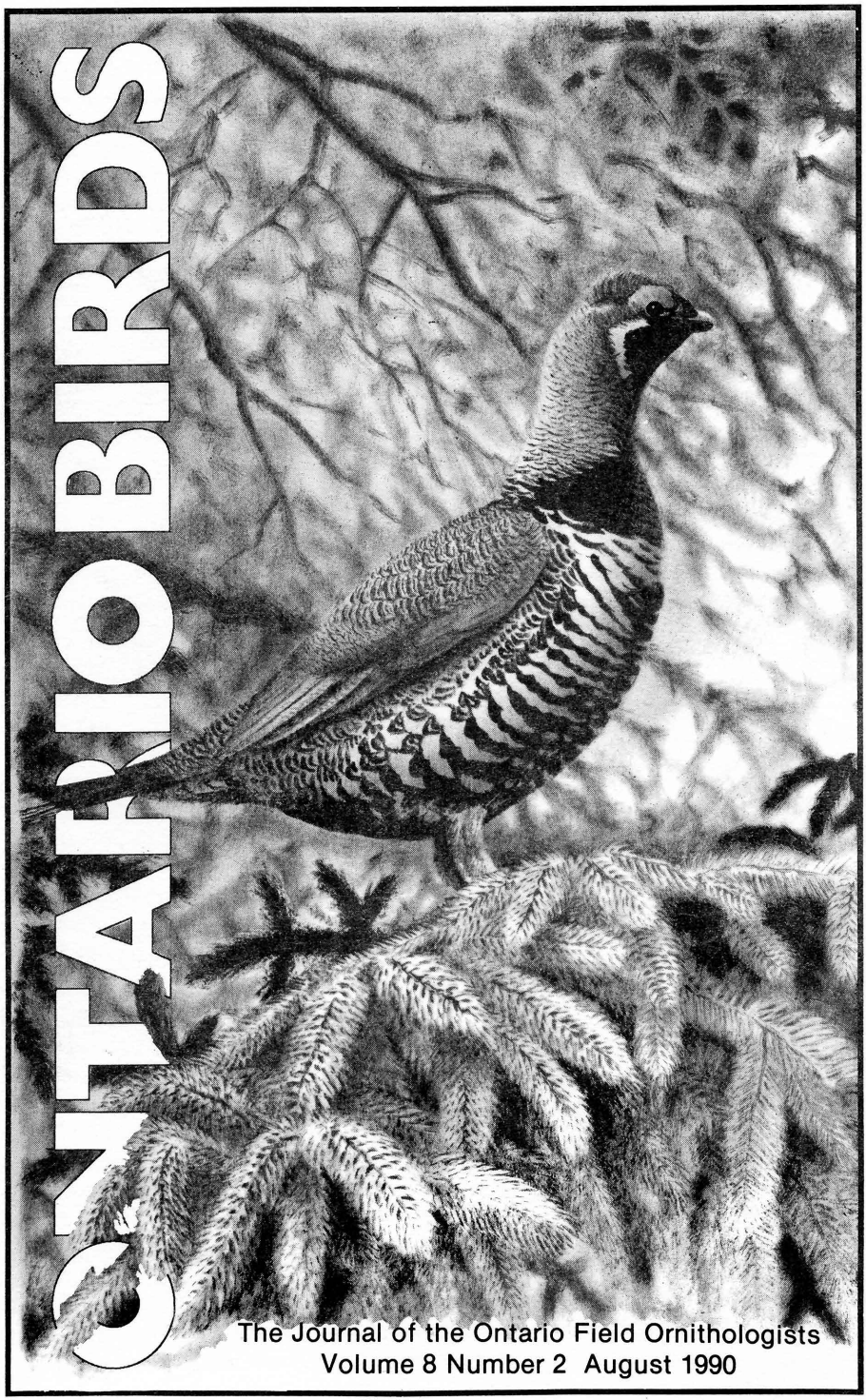

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Editorial Policy

Ontario Birds is the journal of the Ontario Field Ornithologists. Its aim is to provide a vehicle for the documentation of the birds of Ontario. We encourage the submission of full length articles or short notes on the status of bird species in Ontario, significant provincial or county distributional records, tips on bird identification, behavioural observations of birds in Ontario, location guides to significant birdwatching areas in Ontario, book reviews, and similar material of interest on Ontario birds. We do not accept submissions dealing with "listing" and we discourage Seasonal Reports of bird sightings as these are covered by *Bird Finding in Canada* and *American Birds*, respectively. Distributional records of species for which the Ontario Bird Records Committee (OBRC) requires documentation must be accepted by them before they can be published in *Ontario Birds*.

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Letters to the Editor

Pine Grosbeaks at feeders re-visited

I found Ron Pittaway's article (*Ontario Birds* 7:65-67), describing the use of bird feeders by Pine Grosbeaks in central Ontario as unusual and recent in origin, to be in agreement with my 20 years of experience in feeding and observing birds in the area. It was therefore somewhat perplexing to read accounts by Bill Walker and Erica Dunn (*Ontario Birds* 7:86 and 87-91, respectively) which seemed to indicate far more use of feeders by Pine Grosbeaks than either Pittaway or I have observed.

It may be that factors such as the lack of natural food, the habitat surrounding a feeder, and the type of food provided make some sites (such as Walker's yard) particularly attractive to Pine Grosbeaks. However, I wonder whether Dunn and Pittaway were using the same definition of "feeder use". The Ontario Bird Feeder Survey cited by Dunn (*American Birds* 40:61-66) involved observers counting "each species seen in the immediate vicinity of their feeders". I suspect that there is a natural tendency for survey participants to attempt to maximize their counts of the number of species coming to their feeders — which would lead to counting Pine Grosbeaks that (for instance) only perched near feeders or took seeds that had fallen on the ground below a feeder. This type of counting would tend to inflate the apparent "use of feeders" by this species. In contrast, Pittaway was describing Pine Grosbeaks actually landing on feeding structures and eating.

In presenting these comments, my only intention is to make sure that we are all talking about the same thing. For now, I still believe that the widespread direct use of feeding structures by Pine Grosbeaks in central Ontario is unusual and recent in origin.

R.G. Tozer
Dwight, Ontario

Finding the Phantom Spruce Grouse

by

Ron Tozer and Ron Pittaway

Introduction

The Spruce Grouse (*Dendragapus canadensis*) is one of the species most sought after by North American birders. Algonquin Provincial Park may be the most accessible and easiest location for birders to find this elusive grouse in Ontario (Tozer 1990). We have been successful in finding Spruce Grouse in the Park for individuals and groups to see on dozens of occasions over the years. Showing birders (often with many years experience) their first Spruce Grouse gives us a birder's high! We wish now to pass along to a larger audience our experience in finding these retiring birds, and perhaps increase interest in this fascinating species.

This article consists of three sections. First, we review some interesting aspects of Spruce Grouse life history which are relevant to birders seeking these birds in the different seasons. Second, we describe proven techniques used to search for these often inconspicuous grouse. And lastly, we provide detailed site guides for the best places to find Spruce Grouse in Algonquin Provincial Park.

Life history

Spruce Grouse are most abundant in Ontario within the Boreal Forest Zone, where they inhabit upland black spruce (*Picea mariana*) and pure young jack pine (*Pinus banksiana*) forests with a ground cover of ericaceous plants such as blueberry (*Vaccinium* sp.) and trailing arbutus (*Epigaea repens*) (Szuba and Naylor 1987). Typical Spruce Grouse habitat in Algonquin Park, which is at the southern edge of the species' Ontario range, consists of open-grown, mature black spruce forest bordering large bogs, and extensive jack pine stands on the Park's east side (Strickland 1990).

In spring, adult male Spruce Grouse exhibit elaborate courtship behaviour (Bent 1932; Lumsden 1961; MacDonald 1968; Robinson 1980), including "flutter flights", "strutting", and "tail-swishing" displays, as they defend their territories and attempt to attract

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Figure 1: Displaying adult male, and adult female Spruce Grouse. Drawing by *Howard Coneybeare.*

females. During the "flutter flight", a fairly loud but low-pitched "whirring" sound is produced as the male flutters with rapidly beating wings upwards from the ground to a low perch, or from a perch to the ground. A "strutting" male inflates "crimson combs" over its eyes, erects neck and upper breast feathers, and holds its tail in an almost vertical position. Each side of the erect tail is alternately

fanned open and shut as the bird struts, producing a "swishing" sound that is clearly audible to human ears at some distance (Figure 1). In Algonquin Park, displaying males are most frequently encountered from late March through mid May, but some individuals actually start in late winter.

Female Spruce Grouse occupy relatively large, exclusive territories of their own during spring (Herzog and Boag 1978). They come to the males' territories only for mating, and do not establish a prolonged pair bond (Ellison 1971). Both sexes are promiscuous. Resident adult females advertise their presence to conspecifics and probably maintain their territories by producing both vocal and nonvocal sounds that peak in intensity during the period of mating and laying (Nugent and Boag 1982). These sounds include an "aggressive call" that is sung from regularly used advertising perches at dawn and dusk, and flight sounds that are produced by flying frequently through the territory at these times (Nugent and Boag 1982). Researchers have concluded that "the territorial behaviour of breeding females, manifested by intrasexual aggression, appeared to play a role in spacing of nests and spring dispersal of some yearlings" (Nugent and Boag 1982).

The "aggressive calls" of females have "abrupt discontinuities", "wide frequency range", and "repetitious pulses" which appear to be adaptive for communication in the dense forests which they inhabit (Nugent and Boag 1982). The use of elevated singing perches may additionally minimize blockage of sound by thick vegetation. Males are attracted and stimulated by the "aggressive calls" of females. "Vocal advertising by females may inform surrounding males of the females' physiological state as well as stimulate and synchronize sexual behaviour" (Nugent and Boag 1982).

After mating, laying females tend to avoid male display sites, which results in the spacing of nesting females "far from conspicuous activity centres of males" (Nugent and Boag 1982). An adaptive advantage of minimizing association with males after mating could be that female grouse reduce predation risk and maximize concealment (Wittenberger 1978). Territorial defense by females may ensure adequate supplies of food for sustenance during the incubation period (Herzog 1978). Spruce Grouse hens prefer foods that are rich in crude protein and phosphorus in spring, such as tender growing spruce and jack pine needles, moss capsules, trailing arbutus flowers, and blueberry buds (Pendergast and Boag 1971; Naylor and Bendell 1989).

Spruce Grouse nests consist of a depression in the ground, thinly lined with grass and leaves, and are

often placed at the base of a small conifer or under low, sweeping evergreen branches (Peck and James 1983; Godfrey 1986). Clutches average four to seven eggs, and are incubated about 24 days, by the female (Godfrey 1986). In Algonquin Park, nests with eggs have been noted during May, and females with broods of young are typically encountered from mid June to mid August. Broods gradually break up when calls of the young no longer elicit a response by the female (Schroeder and Boag 1985).

Adult Spruce Grouse undergo a complete, but gradual, replacement of all their feathers over two months in the summer, during the warmest time of the year and when high quality food is available to supply increased energy demands to produce new feathers (Robinson 1980). Moulting occurs from mid June to mid August, and at this time adult Spruce Grouse are dispersed, frequently occupy dense ground cover, and remain inconspicuous by refraining from displaying (Ellison 1973). Feeding activity occurs primarily on the ground during the summer period, and involves mushrooms, insects, berries, seeds, and tender leaves of herbaceous plants (Baillie 1956; Pendergast and Boag 1970).

The largest groups of Spruce Grouse (rarely up to 15 birds) may be encountered in early fall (Ellison 1973); "these flocks are made up of a mixture of ages and sexes, and of birds from different broods" (Robinson 1980). They are frequently observed at good sources of grit such as gravel roads and highway shoulders during the fall. Autumn dispersal of juvenile Spruce Grouse results in males and females settling in areas where they will later attempt to establish themselves as breeding residents (Alway and Boag 1979). Yearling males seek territories in vacant sites, either where adult males have died or the habitat is marginal (Robinson 1980).

During September and October, Spruce Grouse feed increasingly on conifer needles even though other food sources (e.g., ground vegetation) are still readily available (Robinson 1980). The birds gradually undergo physical changes in their internal anatomy (i.e., weight and length of the gastrointestinal tract) as they adapt to a winter diet of pine and spruce needles (Pendergast and Boag 1973). During the fall, tamarack (*Larix laricina*) needles become an important transition food to the winter diet of conifer needles, and Spruce Grouse may be found in these trees over 75 per cent of the time then (Crichton 1963; Allan 1985). Males and females without young may actually begin to feed on tamarack as early as mid summer (Allan 1985). Spruce Grouse gradually spend more time in trees and less on the ground as autumn progresses (Keppie 1977), reaching a peak as snow cover becomes permanent.

During the fall, adult male

Spruce Grouse (Figure 2) actively display again, apparently to reassert their residency, as with the autumn drumming of Ruffed Grouse (*Bonasa umbellus*), according to Herzog and Boag (1978). "Flutter flights", "strutting", and "tail-swishing" may all be observed in September and October (Ellison 1971).

In the winter, Spruce Grouse repeatedly browse or roost in individual trees (called "activity trees" by researchers), while ignoring nearby trees of similar physical characteristics (Hohf *et al.* 1987). Chemical analysis of jack pine needles on activity trees in Michigan showed a significantly higher protein and ash content than needles on adjacent unbrowsed trees (Gurchinoff and Robinson 1972). It is not known how Spruce Grouse recognize these "superior" trees.

Following snow melt in early spring, Spruce Grouse expand their diet, which has consisted almost entirely of conifer needles during winter. They return to ground feeding in search of new plant growth such as moss capsules, trailing arbutus flowers, expanding buds of blueberry, and bunchberry (*Cornus canadensis*) leaves (Naylor and Bendell 1989).

Techniques for finding Spruce Grouse

Published suggestions for finding Spruce Grouse frequently involve driving or walking long distances

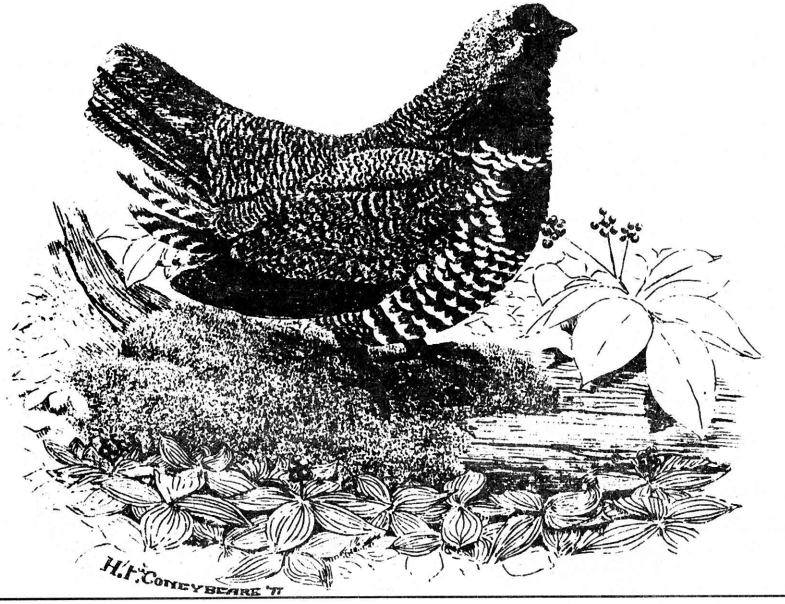

Figure 2. Adult male Spruce Grouse (Franklin's race). Drawing by *Howard Coneybeare.*

on back roads through vast areas of suitable habitat (Krebs and Krebs 1977; Janssen 1978; Gibson 1983). While such random searching will often result in success given enough time, your chances are greatly improved by looking in areas of limited habitat where Spruce Grouse are present. The "boreal islands" created by large bogs in the hardwood forests of Algonquin's west side, and jack pine stands of the Park's east side, provide ideal areas of limited habitat for Spruce Grouse searches. By employing proven finding techniques, and being aware of Spruce Grouse behaviour in a given season, a birder can have a very good chance of locating this species.

A systematic search should be made in an area where Spruce Grouse have been regularly observed, with the birder walking slowly and making frequent stops. By alternately walking and then stopping, you may spook the bird into making a movement since it may sense detection. Don't expect a Spruce Grouse to flush, however, unless you happen to approach very closely. You must look and listen very carefully in order to detect the slightest movement. For instance, a bird may be revealed by nothing more than the snapping sound made when it clips off needles with its bill. The presence of dust-bathing depressions in exposed sand is another good indicator to watch for when searching for Spruce Grouse. Group searches can be very effective, with birders walking abreast in a line and spaced about 15m apart. Unlike most birding, it can be helpful to walk towards the sun and look for the distinctive Spruce Grouse silhouette in the dark forests they inhabit.

Contrary to some popular accounts, it is not necessary to peer into the densest, darkest recesses of coniferous trees to find a Spruce Grouse (although occasionally birds will occur there, especially when roosting). Birders with experience in finding Spruce Grouse develop a "search image" for the species, based on the bird's typical shape and habits. As you walk slowly through the habitat, your eyes should constantly "sweep" the ground area first and then up the outer branches of conifers to a height of about 7m. Spruce Grouse can be found at any time of the day, but early morning and evening can be better since the light winds often prevalent then allow easier detection of grouse movements and sounds. The birds are more likely to be actively feeding then, and displays and calls are more frequent at those times.

In addition to the general directions for finding Spruce Grouse noted above, there are specific detection techniques which can be very effectively employed in the different seasons of the year. For instance, during the spring (especially late March through mid May) the "flutter flights" of displaying males can be heard at a great distance, and even "tail-

swishing" is audible on still days — aiding discovery of the birds themselves. The "aggressive calls" of females are available on both the National Geographic and Peterson bird song tapes (National Geographic Society 1983; Cornell Laboratory of Ornithology 1983), and can be played (sparingly) using a portable recorder in spring to attract displaying males and elicit vocal responses from females (MacDonald 1968; Robinson 1980; Szuba and Naylor 1987). As soon as the birds have been located, there should be no further playing of the tape, however. Responsible birders should always strive to disrupt the lives of birds as little as possible. With practice, birders can produce effective imitations (without using tapes) of both the whirring "flutter flight" sound and the "aggressive call" of females — either of which will often be enough to start males displaying.

Unfortunately, many birders end up trying to find Spruce Grouse during the summer when they visit areas with suitable habitat during vacations. This season is usually the least productive for finding these birds since they often feed on the ground in thick vegetation, females are secretive with their broods, and these grouse are even more retiring than usual during their moult. Our only advice for this season would be to undertake extensive searching in suitable habitat during the more active feeding periods (early morning and evening), and to get lucky! The birds usually do not respond to display stimuli in summer, so you have to just search carefully until you find one.

We consider the autumn to be an excellent time for finding Spruce Grouse, second only to spring. Although less enthusiastically than in spring, males will frequently display and females will often call in response to tapes of the female "aggressive call" played during September and October. Patches of tamarack within Spruce Grouse habitat should be searched from September to mid October, when these grouse regularly feed on this tree's needles. Spruce Grouse are also often found along road edges and trails as they pick up grit during the fall.

Looking for Spruce Grouse in winter can be either frustrating or very rewarding! At times, areas that have produced in the past seem totally devoid of these birds. But return to the same site later in the day or the next day, and you may find a whole flock! They have been found on 11 of the 17 Algonquin Park Christmas Bird Counts, and during count week in four more years. There are some factors to be aware of which can help you find Spruce Grouse in winter, however.

Try to pick a time with little wind soon after a snowfall. The birds may be more active and visible as they feed on conifer needles after a snowstorm. Grouse moving slowly along a branch will dislodge snow, which the alert birder will detect as it falls on a still day. Try to

find out from other birders the exact area where Spruce Grouse have been recently seen — since the birds will return to favoured "activity trees" to feed on the superior foliage. Watch for droppings on the snow, which can indicate feeding or roosting sites. Ruffed Grouse often occupy the same habitat, so don't mistake their droppings for those of Spruce Grouse. The latter are greener (due to the needle diet) and slightly smaller in diameter than Ruffed Grouse droppings.

In late winter or early spring, when a crust has formed on the snow, Spruce Grouse frequently leave the trees to walk on this hard surface. We have often followed their tracks to locate the birds after a light snowfall. But don't forget your snowshoes; it is difficult enough to find Spruce Grouse in winter, without wallowing through deep snow.

Site guides

Algonquin Provincial Park, nearly 7600km^2 in size, is located on the southern edge of the Canadian Shield between Georgian Bay and the Ottawa River. The southern part of the Park may be accessed via Highway 60, while the eastern portion can be reached by secondary roads off Highway 17. Spruce Grouse are regularly observed at a number of locations in Algonquin (see Tozer 1990), but what we believe to be the three best areas are featured here.

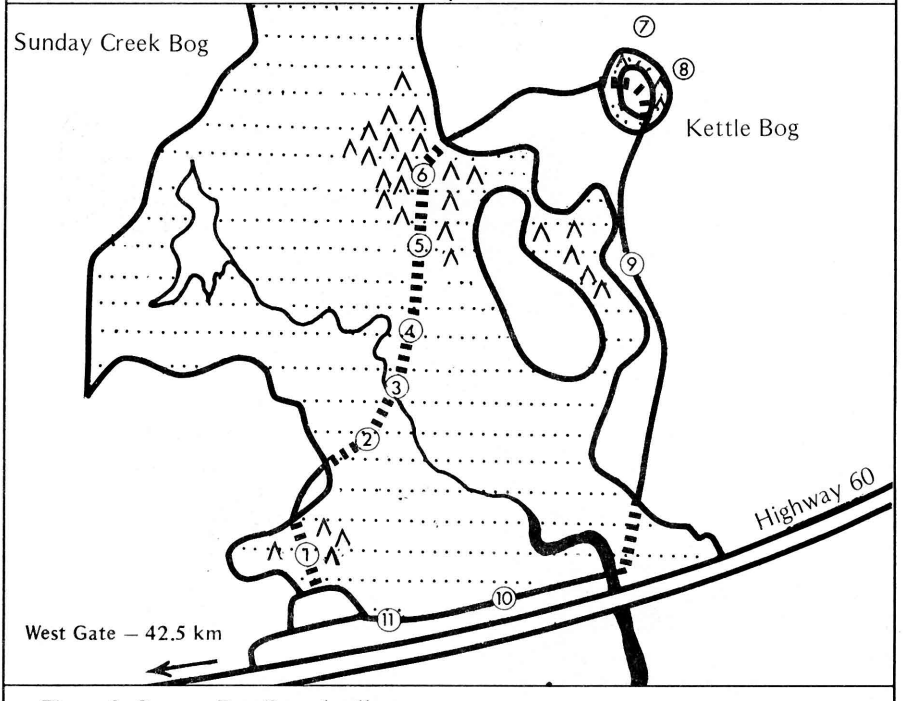

Figure 3: Spruce Bog Boardwalk map

(1) Spruce Bog Boardwalk
This walking trail is a 1.5km loop, with about half the distance on boardwalk, through black spruce bog and drier, open coniferous forest. It is located along the Highway 60 Corridor at a point 42.5km from the Park's West Gate. Spruce Grouse are frequently seen here at all seasons, and nests and broods of young have been found.

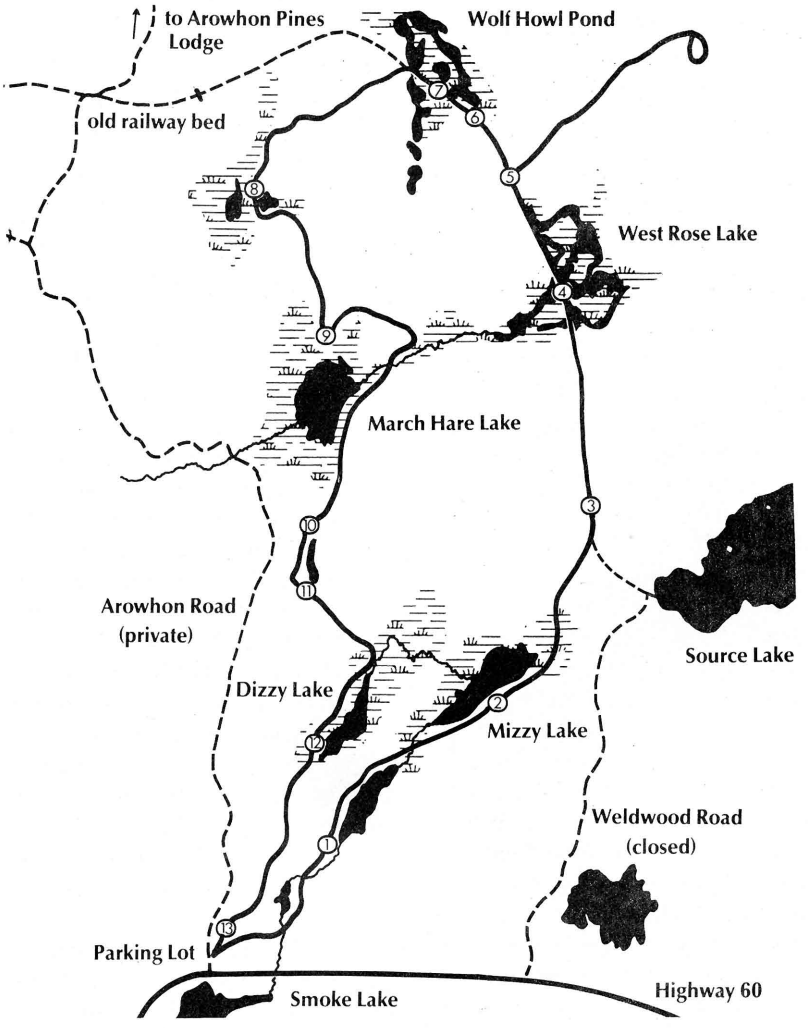

Figure 4: Mizzy Lake Trail map, including Wolf Howl Pond

The numbered sections in a trail guide booklet (available at the entrance) correspond to numbered posts along the trail (Strickland 1989). Good places (see Figure 3) to check carefully for Spruce Grouse include the dry area of spruce-pine-fir forest on your left (north) as you leave the short boardwalk which has Post #1. Feel free to leave the trail to search this area (which is laced with grouse seeker paths!) since it is surrounded by open bog, unsuitable deciduous forest, and the main trail itself — which along with highway noise should prevent you from getting lost. Also check the area near the trail register box between Posts #6 and #7, and at the kettle bog near Post #8. However, the birds are often seen right on the trail, anywhere along its route.

(2) Wolf Howl Pond

The Wolf Howl Pond area is another excellent place to see Spruce Grouse. It is located on the Mizzy Lake Trail, an 11km loop beginning on the Arowhon Road, just in from Kilometre 15.4 on Highway 60 (measured from the Park's West Gate). This walking trail also has an interpretive trail guide booklet (Strickland 1988), available at the entrance. Wolf Howl Pond is most easily visited from spring through fall, when birders may avoid the long hike (see Figure 4) by driving up the Arowhon Road to the old railway bed, turning right (east) and proceeding to a locked gate. Park there (not blocking the road!). From the gate, walk approximately 1km down the railway bed to the area just past a rockcut where it joins the Mizzy Lake Trail at Wolf Howl Pond.

Coniferous forest bordering the railway bed on both sides of Wolf Howl Pond should be thoroughly searched for Spruce Grouse. The birds are often seen right on the railbed, where they pick up grit. A tamarack grove near Post #6 is frequently productive in late summer and fall. Other species you may encounter at Wolf Howl Pond include Black-backed Woodpecker (*Picoides arcticus*), Gray Jay (*Perisoreus canadensis*), and Boreal Chickadee (*Parus hudsonicus*).

(3) Lake Travers

This area is located on the east side of Algonquin Park and may be reached by the Grand Lake-Lake Travers Road from spring through fall, and in winter as well during years when logging operations are underway. Access to this part of the park is via the Sand Lake Gate which is reached as follows: turn south off Highway 17 on to County Road 26, about 9km west of Pembroke; travel 300m, then turn right at the Achray Road and drive 26km to the gate. The Lake Travers area is another 53km into the Park beyond the Sand Lake Gate (see Figure 5).

Spruce Grouse are common throughout a large area of jack pine near Lake Travers. The birds are often seen feeding in the jack pines or picking up grit during the early

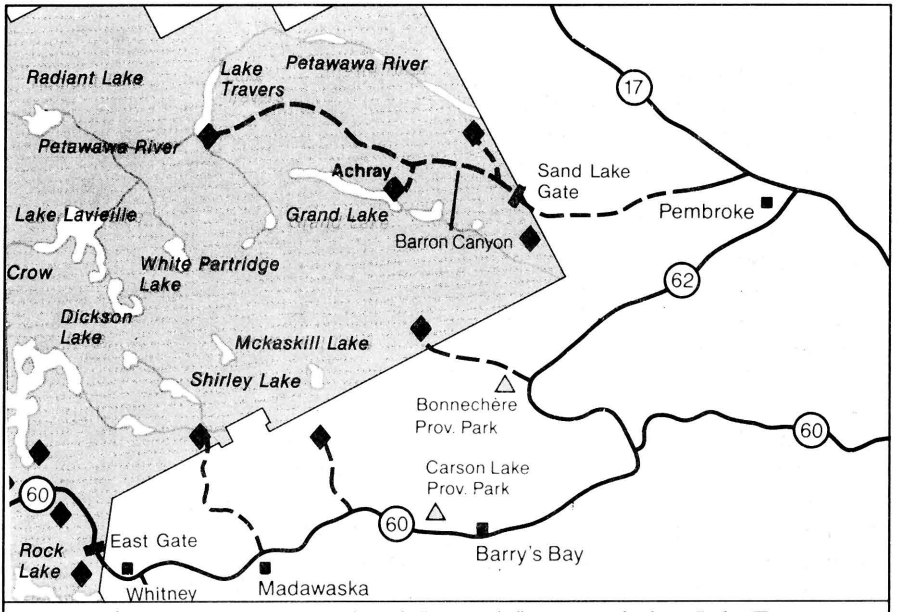

Figure 5: Algonquin Provincial Park "east side" map, including Lake Travers-Grand Lake Road

morning right along the main road, especially between Kilometre markers #62 and #68. Several sideroads through the pine stands can be walked in search of these grouse, as well.

This area can be very good (in season) for species such as Merlin (*Falco columbarius*), Gray Jay, Pine Warbler (*Dendroica pinus*), Lincoln's Sparrow (*Melospiza lincolnii*), and Red Crossbill (*Loxia curvirostra*). The lake itself attracts many migrants, including Red-necked Grebe (*Podiceps grisegena*), Oldsquaw (*Clangula hyemalis*), scoters (*Melanitta spp.*), Red-breasted Merganser (*Mergus serrator*), and Bonaparte's Gull (*Larus philadelphia*).

Gas, food and supplies are not available along the Grand Lake-Lake Travers Road within Algonquin Park. However, these items can be obtained at a store about 20km before the Park entrance. A campground (spring through fall) is located at Achray on Grand Lake, and there are many good motels and restaurants in the Pembroke area.

Additional information

For more information about finding Spruce Grouse, Park publications, accommodations, and services available, contact: Park Naturalist, Algonquin Park Museum, Box 219, Whitney, Ontario K0J 2M0. Enquiries may be made by telephone (705-633-5592 or 633-5505) on weekdays during office hours.

Algonquin Park interpretive publications may be obtained from: The Friends of Algonquin Park, Box 248, Whitney, Ontario K0J 2M0. Of particular interest to birders are: "Checklist and Seasonal Status of the Birds of Algonquin Provincial Park" (includes abundance, breeding status, and bar graphs showing arrival and departure dates for the Park's 258 species) at $1.25; and "Birds of Algonquin Provincial Park" (with information on the behaviour, adaptations and ecology of 77 common Algonquin birds, and full colour photographs of each) at $2.95. (Add GST and 95 cents to your order for postage and handling.)

Birders are encouraged to visit the Algonquin Park Museum (located at Kilometre 20 on Highway 60, measured from the West Gate of the Park) to obtain detailed directions on the latest Spruce Grouse sightings and other species, and to report their bird observations. The Museum exhibits and bookstore are open on weekends from mid May to mid June, and then daily to early October. During the time of year when the Museum is not open, the Naturalist Staff may be contacted at their offices in the basement (enter by a door at the rear of the building) on weekdays between 0800h and 1630h.

Acknowledgements

We would like to thank "Stu" MacDonald, formerly Curator of Vertebrate Ethology at the National Museum of Natural Sciences, for awakening our interest in the behaviour and ways of Spruce Grouse. We also appreciate the suggestions of Michael Runtz and Dan Strickland of the Algonquin Park Museum, who reviewed the manuscript. Dan Brunton, Chris Lemieux, and Rory MacKay provided comments on an earlier draft. Peter Burke kindly prepared an illustration specifically for this article, and Howard Coneybeare allowed us to publish his drawings; we are deeply indebted to them both. Finally, thanks are due to Phill Holder for providing a reference photograph, and to Patricia Tozer for computer assistance.

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Roof-nesting by Ring-billed Gulls and Herring Gulls in Ontario in 1989

by

Hans Blokpoel, Wayne F. Weller, Gaston D. Tessier, and Blake Smith

Roof-nesting by gulls has recently (1985-87) occurred in Ontario (Blokpoel and Smith 1988). After 1987, further roof-nesting by both Herring Gulls (*Larus argentatus*) and Ring-billed Gulls (*Larus delawarensis*) has occurred at a few more sites in Ontario. In this paper we report on several documented cases of roof-nesting in Ontario in 1989 (Table 1 and Figure 1), problems caused by the nesting gulls, and methods used to ameliorate the situation. All control operations took place under special permits issued by the Canadian Wildlife Service — Ontario Region.

Federal Building, Thunder Bay

By mid-May 1989 there were three Herring Gull nests present on the roof. The birds had built large nests and they attacked the people that maintain antennas which are installed on the roof. Nests and eggs were removed twice (in early and late June) and no young were produced. As far as is known, 1989 was the first year that gulls nested on the Federal Building (C. D. Ball, Public Works Canada, Thunder Bay, pers. comm.).

There may have been roof-nesting by small numbers of gulls on other roofs in Thunder Bay in 1989, but no detailed reports are available. The local OMNR office has received sporadic complaints about gulls on roofs since about 1985 (R. Chessell, OMNR, Thunder Bay, pers. comm.).

Station Mall, Sault Ste. Marie

In spring 1989 only one Herring Gull nest was present. Nest and eggs were removed and destroyed. Herring Gulls have nested on this roof since at least 1983. In 1988 there were at least 50 nests present and the gulls caused fouling, noise, and disturbance. During the 1989 breeding season there was

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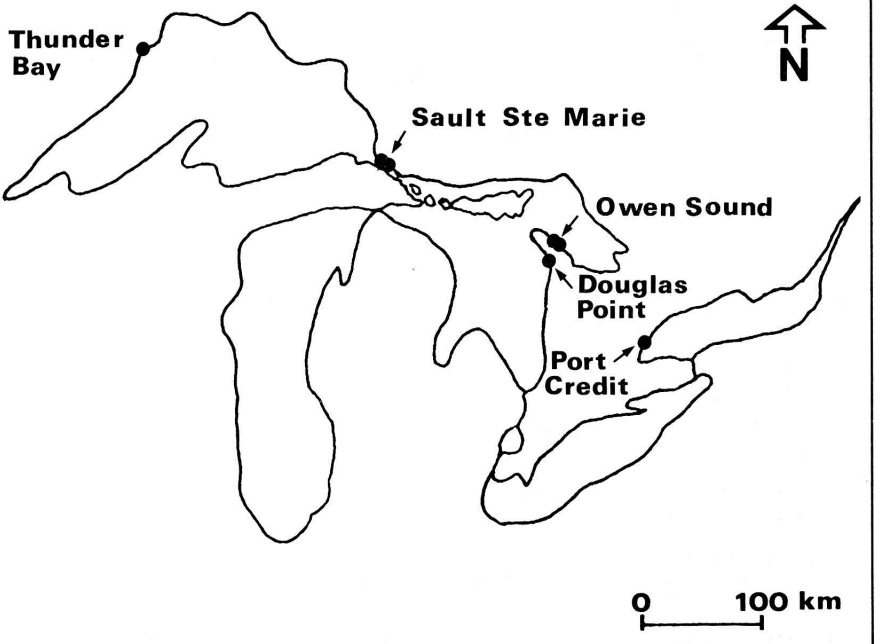

Figure 1: Locations of known roof-nesting by gulls in Ontario in 1989. See Table 1 for details.

construction activity on the roof and that probably caused many gulls to abandon the roof of the mall as a nesting site in 1989 (J. M. Willey, Algoma Central Properties, Sault Ste. Marie, pers. comm.).

Algoma Steel, Sault Ste. Marie

On 3 May 1989 a total of 354 Herring Gull nests were present on five roofs. Of these 354 nests, 331 had eggs and/or were attended by adults. The great majority (330 nests) were located on the Bar and Strip Building which overlooks the St. Mary's River. The second largest colony with 16 nests was on #2 Tube Mill Building and the remaining three roofs had two to four nests each.

At the Bar and Strip Building most nests were located against large ventilation shafts, large pipelines, and wooden boardwalks; while only a few nests were "out in the open" (i.e., not adjacent to an object or structure). At the #2 Tube Mill roof, 12 of the 16 nests were located under, adjacent to, or within one metre of a metal cable guard. Of the other four nests, three were against the raised roof edge and only one nest was "out in the open".

Gulls have nested on the Bar and Strip Building since 1980, but it was not until 1989 that they nested in large numbers on Algoma Steel property. The nesting gulls caused increasing problems including noise, defecation, distraction of workers, fire hazard (their nests consisted of inflammable materials), damage to roofs (gulls dug into the soft top surface of the Bar and Strip Building), and young birds entering the Bar and Strip Building by falling through ventilation shafts.

At the Bar and Strip Mill close to 800 eggs were destroyed during 10 May–26 June in those nests that could be safely reached. On 12 June, 88 young birds were counted in the nests that could not be reached. At the #2 Tube Mill Building, 46 eggs were destroyed during 10 May–12 June. There was no interference with nests on the other three roofs. On one of these, 12 chicks are known to have hatched (D. Crawford, Algoma Steel, Sault Ste. Marie, pers. comm.).

PPG Canada Inc., Owen Sound

On 26 May 1989, there were 148 Herring Gull nests and four Ring-billed Gull nests on the roof of the main plant. The roof where the gulls nested is flat but has parallel ridges spaced about 2m apart. The great majority of nests were located against these ridges.

The nesting gulls caused noise, smell, and fouling of the roof and adjacent areas. All nests and eggs were repeatedly removed until no further nesting took place. The

Table 1: Location and extent of known roof-nesting by gulls in Ontario in 1989.

	Number of Nests	
Location	**Herring Gull**	**Ring-billed Gull**
Federal Building Thunder Bay	3	0
Algoma Steel Sault Ste. Marie	344	0
Station Mall Sault Ste. Marie	1	0
PPG Canada Inc. Owen Sound	148	4
Former RCA Building Owen Sound	0	6
Ontario Hydro, BNPD Douglas Point	20	0
Ontario Hydro, Lakeview TGS Mississauga	3	127
Total	**519**	**137**

gulls were persistent in their nesting efforts and many gulls relaid. On 5 June 1989 there were 80 Herring Gull nests with 125 eggs, and on 1 July 1989 there were 85 Herring Gull nests with 120 eggs. No chicks hatched in 1989.

Roof-nesting by gulls at this site has occurred since the early 1970s, but only in the last three years have nesting efforts and nest rebuilding continued into mid-summer (A. J. Gibb, Plant Engineer, PPG Canada Inc., Owen Sound, pers. comm.).

Former RCA Building, Owen Sound

On 6 May 1989 there were six Ring-billed Gull nests with eggs. Eggs and nests were collected and destroyed. This colony site was first used by Ring-billed Gulls in 1985 when there were 20 nests with eggs which were all destroyed by a raccoon (*Procyon lotor*) that reached the roof via an emergency ladder (Blokpoel and Smith, 1988).

In 1986 raccoons again destroyed all (>100) nests. In 1987 there was no evidence of predation by raccoons. On 3 June 1987 there were two Herring Gull and 158 Ring-billed Gull nests. The nesting gulls created noise and smell, and fouled the roof with defecations and nesting materials. Nests and eggs were removed and destroyed.

On 20 June 1988 there were 21 Ring-billed Gull nests: 12 nests were empty, five nests had addled eggs and four nests had viable eggs. There were no live chicks, but one dead chick was found. Raccoon scats were found on the roof and at the bottom of the exterior ladder, suggesting that raccoons were responsible for the observed nest failures. All eggs present on 20 June 1988 were collected and destroyed. In 1989 fresh raccoon scats were again present on the exterior ladder and the small number of nests in 1989 was most likely due to raccoon activities.

Ontario Hydro, Bruce Nuclear Power Development (BNPD), Douglas Point

Twenty Herring Gull nests were found on eight roofs on 8 May 1989. All nests contained from one to three eggs. Of the 20 nests, seven were on the roof of the Bruce Stores Building which is located approximately 2km from the Lake Huron shoreline. The birds cannot see water from any vantage point on the roof. Roughly half of the nests were located against the edge of the sill of the roof and rooftop structures, and the others were located in the open. Gulls had damaged the roof lining and covering in several places.

One nest containing three eggs was found on the roof of the Administration Building which is located 0.6km from Lake Huron. Three nests were constructed near the edge of the Generating Station, a roof overlooking the water intake channel. These contained two or three eggs. Eight additional nests containing eggs were constructed

on the roof of the pumping stations of Generating Station A along the water intake channel. One additional nest attended by adults was located on a nearby building.

No gull control programs were implemented in 1989. The nests and eggs were not removed, and it is presumed that young successfully hatched. Herring Gulls have nested on roofs at BNPD since at least 1985. During 1986-88 eggs have been collected and destroyed under CWS permit, but the gulls have not yet given up on nesting on the roofs of the BNPD complex. In fact, rooftop nesting at BNPD has become more widespread over the last two years.

Ontario Hydro, Lakeview Thermal Generating Station, Mississauga

On 17 May 1989 there were three attended Herring Gull nests, one on each of Pumphouses 1, 2, and 3, as well as 127 Ring-billed Gull nests with eggs on Pumphouse #2. The three Herring Gull nests were built against a raised ventilation area and were facing south, i.e., overlooking Lake Ontario. The roof of Pumphouse #2 consists of an upper level (with 88 Ring-billed Gull nests) and a lower level (with 39 nests). Of the 88 nests on the upper level, 54 were located against raised vents, planks, construction materials, and the raised outside lip of the roof, while the remaining 34 nests were "out in the open".

Gulls have nested on the ground at Lakeview TGS since at least 1986, but 1989 was probably the first year that they nested on roofs (T. Brownlee, Lakeview TGS, Mississauga, pers. comm.). The increasing number of nesting gulls created noise, smell, fouling of buildings and equipment, interference with operations (some nests were on a little-used roadway), and distraction of workers. During 1988 and 1989 gull nesting has been discouraged by collecting eggs and scaring. The presence of a red fox (*Vulpes vulpes*) in the area and gull control efforts may have caused some gulls to colonize the roofs.

How did roof-nesting by gulls begin?

Many gull colonies on the ground first started in areas where gulls frequently lounged. Along the Toronto Waterfront this process of colonization took place at Tommy Thompson Park, Toronto Island Airport, and Bluffer's Park, and in Hamilton Harbour at the East Port Development and the yards of Stelco (Blokpoel and Tessier 1986, 1987, and unpubl. data). In Lake Erie the same phenomenon was observed at Long Point (McCracken *et al.* 1981).

Because many gulls frequently roost on roofs, it is likely that roof colonies start as the first nesting attempts of first-time nesters and/or as nesting efforts by experienced gulls displaced from traditional natural colony sites.

Is roof-nesting increasing?

Roof-nesting by gulls along the shore of the Great Lakes has now become a fairly widespread phenomenon in Ontario (Figure 1) and it is likely that there were several other sites where gulls nested in 1989 in addition to the ones listed in Table 1. Small numbers of nests may go unnoticed and/or unreported.

It is also clear the roof-nesting by gulls in Ontario has been going on longer than previously thought. Blokpoel and Smith (1988) reported first roof-nesting at Owen Sound in 1985, but apparently gulls have nested in small numbers on the roof of the plant at PPG Canada Inc. since the early 1970s. At RBW Graphics Inc., adjacent to PPG Canada Inc., gulls were attracted to a sprinkler system installed on a new roof in 1975. In following years gulls began to nest on that roof in increasing numbers and soon became a problem (noise, smell, fouling, and attacks on people servicing the sprinkler system). When the sprinkler system was discontinued, the gulls showed less interest in the roof and for the last several years there has been no roof-nesting at the site (R. J. Morris, RBW Graphics, Owen Sound, pers. comm.). Roof-nesting by gulls has also occurred in recent years in the U. S. portion of the Great Lakes: there were 13 Herring Gull nests on buildings associated with the operations of locks on the U. S. side of the St. Marys River (W. C. Scharf, Northwestern Michigan College, Traverse City, Michigan, pers. comm.).

All in all, it appears that roof-nesting in the Great Lakes area is spreading despite scattered control efforts. It is also likely that more and more people will report various problems caused by roof-nesting gulls.

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Identification and Status of Bald Eagles, Golden Eagles, Turkey Vultures, and Black Vultures in Ontario

by

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Introduction

In flight, Bald Eagles (*Haliaeetus leucocephalus*), Golden Eagles (*Aquila chrysaetos*), Turkey Vultures (*Cathartes aura*), and Black Vultures (*Coragyps atratus*) all appear large and black with varying amounts of paler or white markings here and there in the plumage. Superficially, they are similar, but closer examination reveals differences in shape, size, flight style, and markings that usually identify each.

Two recent books, *A Field Guide to the Hawks of North America* by Clark and Wheeler (1987) and *Hawks in Flight* by Dunne *et al.* (1988) cover the identification of these species very well. This paper adds or emphasizes certain distinctions and provides information on the status of each species in Ontario; it is not intended to be a complete discussion of identification features.

Some helpful terms

All birds are not created equal. In spite of appearing similar in the sky, the four species considered here have structural differences that influence flight and can assist with identification. The important differences for large, soaring species include wing loading, aspect ratio, and the number of emarginated or slotted primaries. The definitions of these terms are:

Wing Loading: Weight divided by wing area;

Aspect Ratio: Ratio of wing span to wing width;

Emarginated Primaries: Primary feathers having one or both vanes reduced in width from the tip inwards.

For a much fuller discussion, see Kerlinger (1989), chapter 5.

How do they affect flight?

(1) Wing loading:

A soaring bird with a low wing loading (i.e., less weight per unit of wing area) is able to fly more slowly and still remain airborne (i.e., not stall). It also has a smaller turning circle, and can soar on weaker thermals, an ability that is especially

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helpful early and late in the day. One with a high wing loading (i.e., more weight per unit of wing area) is able to make high speed dives and has a lower rate of sink when gliding at high speed.

The Bald Eagle has a wing loading of 80.94 N/m^2 (Kerlinger 1989) while the others have wing loadings that are either unknown or unpublished. However, weights and wingspans are given in Brown and Amadon (1968), and show Golden and Bald eagles having double to triple the weights of Black and Turkey vultures, while wingspans of eagles and Turkey Vultures are similar, and Black Vultures smaller (see Table 1).

This means that Turkey and Black vultures have low wing loadings and the eagles, higher.

(2) Aspect ratio:
The higher the aspect ratio, the longer and narrower the wing and the more efficient it is for continuous gliding. Albatrosses have aspect ratios of about 20, while the Sharp-shinned Hawk's (*Accipiter striatus*) is 4.57 (Kerlinger 1989). Aspect ratios of the four species are indicated as similar by Kerlinger and are considered low, although no figures are given. Bald Eagles have a slightly higher aspect ratio (somewhat narrower wings compared to the other species).

Immature birds (i.e., those in their first year of life) have longer wing and tail feathers than adults and therefore have slightly lower aspect ratios (Gerrard and Bortolotti 1988; Brown and Amadon 1968). This means that immatures may be slightly less efficient gliders. However, it also provides a technique for aging these birds. Older birds will have moulted some or all of the wing feathers and replaced them with shorter ones. Eagles typically do not have a complete annual flight feather moult so that the trailing edge of the wing has some long and some short feathers; it appears ragged compared to the even-edged immature's wing. This is often the case with the tail as well.

The ragged edges are generally an indication that an eagle is older than immature. On occasion an immature will lose a wing or tail feather by accident and replace it before the annual moult. The replacement feather will be shorter. Immatures like this are few and far between.

(3) Emarginated primaries:
All four species have six emarginated outer wing feathers, providing six slots at the tip of the wings. These slots do two related things: (a) lower the stalling speed (i.e., the speed at which a soaring or gliding bird can stay airborne); and (b) add more lift to the wings without lengthening them.

Since the feathers are "cut" on both vanes, the slots formed have squared ends when the wings are fully spread; this is apparently more efficient than one-sided slots for providing lift to the wing (Brown 1976).

Table 1: Weights and wingspans of selected species

Species	Wingspan (cm)	Weight (g)
Bald Eagle	168–244	3000–6300
Golden Eagle	152–204	2900–5800
Turkey Vulture	180 (average)	1400–1800
Black Vulture	137–150	1181–1940[1]

[1] *Brasiliensis* race, which is about 7% smaller. Information for the *atratus* race of our region is not available.

The flight styles of the birds under consideration are affected by all three of these factors together. The two vultures search for carrion over large areas and so need to be efficient soarers and gliders, and may need to fly very slowly over an area in order to detect food. Low wing loadings and six emarginated primaries allow the vultures to do this over land, including fairly early and late in the day when thermals are too weak for eagles. The vultures, Turkey Vultures in particular, seldom flap, an activity that requires more energy than soaring.

The two eagles, having higher wing loadings, are able to make high speed dives, essential when chasing prey, but with six slotted primaries can also soar more efficiently, important when searching for food and migrating. The higher aspect ratio of the Bald Eagle also makes it a more efficient glider, helpful when migrating. Because of their weight (and higher wing loading), the two eagles can glide or dive at much higher speed than either vulture. A Golden Eagle was once timed flying at 195 km/h in a generally uphill direction (Brown 1976).

Identification

The following brief notes may add to or emphasize some aspects of identification. For a complete treatment, see the two books mentioned at the beginning of this article.

(1) Flight

Turkey Vultures fly with wings uptilted in a pronouced dihedral, moving slowly, and rocking as they go. They frequently give a half-flap with the outer half of the wings, then straighten them out again quickly. Golden Eagles have slightly uptilted wings, but not nearly so pronounced a "V" as the Turkey Vulture. Bald Eagles and Black Vultures soar on flat wings. In fact, Bald Eagles look like flying planks because of their long, narrow wings.

When flapping, Black Vultures give half a dozen stiff, jerky flaps at a time; Turkey Vultures and eagles have much slower, more deliberate wingbeats.

When gliding, all species tuck

their wings back more or less depending on wind and strength of rising air. The eagles are able to glide more rapidly than the vultures but this may not be apparent. Watch carefully any single, fast-gliding, big black bird — Turkey Vultures are most often seen in flocks. It may be a Golden Eagle migrating at the same time as vultures and looking very similar when in a half-tucked gliding position; so similar, in fact, as to be dismissed as a Turkey Vulture without close scrutiny. The Black Vulture as the rarest of these species in Ontario will be seen alone or with a group of Turkey Vultures.

(2) Plumage:

BLACK VULTURE

This species is only two-thirds the size of a Turkey Vulture and half the size of eagles. At a distance, it may be confused — not with the distinctive dihedral of the other vulture species — but with an eagle's fairly flat profile. However, its distinctive white primary patches will give it away.

TURKEY VULTURE

There is nothing new to add to the plumage descriptions already in the guides.

BALD EAGLE

In immature and some subadult plumages, the Bald Eagle has extensive white tipped with black-brown in the tail. This pattern is the same for immature and subadult Golden Eagles. However, in Golden Eagles, the white is a clear band with no dark sides on the outer tail feathers. In Bald Eagles, the white is ordered all around (tips and outer tail feathers) with dark. Usually the white is marbled with dark like a Harlan's Hawk (*Buteo jamaicensis harlani*) tail; in Golden Eagles the white appears immaculate.

GOLDEN EAGLE

The tawny and golden neck and head feathers of the Golden Eagle can appear white (like the head of an adult Bald Eagle) when in full sun. The extensive white in an immature Golden Eagle's tail coupled with sun-lightened gold on the head can bear a superficial resemblance to an adult Bald Eagle. At distances, the bird may easily be passed off as the wrong species.

Nicoletti (1989) also pointed out something interesting about immature Golden Eagles: some may show little or no white at the bases of the flight feathers. One of this plumage was caught and banded at Hawk Cliff, Ontario, on 12 November 1990; there was no white at all on the underwing flight or covert feathers. These two white patches, in conjunction with the white patch in the tail, are considered standard field marks. Obviously, one must use great care and more than one or two field marks when identifying or attempting to age this species.

Nicoletti also added that on birds in later plumages than immature there is a tawny bar

Table 2: Dates and locations of Black Vulture sightings in Ontario

Date	Location
16–17 Feb 1984	Long Point
31 Mar 1984	Point Pelee
2–3 July 1986	Walsingham and Turkey Point, Haldimand-Norfolk
29 July 1982	Highway 402, east Lambton County
17 Aug 1981	Point Pelee
24 Aug 1974	Cayuga, Haldimand-Norfolk
20 Sep 1979	near Kingsville, Essex County
26 Dec–3 Jan 1987-88	Aldershot, Halton

across the upper wing coverts. This bar fades over time and is very pronounced in spring migrants. By that time, immatures may have a slightly pale area here due to fading; however, the bar is a very good mark to aid in aging Golden Eagles.

Status of the species in Ontario

Black Vulture

This is the rarest of these species reported in the province, with eight records accepted by the Ontario Bird Records Committee (James 1983; Wormington 1985, 1986, 1987; Coady and Wormington 1989). The dates are listed in Table 2.

There appears to be no pattern to the times of the sightings, although four may have been wandering non-breeders during summer. The locations were all in the southwest of the province, close to Lake Erie in most cases, Aldershot being the furthest north and west (at the western end of Lake Ontario).

In the Black Vulture's breeding range further south, it is considered a permanent resident although individuals wander or withdraw seasonally from the northern areas (Palmer 1988a). It is currently spreading northward east of the Mississippi River.

Turkey Vulture

McIlwraith (1894) reported that the Turkey Vulture "...is a rare visitor to the southwest of Ontario, and to the east I have not heard of its being observed." Today it is a common nesting species across the south and west of the province (Cadman *et al.* 1987), and the number seen in migration is steadily increasing, with 12 365 sighted at Holiday Beach in the fall of 1988 (Benoit 1989).

The Turkey Vulture enters Ontario beginning around mid March, and peaks during the spring migration in the last week of that month and the first two weeks of April (pers. obs.). These dates apply to the extreme south of the

province.

During the nesting season it can be seen almost daily in rural areas away from unbroken forest. After the breeding season, the movement out of Ontario begins in early September to the north and late September along the Lake Ontario and Lake Erie shores. These birds exit in largest numbers from about 5 to 20 October, with the last few going in mid November. However, in the past five years, there have been a number of sightings of Turkey Vultures in December, January, and February in southern Ontario, an indication, perhaps, of its expanding population. With more birds in the province, it is more likely that there will be some unable to move south because of illness or injury, along with an additional few who may inherit a defective migratory orientation that results in them migrating to southern Ontario rather than with the rest of the population.

Bald Eagle

The Bald Eagle had declined in Ontario due to habitat loss, direct persecution and DDT poisoning. In the late 1970s and throughout the 1980s, however, its numbers have slowly increased with the elimination of DDT and reintroduction programs. Ontario's western population in the Rainy River District has remained quite large even though reproductive success declined during the DDT years (Grier 1985), but the southern Ontario population reached a low of seven active nests in 1983 (McKeating 1985) from which it is slowly recovering (Cadman *et al.* 1987; Gerrard and Bortolotti 1988).

The migration of Bald Eagles is complicated by the fact that immatures and subadults from the southeastern United States also move into the province in spring and out in fall. Ontario (and probably some Quebec) breeders move into the province fairly early, in March and April (Nicoletti and Dodge 1986, 1987). Younger cohorts return north later in general (Palmer 1988a), although occasional adults are seen even in June — a few might be southern breeders. For example, at Braddock Bay on the south shore of Lake Ontario in June 1987, one adult, one four-year old, five subadult (two- and three-year olds), seven one-year olds, and two of unknown age were sighted. Although outside Ontario, many of these birds may have been on their way into the province.

Southern birds of the year (immatures) from Florida, as well as west along the Gulf Coast, and as far north as Chesapeake Bay, become independent of their parents from March to June. Palmer (1988a) stated

> "Their northern movement is rapid, and they spread out from near the Atlantic coast to inland well west of the main axis of the Appalachians ... The young, in their first calendar year, are dominated by older cohorts. By going north, presumably they

> can find room to feed where they are free of aggression from their own kind; those still surviving in fall return south and enter roosting assemblies of other pre-breeders — a better social situation that prevails until reproductive maturity, when the birds become territorial (pp. 204–205)."

Palmer also noted that banding evidence indicates that only a fraction of second-year and older Bald Eagles migrate in the manner of the immatures. These southern-hatched birds probably comprise the bulk of early spring immatures seen on migration while birds hatched the previous year in Ontario and Quebec come north later.

During the fall migration, Bald Eagles are seen from early September to late November along the Lake Erie north shore. There are two peaks, in mid September and early to mid October (Benoit 1987, 1988, 1989), perhaps indicating returning southern-hatched immatures early in the season followed by northern birds later. However, the evidence available does not include ages and is based on 122 birds over only three autumns at Holiday Beach, Ontario. It is known, according to Palmer again, that in general, young northern birds go south earlier than their elders — a pattern typical of many birds of prey.

A few Bald Eagles winter in Ontario (e.g., along the Niagara River, near Peterborough, in Hamilton Harbour, along the lower Grand River), usually below dams at rapids or falls where open water produces injured or dead fish and birds.

Golden Eagle

Cadman *et al.* (1987) showed only three breeding locations in the province and, of these, only one was a confirmed Golden Eagle nesting site. Like the Bald Eagle, it is listed under the Endangered Species Act of Ontario. To the west in mountainous country, its typical habitat, it becomes much commoner.

During spring migration, Golden Eagles, like all the other species described here, are most readily seen along the south shoreline of one of the Great Lakes. Spring passage along Lake Ontario runs from 10 March to 5 May at Derby Hill at the eastern end (Palmer 1988b); 5 March to 26 May at Braddock Bay near Rochester, New York (Nicoletti and Dodge 1986, 1987; Dodge 1989, 1990); and 24 February to 23 May at Beamer Conservation Area near Grimsby, Ontario at the western end (Dodge 1989, 1990; Grimsby Hawkwatcher 1981–88; unpublished data 1975–80). The majority pass through from 21 March to 5 May but there is no clearly-defined peak.

In the fall, based on Holiday Beach data, Golden Eagles are first seen in early October but few pass by until late in the month. From 24 October to 11 November, 102 of the three seasons' total of 129 were seen. The 15-year average and range at Holiday Beach (1974–88)

is 27 per year (0–58). Some of these could be immatures from the west that have wandered to Ontario after dispersal from the nesting area.

It is of interest to note that during both spring and fall migrations, almost all Golden Eagles are seen from 1100 to 1400h (Nicoletti and Dodge 1987; pers. obs.). This is a more restricted time than that of Bald Eagles and vultures, and probably indicates the need this species has for thermal lift during migration.

Few Golden Eagles are sighted during winter in the province, although two areas do report them with some regularity: Petroglyphs Provincial Park and Sault Ste. Marie.

Conclusion

Of these four species, three are known to have increasing populations, and will probably spread to areas of the province where they have previously been uncommon or absent. The fourth species, the Golden Eagle, has a population that in Ontario is not well known at any season.

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Nesting of White-winged Crossbills in Oxford County

by

James M. Holdsworth and Don S. Graham

The White-winged Crossbill (*Loxia leucoptera*) normally breeds in the Boreal Forest zone. However, breeding has been confirmed as far south as Presqu'ile Provincial Park, Victoria County, and the Waterloo area (Smith and Lumsden 1987; Weir 1989a). This article details a breeding attempt by White-winged Crossbills in Oxford County. The nesting was at Wildwood Lake, an artificial reservoir in Oxford's northwest corner, and is among the most southerly known nest records in the province.

In the winter of 1989–90, Holdsworth and Graham repeatedly observed about 40 White-winged Crossbills feeding in spruce (*Picea* spp.) plantations located at the eastern end of Wildwood Lake. As spring arrived, breeding behaviour became apparent. On 17 March 1989, Holdsworth observed several males performing the species' characteristic flight song and displaying strong territorial behaviour. By 29 March 1989, 20 White-winged Crossbills remained, all of which appeared to be paired and very sedentary. These pairs could be found in the same small spruce plantation for several days.

On 7 April, Holdsworth and Graham observed a female White-winged Crossbill carry nesting material into a Norway Spruce

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(Picea abies) adjacent to Wildwood Lake. A male accompanied her as she flew to the nest and perched nearby as she added to it. The nest was situated about 5m up, towards the outer parts of the tree, although still well hidden from a distance. The site chosen was typical of these selected by White-winged Crossbills (Harrison 1975). This represented the first nest record for Oxford County.

Several subsequent observations were made by the authors at the nest site. On 16 April, Graham observed the female sitting on the nest for approximately 10 minutes and believed the bird to be incubating eggs. Holdsworth returned 22 April and the pair was still present, although the female did not visit the nest. Several visits thereafter failed to produce any crossbills and due to this lack of activity, both observers felt that the nest had been abandoned. Consequently, on 6 May, Graham climbed the nest tree and collected the nest. There was no sign of eggs or the former presence of young. The nest was complete and was primarily composed of small spruce twigs woven together into a flimsy cup shape. The nest was lined with plant fibers and hair.

While rare, this nesting attempt is not unprecedented for southern Ontario. As well as the previously mentioned southerly records, the following records of possible breeding have been recorded: on 25 March 1985, Dave Martin (pers. comm.) observed a pair of White-winged Crossbills near a suspected nest site at Fanshawe Lake in Middlesex County. On 2 May, Martin collected a nest at the site that he felt was likely that of a White-winged Crossbill. The nest was sent to the Royal Ontario Museum for identification; the results were inconclusive.

On 17 February 1985, Jeff Skevington observed a pair of White-winged Crossbills at the Oxford Field Study Center, near Woodstock. The pair became agitated when the suspected nest tree was approached, although a nest was not found (pers. comm.).

Besides the recent nest record of White-winged Crossbills at Wildwood Lake, numerous spring (and one summer) records at the reservoir suggest that nesting may have been attempted in the past. A pair of White-wings observed on 17 June 1989 was in almost the exact location as the nesting area (Weir 1989a).

It is also interesting to note that the extensive spruce plantations around Wildwood Lake have hosted various summering/nesting finch species in the past. Summer records of Red Crossbill (*Loxia curvirostra*) and nest records of Purple Finches (*Carpodacus purpureus*) and Pine Siskins (*Carduelis pinus*) all lend an authentic "boreal effect" to the area (Holdsworth, pers. obs.).

It is the opinion of the authors that this record does not represent a range extension of the species. Rather, it is thought to be more of a fluctuation beyond the species'

perceived southern range limit. These fluctuations are likely to occur during periods when crossbills invade southern areas (as was the case in the winter/spring of 1989/90). Also, although other northern species have shown marked expansion in Oxford County and the southwest — Red-breasted Nuthatch (*Sitta canadensis*); Golden-crowned Kinglet (*Regulus satrapa*); Pine Warbler (*Dendroica pinus*) (Holdsworth, pers. obs.; Weir, 1989b) — these species have increased primarily due to maturing conifer habitat. The habitat the White-winged Crossbills used to nest in at Wildwood Lake was fairly young spruce plantations, and this habitat is widespread throughout Oxford and the southwest. If White-winged Crossbills were truly expanding into southern Ontario, it would be likely that they would be found much more regularly throughout the areas supporting young spruce plantations.

The future of the White-winged Crossbill's nesting status in southern Ontario is likely as uncertain as the comings and goings of the birds themselves.

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Notes

Red-breasted Nuthatch Nesting in Residential Waterloo

In 1989, a pair of Red-breasted Nuthatches (*Sitta canadensis*) successfully nested in our back yard in residential Waterloo. Several aspects of this nesting seemed exceptional to me: this species breeding in a large urban centre, its choice of nesting site, and interspecific interactions. I was fortunate to observe nesting activity from the first day of excavation to the first fledgling's flight from the nest hole.

The Red-breasted Nuthatch prefers coniferous or mixed forests as reflected in its provincial distribution which is most dense across the Canadian Shield and the boreal forest. In southwestern and south-central Ontario its sporadic distribution is of relatively recent origin, and likely due to the maturity and proliferation of coniferous plantations (Mills 1987). In New York state, it was mainly confined to higher elevations in the

mountainous regions until at least early in this century, but has since expanded across much of the state due to reforestation (Peterson 1988).

I have always considered the Red-breasted Nuthatch a species of the forest interior, which is certainly reinforced in the literature (Godfrey 1986). Our yard, although well-wooded and part of a fairly well-treed section of the neighbourhood, is not a forest. The trees in the neighbourhood are aligned in hedges and coppices. The lot itself is about 0.2ha with a small 1940s house in the middle. The property lines are all treed: the front or west has a high hedge along half of it, and a line of 15m Norway spruce (*Picea abies*) which also lines the driveway, a mixture of thick "edge" shrubs and orchard trees are along the north, a double row of 15m Norway spruce straddles the east line (back yard), and 20m cottonwoods (*Populus deltoides*) are on the south line. Other trees, notably a Norway maple (*Acer platanoides*), Scotch pine (*Pinus sylvestris*), and apple (*Malus* sp.) trees are in the back yard.

Throughout the winter and early spring of 1989, a pair of Red-breasted Nuthatches was among the many bird species visiting our feeders and using the trees for shelter. The first sign of nesting was on 8 April, when both sexes were observed busily drilling the beginnings of a hole in a 90cm high, 20cm diameter apple tree stump. The stump was not rotten, and the wood was extremely hard. The stump is located in the southeast corner of the back yard, 6m from the base of the large maple, 6m from the nearest cottonwood, 7m from the corner of the house, and 15m from the spruces.

This same day, the male began aggressively attacking and driving away other species including Black-capped Chickadees (*Parus atricapillus*) numerous times, a male Downy Woodpecker (*Picoides pubescens*) on several occasions, Brown Creepers (*Certhis familiaris*), and once even a House Finch (*Carpodacus mexicanus*). This aggressiveness continued for several days. With the exception of the finch, all attacks were directed against species which overlap feeding strategies or nest in cavities. By late April the attacks became less tenacious and frequent. Of note, the one attack on the House Finch was on 31 May, and involved an individual feeding on sunflower seeds at the feeder. Perhaps the male nuthatch was defending this source of food at a critical time in its breeding cycle.

Following is a summary of behavioural observations entered by date.

16 April

Female visits House Wren nesting box and pitches out some wood shavings.

17 April
Alarm notes heard during a. m. Afterwards, no sign of either bird for the entire day.

18 April
Both birds excavating and working at a frantic pace throughout entire day. By day's end, they could enter the hole entirely. The male removed fragments of wood to a perch in the nearby maple where it dropped them.

24 April
Female transporting nesting material into cavity and spending as long as 20 minutes inside. Male attacking other species but without intensity of earlier days.

5 May
Female probably incubating, more often in cavity than out feeding (not confirmed). Chicken-wire fence 80cm high installed around stump to discourage predation from neighbourhood cats (*Felis catus*).

? May
Sometime in the first two weeks of May, the female began the curious habit of smearing spruce sap around the entrance of the hole. The action of entering the nest took its toll on the female, who after several days became increasingly disheveled, having lost many breast feathers in the pitch. Since it was mainly the female who incubated, the feather loss can be partly attributed to the developing brood patch. The male was not affected.

18 May
High-pitched peeping was heard from the nest hole indicating young inside. Both adults took turns feeding with the female remaining in the nest for long periods.

29 May
Young were observed for the first time. Feeding occurred generally at three- to five-minute intervals, and the fare seemed to be mainly insect larvae and the occasional flying insect. The female seemed to feed more frequently than the male, at one occasion making four consecutive feedings. The male made uncharacteristic high-pitched squeaking noises while gleaning bark and branches. The female was observed entering the nest for the night at 2035h, a time consistent within 10 minutes of similar observations on subsequent nights.

6 June a. m.
At 0700h I awoke to the incessant distress calls of juvenile nuthatches. At 0715h I watched a young teetering on the edge of the entrance hole launch itself towards the top of the chicken wire, but miss the target, grasping the wire of the diamond-shaped hole one level below. Without hesitating, it flew weakly just past my head, gaining about 2m of altitude, and landing on a branch of the nearby maple. It then flew to a perch 3.5m high in a cottonwood, where it settled in and

began food-begging calls (Figure 1). There was no sign of the adults. At least two voices emanated from the hole and a second fledgling perched at the entrance. It remained there when I left for work.

6 June p. m.
When I returned from work, there was no sign of nuthatches in the yard.

8 June
The female made a brief visit to the feeder.

In summary, the exceptional aspects of this breeding record include nesting in an urbanized area, a nest site in extremely hard wood and entrance cavity only 80cm from the ground, and aggressive attacks to drive other species from the yard.

The Red-breasted Nuthatch is typically regarded as a forest interior species requiring a minimum of 4 to 10ha of continuous forest habitat (Whitcomb *et al.* 1981, Freemark and Merriam 1986). The lowest nest reported in Ontario by Peck and James (1987) was 1.5m from the ground. The Waterloo nest appears to be the lowest ever recorded according to Bent (1948) and DeGraaf and Rudis (1987).

Data on incubation and fledging periods for this species are scarce. No information has previously been reported for Ontario nests (Peck and James 1987), and Bent (1948) reported an incubation period of 12 days based on a single observation. Based on information from one individual, Bent (1948) concluded that the fledging period was 18 to 21 days.

While many forest-dwelling species, particularly open-nesting neotropical migrants, are declining in the face of our "cultural" landscape, some species seem able to adapt to these new conditions. Perhaps this nest record is one such example.

Significant dates and numbers

8 April	First day of excavation
5 May	Female begins incubation
18 May	Eggs hatch
6 June	Young fledge
Incubation	13 days
Fledging	19 days

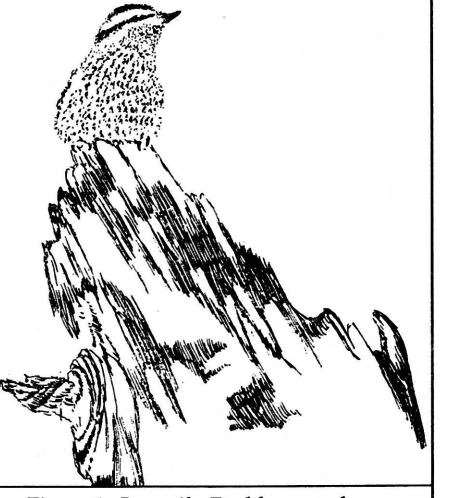

Figure 1: Juvenile Red-breasted Nuthatch. Drawing by *E. D. Cheskey.*

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Bohemian Waxwings Eating Tree Buds

On 14 January 1990, Ron Tozer, Doug Tozer, and the author made three separate observations of Bohemian Waxwings (*Bombycilla garrulus*) eating the buds of white elm (*Ulmus americana*). The first observation was at 0800h of more than 100 Bohemian Waxwings along Highway 649 in Peterborough County just north of Bobcaygeon. This flock actively ate the buds of a large white elm despite the presence of abundant buckthorn (*Rhamnus*) berries within 500m. One half hour later, we observed another flock of 20 Bohemians eating the buds on a single, isolated, small white elm among other trees along Highway 36 near Buckhorn, Peterborough County. Later that afternoon, we saw yet another flock of 15 Bohemian Waxwings budding on a large white elm along Victoria County Road 8 west of Bobcaygeon. Between the second and third observations, we also observed a small group of Bohemian Waxwings eating buckthorn berries in Bobcaygeon.

The winter diet of Bohemian Waxwings is mainly berries and other fruit (Bent 1950). I recall one winter in the mid 1970s seeing Bohemian Waxwings eating ash (*Fraxinus*) buds at the Central Experimental Farm in Ottawa. Bent (1950:71) lists only the "buds of poplars" (*Populus*) in the diet of

Bohemian Waxwings. Furthermore, there is no mention in either Bent (1950) or Martin *et al.* (1951) of Cedar Waxwings (*Bombycilla cedrorum*) eating tree buds. Jim Mountjoy (in litt.), who has studied Cedar Waxwings extensively, was "not aware of references to waxwings eating buds other than those cited in Cramp (1988)." Cramp (1988:494-496) lists the buds of several tree species including elm eaten by Bohemian Waxwings in Europe.

It remains a mystery why three independent flocks of Bohemian Waxwings were observed eating elm buds when berries were readily available. They may have been eating buds for their protein content as a lack of protein in fruit seems to be the most important limitation of a diet which is high in fruit (Jim Mountjoy, in litt.). Bohemian Waxwings were observed in the same areas on several dates before and after 14 January 1990, but elm bud eating behaviour was never noted on any of these other occasions.

Acknowledgements

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Book Reviews

Mar. 1976 (republished 1986). By *Louise de Kiriline Lawrence.* Natural Heritage/Natural History Inc. 104 pp. CN$??, paperback.

Ernest Thompson Seton gave us histories of mammals based on composite studies of more than one individual. Louise de Kiriline Lawrence gives us the life history of a Yellow-bellied Sapsucker based on her observations of one bird.

Primed to read her incomparable word-paintings, I came to an abrupt halt on page 3, where I read of sapsuckers "sucking" sap from holes they had bored in trees. Would I find more fallacies in an otherwise charming book? I did. On page 77, she again refers to the woodpeckers sucking sap; yet on the next page, she has Ruby-throated Hummingbirds "lapping" the stuff, which is also how sapsuckers imbibe it.

Other than that duplicated error, Mrs. Lawrence gives a full account of the life history of a male sapsucker as observed by her over two summers. Her story follows the bird from its arrival in spring,

through the claiming of territory, arrival of the females, courtship, mating, nesting, to activities of the birds until they depart for the south in the fall. There is no jumping about as from the events of April to those of July, thence back to May; rather, a natural progression is followed, her skilful writing inducing the feeling of the passing of the seasons.

At times, she breaks the story with theories of her own, some well conceived, some questionable. These interpolations tend to interrupt the reader's trend of thought, and may have reached a more appreciative audience had they been inserted at the end of a chapter, which usually terminates at the conclusion of a phase in the bird's life.

As I have been associated with sapsuckers about my cottage in Muskoka, and as I believe I know the species quite well, I questioned two statements. She refers, more than once, to the erectile crests worn by both sexes, an adornment that has apparently escaped my notice, notwithstanding my having observed the species in its mating season. The other statement refers to the bird's "dancing" in much the same way as flickers. I have seen the flicker so engaged dozens of times, and Downy Woodpeckers on several occasions, the latter sending me and the late Les Snyder (of the ROM) to Bent. We found no reference to the act in Bent's discussion of the Downy Woodpecker, but did find a confirmation of sorts for the Hairy Woodpecker. Searching the same "bible" on this occasion produced nothing under *Sphyrapicus varius varius* (Yellow-bellied Sapsucker), but did; "...much like a flicker"; under *S. v. nuchalis* (Red-naped Sapsucker). Evolution would demand that the act be committed by more than one species of woodpecker, so, in both cases (the display and the crests), it would seen that the author has been a privileged observer. If others have been so privileged, they have refrained from publicizing it. I also wondered how she knew Mar brooded the young at night, when all were confined to a hole in a tree.

One is never disappointed in her play on words, her description of the song of a Veery being a good example: "A thrush, a tawny veery, was engaged in a lyric performance of rare musicality, a flow of silvery dulcet notes in a descending cadence leisurely repeated over and over again." Other writers usually dismiss the song as a series of descending curves.

You will find *Mar* a highly interesting book that will introduce you to many facets in the life of a sapsucker. But it will not tell you how the male sapsucker that she knew intimately over six summers received its name.

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Birds of the Kingston Region. 1989. by *Ron D. Weir.* Quarry Press, Kingston, Ontario. 608 pp; 44 illus. CN$39.95

When one considers the relatively few regions in Ontario with book-length studies of bird distribution, it makes all the more amazing this third major publication since 1965 when Helen R. Quilliam came out with her first *History of the Birds of Kingston.* And this does not include a 40-page supplement produced in 1980 by Weir and Quilliam to describe the occurrence of those species new since her 1973 book! Owners of any or all of the other publications need not think that this most recent work is redundant, for it contains a wealth of fascinating information about our birds that few other areas have the database to even attempt to duplicate. Furthermore, it describes their status in a rich region which, for geographic and demographic reasons, few birdwatchers from elsewhere in Ontario frequent.

The format of this hefty paper-covered book follows the tried and true formula. Following an introduction by W.E. Godfrey, there are sections that outline: the purpose (if nothing else, to describe the 49 new species since Quilliam's 1973 book); basis for including records; annotated list of presumed escapes; abundance and frequency designations; the topography, vegetation and climate; descriptions of nine special interest sites with black-and-white photo illustrations; summary of ornithological work, especially since 1948 and leaving the earlier historical work as described in Quilliam's books; and, bird population trends. Inside the back cover in an envelope is a fold-out large scale map of the Kingston Region. It shows a number of Christmas Bird Count circles and the old 50km diameter Kingston Birding Area circle but, unfortunately, not the 10km squares now used.

The ornithological studies section is only about three pages long but it reveals the amazing thoroughness with which this small group of, essentially, amateurs have gone about the task of analyzing and documenting the bird-life of the 13 atlas squares (1300 km^2) which comprise the Kingston study area. Among these have been numerous special censuses (waterfowl, shorebirds, larids), banding projects, Lennox Generating Station tower kills, the Prince Edward Point Observatory, probably the most thorough atlassing for the *Breeding Bird Atlas*, and on and on it goes.

Naturally, the 343 species accounts comprise the bulk of the book. Accounts average about a page in length. Each account follows a general format which, however, is not adhered to slavishly. Often something interesting about a species such as its North

American status or habitat preference begins the account. The observers of rare species are acknowledged, which seems the correct approach in a regional account. A season-by-season summary follows a history of the bird's status in Kingston. Weir has a peculiar way of indicating dates with the year before the month and date which I find awkward, if not pedantic.

The summary statement of status includes a descriptor of relative abundance and another of frequency of occurrence. Perhaps this provides precision but I find it confusing and would prefer one series of designations. For example, to say that Red Phalarope is irregular (less than once per year) and very rare (seen once in a while) seems to me to be redundant. One set of labels running from abundant to casual would, I believe, be at least as clear. The frequency standard "accidental" used here and by many other authors I have always had difficulty with. When there are already two records of a bird (Northern Gannet and Harris' Sparrow) should it be designated as not expected to occur again? Other species labelled accidental, such as Curlew Sandpiper, Mew Gull, Ivory Gull, and Western Kingbird to name just some, given their status in Ontario, will almost certainly occur again in Kingston at some future date. Why not just state that there is just one record? In fact, the author did just this in some cases, stating the Great Cormorant has "two winter and one spring records" which surely is more clear than a label.

But these are very minor points of personal preference and can detract but minutely from the fascinating information contained in these species descriptions. One of the most interesting results of using a set of 10km squares to define the study area is that Weir has calculated the number of breeding pairs of every species in the OBBA years. Some examples follow: Red-shouldered Hawk 270; Northern Goshawk 35; Warbling Vireo 27 500; Cerulean Warbler 130; and Red-winged Blackbird with 193 500 as the most common breeding bird. The richness of this part of Ontario is indicated by the 1300 pairs of Common Moorhens and 40 of the 50 pairs of Henslow's Sparrows estimated for Ontario during the atlas years! Under the appropriate species are tower kill statistics, banding counts and returns, tables of censuses like Black-crowned Night-Herons or a table showing all the Bald Eagles counted, by season, from 1952 to 1987. From Weir himself come counts of night-migrating thrushes identified by calls. In over six hours on 14-15 Sep 1987, 720 Gray-cheeked Thrushes passed over his home and on 21-22 Sep 1983, 16 000 Swainson's Thrushes were tallied in eight hours. One wonders whether the next day was a work day!

As always in such works, there are interpretations with which one

can quibble. Weir cites three records of *L.g. kumlieni* (Kumlieni's Iceland Gull), implying that the others are the nominate race, which most authors would consider, by range, to be far less frequent in Ontario. Weir does not seem to share the almost universal concern for species like Black Tern and Common Nighthawk. In providing breeding pair counts of Saw-whet Owl, Weir assumes that males cease singing once they acquire a mate, which "explains" why few are located after early April. One only hopes that the explanation is not that these are transients which moved on after early April.

The black-and-white illustrations, which are a combination of drawings and photographs, are an attractive feature. Those drawings of Ian Jones' are especially good; I particularly like his immature male King Eider. It's a pity that more photos of rarities could not have been included in lieu of some common species.

After the species accounts fully one third of the book remains. There are eleven appendices! First is a "Field Checklist of Birds". Presumably it is a duplicate of a field card, but obviously it cannot here function in this way. Appendix B is the now-obligatory seasonal bar graphs. I find the next appendix, "Arrival and Departure Statistics", which summarizes 40 years of migration dates, to be more useful and interesting, but I suppose the visual approach has its followers. Other appendices list the 20 commonest breeding birds; the birds killed at Lennox Generating Station, and six area CBCs. There is an excellent 15-page list of references as testimony to the thoroughness of the book, as if any was needed. Finally, there is a bird species index.

Birds of the Kingston Region serves as an ideal model for anyone contemplating a book on the birds of a particular region, although the thoroughness of Weir's book may be more than a little daunting. One thing, however bothers me, which, in the context of a review for *Ontario Birds,* needs to be stated: Weir not once in giving the provincial status of rare species cites the rapidly accumulating bank of thoroughly researched information to be found in the Ontario Bird Records Committee annual reports. This intentional slight notwithstanding, *Birds of the Kingston Region* is an outstanding achievement and an excellent book which all serious students of the province's birdlife will want to have on their shelves.

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Ontario Field Ornithologists

Ontario Field Ornithologists is an organization dedicated to the study of birdlife in Ontario. It was formed 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 and a journal, *Ontario Birds*, hosts field trips throughout Ontario and holds a Spring Field Meeting and an Annual General Meeting in the autumn.

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