsequent to its egg-laying visit. Perhaps in attempting to remove one or more eggs, it ended up puncturing them instead? Another possibility is that some other species, such as a House Wren (*Troglodytes aedon*), was involved, although we never observed any at that site.



Figure 1: Northern Mockingbird nest with Brown-headed Cowbird egg, York R.M., 10 May 2003. Note that both mockingbird eggs have small punctures. Photo by Winnie Poon.

Nest 5: 18 May 2003, Peel R.M. [17PJ03]. At 1900h, a nest with three mockingbird eggs and one cowbird egg was found at 0.9 m height in a 2.5 m spruce on the side lawn of a parking lot. The mockingbird eggs hatched successfully, and three nestlings about three days old were seen on 31 May. But there was no cowbird egg or nestling in the nest on that date. When checked again on 15 June, it was found that the three nestlings had fledged but died afterwards. One had been squashed by a car in the adjacent parking lot, and another was dead on the lawn near the nest. Both were at least 10 days old, but may have fledged prematurely (perhaps as a result of human disturbance). The third nestling's fate was unknown. The calculated first egg date for this clutch (assuming four eggs) was 14 May.

Nest 6: 9 May 2004, City of Toronto [17PJ22]. A single cowbird egg was found in a mockingbird nest at 0.9 m height in a 4 m spruce. The egg was very cold. The male mockingbird stayed close-by but did not scold when the nest was checked. A visit to the nest on 19 May found that the cowbird egg was missing, the nest was undisturbed and there were no mockingbirds around.

Nest 7: 9 May 2004, Peel R.M. [17PJ02]. A mockingbird nest found at 1.0 m height in a 2.3 m spruce had three mockingbird eggs and one cowbird egg. Two of the mockingbird eggs were intact but one was broken in half with the yolk dried up. A fourth mockingbird egg was balanced among spruce twigs and needles just outside the nest; this egg was punctured with two small 1.0 mm holes on the side, about 3.0 mm apart (Figure 2). All the eggs were very cold and the nest was clearly abandoned, as the pair had already re-nested nearby with three eggs laid. The calculated first egg date for the re-nesting was 7 May; therefore, the cowbird egg was probably laid during the first few days of May.



Figure 2: Brown-headed Cowbird-punctured Northern Mockingbird egg, Peel R.M., 9 May 2004. Photo by Winnie Poon.

Nest 8: 15 May 2004, Peel R.M. [17NJ94]. At 1155h, we found a mockingbird nest at 1.0 m height in a 2.4 m Blue Spruce (*P. pungens*). It contained a single cowbird egg. On the ground below the nest was a damaged mockingbird egg, with a 5.0 mm lengthwise puncture on the side and the yolk semi-dried; this egg had probably been removed by the cowbird within the previous few days (Figure 3). The cowbird egg was warm and the female mockingbird was seen emerging from the nest tree, but it is uncertain whether it had actually been on the nest. The pair scolded slightly during nest checking but were later seen to be building a new nest nearby. It so happened that at 1215h, we observed a female cowbird come to a spruce beside the mockingbird nest tree. The mockingbirds were not present at this time. It entered the top of the spruce at about 3 m height, where we subsequently found that a House Finch (*Carpodacus mexicanus*) nest was located, and remained hidden in the foliage for about 20 seconds. The cowbird then emerged, briefly looked around, re-entered the nest, and almost immediately re-emerged with an egg held lengthwise. In the space of a few seconds, it crushed the egg in its bill, swallowed it and flew off. The House Finch nest was too high for us to examine the contents, but this rarely witnessed occurrence confirms that a Brown-headed Cowbird was actively monitoring other nests in the immediate vicinity. On 12 June, the cowbird egg was found to be missing from the mockingbird nest, and it was not on the ground below. The nest lining was extensively disturbed (tossed up). Since the nest had been abandoned for some time, it seems likely that the cowbird egg was removed by an unknown mammalian predator, perhaps a squirrel (Sciuridae).

Nest 9: 24 May 2004, City of Toronto [17PJ12]. On 19 May, we found a completed and lined empty mockingbird nest at 1.8 m height in a 4 m spruce. The nest contained three mockingbird eggs plus one cowbird egg on 24 May at 1955h. We could not find any removed mockingbird



Figure 3: Northern Mockingbird egg ejected by Brown-headed Cowbird, Peel R.M., 15 May 2004. Photo by Winnie Poon.

egg caught in the spruce or on the ground below. Although one adult mockingbird came off the spruce, it did not scold. It was uncertain whether the female had been on the nest, since the eggs were cool. On 10 June, there were three mockingbird nestlings, about five days old, but there was no cowbird egg in the nest, on the spruce, or on the ground below. On 20 June, the nest was empty; the singing male was close-by but not agitated. The nestlings might have fledged but the outcome was unknown. The calculated first egg date for this nest was 23 May.

Parasitism Frequency

In total, nine cases of Brown-headed Cowbird parasitism were found during a four-year study period (2001-2004). During this period, a total of 483 *active* mockingbird nests were found in the GTA (12 in 2001, 111 in 2002, 180 in 2003, and 180 in 2004), for an overall *observed* parasitism rate of 1.9%. Prior to this study, there were no published reports of Brown-headed Cowbird parasitism involving Northern Mockingbirds in Ontario (Peck and James 1987, 1998a), but their data were based on

a much smaller sample of 74 nests (107 as of 1998), which had been reported to the Ontario Nest Records Scheme. This confirms what was previously known (Friedmann 1934, Friedmann et al. 1977), namely that the Northern Mockingbird is an *infrequent* victim of Brown-headed Cowbird parasitism compared to many other species of passerines which are commonly found within its range. In the GTA, the list of such species which may occur in the same types of habitat as Northern Mockingbirds, and

which have relatively high parasitism rates, would include: Willow Flycatcher (*Empidonax traillii*; 26.8%), Yellow Warbler (*Dendroica petechia*; 29.6%), Northern Cardinal (*Carduelis carduelis*; 21.1%), Chipping Sparrow (*Spizella passerina*; 32%), Song Sparrow (*Melospiza melodia*; 23.2%), and House Finch (*Carpodacus mexicanus*; 42.2% as of 1987, but dropping to 27.5% by 1998). The parasitism rates quoted are those reported for Ontario by Peck and James (1987, 1998a, 1998b). Of those listed, only the House Finch occurs frequently in the mockingbird territories we have investigated; the others are found only rarely (very rarely in the case of Willow Flycatcher and Yellow Warbler).

Parasitism rates are typically under-reported due to a number of biases related to the response of the host (Friedmann et al. 1977). For species which eject the cowbird egg, one would not know that parasitism had occurred, unless the observer actually saw the incident in progress. And if nests are deserted, they are simply less likely to be found. But in our study, we frequently checked all the potential nesting habitat in the vicinity of an active nest, looking for evidence of previous usage of the site. So we may have found more cases than would have occurred by chance, as represented by the ONRS data.

Parasitism Timing

Seven of the parasitized nests were found in May, with only one nest

found in each of June and July, but probably all the cowbird eggs were laid in May. The calculated first egg date for Nest 2 was 13 May, while the single cowbird egg in Nest 3 could have been there from May as well. Egg dates for Brown-headed Cowbird range from mid to late April until mid July (Lowther 1993). In Ontario, reported egg dates for Brown-headed Cowbird range from 17 May to 5 August, while those for Northern Mockingbird span the period 23 May to 8 August (Peck and James 1987). However, we have found that some mockingbirds can begin nesting as early as mid April, with the earliest GTA egg date so far recorded being 14 April, and they typically attempt two or three broods per season in the GTA (RBHS and WP, unpublished data). So there is no lack of mockingbird nests in June and July, but nearly all the observed parasitism occurred early in the season, with eight of nine cases observed before 22 May.

A single Brown-headed Cowbird can lay up to 40 eggs during one breeding season (Lowther 1993). In southern Ontario, it was found that the average laying period for Brown-headed Cowbirds fell between 4 May and 28 June; this period marking the dates between which 50% of female Brown-headed Cowbirds had laid their first egg, and after which 50% had ceased laying for the season (Scott and Ankney 1980). These data were obtained for the area surrounding

London, Ontario, about 200 km southwest of the GTA, but would likely apply to the GTA as well.

Given the number of Northern Mockingbird nests which were found in our study, we can look at the data in terms of *available* host nests by five-day period. Five-day periods were selected on the assumption that for a typical mockingbird clutch of four eggs, the five days starting on the day before the first egg represent the optimal period for parasitism to occur. Using only those nests where the first egg date can be allocated to a specific five-day period yields the results shown in Table 1. Only data for April and May are presented; there were of course many nests in June and July also, but those were probably not relevant to the parasitism which was observed. The parasitism rate, based on the total number of mockingbird nests *known* to have been available in May alone, was actually 4.5%, greater than the *overall rate* of 1.9% but still quite low compared to the other species listed previously.

Parasitism Response

Although the Northern Mockingbird has been categorized as an "accepter" species, the other mimids regularly found in Ontario, Gray Catbird (*Dumetella carolinensis*) and Brown Thrasher (*Toxostoma rufum*), have been described as "rejecter" species. Furthermore, the designation as an accepter species appears to have been based on

experiments involving no more than five nests (Friedmann et al. 1977). A rejecter species is one which responds to the parasitic egg by physically removing it. This is considered to be a more highly evolved condition, since "nest desertion and egg burial may not be anti-parasitic adaptations but by-products of standard avian behavior patterns" (Rothstein 1975). Unfortunately, our observations are somewhat equivocal as to whether the Northern Mockingbird should be considered an accepter species. In most cases (six out of nine), the attempted parasitism was followed by abandonment of the nest, often with subsequent re-nesting nearby. In the cases of Nest 5 and Nest 9, the mockingbirds *may* have responded by ejecting the cowbird egg, but this cannot be known for certain. In the two cases where a nest in which young mockingbirds hatched held a cowbird egg, it either did not hatch (Nest 2) or disappeared at some time during incubation or while the young were less than five days old (Nest 9).

Nest 1 and Nest 4 showed some initial acceptance of the cowbird eggs, since they were found to be warm and the females were still on the nest; so nest abandonment must have been a delayed response. However, desertion of Nest 1 may have been caused by an unseasonably cold spell, rather than the cowbird egg itself. The case of Nest 2, where the cowbird egg was allowed to remain in the mockingbird nest even to the fledgling stage, shows

Table 1: Initiation of early-season Northern Mockingbird nests in the GTA, by 5-day period.

Date	April							May							Total	%
	1-5	6-10	11-15	16-20	21-25	26-30	Unk	1-5	6-10	11-15	16-20	21-25	26-30	Unk		
2002																
# Nests					1	3	1		2	3	3	6	6	13	38	
# Parasitized										2				1	3	7.9%
# Deserted						1			1	2	1	2	1	4	12	31.6%
2003																
# Nests					3	5	4	8	7	4	3	9	12	22	77	
# Parasitized								1		1					2	2.6%
# Deserted						2		3	1			1	1	2	10*	13.0%
2004																
# Nests			1	1	6	11	2	11	8	6	5	9	3	21	84	
# Parasitized								1		1		1		1	4	4.8%
# Deserted						1	1			1				5	9*	10.7%
Totals																
# Nests			1	1	10	19	7	19	17	13	11	24	21	56	199	
# Parasitized								2		4		1		2	9	4.5%
# Deserted						4	1	3	2	3	1	3	2	11	30**	15.0%

Note: Nests initiated in June, July and August are not shown in this table. Unk = unknown date.

* Includes one nest deserted in April or May. ** Includes two nests deserted in April or May.

that it may be accepted on occasion; but why this cowbird egg failed to hatch remains unknown. One possibility is that the egg size difference leads to inefficient incubation of the smaller cowbird egg (G.K. Peck, pers. comm.). Average egg dimensions are 18.5 x 24.5 mm for Northern Mockingbirds from Pennsylvania/Maryland (Derrickson and Breitwisch 1992) and 16.42 x 21.45 mm for Brown-headed Cowbird (Bent 1958); see also Figure 1 for relative sizes.

Table 1 also shows the number of deserted nests by five-day period, and these data are expanded in Table 2. Nests were counted here if they previously held one or more eggs, and still held one or more eggs after being judged as deserted. Cases where all the eggs disappeared were attributed to depredation. The numbers in 2002 were influenced by an unusual, late cold spell during the period 17-20 May. It is difficult to be certain of the reason or reasons for nest desertion, but cold weather and partial depredation were the most frequently attributed causes, followed by "unknown". Some of these "causes" may be linked; for example, a nest already deserted due to chilling during a cold spell would presumably be more prone to subsequent depredation, and might have been recorded in this category when in fact the underlying cause was weather-related. We suspect that unusually cold or wet weather is a primary cause of nest desertion for GTA mocking-

birds, partly because we have seen a few cases where all the young were dead in the nest following similar weather events. One may conclude that cowbird parasitism is not the most important factor influencing nest desertion in the GTA.

Furthermore, the impact on overall nesting success must be very minor. Using the simplistic criterion that a successful nest is one which fledged at least one young, we observed an overall success rate of 56% (ranging from 50% in 2002 to 63% in 2004; n=483). The corresponding failure rates ranged from 18% in 2004 to 32% in 2002, and the outcome of the remaining nests was unknown, due to insufficient monitoring.

Nest Tree Species

Except for Nest 4 which was in a honeysuckle bush, all the mockingbird nests that were parasitized were in small spruces. These nests were only partially hidden and could be easily seen through the spruce branches. In the case of the honeysuckle, it was still leafless and the nest was particularly exposed with almost no overhead covering. As the majority of mockingbird nests (about 59%) found in the GTA during the 2001-2004 seasons were in small coniferous trees, with about 44% in small spruces (RBHS and WP, unpublished data), it is not unexpected that most parasitized nests were also found in the same tree species. However, it is possible that more of the early nests are

Table 2: Deserted Northern Mockingbird nests in the GTA, 2002-2004.

Assumed Reasons	April			May			June			July			Aug			Total
	2002	2003	2004	2002	2003	2004	2002	2003	2004	2002	2003	2004	2002	2003	2004	
Cold weather or rain		2		4*	4	1		1				1				13
Partially depredated				4	2	1		1	1			1				10
Unknown cause				2	2	1			3		1	1				10
Cowbird parasitism			1		1	2				1**						5
Broken/damaged egg				1	1	1										3
Badly built nest			1				1	1								3
Human Disturbance	1					1						1				3
Unhatched egg											1	1				2
Totals	1	2	2	11	10	7	1	3	4	1	2	5	0	0	0	49

* Including 1 parasitized nest. ** Probably occurred in May.

found in spruces, while later in the season more use is made of deciduous species of shrubs and trees (we have not yet analyzed the data for this possibility). But we think this is unlikely to be significant because GTA mockingbirds continue to use spruces throughout the season, and in many territories they provide the only suitable nesting sites. Given that the majority of parasitized nests occurred in small spruces, the degree of concealment or overhead cover would not have changed significantly during the course of a season, so this is most unlikely to have had an impact on the observed frequency of parasitism.

Discussion

A number of interesting questions are raised by our findings, such as why are the early nests most impacted, but overall so few appear to be

parasitized? We suggest a possible explanation. During April and early May, cowbirds in the GTA have only a limited range of host species' nests available to them, of which those most frequently found in the same areas as mockingbirds include American Robin (*Turdus migratorius*) and House Finch. But the American Robin is a known rejecter species and would be an unsuitable host for this reason. The House Finch is of course a very recent colonist in Ontario, with the first nest recorded at Niagara-on-the-Lake in 1978 (James 1978). During the period 1980-1994, it spread quite rapidly throughout southern Ontario, initially occupying the major urban areas. However, the House Finch population appears to have declined in recent years (Tozer 1997). It too is a completely unsuitable host for the Brown-headed Cowbird, since the

young are fed a diet of seeds, and no young cowbirds are successfully fledged from House Finch nests. Although it was heavily parasitized by the Brown-headed Cowbird in the early years, the parasitism rate has declined significantly, perhaps in response to this negative selection pressure (Peck and James 1998b).

Nonetheless, it seems likely that early in the season many cowbirds concentrate on finding House Finch nests, as suggested by Graham (1987). In Ontario, the House Finch starts nesting early, with an egg date of 21 March recorded (Kozlovic 1988), and overall egg dates of 22 March to 6 August given by Peck and James (1998b). It also offers nest dimensions (inside diameter 5.0 to 7.0 cm) within the range (3.8 to 7.6 cm) which seems most favoured by cowbirds (Peck and James 1987). The House Finch often utilizes small coniferous trees in areas also frequented by mockingbirds. Peck and James (1987) reported that 107 of 119 House Finch nests (90%) were in coniferous trees, and of those, 48 were in spruce. In the GTA, small spruces are very frequently planted for landscaping purposes in most new industrial areas, also in new parks, and for screening along major roads, railways, the edges of shopping mall parking lots, and elsewhere. All these situations represent micro-habitats in which we have frequently found Northern Mockingbirds, and we suggest that while individual cowbirds are monitoring their House Finch victims, they inevitably find a few

Northern Mockingbird nests as well.

But the Northern Mockingbird is not an ideal host for the Brown-headed Cowbird. On the contrary, it is watchful, aggressive, and defends its nest and territory staunchly against all possible dangers, including hawks, dogs, cats and human investigators! No doubt any cowbird "caught in the act" would be attacked severely. Furthermore, the mockingbird egg is probably just a little too large for the cowbird to deal with efficiently. We suspect that a Brown-headed Cowbird cannot hold a typical mockingbird egg between the mandible and maxilla, as we observed in the case of the House Finch egg. It therefore attempts to impale a mockingbird egg with its bill tips, as in the photograph of a Brown-headed Cowbird with an impaled egg of a Chestnut-sided Warbler (*Dendroica pensylvanica*) in Bent (1958). This could account for the punctures we have seen on several eggs, and particularly the case of Nest 7 where we found an egg with two punctures close together, caught in spruce twigs and needles just outside the nest. We suspect that the Northern Mockingbird egg is slightly too heavy to be transported after having been impaled, so the cowbird is forced to jettison it quickly, or the eggshell "bridge" separating the two punctures gives way and the egg is dropped.

There is an opportunity here for a patient observer to find out exactly how a Brown-headed Cowbird attempts to remove and

carry off a mockingbird egg. But it would be a matter of real luck to observe this, given the low frequency of parasitism recorded. We suspect that by late May, more nests of a wider variety of more suitable hosts become available to the cowbirds, as most of the summer migrants return to their territories and initiate nesting activities. Thus, as the season progresses, Brown-headed Cowbirds can ignore mockingbird nests, which based on our findings are unproductive as far as the cowbirds are concerned.

We now have a possible explanation as to why the ONRS data did not contain any reports of cowbirds parasitizing mockingbird

nests. The first egg date for the data set analyzed by Peck and James (1987) was 23 May. Whether by chance or otherwise, it seems that the ONRS cards at that time only included nests initiated somewhat later in the season than many found in our study. If so, the ONRS data set would have missed the peak period for cowbird parasitism.

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An Unusual Ground Nest of the Merlin

Glenn Coady, Mark K. Peck, Karl R. Konze and Gerry Binsfeld

Introduction

During an Ontario Breeding Bird Atlas northern field expedition along the lower Shamattawa River in the Hudson Bay Lowland in 2004, the authors discovered a Merlin (*Falco columbarius*) nest that was unusual in several respects.

The Merlin breeds throughout the northern forests and prairies of North America, Europe and Asia (Sodhi et. al. 1993). In North America, there are three subspecies: the Black Merlin (*F. c. suckleyi*) of the humid Pacific Northwest, the Taiga Merlin (*F. c. columbarius*) of the boreal forest, and Richardson's Merlin (*F. c. richardsonii*) of the northern prairies and aspen parkland (Pittaway 1994).

Merlins do not build nests. They usually adopt old corvid or hawk nests, in both coniferous and deciduous trees, with little or no modification. Also, in North America, they are rarely known to nest in tree cavities, on cliffs and on the ground (Bent 1938, Fox 1964). Ground nesting has been much more commonly described from Eurasia than from North America (Brown and Amadon 1968, Cramp and Simmons 1980). It has been suggested that ground nesting may be more common at the northern

edge of their range, possibly indicating that the breeding range may extend farther north than previously understood (Sodhi et. al. 1993).

Both sexes are known to incubate, but incubation is predominantly done by the female, with male incubation time positively correlated to clutch size (Sodhi et. al. 1992, 1993).

Observations

We first discovered an agitated female Merlin (*F. c. columbarius*) in atlas square 16FF08 on 10 June 2004 while travelling up the lower Shamattawa River by motorboat in transit to square 16FF07. When we returned by canoe to this site to camp on 12 June, we observed both a male and female Merlin. In the period 12-16 June, we observed the female much more often than the male, usually perched in a dead tree at the top of a small cliff on the east bank of the Shamattawa River. This female was observed challenging Common Ravens (*Corvus corax*) that were nesting immediately across the river virtually every time one of them attempted to cross the river near the area of this female Merlin's perch. On 14 June, a search for an assumed nest was made in the spruce woods in the

riparian area adjacent to the river. Although we found several suitable old stick nests in the area near the female's favourite riverside perch, none of these were being used as an active nest site. After an hour of searching the trees, with only sporadic agitation by the female, we split up and searched near the cliff edge. This quickly resulted in increased agitation by the female and shortly thereafter the male flushed from somewhere nearby and joined in agitated flight behaviour, with occasional power dives. Within another five minutes, the nest was found on the ground by Coady.

The nest was located in a shallow depression on the bare ground above the top of the cliff. This afforded the incubating bird an excellent view of the adjacent riverside habitat (Figure 1), as well as activity at the Common Raven nest across the river. The nest depression (Figure 2) contained two short, elliptical, reddish eggs in an area with a sparse ground cover of blueberry (*Vaccinium sp.*), Labrador tea (*Ledum groenlandicum*), and reindeer lichen (*Cladina sp.*). The nest location was 16U 603913 6084173 (North American Datum 1983); 54.0° 53.0' 37.59" N latitude, 85.0° 22.0' 47.15" W longitude (see ONRS card #184535). The nest and eggs were photographed (Figure 3), but egg dimensions and weights were not taken to avoid repeated disturbance at the nest site.

During the search for the nest, the male was observed making a

successful kill, which it then brought to the female at her favourite perch. The male then returned to incubation duties at the nest. This nest still contained two eggs on 16 June. Given that we elicited agitated behaviour from the female on 10 June, combined with the most likely two-day egg-laying interval for Merlin (Palmer 1988), it is quite likely that the two eggs may have represented a full clutch.

Discussion

This Merlin nest was unusual in several respects. It represents the first Merlin nest found on the ground in Ontario (Ontario Nest Record Scheme). A previous nest with five eggs was found about 50 metres up on a cliff ledge west of Aquatuk Lake, Kenora District, by Stephen V. Nash on 24 June 1980 during an ROM expedition (ONRS card #17218). All other nests found to date in Ontario have been in trees. If ground nesting is indeed more prevalent at the northern edge of Merlin range, lack of previous ground nests may simply be an artifact of scant northern field work.

Normally, the female does the majority of incubation at Merlin nests. Our observations at this nest suggest that the majority of incubation was being done by the male, and that the female seemed to have been guarding the nest site from aerial intruders by constant sentry duty at an exposed perch within sight of the nest. Predation has been shown to be a major cause of



Figure 1: View of surrounding habitat from the Merlin nest, Shamattawa River, 14 June 2004. Photo by *Mark K. Peck*.



Figure 2: View of Merlin nest site, Shamattawa River, 14 June 2004. Photo by *Mark K. Peck*.



Figure 3: Nest and eggs of Merlin, Shamattawa River, 14 June 2004. Photo by Mark K. Peck.

nest loss in Merlin in Sweden (Wiklund 1990), and tree nesting has been associated with higher success rates than ground nests, likely due to mammalian predation (Newton et. al. 1978).

With Common Ravens nesting directly across the river, it is possible that a ground nest was preferable to a tree nest in this situation, and that incubation roles were reversed to allow the larger female to act as sentry to drive away foraging ravens. In these northern riverside niches, perhaps Common Ravens pose a greater predation risk from above than do mammalian predators from below, thus shifting nesting behaviours.

If indeed this nest represented

a full clutch, this would be a very small clutch size for Merlin. Peck and James (1983, 1993) cite an average clutch size for Ontario nests of 4 to 5 eggs for those nests with suspected full clutches ($n=28$). This nest may have represented a replacement clutch from a failed earlier nesting attempt. However, Morrison (1980) observed no difference in size between first and replacement clutches ($n=2$), with renesting occurring within 300 metres of the first attempt.

Acknowledgements

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Common Raven Nesting in the Greater Toronto Area

Theo Hofmann

On 6 June 2003, while riding her horse in the North Tract of the York Region Forest, Allison Hegarty observed a large nest (Figure 1) in a Red Pine (*Pinus resinosa*) tree located at 17T 635276 4882134 (North American Datum 1983). The nest contained two young black “squawking” birds which she assumed were young American Crows (*Corvus brachyrhynchos*). She did mention the nest to another rider, Christel von Richter, and on 24 June, Christel heard two

adult Common Ravens (*C. corax*) near the now empty nest. She wondered whether the supposed American Crow nest could in fact be the nest of the Common Ravens which she had heard nearby.

On 2 July 2003, Christel and I visited the nest, which we estimated was at a height of about 15 m. It appeared to be at least 1 m in diameter, which I thought was rather large for crows. We searched on the ground around the nest and found a skeleton of a black bird which was



**Figure 1: Common Raven nest in the North Tract of the York Region Forest in 2003.
Photo by Winnie Poon.**

still mostly covered with skin and feathers but missing the flesh. The bird appeared to be a juvenile since the feathers were not sufficiently developed for flight. The body was close to 45 cm long, which is rather long even for an adult American Crow and suggested that it might be a juvenile Common Raven.

I took the bird to the Royal Ontario Museum where Mark Peck and I were able to compare it with the skins of an adult American Crow, and both a juvenile and an adult Common Raven. Comparison of the nature and length of the culmen (6.0 cm), the nature of the covering of the tarsus and its length (6.1 cm) and the length of the wings (35 cm) agreed well with those of the juvenile Common Raven and differed sufficiently from those of the adult American Crow and the adult raven that we were confident that the skeleton was that of an immature Common Raven. Apparently, this young raven had fallen out of the nest some considerable time before we found it.

Common Ravens were present in the North Tract throughout the autumn of 2003 and the following winter. In 2004, the nest found in 2003 was abandoned. A new nest had been built, located at 17T 635188 4881947 (North American Datum 1983), at a height of about 10 m in a Red Pine, about 200 m from the 2003 nest. The new nest was in dense foliage and was difficult to see (Figure 2), unlike the 2003 nest which was in a more

exposed site (Figure 3). That this nest was also that of Common Raven was indicated by the agitated behaviour of two ravens which were calling and circling above us during a visit to the site on 3 June 2004.

Discussion

There are several casual observations of Common Raven, suggesting possible breeding, in the Toronto Ornithological Club Database (TOC) since 1994. The first was by Gordon Cameron who on 4 June 1994 observed a Common Raven carrying food in the Palgrave Conservation Area. From the year 2000 onwards, there were repeated sightings of Common Raven from the Palgrave Area, including Duffy's Lane, during January and February and during the breeding season from March to July, although so far no stronger breeding evidence has been obtained.

Apart from a Common Raven that paired with an American Crow and built a nest (see below), the York Region occurrence reported here is the first documented nest of Common Raven in the GTA (Greater Toronto Area, consisting of the Regional Municipalities of Halton, Peel, York, and Durham, and City of Toronto) in probably over 150 years.

There is evidence that at least three other pairs bred in the GTA in 2002, 2003 and 2004, but no nests were found. On 7 July 2002, Dennis



Figure 2: Common Raven nest in the North Tract of the York Region Forest in 2004. Photo by *Theo Hofmann*.



Figure 3: Common Raven nest in the North Tract of the York Region Forest in 2003, showing the open environment. Photo by *Winnie Poon*.

Barry, Ed Poropat and two other birders heard juvenile Common Ravens clamouring from the north side of Ravenshoe Road where it crosses Zephyr Creek, about 6.5 km west of Udora (D. Barry, pers. comm.). During their half-hour stay they also saw adult ravens flying back and forth across the road. Although the observers could not find a nest because the area is very swampy and very difficult to access, the fact that the young ravens called constantly from the same area suggested that they were still on or near a nest, although this late in the season the observers thought that it had to be assumed that the young would have fledged. In 2003, Dave Shepherd (pers. comm.) obtained suggestive evidence for breeding of a pair of Common Ravens in the Milton Quarry, Halton Region, and he confirmed breeding there in 2004. Lastly, on 5 June 2004, Rayfield Pye saw two adult and three recently fledged young ravens while he was atlassing in the Durham Regional Forest Main Tract. The five birds were sitting in a large dead tree on Higgin Lane, east of Concession 7, Durham (TOC).

Historical Record

The southward expansion of breeding Common Ravens into the GTA is interesting in itself, but especially so in a historical context. During the first Ontario Breeding Bird Atlas project, Blomme (1987) concluded that the southern range limit of the Common Raven in Ontario coincid-



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David Renaud

ed with the southern boundary of the Canadian Shield. However, historically, the species was apparently once common in southern Ontario.

Alexander Wilson (1814) wrote the following about the occurrence of Common Ravens: "On the lakes, and particularly in the neighborhood of the Falls of the river Niagara, they are numerous; and it is a remarkable fact that where they so abound, the Common [American] Crow, seldom makes its appearance"; and further on in the same paragraph he mentioned a journey during the months of August and September in 1806 along the lakes Erie and Ontario and commented: "The Ravens were seen every day, prowling about for dead fish ... but I did not see or hear a single Crow

within several miles of the lakes". Black (1934) cited Charles Fothergill as having observed Common Ravens in courtship display on 21 March 1821 at Rice Lake. Fleming (1907) quoted a letter which mentioned that Common Ravens were present in Port Hope in 1820. Fleming also quoted Rev. John Doel as remarking that the last Common Raven pair in the Toronto area was killed in Queen's Park about 1848.

This was during a period when settlers moved into southern Ontario and caused the extirpation of the Common Ravens by direct persecution, by forest clearing for agriculture which removed their habitat, and by eliminating large predatory mammals by poison which in turn killed the Common Ravens which scavenged on the poisoned carcasses. In his book that was "apparently based primarily on material from Ottawa and Toronto" (McNicholl 1994), Alexander Ross stated in 1871 that Common Ravens had become very rare (Ross 1871). The extirpation of the Common Raven in southern Ontario extended northward into some areas on the Shield as well. MacLulich (1938) noted that even in the wilder parts of Algonquin Provincial Park, Common Ravens were rare due to poisoned baits put out by the rangers to kill wolves.

Although no significant expansion by Common Ravens toward the south seems to have occurred until the last few years, an unusual

event took place in Toronto which is described and discussed extensively in three papers by Jefferson (1989, 1991, 1994). It is very briefly summarized as follows. A Common Raven which was first observed in Etobicoke, City of Toronto, in 1985 (Jefferson 1989), built two nests in the area of the former Lake Shore Psychiatric Hospital in 1987, paired with an American Crow in 1990 (Jefferson 1991), and produced two hybrid offspring in 1993 (Jefferson 1994).

Conclusion

The reasons for the southward range expansion by the Common Raven in recent years are not immediately obvious. In contrast, preliminary results from the current Ontario Breeding Bird Atlas show a clear northward expansion of several species, which can be attributed in part at least to climate change due to global warming. Two possible contributing factors for the southward expansion of Common Ravens in Ontario come to mind. One is that they have been so successful on the Canadian Shield that the available territories are saturated and this has forced the birds southward. The other is that the return of many previously farmed areas to forested conditions is offering a more suitable habitat south of the Shield. More study is required.

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alerting me to the presence of the Common Raven nests in the North Tract of the York Regional Forest. I am also indebted to Christel for the ongoing updates on the Common Ravens in the North Tract. I am most grateful to Mark Peck for providing the skins and for his invaluable help in the identification of the skeleton of the young raven. I also owe my gratitude to Roy Smith for providing

the records for Common Raven from the TOC Database; to Glenn Coady for suggesting this note and providing various references; to Winnie Poon for providing the photographs for Figures 1 and 3; to Mark Peck, Glenn Coady and Ron Tozer for their critical reviews of an earlier draft; and to Dave Shepherd for the information on the Common Raven in a quarry near Milton.

Information Source

(TOC): Database of the Toronto Ornithological Club.

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Mute Swans in the Hudson Bay Lowland

Kenneth F. Abraham and R. Kenyon Ross

Mute Swans (*Cygnus olor*) are increasing throughout eastern North America (Ciaranca et al. 1997). In Ontario, they are widespread throughout the lower Great Lakes, especially in coastal marshes and large inland wetlands, and they are increasing at a rate of 10-18% per year (Petrie and Francis 2003). Their occurrence in northern Ontario is minimal and is correlated with humans (e.g., where captive birds are seasonally placed on lakes, as in Cochrane, or as in Thunder Bay, where feral populations are established nearby in Lake Superior areas of Michigan and Wisconsin). Mute Swans are uncommon in Manitoba and confined to the southern part of the province (MARC 2003). In this note, we report four observations representing the first known occurrences of feral Mute Swans in the Hudson Bay Lowland (hereafter HBL or Lowland) of Ontario and Manitoba.

On 6 August 1996, during Canada Goose (*Branta canadensis*) banding operations on the Hudson Bay coast west of Ft. Severn, Ontario, KFA sighted a single Mute Swan standing on the nearshore flats of a coastal marsh at the Black Currant River, at 56° 06.4' N, 87° 38.2' W. This observation was made

from a helicopter and visually confirmed by another occupant (Brian Arquilla, OMNR summer student). The bird was alone but took flight as we approached to attempt to take a photograph.

On 10 June 1997, during a helicopter waterfowl survey along the Hudson Bay coastline from Churchill, Manitoba to Moosonee, Ontario, we encountered a single Mute Swan at 56° 55.7' N, 89° 30.6' W on the Manitoba coast between Kaskattama River and Black Duck River. Ontario Ministry of Natural Resources (OMNR) helicopter pilot Kevin Mulcair spotted the swan and reported to us: "there's a swan with a yellow bill"; we immediately reversed direction to try to locate it. We (KFA and RKR) were both able to visually confirm the identification as we flew along side it and attempted to take photographs. The bird was not with any other swans although other waterfowl were noted in the general vicinity, including Tundra Swan (*C. columbianus*), Snow Goose (*Chen caerulescens caerulescens*) and Canada Goose.

On 2 June 2001, Ted Barney (OMNR summer student) and Dan Byers (OMNR Technician) sighted a lone Mute Swan near Cockispenny Point, 52° 01' N, 81°

00' W, on the James Bay coast south of Ft. Albany. They were in a helicopter flying along the shore when they saw the lone swan.

On 16 July 2004, KFA observed a single Mute Swan on the nearshore flats just north of the Attawapiskat River on the James Bay coast at 53° 04' N, 87° 16' W, while searching from a helicopter for Canada Goose brood flocks. The bird was alone and took flight when we approached to make a video recording. The identification was visually confirmed by Carrie Sadowski, Derek Potter and Sarah Hagey (OMNR biologists).

Discussion

The four observations described above have some common features. All four birds were capable of flight, despite a calendar date span of eight weeks. All four birds were alone at the time of sighting and in the immediate vicinity of the Hudson or James Bay coasts. In all cases, the birds appeared to be in adult plumage, and had noticeable orange bills easily seen from the helicopter. However, we note that any one of the swans could have been a second year bird (i.e., a yearling) because small amounts of brown-grey in the plumage would be nearly impossible to detect from a helicopter.

It is not surprising that, with the increase of Mute Swan populations in eastern North America, the species would reach the HBL. The Lowland is a globally significant

migration and/or breeding area for waterfowl (Thomas and Prevet 1982), including several million migrating Snow Geese and Canada Geese, approximately 300,000 nesting Snow Geese and one-half million nesting Canada Geese, and thousands of migrating Cackling Geese (*B. hutchinsii*) and Atlantic Brant (*B. bernicla hrota*) (Abraham and Jefferies 1997). A small population of nesting Tundra Swans is present in the HBL (Lumsden 1987, MARC 2003). Additionally, tens of thousands of temperate-nesting large Canada Geese (*B. c. maxima*) from throughout eastern and central North America migrate to the Lowland to undergo the molt of their wing and tail feathers (Abraham et al. 1999).

There are three reasonable (and non-exclusive) hypotheses about the course of arrival of the Mute Swans reported here. First, they may have come north from natal or breeding locations in southern Canada or the northeastern United States on molt migration or exploratory wanderings. Second, they may have migrated with Tundra Swans from wintering areas along the Atlantic Coast of the United States. Third, they may have migrated with large Canada Geese from the lower Great Lakes.

Although some local seasonal movements (e.g., winter concentrations and molt concentrations) of Mute Swans are known to occur in the southern Canada and the northeastern United States populations,

most birds are largely sedentary (Ciaranca et al. 1997). There is no evidence of any established northward molt migration. In their native range, Mute Swans vary in mobility: "wholly migratory in some parts, mainly sedentary in others; also partial migrant" (Cramp and Simmons 1977). They are largely sedentary year-round in more temperate western European breeding areas where populations are feral (94% of movements are less than 50 km). However, they are migratory in northern parts of the breeding range (i.e., Scandinavia, north Germany to Estonia). Of particular interest in this case is that a major northward molt migration occurs in the northern European range, with up to 15,000 molters present in molting concentrations in Scandinavia from July to September (Cramp and Simmons 1977). The coastal habitat of James Bay and Hudson Bay conforms to the type of habitats Mute Swans use as molt migration areas in Europe, and the dates of our observations in the HBL are consistent with pre-molt movements, given that most wing molt in North American Mute Swans is mid July (as early as June) to mid August (Ciaranca et al. 1997).

The majority of eastern Tundra Swans winter along the mid-Atlantic coast of the United States (Delaware, Maryland, Virginia, North and South Carolina) in areas where Mute Swans are numerous year-round. Tundra Swans return to the HBL in late April and early

May. The fact that none of the four Mute Swans was observed associating with Tundra Swans (e.g., they might have associated with non-breeding or failed-breeding birds, as these are present) detracts from this hypothesis. Additionally, none of our observations were made in April or May (during Tundra Swan migration). Although we conducted surveys in all months from May to August, we flew more in June and July than other times and therefore we cannot discount the possibility that the timing of the Mute Swan observations was partly the result of greater effort later in the summer.

The molt migration of temperate-nesting large Canada Geese occurs from about the third week in May to the second week in June, peaking near 1 June (Abraham et al. 1999). The majority of birds come from areas where Mute Swans are increasing (e.g., Ohio, Michigan, southern Ontario). Mute Swans and Canada Geese from these areas share similar habitats. Other large waterfowl (hybrids, such as Canada Geese x domestic geese, and escaped captive Canada Geese) have been observed and captured with molt migrant Canada Geese during OMNR banding operations in the Lowland (OMNR, unpublished data). The observations of Mute Swans reported here all occurred near or after the peak of the annual Canada Goose molt migration to the HBL. While they may not have migrated with Canada Geese, their move-

ments might have been influenced by this peak of migratory activity.

The fact that all the Mute Swans we observed were capable of sustained flight raises the question of when and where they spent their flightless period. Mute Swans have a relatively long flightless period (35-42 days; Hohman et al. 1992). The 10 June 1997 and 2 June 2001 observations were almost certainly that of pre-molt birds; few waterfowl are flightless at those calendar dates in the Hudson Bay Lowland. However, the 16 July 2004 bird and the 6 August 1996 bird probably should have been flightless, as the flightless period is usually mid July to mid August in the North American breeding range. However, either could have been pre-molt because factors affecting molt timing in waterfowl include age, sex, reproductive condition, seasonal phenology and social status (Hohman et al. 1992), and it is possible that the dislocation of the observed birds from familiar territory and other Mute Swans may have delayed or deterred wing molt. Tundra Swans, Giant Canada Geese, locally nesting Interior Canada Geese (*B. c. interior*), and Snow Geese are usually flightless at this time of year in the HBL; we see flightless geese and swans between

approximately 20 June and 10 August in most years.

We know of no other records of Mute Swan observations in the Hudson Bay Lowland. First Nations hunters often report unusual waterfowl, but we have had no such reports about Mute Swan from residents of the HBL communities in Ontario. We have little doubt that our observations are not the only cases of Mute Swans reaching the Hudson Bay Lowland, and it is possible that they may be the vanguard of a new molt migration tradition. Given the population trajectories of Mute Swans in southern Canada and the north-eastern United States, we expect such observations to continue.

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Notes

Ground Nesting by Bald Eagles

Chris Martin

During the summer of 2004, I worked in Quetico Provincial Park, Rainy River District, in northwestern Ontario, researching forest stand history, shoreline succession and lake outlets. While working on Pickerel Lake near the northern boundary of the park, a co-worker informed me that as he was canoeing past a small, treeless rocky island, a Bald Eagle (*Haliaeetus leucocephalus*) flew out directly toward him in a threatening manner and returned to the island. Believing this to be unusual behaviour, he wondered if it might be nesting on the island. Later that evening, I paddled out with this co-worker to the island. This produced an identical unnerving response from the adult eagle. Using binoculars, I followed the eagle as it flew back to the island and saw it land next to a large stick nest, step into it and settle down as if to incubate eggs.

My second opportunity to view the nest came on a very windy 22 June en route to another lake. Armed with a digital camera, another co-worker and I fought the wind to gain a much closer east-facing perspective of the nest, scaring off one adult eagle in the process. A large stick nest sat on the highest part of

the island, approximately two metres above the waterline. A juvenile Bald Eagle sat on one side of the nest. The island was a small rock dome, completely devoid of vegetation, and had a few large boulders scattered on it (Figure 1). The nest was made of sticks of various sizes and had a rather flattened appearance, possibly due to the activities of the young eagle. The nearest adjacent land was one kilometre away.

Discussion

Bald Eagles are a fairly common breeding bird in Quetico Provincial Park and northwestern Ontario (Elder 1994). Nests are usually constructed in the biggest locally available tree. In the park, White Pine (*Pinus strobus*) is the nest tree of choice followed by large Trembling Aspen (*Populus tremuloides*). Occasionally, another tree species may be used. There is no previous record of a Bald Eagle nest on the ground in Quetico or elsewhere in Ontario (Peck, 2004; pers. comm.). The species has a vast range in North America and tree nesting is the norm. Big trees are necessary to support the large size of the nest that if used for many years can



Figure 1: Juvenile Bald Eagle on ground nest, Pickerel Lake, Quetico Provincial Park, 22 June 2004. Photo by Chris Martin.

become extremely heavy. A nest used for many years in Ohio, U.S.A. was estimated to weigh more than 2 tonnes after it and its supporting tree were felled by a windstorm (Stalmaster 1987).

However, Bald Eagle nests have been found previously that were not built in trees (Buehler 2000). In Newfoundland, nests have been observed on steep cliffs (Peters and Burleigh 1951). Cliff nests have been recorded in Alaska and British Columbia also (Campbell et al. 1990) and in Baja California, a nest was built in a giant cactus (Palmer 1988). In west-central Labrador, both Bald Eagles and Ospreys (*Pandion haliaetus*) nest on large rock pinnacles in the Smallwood

Reservoir (Laing et al. 2003). Bald Eagles have been reported nesting on the ground: near the shore of a rocky island in Great Slave Lake, Northwest Territories (Bromley and Trauger 1974); rarely (three out of 206 nests studied) on small islets (keys) in Florida Bay (Curnutt and Robertson 1994); and in a cornfield in northwestern Minnesota (Hines and Lipke 1991). A nest found on a small rocky island in the Saskatchewan River appeared to be similar to the one in Quetico (Gerrard and Bortolotti 1988).

Why this pair of Bald Eagles chose to nest on the ground is open to speculation. Bald Eagle populations have been increasing significantly in northwestern Ontario and it is possi-

ble that suitable nesting trees in the Pickerel Lake area of Quetico have all been taken by other pairs. It may have been the relative isolation and security the island site provided that made it more attractive than nearby suitable trees. The lack of mammalian predators in the Aleutian Islands (Sherrod et al. 1977) and on keys in Florida Bay (Curnutt and Robertson 1994) was presumed to enable ground nesting by Bald Eagles. It is possible that Ospreys first built the nest and the eagles took it over, but this seems unlikely since

Ospreys are uncommon breeders in Quetico (Elder 1994), and there is an abundance of suitable nest trees.

In any event, it will be interesting to see whether what may be the only ground nest of Bald Eagles in Ontario continues to be used in the future.

Acknowledgements

Dave Elder and Ron Tozer kindly assisted with the preparation of this article, and Dawn Laing provided information on ground nesting Bald Eagles in Labrador.

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An Apparent Bufflehead x Common Goldeneye Hybrid

Kevin McLaughlin, George Naylor and Bill Lamond

On 11 January 2004, the authors were once again counting waterfowl in the Hamilton Study Area as part of the Lake Ontario Midwinter Waterfowl Census, of which GN is the regional compiler. The Hamilton area is divided into three sections for this census, and three participant groups rotate through these different areas on a yearly basis. The authors have been a census team for a number of years, and in 2004 our area of responsibility was the north shore of Lake Ontario from the Burlington Ship Canal to Bronte Harbour.

The first stop after lunch was Sioux Lookout on the Burlington shoreline. The usual format is for the three observers to divide up the species. For example, GN would count geese and dabbling ducks, BL would take care of certain species of diving ducks, and KM would count the remainder. The time was approximately 1300h when the group started counting waterfowl.

KM was the first to spot an unusual diving duck which was swimming among many Common Goldeneyes (*Bucephala clangula*), roughly 300 m from shore. His first thought was that it resembled an alcid. BL and GN were both able to

get on the bird and a lively discussion ensued regarding its identity. The notion that it might be an alcid was quickly discarded, with the acceptance that the bird was an unusual hybrid diving duck.

Description

The duck was slightly but obviously smaller than the male Common Goldeneyes. The crown, nape, chin and throat were black and the eye appeared dark as well. Much of the side of the head was whitish, clearly lacking any semblance of the characteristic goldeneye facial spot. The bill was smaller than that of a Common Goldeneye, black in colour, and seemed rather narrow. The head shape seemed rounder with a flatter crown and also was noticeably smaller. The back was black and the scapulars were broadly white, lacking the black "slashes" so evident on male Common Goldeneyes. The chest, flanks and underparts were gleaming white. As the duck neither flapped its wings nor flew during the observation, the makeup of the upperside of the wing could not be determined.

After more discussion regarding the duck, the conclusion reached was that the bird was a



Figure 1: Presumed male Bufflehead x Common Goldeneye hybrid that was shot off the coast of Washington state near Deception Pass in early January 1998. Photo by Patrick Pitt.

hybrid, most likely involving Bufflehead (*B. albeola*) and Common Goldeneye, and that it was a male. That a Barrow's Goldeneye (*B. islandica*) could have been involved had to be considered and indeed could not be ruled out on the basis of plumage and structural features visible. Our conclusion, however, seemed reasonable as the most likely case scenario. As always when a suspected hybrid is present, a caveat must be used; hence the word "apparent" in the title.

Unfortunately, the bird was not seen again after this first observation, obviously negating the possi-

bility of a photograph being obtained. The photo included in this note shows a mounted specimen (Figure 1). That bird was shot off the coast of Washington state in January 1998. It is very similar to the Burlington bird except in having somewhat less black on the throat, and having a bill seeming to match the size of a Common Goldeneye's. We can only assume that the golden eye colour of the specimen represented that of the bird in life. Though quite distant, the Burlington bird always appeared to have a dark eye. As with the Burlington bird, the specimen is believed to be a hybrid



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involving Bufflehead and Common Goldeneye.

Discussion

Gauthier (1993) stated that there were only two published putative cases of hybridization involving Bufflehead in the wild. One was a possible Bufflehead x goldeneye known from a wing returned by a hunter near Thunder Bay, Ontario (Palmer 1976). The other concerned a male bird which was presumed to be a Bufflehead x Hooded Merganser (*Lophodytes cucullatus*). This individual was found during May in Illinois (Marcisz 1981). However, recent examination of the photographs by the authors has led to the belief that the bird in question, paired with a

female Bufflehead, was in fact a male Bufflehead in its second calendar year, at or near the end of its first prealternate molt.

The infrequency of reported hybrids involving Bufflehead in the literature contrasts with Common Goldeneye, which hybridizes readily with several species. It has been suggested that the Bufflehead's small size and distinctive display behaviour probably contribute to reproductive isolation in the species (M.T. Myres *in* Gauthier 1993). However, given that Bufflehead and Common Goldeneye are in the same genus, are both cavity nesters, and share a large breeding range, hybridization may occur more often than published reports would suggest. Another example of possible hybridization involving Bufflehead was a bird present at Tollgate Ponds, Hamilton Harbour, from 28 August to 6 September 1999 (Dobos 2000a, 2000b). Observed by KM and others, this bizarre-looking individual possessed characters suggesting parentage of Bufflehead and Ruddy Duck (*Oxyura jamaicensis*).

Wild hybrids have been reported involving Common Goldeneye with Barrow's Goldeneye, Hooded Merganser, Smew (*Mergus albellus*), Common Merganser (*M. merganser*), Pochard (*Aythya ferina*), and Greater Scaup (*A. marila*) (Gray 1958, Palmer 1976, Panov 1989, Eadie et al. 1995), and with many species in captivity (Gray 1958). Hybridization occurs most

frequently with Barrow's Goldeneye (Martin and Di Labio 1994, Eadie et al. 1995).

Acknowledgements

We would like to thank Ron Tozer

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Can Migration Counts Detect the Effects of West Nile Virus?

Allen T. Chartier

According to several sources (including the U.S. Centers for Disease Control, and Health Canada), West Nile Virus was first detected in North America in New York in 1999, infecting 62 people and causing 7 deaths. Several thousand birds, mainly American Crows (*Corvus brachyrhynchos*) were found dead, many confirmed killed by the virus through testing of blood and tissue. The summer and fall (the primary seasons of infection) of 2000 saw an expansion of the disease through the northeastern U.S., but it was not detected anywhere in Canada. In 2001, West Nile Virus was found in Canada for the first time, mainly in southern Ontario, with 128 dead birds testing positive for the disease, but there were no human cases. The 2002 outbreak was the worst to date, with the greatest spread of the disease (to the far western U.S.), and the largest number of human casualties. In Canada, dead birds tested positive in Ontario, Nova Scotia, Quebec, Manitoba, and Saskatchewan. The 2003 and 2004 seasons were not as serious as 2002. However, West Nile Virus is clearly here to stay, and annual outbreaks are to be expected into the foreseeable future.

West Nile Virus in birds is confirmed only through testing of blood and tissue of dead birds turned in to local health agencies. To date, more than 100 species of birds have tested positive for the disease. It has been clear that members of the family Corvidae (Crows and Jays) are particularly susceptible. Most detections were of dead American Crows, partly due to the visibility of dead birds, and partly due to testing policies of health agencies. So if migration counts have any potential to show the effects of West Nile Virus, members of the family Corvidae should be ideal subjects.

Annual counts of Blue Jays (*Cyanocitta cristata*) have been conducted at the Holiday Beach Migration Observatory (HBMO) near Malden Centre, Essex County, Ontario with fairly consistent effort since 1983. The low count of 72,591 in 2002, which was significantly lower than the previous year's count, drew commentary from several local observers that perhaps this might be due to West Nile Virus. This led to the natural question, can the effects of West Nile Virus be detected through migration counts? An examination of the data (Figure 1) reveals several interesting patterns.

One important observation is that the low count in 2002 was not the lowest ever, but in fact there were three other years with even lower counts, 1984, 1998, and 2000. The low count in 1984 was possibly affected by lower observer effort (see actual count data in Appendix 1).

There is also a clear pattern of even-numbered years having lower counts than odd-numbered years; a two-year cycle. From 1983 through 2004, there are only two years where this cycle was broken, 1986 and 2004, though both those years were “up” years when they should have been “down” years.

Beginning in 1998, through 2002, the pattern of alternating high and low counts becomes more dynamic, with two record high counts and three near-record lows.

It is unclear what this greater instability in counts tells us.

A closer examination of the data from even-numbered years only shows a trend within a trend (Figure 2). A hand-drawn best-fit curve indicates a longer-term trend of perhaps 7-10 years between low and high points in this cycle. This suggests that recent low numbers should not be unexpected.

Conclusion

Blue Jay count data from Holiday Beach show a consistent two-year cycle that has only been broken twice, once unrelated to the presence of West Nile Virus. Data from 1998-2004 indicate greater instability in numbers, which might be an effect of West Nile Virus, but the first year the disease was detected

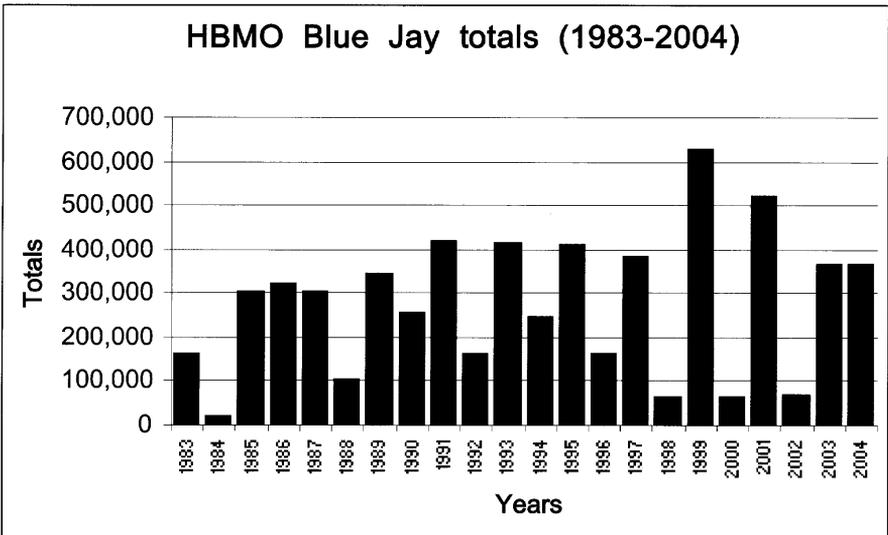


Figure 1: Holiday Beach Migration Observatory annual Blue Jay count trend, 1983-2004.

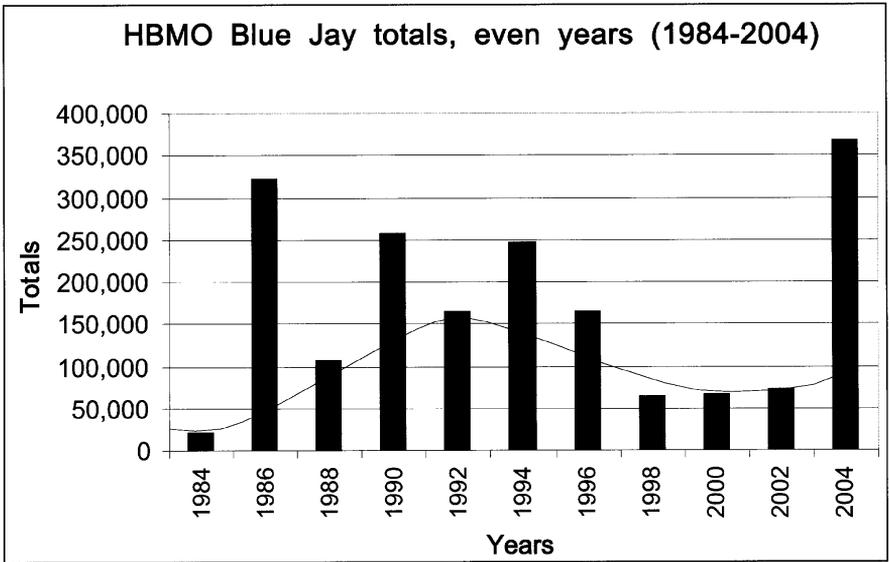


Figure 2: Holiday Beach Migration Observatory Blue Jay counts for even-numbered years only.

in North America, 1999, there was a record high count at Holiday Beach, and the first year the disease was detected in Ontario, 2001, provided our second highest count ever. It is intriguing to think that the very low count in 1998 might signal an earlier presence of the disease in North America, but without actual blood and tissue tests of Blue Jays from that time, this is only speculation. Although the low count in 2002 appears to correlate with an extensive outbreak of West Nile Virus that year, not all of the low counts show such a correlation. An examination of the alternating even (down) years suggests that the recent low numbers fall within a pattern of longer-term trends. In fact, the recent record high counts are more outside what might be

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expected from a normal pattern than recent low counts.

Thus, the variations in migration counts are more easily explained by normal patterns and trends. The data seem to provide very little, if any, insight into the effects of West Nile Virus on the population of Blue Jays migrating past Holiday Beach, as there is not a strong correlation with known levels of infection in the region.

Acknowledgements

I wish to thank the numerous observers who counted Blue Jays at Holiday Beach from 1983-2004. I am also grateful to the Holiday Beach Migration Observatory for making Blue Jay data from recent years (1997-2004) available on their website.

Information Sources

Canadian Cooperative Wildlife Health Centre:

http://wildlife1.usask.ca/ccwhc2003/west_nile_virus/wnv_north_america.php

Centers For Disease Control: <http://www.cdc.gov/ncidod/dvbid/westnile/>

Holiday Beach Migration Observatory: <http://www.hbmo.org/>

Appendix 1: Holiday Beach Migration Observatory Blue Jay annual count data, 1983-2004.

Year	Count	Year	Count	Year	Count	Year	Count
1983	161,921	1989	346,455	1995	412,186	2001	524,685
1984	21,487	1990	257,745	1996	165,898	2002	72,591
1985	305,152	1991	422,660	1997	383,952	2003	368,998
1986	323,386	1992	165,863	1998	64,689	2004	367,825
1987	306,825	1993	418,187	1999	629,990		
1988	106,882	1994	247,837	2000	65,731		

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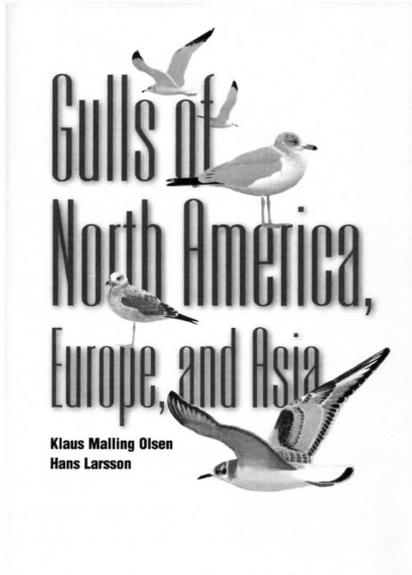
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Reviews



Gulls of North America, Europe and Asia. 2003. Reprinted with many corrections in 2004. By *Klaus Malling Olsen* (author) and *Hans Larsson* (artist). Princeton University Press, Princeton, New Jersey. Hardcover, 608 pages, 938 colour plates, 17 x 24.5 cm. \$80.00 Canadian. ISBN 0-691-11997-X.

Gulls are magnetic and magical for many birders. Interest in gulls surged in 1982 when the late Peter Grant published his classic book titled *Gulls: A Guide to Identification*. Grant's revised guide in 1986 added North American gulls. It became the gull watcher's bible until the recent publication of the Olsen and Larsson book. Their new book with its superb illustrations, excellent photographs and detailed text now make it the finest book on gull identification.

I purchased a copy of the first printing of this book just before it was taken off the market in September 2003. The recall happened because of numerous errors, mainly in the form of mixed captions, incorrect photo credits, and

inaccurate and poor quality range maps. The intent of this review is not to list all the errors, but to give selected examples. I also praise this important new book.

We had my first printing copy of Olsen and Larsson's book on a gull watching trip to Newfoundland in January 2004. It was invaluable, particularly for European species such as Yellow-legged Gull (*Larus michahellis*), European Herring Gull (*L. argentatus argentatus/argenteus*), Lesser Black-backed Gull (*L. fuscus graellsii*), Common Gull (*L. canus canus*) and Black-headed Gull (*L. ridibundus*).

The information in this book is much better, more extensive and more accurate for European gulls than for North American gulls. The

Danish author and Swedish artist have little field experience with North America gulls and likely none in Canada. They also did not use the large collections and resources in the Canadian Museum of Nature. If they had, for example, they might have noticed that Glaucous Gulls (*L. hyperboreus*) in Canada are distinctly different from European Glaucous Gulls. Our juvenile/first year birds are paler with less coarsely marked body plumage, and winter adults lack the heavy dark head/neck streaking of European birds. There are no photos in this book showing Canadian Glaucous Gulls. Currently, Canadian and European Glaucous Gulls are listed as the nominate subspecies *hyperboreus*. However, Canadian and Greenland birds should be the subspecies *leuceretes* as proposed by Banks (1986), but this split is rejected by Olsen and Larsson on page 195. Note the correct spelling of *leuceretes*, which is incorrectly spelled *leucerecetes* in the book.

Olsen and Larsson treat 43 species. They split Herring Gull into three species: the Herring Gull (*L. argentatus*) of Europe, American Herring Gull (*L. smithsonianus*) and Vega Gull (*L. vegae*); however, the Herring Gull in Europe should be called the European Herring Gull to distinguish it from the North American species. The Yellow-legged Gull (*L. michahellis*), Caspian Gull (*L. cachinnans*) and Heuglin's Gull (*L.*

heuglini) also are treated as separate species. The Mew Gull (*L. brachyrhynchus*) of North America is split from the Common Gull (*L. canus*) of Eurasia, but the Siberian subspecies *kamtschatschensis* (Kamchatka Gull) remains a race of the Common Gull.

Gull enthusiasts tend to be splitters interested in subspecies, identifiable populations and hybrids. Thus, some subspecies such as the aforementioned Kamchatka Gull and the Kumlien's Iceland Gull (*L. glaucoides kumlieni*) are given the same full treatment as species in the book. I like this idea of treating field recognizable forms in the same manner as full species.

The illustrations are excellent, with only minor problems. For example, the white eye crescents of Franklin's Gull on plate 73 are too narrow, being the same size as the Laughing Gulls on plate 71. The wide "arching" eye crescents of Franklin's Gulls help separate them from Laughing Gulls. Plate 74 shows the crescents more accurately. I like the seven introductory colour plates comparing wingtip patterns of large gulls. Note the caption error in number 18 on page 29 that refers to Figure 4 on page 30; it should refer to Figure 3. This is an example of an error not corrected in the second printing.

The 800 plus colour photographs in Olsen and Larsson are worth the price of the book compared to 544 black-and-white pho-

tographs in Grant (1986). The high quality photographs showing most age classes are the most impressive feature of this book.

Range maps for some North American gulls could be improved. For example, the breeding range of Bonaparte's Gull is inaccurate for northern Ontario south of James Bay. Its range extends farther east and south than mapped. The principal breeding range of the Little Gull in eastern North America is likely northern Manitoba and Ontario near Hudson Bay and James Bay, but breeding in the Hudson Bay Lowland is not shown on the map.

I recommend reading and learning the introductory information on judging size, judging photographs, colour abnormalities, abnormal bills, topography diagram, effects of wear and fading, hybrids, ageing, molt and plumage terminology. However, the interpretation of the Humphrey and Parkes (1959) plumage terminology on pages 13 and 14 should be ignored because it is totally wrong. In the topography diagram on page

21, the line pointing to the gonys points only to the angle of the gonys. The gonys is the ridge at the bottom of the bill from the tip to where the two sides (rami) of the bill branch, which is at the gonydeal angle.

Not all errors in the first printing were corrected in the second printing. I heard that the author tired while making numerous corrections and revisions. Nevertheless, this book is a major contribution to gull identification. The 800 plus photographs, excellent illustrations and detailed text rank the Olsen and Larsson gull book as one of the best specialty identification guides. No serious gull watcher should be without it.

I thank Jean Iron and Kevin McLaughlin for helpful comments and discussions while preparing this review.

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The Birds of Northumberland County:

http://homepage.mac.com/wings_4d/bonc/bonc_index.html

This website was prepared by Clive Goodwin, who collected and verified the sightings with the assistance of Joy Goodwin, and by Steven Furino, who authored the software (Wings2003, version 3.0.5) which managed the data and created the charts. It summarizes 208,544 records (back to 1817) of 357 species (excluding 13 "doubtful" species) for Northumberland County. The county is located on the north shore of Lake Ontario from west of Port Hope, east to Trenton, and north to Rice Lake and the Trent River.

Accounts are presented for all the accepted species for Northumberland County as a whole, and also separately for Presqu'île Provincial Park. Each species account contains short summary data and then four tables showing number of records by month, number of indi-

viduals by month, number of records by year (1975 to 2002), and number of individuals by year (1975 to 2002), unless ten or fewer records exist, in which case the records themselves are listed. These specific records show date, location, and number of individuals, but not observer(s) or source of the data (although both could be requested from Goodwin where required, presumably).

Checklists for Northumberland County and Presqu'île Provincial Park are available on the site in html, text and checkbox formats. Other lists, rarest birds for example, are also available.

This website is of interest for the wealth of information it presents about the birds of the study area, and as an example of a possible format for other regions of Ontario.

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Letters

Black-necked Stilt

We would like to correct three errors in our paper entitled "First Breeding and Nest Record of Black-necked Stilt in Ontario", published in the last issue (*Ontario Birds* 22: 106–119).

1) The pair of Black-necked Stilts involved in the 2004 nest record at Jarvis was originally discovered at the Jarvis sewage lagoons by Barry Jones on 18 May 2004, prior to the sighting at the Townsend sewage lagoons on 19 May by John Keenleyside and Daniel Salisbury.

2) In Table 1 on page 107, the 26 May 1998 Black-necked Stilt record from Bath, *Lennox & Addington*, was mistakenly attributed to Alfred H. Rider. This Black-necked Stilt was found by Glenn Barrett, Cynthia Pekarik, Jeremy Rouse and Ross Neureuther.

3) Reference to the sighting of the 2004 Black-necked Stilts at the Jarvis sewage lagoons on 22 May by Ian Burton (page 108) and I. Burton (page 110) should have correctly referred to Dan Burton of Gravenhurst.

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April 2005 Quiz

Glenn Coady

Imagine you are walking through your favourite local patch and up from the ground pops a secretive, unfamiliar passerine such as this quiz bird.

The initial impression is that of a small, bull-necked, ground-dwelling bird, with a short, conical bill, and a back dappled in dark chestnut, drab brown and pale whitish-buff. Intuitively, most birders would correctly categorize the bird as belonging to the family Emberizidae, one of 33 Ontario emberizine sparrows and their allies.

Many of the members of this family can be easily excluded from consideration. The three Ontario species of towhee all have tails much longer than this bird. The Green-tailed Towhee's overall green and grey plumage is certainly not a match. Likewise, the dark, uniform head colour of both the Eastern Towhee and Spotted Towhee eliminate them as candidates.

The three Ontario species of longspur (Lapland Longspur, Smith's Longspur and Chestnut-collared Longspur) should all show dark central tails with some visible white in the outer tail feathers. None of them would show a uniformly grey auricular area, as does the quiz bird, in any plumage. Snow Buntings, with their long black primaries and white wing patches, can

also be quickly dismissed.

The four species of *Zonotrichia* sparrow (White-throated Sparrow, White-crowned Sparrow, Harris's Sparrow and Golden-crowned Sparrow) all have a much different structure than the quiz bird, with longer tails, longer primary extension, a more pot-bellied appearance, and prominent white wing bars. The Dark-eyed Junco's uniform grey head and white outer tail feathers easily rule it out.

The five Ontario members of the genus *Spizella* (American Tree Sparrow, Field Sparrow, Chipping Sparrow, Clay-colored Sparrow and Brewer's Sparrow) all have longer tails and longer primary projection than the structure evident in our quiz bird. Also, they all have prominent lighter edging to the greater and median secondary coverts, resulting in two discernable wing bars. None of them show the flank streaking which is clearly seen on our quiz bird.

Two species with bright, immediately striking, harlequin head patterns (Lark Sparrow and Black-throated Sparrow) can be quickly dismissed. Likewise, the overall darker Lark Bunting with its white-tipped tail and large whitish area in the outer greater secondary coverts.

The large size, long tail, and rufous and grey head and back of

the Fox Sparrow quickly eliminate it. The Swamp Sparrow's grey supercilium, rufous crown, and prominently rufous wings are inconsistent with our bird. The Lincoln's Sparrow's combination of grey supercilium, buffy submoustachial area, and prominent malar stripe rule it out as well. Besides their much longer tails and less elaborately patterned backs, the Song Sparrow, Savannah Sparrow and Vesper Sparrow always demonstrate obvious malar stripes as well, and their head pattern is not nearly this colourful.

Cassin's Sparrow is a much drabber bird with a much longer tail, a streaked crown and an indistinct supercilium, and, therefore, is also a poor fit. Bachman's Sparrow's grey-edged rufous back feathers are unlike our quiz bird with its buff-edged, chestnut back feathers. Its plain, buffy flanks also lack the distinct streaks we see on the quiz bird.

Most observers would have quickly discerned that our quiz bird's short, spiky tail, very short primaries, relatively large, flat-headed appearance and intricate pattern and colouration would place it in the genus *Ammodramus*, and indeed we have already eliminated all but the five Ontario sparrows of that genus (Grasshopper Sparrow, Baird's Sparrow, Henslow's Sparrow, Le Conte's Sparrow and Nelson's Sharp-tailed Sparrow).

Grasshopper Sparrow lacks the bright, extensively orange supercili-

um of the quiz bird, instead demonstrating a buffy-yellow supraloral area and a much greyer rear portion to the supercilium. Its underparts are a plain, unmarked buff-ochre, lacking the flank streaks seen on our quiz bird.

Baird's Sparrow's head colour is a much paler ochre than the bold orange found on our quiz bird. It would show a more prominent malar stripe and would lack the grey auriculars of our quiz bird.

Henslow's Sparrow differs from our quiz bird in its olive-green head colour and bright rufous-edged tertials and greater secondary coverts, giving the general impression of much more rusty wings.

To the surprise of few, we have come to a choice between the very similar Le Conte's Sparrow and Nelson's Sharp-tailed Sparrow. Let's examine a few useful characters in separating these two species. Both species have grey auriculars and a grey nape patch. These grey areas are more extensive and a slightly colder lead grey in Nelson's Sharp-tailed Sparrow. The grey nape patch in the Le Conte's Sparrow is finely speckled with purplish spots giving it a more plum cast than the larger, colder grey nape patch in Nelson's Sharp-tailed Sparrow. Looking at our quiz bird, this character likely favours Le Conte's Sparrow.

Nelson's Sharp-tailed Sparrows tend to show more obviously contrasting, fine bright white (rather than buff) streaks on an overall dark-

er back. Le Conte's Sparrow shows wider buffy edges that contrast less with its chestnut-centred back feathers. This character would also seem to favour Le Conte's Sparrow.

Le Conte's Sparrow is more likely to have grey extending into the lores, whereas Nelson's Sharp-tailed Sparrow is likelier to exhibit bright orange lores similar to the supercilium. Our bird's greyish loreal colour is once again more in keeping with Le Conte's Sparrow.

The tertial feathers in Le Conte's Sparrow are usually dark chestnut-centred with wide whitish-buff edges. In Nelson's Sharp-tailed Sparrow, the tertials are chestnut-centred with finer rufous edges.

This feature favours Le Conte's Sparrow as well.

Most importantly, Le Conte's Sparrow has two lateral chestnut crown-stripes surrounding a fine white median crown-stripe. Alternately, Nelson's Sharp-tailed Sparrow has two lateral chestnut crown-stripes surrounding a prominent grey median crown-stripe. We can clearly see a bit of the fine, lighter median crown-stripe of a Le Conte's Sparrow in this quiz bird.

All of our useful field characters are pointing to the same conclusion, and indeed this bird is a **Le Conte's Sparrow** which I photographed at Point Pelee National Park on 13 May 1988.

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OFO Annual Convention and Banquet Point Pelee National Park 10 and 11 September 2005

Plan now to attend the OFO Annual Convention at Point Pelee on 10 and 11 September 2005. This weekend of birding and presentations, with new and old friends, is always great fun. Saturday's events will include Ron Scovell's popular book sale, and an evening banquet and special featured speaker at the Roma Club in Leamington.

On both Saturday and Sunday, experts will lead groups of convention participants to several of the very productive early fall birding locations in Point Pelee National Park and nearby areas. During our 2003 convention there, 156 species were observed on the field trips.

Ontario Field Ornithologists

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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 and Banquet in the autumn. Current information on all of 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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