

Northern Redtails

Ron Pittaway

Most of the Eastern Red-tailed Hawks (*Buteo jamaicensis borealis*) seen at Ontario hawkwatches can be separated into two recognizable forms: northern and southern. The southern form breeds south of the Canadian Shield and the northern form breeds north to James Bay.

W.E. Clyde Todd, of *Birds of the Labrador Peninsula* fame, described the northern population of the Eastern Red-tailed Hawk breeding in the boreal forest as *B. j. abieticola* which means "dweller of the fir". Typical adults of this proposed subspecies differ from the redtails breeding in southern Ontario by having bolder and more heavily marked belly bands, more streaked and darker throats, and buffier underparts. Juveniles often can be identified by their greatly increased blackish belly band, rarely almost forming a solid band.

Study the redtails breeding in southern Ontario. They have lightly marked belly bands (some lack them) and are very white below, including the throat. Southern adults are at their nests by March. The adult redtails migrating by the Niagara Peninsula Hawkwatch near Grimsby in April are mainly northern redtails. In October and November, most of the redtails passing High Park Raptor Watch in Toronto are also the more heavily pigmented northern birds. Many northern redtails winter in southern Ontario.

By studying the appearance of the redtails breeding in southern Ontario and comparing them with the more migratory northern birds, you will see the difference with practice.

Bird Quiz Answers from page 1

1. Barred Owl. Source: *Atlas of the Breeding Birds of Ontario* edited by Cadman, Eagles, Helleiner.
2. Broad-winged Hawk. Source: *Flight Strategies of Migrating Hawks* by Kerlinger.
3. Double-crested Cormorant. Source: *The Rise of the Double-crested Cormorant on the Great Lakes* in *Great Lakes Fact Sheet* series, Environment Canada, Ontario Region.
4. Great Crested Flycatcher. Sources: *The Birds of Canada* by W.E. Godfrey; *A Field Guide to the Nests, Eggs and Nestlings of North American Birds* by Baicich and Harrison.
5. Nestlings of all the tree-cavity nesting ducks (Wood Duck, Bufflehead, Common and Barrow's Goldeneye, and Hooded and Common Merganser) drop from their nests when a day or two old to join their mothers on the ground and commence feeding. The plunge is sometimes 50 feet (17 metres), often onto hard ground, not water, but they appear to do it unharmed. Source: *The Ducks, Geese and Swans of North America* by Kortright.
6. Common and Red-breasted Mergansers. Source: *A Field Guide to the Nests, Eggs and Nestlings of North American Birds* by Baicich and Harrison.
7. Black-billed Magpie. The North American subspecies may be intolerant of the high temperatures and humidity of eastern North America (see *Magpie Mystery* by Ron Pittaway, *OFO NEWS*, October 1997).
8. Hudsonian Godwit. They gather in large numbers on James Bay in early autumn and then most of them disappear. They are rare autumn migrants everywhere else and do not reappear in significant numbers until near or on the wintering grounds in Argentina. It is thought they must have been near extinction until the 1940s when Toronto ornithologists Cliff Hope and Terry Shortt discovered large numbers in fall on James Bay. Now they are believed to be overflying eastern Canada and the US and down over the Atlantic unseen. Source: *Atlas of Nearctic Shorebirds on the Coast of South America*, Volume 1, page 44, by Morrison and Ross.

Notes from the OBRC

Ron Tozer

The Ontario Bird Records Committee will hold its annual spring meeting at the Royal Ontario Museum on 28 March 1998, to vote on records and discuss some policy issues. At this meeting, the 1997 OBRC members will review any of the 160 records previously circulated by mail where a decision had not been achieved, and undertake final votes. This lively discussion usually takes most of the day, and will conclude the work of the 1997 committee.

Margaret Bain and Don Sutherland will complete their three year terms (1995-1997) at the March meeting. Their contributions to OBRC are much appreciated. Three members (Margaret Bain, Rob Dobos and Kevin McLaughlin) were elected at our October meeting to serve the term 1999 to 2001.

The 1998 OBRC committee consists of Rob Dobos (Secretary), Peter Burke, Dave Brewer, Bob Curry, Nick Escott, Richard Knapton, Ron Pittaway and Ron Tozer (Chair). Ross James will continue to serve as ROM Liaison, for which we sincerely thank him. Rob Dobos has done a fantastic job in the arduous role of Secretary over the last three years, and now has reluctantly agreed to shoulder this heavy workload for one more year. We all owe him a special debt of gratitude.

OBRC has decided to remove the following species and forms (most, due to increased frequency of occurrence) from the Southern Ontario Review List: Snowy Egret, Trumpeter Swan, Greater White-fronted Goose, Western Kingbird, "Lawrence's" Warbler (hybrid), "Appalachian" Black-throated Blue Warbler (subspecies) and Harris's Sparrow. Similarly, Western Kingbird, Varied Thrush and Northern Cardinal were removed from the Review List for Northern Ontario. Reports of the above after 31 December 1997 are no longer requested. A revised *Review List for Ontario* will be printed and distributed soon.

The committee has authorized the recirculation of certain records previously adjudicated by OBRC for Willow Flycatcher, Bullock's Oriole, Golden-crowned Sparrow and White-winged Junco, due to the availability of new information and/or outside expert opinion. This is a standard procedure under the OBRC Operating Guidelines, Section VI-C(1), when "there becomes available new and substantial documentary evidence that might reverse the decision" originally rendered. The 1998 committee will undertake these re-evaluations.

We look forward to another successful year of documenting Ontario's rare birds in 1998. As always, we request the continued cooperation of the province's birders in submitting their reports of Review List species and forms directly to:

Rob Dobos, OBRC Secretary
1156 5th Concession Road West, RR 2
Waterdown ON L0R 2H2
E-mail: rob.dobos@ec.gc.ca

Winter Finches by Ron Pittaway

Winter finches are members of the subfamily Carduelinae in the family Fringillidae. They feed almost entirely on seeds, supplemented with insects in summer. Winter finches are noted for their irruptive migrations in search of tree seed crops. Most species come readily to bird feeders. Here, I offer some thoughts about the comings and goings of 10 species of winter finches in Ontario with a focus on Algonquin Park, including a comparison chart of finch species and numbers from all 24 Christmas Bird Counts in Algonquin Provincial Park.

Pine Grosbeak: They have been recorded on 22 of 24 Algonquin and 24 of 31 Minden Christmas Bird Counts, but they are much less frequent in Toronto.

Pine Grosbeaks are a mountain-ash specialist. Pine Grosbeaks irrupt into southern Ontario when Showy Mountain-ash (*Sorbus decora*) and American Mountain-ash (*S. americana*) berries are absent in the boreal forest. Pine Grosbeaks eat the seeds inside the berry, discarding the flesh. They also eat the buds and seeds of hardwoods and conifers. In settled areas, they feed on European Mountain-ash (*S. aucuparia*), crab apples, sumac and sometimes visit bird feeders for sunflower seeds. Except in invasion years, Pine Grosbeaks rarely occur in flocks of more than 10 birds in southern Ontario. Larger flocks are seen in the north. Bright rosy adult males are in the minority in most flocks. First year males look like females, but some are distinctly burnt-orange (instead of yellowish-olive to russet) on the crown and rump, often with a splash of burnt-orange on the breast. Pine Grosbeaks are often tame and sit still for long periods, hence the name "Mope" in Newfoundland. When excited, they flick their wings and tail. The commonest call is a whistled *tee-tee-teu*. It is easily imitated and will decoy them in closely, especially single birds. Pine Grosbeaks migrate north earlier in spring than other finches, usually leaving Algonquin Park by late March.

Purple Finch: In most years, Purple Finches leave Ontario in October, returning in mid-April to mid-May to breed. They have been recorded on 9 of 24 Algonquin and 13 of 31 Minden Christmas Bird Counts. However, in years of bumper tree seed crops, Purple Finches winter in Algonquin Park and even farther north. These are the Purple Finches that appear suddenly in mid-February and March at feeders in southern Ontario when tree seeds farther north are exhausted. Purple Finches give a distinctive metallic *pink* call that is easy to recognize as they fly overhead. Purple Finches have declined in recent years.

House Finch: Before 1940, House Finches did not occur in eastern North America. Our birds are the descendants of caged birds from California that were released by pet dealers in New York City to avoid raids by wildlife officers. The first House Finch reported in Ontario was in 1970 and the first breeding was in 1978. House Finches, unlike other winter finches, lack the ability to greatly increase their heat production in the winter. Many House Finches migrate south in fall and those that stay in very cold winters might not survive without feeders. House Finches continue to expand their range, but numbers have declined in recent years, probably because of the bacterial eye disease (*Mycoplasma gallisepticum*) now common in the species.

Red Crossbill: One researcher has described eight call types of the Red Crossbill in North America that may be separate species. They also differ in size, bill size, coloration and cone preferences. In Ontario, at least three (possibly four) call types or forms of the Red Crossbill occur and breed from time to time. Two forms prefer pines and one prefers hemlocks. One pine form is resident in small numbers in the extensive Eastern White Pine (*Pinus strobus*) forests of northeastern Algonquin Park. Another visiting pine form prefers Red Pine (*P. resinosa*) forests. The hemlock form (*Loxia curvirostra sitkensis*) is the most distinctive form. It occasionally wanders to Ontario in large numbers and breeds here. The hemlock form is the smallest crossbill with the smallest bill, even smaller-billed than the White-winged; it is adapted to open the small soft cones of Eastern Hemlock (*Tsuga canadensis*).



White-winged Crossbill on Eastern Hemlock by Ron Scovell

Road-killed *sitkensis* can be identified by measuring their stubby bills (culmen 13.5-15 mm). Red Crossbills give hard *jip-jip* calls, but one of the pine forms gives liquid *choop-choop* calls to my ears. The song is a series of loud whistles and interspersed warbles, richer and more varied than the White-winged Crossbill. The scientific names of birds and measurements follow *The Birds of Canada* (Godfrey 1986).

White-winged Crossbill: Like a pendulum, White-winged Crossbills move back and forth across the coniferous forests from Alaska to Newfoundland searching for cone crops. A record 9 of the 24 Algonquin Christmas Bird Counts have recorded the highest number of this species in North America. Nine other counts had fewer than 10 birds or none at all. Crossbills and cones are boom or bust! The range of the White-winged Crossbill is

much more boreal than the Red Crossbill. The two species normally do not form mixed flocks. Males are usually much pinker than Red Crossbills. The White-winged Crossbill's small bill is adapted to opening the small cones of spruce and Tamarack (*Larix laricina*). Black Spruce (*Picea mariana*) is a key winter food because it has regular cone crops and usually some seeds are held year-round in long lasting cones. White-wings sometimes feed in hemlocks, but almost never in pines. When spruce cones are abundant in Algonquin Park, White-winged Crossbills usually are common and they are heard singing if they are going to nest. The song is a long series of loud canary-like trills on different pitches. White-winged Crossbills give a dry and strident *cheet-cheet* call. A distant flock sounds like redpolls, but the notes are more rapid and often interspersed with a diagnostic loud musical *peet*. Unlike the Red Crossbill, the calls, songs and appearance of the White-winged Crossbill are the same across the continent.

Common and Hoary Redpolls: Redpolls resemble siskins and goldfinches in size, shape and habits. All these species often hang upside down to feed. An occasional redpoll has an orange or yellow "poll" (forehead). Common Redpolls and a few Hoaries come south in varying numbers about every second winter, with few or none in between. Common Redpolls are a White Birch (*Betula papyrifera*) specialist. White Birch has good seed crops about every two years with some seed most years. When birch catkins are loaded with seeds across the north, redpolls remain in the boreal forest. In Algonquin, redpolls often feed high in White Birch and Yellow Birch (*B. alleghaniensis*), making it difficult to pick out a Hoary. In settled areas, redpolls frequent ornamental birches, weedy fields and feeders with niger seed, making it easier to pick out a Hoary. Both species give rattling *chet-chet-chet* calls sounding like high tension wires. A distant flock has a buzzing quality. The alarm call of perched birds is a loud rising *sweeEET* like a goldfinch but coarser.

Pine Siskin: Like crossbills, siskins wander the continent in search of conifer seeds. They forage less often on alder, birch and in weedy fields. In most years, the majority of siskins leave Ontario for the winter. However, when hemlock, spruce, cedar and other conifers are laden with cones, siskins winter in large numbers. High numbers of siskins in Algonquin Park occur about every five years. Siskin flocks can be identified at a distance by their distinctive flight formation. They swirl in tight compact flocks whereas redpolls fly in loose undulating flocks. Through

binoculars, you can see flashes of yellow in their wings and tails. Siskins silhouetted on top of a spruce can be identified by their very long sharply pointed bills. Siskins give a wheezy *clee-ip* call that is the best way to identify them in flight. Perched birds often give a long rising buzzy *shreeEEEE* call that is unique. As spring approaches, siskins are heard singing a twittering series of husky and buzzy notes. They sometimes breed when snow still covers the ground. At feeders, siskins relish niger seeds. They are aggressive, fighting with one another, goldfinches, redpolls and even taking on Purple Finches.

American Goldfinch: Now common in winter in southern Ontario, American Goldfinches were once rare here in winter. The increase in wintering goldfinches is linked to the tremendous rise in bird feeding. In winter, goldfinches are inconspicuous and much less vocal than in summer, usually giving only low *te-te-te* notes. The bright yellow "Wild Canary" of summer disappears in winter because the adult males molt into a female-like plumage.

Evening Grosbeak: Uncommon in Ontario 100 years ago, Evening Grosbeaks are now a familiar winter finch in the province. Their population increase is partly due to bird feeders. They have been recorded on 21 of 24 Algonquin and all 31 Minden Christmas Bird Counts. In Haliburton County where I live, Evening Grosbeaks are called "Skidoo Birds" because the males are gold and black. In the Ottawa area, they are known as "Greedies" because at feeders they fight with one another and other birds while devouring millions of sunflower seeds. Their loud ringing *cleer* and *clee-ip* calls, like glorified House Sparrows, are distinctive. First year males are like adult males, but they can be separated at close range by the blackish inner margins of their tertials. As with other winter finches, the males tend to winter farther north than females.

Irruptions: The boreal winter finches are noted for their erratic and nomadic movements, here one winter and gone the next. Irruptions or invasions are periodic mass movements to new areas, occasionally beyond their normal ranges. Major irruptions are caused by tree crop failures and usually coincide with high populations. There are two main types of irruptions: one in fall and the other in late winter. Irrupting finches search for areas where tree seeds are abundant and during occasional "superflights" like in 1997-98, they go well beyond their normal ranges. A second type of irruption happens in late winter when tree seeds are exhausted in the north, often forcing birds south to

Algonquin Park Christmas Bird Counts

	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Pine Grosbeak	205	23	46	137	522*	10	259	178		90	4	78
Purple Finch	22		50		27				43		352	
Red Crossbill	22		5		20	42	1		8		431*	13
White-winged Crossbill	562†*	7	5	325*	641†*	50	1134†*	14	1239†*		8728†*	
Common Redpoll	9	178	13	980	1971†*	6	198	76	5	1	43	6
Pine Siskin	1747†*		29	192	1072	4	5		36		4264*	
American Goldfinch	344		90	44	317	157			178		11	
Evening Grosbeak	691		56		692	413	83	1	1801†*	4	1474†*	
Total Finches	3602	208	294	1678	5262	682	1680	269	3310	95	15307	97

Key to Symbols: † North American Highs, * Canadian Highs

Data courtesy of Ron Tozer

feeders. Do not confuse a late winter movement from the north with a return flight from the south after a fall irruption. Do two or more finch species synchronize their irruptive movements? The 24 years of Algonquin Christmas Bird Count data suggest that several boreal finches synchronize their movements and numbers to a high degree most winters, but not every winter when some species irrupt independently of one another. The variation is probably because different tree species produce varying seed crops from year to year and from place to place. All the boreal finches sometimes irrupt together when there is a widespread failure of all seed types. Continental climate is the likely common factor affecting seed crops and synchronous movements in boreal finches.

Cone Crops: Eastern White Pine has bumper cone crops every three to five years (rarely two good crops in a row) with few cones in between. White Spruce (*P. glauca*) produces bumper crops every two to six years with poor crops in between. Eastern Hemlock has good cone crops about every second year. Good or poor seed crops are usually widespread over hundreds of kilometres. Frequently several tree species have bumper crops or crop failures the same winter, helping to synchronize finch movements and numbers. Refer to the 1994 finch numbers in Algonquin when spruce, pine and hemlock crops cycled high together. That 1994-95 winter, White-winged Crossbills fed on spruce, Red Crossbills of the *sitkensis* race and Pine Siskins fed on hemlock, but redpolls were absent because White Birch seeds were abundant in the boreal forest. Many factors affect seed crops; these include early and late frosts, wet years, drought, insects and diseases. Flowering and seed ripening must be synchronized with the yearly climatic cycle. If the cycle is interrupted by unseasonable conditions, seed production is reduced. So you see why winter finches have adopted their nomadic ways!

Finch Forecasting: A knowledge of tree identification and seed crops will allow you to make reasonable predictions about the upcoming winter and in some cases the winter after. Tamarack, spruce, hemlock and cedar cones mature in one season and by late summer their crops are easily assessed. Pine and birch allow you to predict seed crops for the upcoming winter and the following winter. White pine takes two seasons for its cones to mature. By late summer of the first season, white pine has 1-2 cm long immature conelets; they grow much bigger and longer the next year, maturing in late summer. Birches have two types of

catkins: long slender male pollen-filled catkins and conelike female seed catkins. Both types normally are present on the trees and they are easy to see in fall and winter. The number of seed catkins indicates how big the crop is this winter and the number of pollen catkins indicates the size of the seed crop the next winter.

Red-breasted Nuthatch: The Red-breasted Nuthatch is a conifer seed specialist and it often irrupts south as do the boreal finches. A cone crop failure is indicated in those years that large numbers of Red-breasted Nuthatches migrate south in late August and September. Similarly, little or no southward movement indicates a good cone crop in the north, particularly on spruce. There is a very strong correlation between numbers (high and low) of Red-breasted Nuthatches and White-winged Crossbills in Algonquin Park. Pine Siskin numbers are moderately correlated with numbers of Red-breasted Nuthatches.

Mixed Flocks: Winter finches (except the two redpolls) rarely form mixed flocks, except at feeders and salted roads where they are drawn together. Goldfinches, siskins and redpolls sometimes mix in weedy fields and on birches and cedars. Lone individuals of one species may be with a large flock of a related species.

Finch Calls: Learn the distinctive calls of the winter finches as they are the best way to identify them in flight.

Squeaking: If you see or hear a flock of winter finches flying over, "squeak" as loudly as you can. They will often turn around and perch in a nearby tree.

Road Kills: Thousands of finches are killed by cars in some winters when they seek the salt (and sand) put on roads. They have no fear of cars, thinking a car is just a funny looking moose! I remember 63 siskins killed by a car in one collision. In finch winters, Common Ravens have an easy time, patrolling for road kills. If you see finches on the road, slow down, flash the lights and tap the horn. Be careful not to confuse other drivers.

Where To See Winter Finches: Algonquin Park is one of the best places in the world to see winter finches, but some years are better than others. Bring snowshoes if you want to walk the trails. For the latest information on finches, call a park naturalist at 613-637-2828 or Ron Tozer at home in the evening before 9:00 p.m. at 705-635-2315.

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	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Pine Grosbeak	95	161*	4	192	9	150	8	24	4	129		116
Purple Finch						3	125		154		57	
Red Crossbill	5	28	3	19	1	4	4		3527†*		43	
White-winged Crossbill		747	656	8092†*	1	685	1435†*		2490†*	2	2848†*	
Common Redpoll	1224#	95	2	581		1773		20		58		207
Pine Siskin	5	177	15	3862		22	261		4049†*	10	255	
American Goldfinch	1		64	7		7	187		41	5	54	
Evening Grosbeak	16	147	288	137	21	217	291	21	91	1	504	5
Total Finches	1346#	1355	1032	12890	32	2861	2311	65	10356	205	3761	328

Key to Symbols: † North American Highs, * Canadian Highs, # includes one Hoary Redpoll in 1986

Data courtesy of Ron Tozer

American Goldfinch

in

The Birds of North America

Alex L. A. Middleton

I was born and raised in the northeast of Scotland, in the Deeside town of Banchory, 25 km inland from Aberdeen. Though my formative years were spent under the cloud of World War II, our family was relatively unscathed by it. First, because my father was in a "reserved profession" he was not eligible for military service. As a result, our family did not suffer the traumas of disruption that must have affected many families in wartime Britain. Second, the location of Banchory made it immune from enemy attention. Thus my father was a significant presence in my early childhood and I have many happy memories of our carefree rambles along the river or over the moors and hills of Deeside. It was he who showed me my first Skylark's (*Alauda arvensis*) nest nestled beneath a tussock in the rough of the local golf course, who pointed out the amazing behaviour of the Dipper (*Cinclus cinclus*) along the banks of the river, and who identified the trill of the Curlew (*Numenius arquata*) over the upland moors. The seed was planted, and even though I did not recognize it at the time, a career in ornithology lay ahead.

In 1952, the family emigrated to Canada where we settled in London, Ontario. Despite all the adjustments that confront any immigrant family, attendance at the regular meetings of the McIlwraith Club and participation in its activities, kept my interest in birds alive and opened my eyes to the fascinating natural history of the New World. After completing high school, I enrolled in the Pre-medicine Program at the University of Western Ontario. During my two years in the program I was profoundly influenced by my two zoology professors, Dr. Bob Stinson and Dr. David Scott, both of whom fuelled my love for biology with their stimulating teaching, their patience in answering my endless questions, and their encouragement to explore things more deeply. At the end of my second year, Dr. Scott offered me a summer job in his lab. That summer, spent with the Northern Cardinals (*Cardinalis cardinalis*) on the Western campus, was the turning point. I was hooked on birds. I transferred out of medicine and into biology.

At that time (the early 1960s) an active area of research in ornithology was the study of avian reproductive cycles and what regulated them. So following completion of a M.Sc. degree on the reproductive cycle of the Brown-headed Cowbird (*Molothrus ater*) with Dr. Scott as advisor, it was onto Monash University in Melbourne, Australia, for Ph.D. studies with Dr. A. J (Jock).

Marshall. Jock was one of the leading figures in the study of avian reproductive cycles and a memorable and colourful character in his own right.

Ironically, it was in Australia that I began my love affair with goldfinches. Although my original intention had been to study what regulated reproduction in the Australian honeyeaters, the emerging conservation concerns for Australia's wonderful, and in many cases unique fauna, had led to protectionist laws that prevented the collection of Australian birds for scientific purposes. As a result, Jock suggested I study one of the introduced species (not protected under the law). I accepted his advice and decided to study the ecology and reproductive biology of the exotic European Goldfinch (*Carduelis carduelis*).

The study was a most satisfying one as it increased my awareness of the ecological interactions that occur between introduced and native species and helped me understand why, following introduction, some species are successful colonizers and others are not. In the case of the European Goldfinch I concluded that it had been able to exploit a newly created niche to which it was superbly adapted and for which there were no natural competitors.

Conventional wisdom suggests that where there are ecological counterparts, an introduced species will not likely displace a well established native. On my return to Canada, I decided to test the hypothesis by comparing the biologies of the European and American Goldfinch (*Carduelis tristis*). I knew that the European

Goldfinch had been introduced to North America in the late 1800s, but apart from a small colony that survived until the late 1940s on Long Island, New York, had failed to become established. My early studies quickly showed that the two species were ecologically very similar and thus I support the hypothesis, at least for the goldfinches that I studied. But as often happens in science, my preliminary work with the American Goldfinch raised a host of puzzling and interesting questions about its biology. Some 30 years later I am still fascinated by this little bird and new questions continue to arise.

The first question that intrigued me was why the American Goldfinch nests so late in the season. Many people had suggested that the answer lay in its dependence on thistle down for nest building. Studies at Guelph and elsewhere soon disproved this



American Goldfinch on Field Thistle by Peter Lorimer

idea. I now suggest that part of the answer seems to lie in the goldfinch's dependence on seeds of thistles and other closely related plants (Compositae) for feeding its young. The appearance of the first thistle blooms in late June apparently provides the stimulus for the American Goldfinch to begin nesting. This signal is a reliable predictor of an abundant seed supply that, all being well, will begin to appear at the time that young goldfinches begin to hatch in mid to late July.

A second part of the answer seems to lie in the goldfinch's unusual molt sequences. The American Goldfinch is the most sexually dimorphic member of its group (subfamily Carduelinae) and the only one that brings about the dramatic change from winter to summer plumage by a body molt (prealternate molt) in the spring. I have argued that this molt, combined with the goldfinch's highly granivorous diet in which protein is comparatively scarce, places a high energetic demand on the bird. As a result, molts (both prealternate and prebasic) in the American Goldfinch are protracted and, with the exception of the breeding season, birds are in various stages of molt throughout the year. Because the peak of the spring molt occurs between mid-March and mid-May, the energetic demands on the birds may be so great that they are incompatible with the simultaneous physiological preparation for breeding. As a result, the demands of the spring molt may preclude breeding until molt is complete. Late nesting may be the natural outcome of such a system. But do goldfinches nest late because they have a spring molt, or can they afford the luxury of a spring molt because of their late nesting? This "chicken and egg" question is difficult to answer and is still unresolved.

A third question is why the American Goldfinch should have adopted seasonal sexual dimorphism. One suggestion is that the striking sexual dimorphism of the summer plumage is related to sexual selection and the ability to detect age based on plumage differences. A second hypothesis is that the intensity of colour may indicate overall genetic fitness. One apparent advantage for both sexes of molting to a summer plumage is that it is less dense than the winter one. This may have important thermoregulatory benefits for a species that nests in the hottest summer months and in a nest that has high insulative properties.

As with most songbirds, it had been assumed that the American Goldfinch was monogamous during the nesting season. Observations from blinds at nests of colour-banded birds showed that most goldfinch pairs did produce single broods and that one pair was involved, but that 15 percent of females, invariably experienced birds in at least their second breeding season, produced two broods. The latter required the support of two different males. These females practise serial polyandry (one female supported by different males at each nesting). This was the first documented evidence of such a system among the cardueline finches. Subsequently the observational data have been supported by the use of DNA fingerprinting which has permitted us to prove without doubt the identity of both parents.

There are many more questions that await investigation before we can fully understand the biology of this fascinating little bird. Although I cannot articulate them all in this report, I hope that I have provided sufficient background on the biology of the American Goldfinch to show its uniqueness. I also hope that I have provided some insight into the science of ornithology and how investigators can become captivated by the organisms that they study.

*Sandy Middleton is a professor in the Department of Biology, University of Guelph. He authored the American Goldfinch account in **The Birds of North America** series.*

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Shrikes Gone By Year 2000

Ron Pittaway

In the Loggerhead Shrike update of 5 December 1997 distributed by the Long Point Bird Observatory, a graph shows the dramatic decline of the Loggerhead Shrike in Ontario. There were about 55 breeding pairs in 1992, 48 in 1993, 40 in 1994, 29 in 1995, 31 in 1996 and 18 last year in 1997. Assuming this trend continues, I lowered the vertical axis on the graph from 10 to zero pairs and extended the decline line to best fit the trend. The line intersected the horizontal axis about the year 2000, indicating that the Loggerhead Shrike in Ontario could be extirpated as a breeding species in two or three years. No doubt a few pairs will remain longer.

A captive breeding program using Ontario shrikes began in 1997 with the hope of re-introducing the native *migrans* subspecies back into Ontario and Quebec. However, I believe the cause of the decline is not the lack of breeding habitat. The rapid decline happened in the presence of considerable suitable breeding habitat. I also do not think that pesticides are the problem because the remaining Ontario pairs fledge many healthy juveniles most years. So what is happening to the Loggerhead Shrike? The shrike decline is very strongly correlated with the phenomenal increase in motor vehicles and new roads. Loggerhead Shrikes have the fatal habit of flying low across highways. They are rarely killed on the breeding grounds in Ontario where roads are sparse. My hypothesis is that Loggerhead Shrikes, especially the inexperienced young, are hit by cars on migration to and from the wintering grounds in the southern United States. There may be little we can do.

Whip-poor-wills and Moonshine

Alex Mills

When a birder sets out to spend substantial time studying, monitoring or otherwise getting to know a particular species, it becomes apparent how little even keen naturalists know about such species' habits and behaviour.

During the 1980s, I had the enjoyable opportunity to study a bird that I knew (at least through personal experience) very little about. Even the writings of other naturalists and the experience of my many naturalist friends were rather spare in many details.

I had long had an interest in night birds, and had always found Whip-poor-wills particularly fascinating. Never active during the day, singing loudly and long during the deep twilight and night, virtually unfindable during the day, gobbling up flying insects in the dark—all these mysterious traits made them a challenging and attractive species to study.

How do slow moving humans with poor night vision study such creatures? At that time, radio telemetry was becoming fairly sophisticated, and I made use of this powerful tool for studying animal behaviour.

Radio telemetry first requires the placing of a small radio transmitter of a particular frequency on a free roaming animal and then involves the monitoring of its activity using a portable radio receiver. To use commercial radio parlance, the animal is a moving radio station, and the scientist is a nearby radio.

Male Whip-poor-wills are easy to catch. (*You must have a CWS permit.*) By using a mist net and a loud tape of a territorial song, they are easily lured in and caught. Females are rarely attracted in this way, although I did catch a few.

Once caught, I placed the radio receiver on the bird. The receiver was like a little backpack with straps made of elastic hairbands, one over each wing, so that the receiver sat in the middle of the back with the short antenna extending down the length of the back. The whole procedure from the time of capture to the time of release usually took about 60 seconds.

I wanted to monitor Whip-poor-will nests. Unfortunately, not only were females rarely caught the way I've described, the males spent little time on the nest, although this proved to vary among birds. How many readers have found Whip-poor-wills' nests other than by accidentally stumbling upon one during a daytime ramble in the woods? Not many I'm sure.

Whip-poor-wills have big light-catching eyes that have a reflective retina designed to make extra use of the light collected. Most night mammals have the same and I'm sure everyone is familiar with the resultant eyeshine from animals seen on the roadside at night.

We employed this trait to find Whip-poor-wills' nests. Concentrating in areas where we believed from the male's behaviour the nest might be, we searched the forest floor at night with powerful lights. In order for this technique to work the light must be near one's eyes, since the retinal mirror reflects the light right back to the source.

Wandering the woods at night in this way is fascinating. With a bright light, not only can you find the reflected eyeshine of many mammals, but the eyes of countless spiders and moths fairly twinkle in the foliage. Nonetheless, this system worked, and we did find incubating female Whip-poor-wills, but usually not without a lot of effort and perseverance. Once the nest was found, it was easy to flush the female from it and into a mist net for equipping her with a radio transmitter.

In the two summers north of Kingston I studied five pairs and seven nests. We monitored their movements, their parenting, their feeding, their vocalizations and their territorial responses. By comparing those data with light data (the position of the sun, the position of the moon, the amount of moonface illuminated), I was able to draw several conclusions.

Sparing you the numbers and statistics, Whip-poor-wills function best within certain light levels. Daylight is too bright and



Perched male Whip-poor-will and flying female chasing Cecropia Moth by Michael King

night without moonlight is too dark. They operate optimally during twilight and moonlight. Singing, responding to intruding birds (i.e. tapes), feeding the young, foraging, and moving about their territory are all concentrated during these periods.

During the dark part of the night, they are generally quiet and still, although less so than during the day. This means that during the period of the new moon, Whip-poor-wills must accomplish virtually everything they have to accomplish between dawn and dusk, a period of about three hours.

I also collected dozens of nest records of Whip-poor-wills and their close relatives and was able to determine that they generally (though not always) synchronize their nesting cycle with the lunar cycle. The eggs tend to hatch as the bright half of the lunar cycle is beginning.

And why not synchronize things this way? I speculate that the first two weeks of the nestlings' lives are the most precarious and the moonlight allows foraging by the parents through the night. I further speculate that during the second two weeks the nestlings will have some reserves, allowing them to get through the dark periods, and during the third two weeks they are becoming independent and need all the help from moonlight they can get.

These were interesting results for me, and the relationships with twilight and the moon were distinct and obvious. Spending hundreds of hours with these birds, however, yielded other bits of information.

Whip-poor-wills are sometimes double-brooded. One of my pairs began a second clutch before the first brood (of which only one survived) was independent. It was clear that the first nestling was primarily the male's responsibility while the new clutch was the female's. Both clutches synchronized with successive lunar cycles.

Whip-poor-wills become torpid in cold weather. We searched in vain one cold May for a radio-tagged bird. Eventually, an assistant of mine stepped on its tail! We were able to pick it up. Except for a groggy head-rolling, the bird seemed dead, and I lamented—prematurely—the loss of one of the study animals. However, that evening it was flying around, singing loudly, defending its territory, none the worse for its earlier condition.

At the end of the season, I was able to remove most of the radio tags. Although many people object to causing stress to birds by such studies, I can confirm that of the five pairs I studied, four pairs successfully raised young despite the fact the parents were tagged. Five of my seven nests were successful, a remarkably high ratio when compared with most studies of other birds.

Identifying birds and listing is fun. Finding rare species is exciting. However, there is a deeper satisfaction in patiently studying and getting to know a particular species or group of individuals.

Reference

Mills, A. 1986. The influence of moonshine on the behaviour of goatsuckers (Caprimulgidae). *Auk* 103: 370-378.

Alex Mills is a lawyer and father of three living in Barrie, where he is a keen member of Barrie's Brereton Field Naturalists Club.

OFO AGM 1998

Gull Identification	Bruce Mactavish
Ontario Geese	Ken Abraham
Bird Quiz	Richard Knapton

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Be sure to reserve this date on your calendar
OFO's Annual General Meeting
Saturday 17 October 1998
Canada Centre for Inland Waters, Burlington

OFO trips

Future Field Trips

April 18 (Saturday) Gore Bay, Manitoulin Island. Leader: Doreen Bailey and Friends of Misery Bay. To register, call Jerry Guild 905-823-1973 by April 1.

April 25 (Saturday) Algonquin Provincial Park. Leader: Ron Tozer. 705-635-2315. Meet at the WEST GATE of the park at 9:00 a.m. Park permit \$10.00 per car required.

May 2 (Saturday) Rondeau Provincial Park. Leader: Allen Woodliffe. Meet at the Visitors Centre at 8:00 a.m. Call Allen by April 28 if you plan to attend 519-351-7884. Camping will be available. For rates and reservations call 519-674-1750.

May 9 (Saturday) Leslie Street Spit, Toronto. Leader: Norm Murr. Meet at the base of The Spit parking lot at Leslie and Unwin Avenue at 8:00 a.m. ****New Trip****

May 23 (Saturday) Prince Edward Point National Wildlife Area. Leader: Terry Sprague. 613-476-5072. Meet at Canadian Tire parking lot on Highway 33 just west of Picton at 9:00 a.m. Motels nearby.

May 29-30 (Friday-Saturday) Rainy River. Leader: Dave Elder. 807-597-2008. Box 252, Atikokan ON P0T 1C0. Meet at the junction of Worthington Rd. #3 and Highway 11 which is about 10 km east of Rainy River (3 sideroads east of town) at 7:00 a.m. **local time. Please note:** Register by May 1 or trip will be cancelled.

May 31 (Sunday) Carden Alvar, Victoria County. Leader: Ron Pittaway. 705-286-3471. Meet in Kirkfield at the parking lot of Lady MacKenzie School on the right on Hwy 503 about 1 km north of Hwy 48 (*not at Lift Lock*) at 9:00 a.m.

June 6 (Saturday) Owen Sound. Leader: Dave Fidler. 519-371-2919. From Springmount (west of Owen Sound) go 4 km on Hwy 21 to Jackson. Turn right (north) & go 2 km to a T intersection. Turn left (west) & go 1 km to first road on right. Turn right (north). At 1 km, see sign "Fidlers" on left. Meet at 8:00 a.m.

June 13 (Saturday) St. Clair Wildlife Reserve and Pelee. Leader: John Miles. 519-587-5223. Meet at the parking lot of the St. Clair Wildlife Reserve at 7:00 a.m.