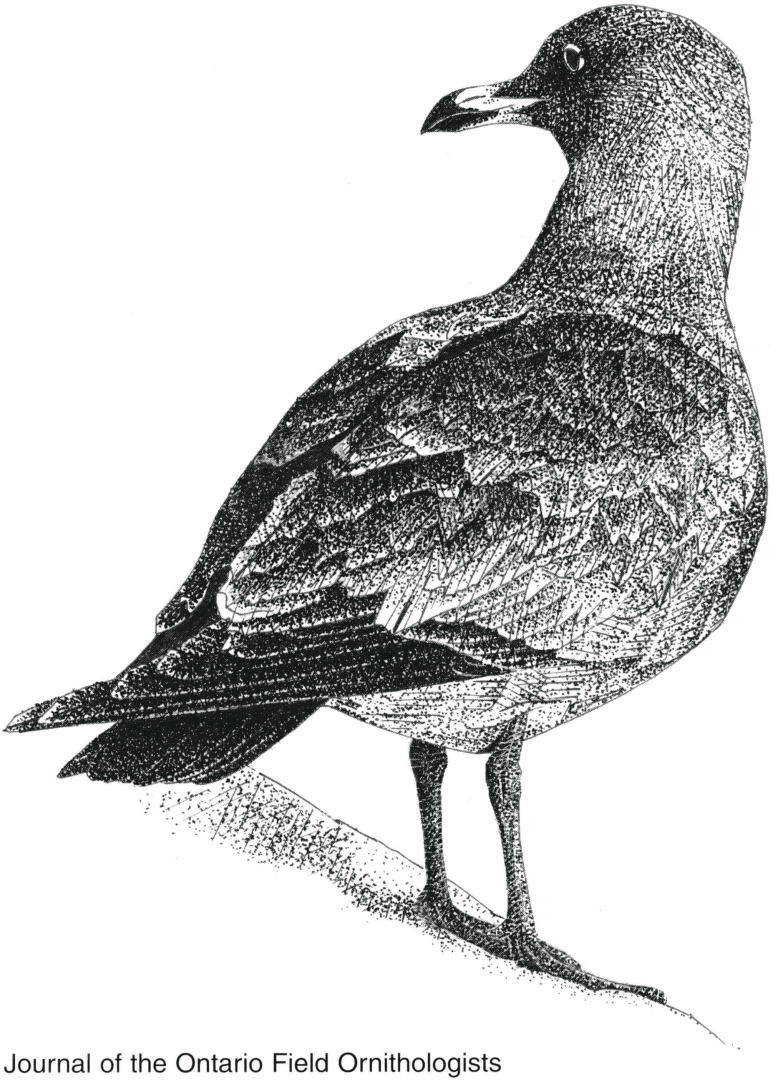
ONTARIO BIRDS



Journal of the Ontario Field Ornithologists
Volume 18 Number 1 April 2000

Ontario Field Ornithologists

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Ontario Field Ornithologists is an organization dedicated to the study of birdlife in Ontario. It formed in 1982 to unify the ever-growing numbers of field ornithologists (birders/birdwatchers) across the province, and to provide a forum for the exchange of ideas and information among its members. The Ontario Field Ornithologists officially oversees the activities of the Ontario Bird Records Committee (OBRC), publishes a newsletter (*OFO News*) and a journal (*Ontario Birds*), operates a bird sightings listserve (ONTBIRDS, coordinated by Mike Street), hosts field trips throughout Ontario, and holds an Annual General Meeting in the autumn.

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Ontario Birds

The aim of *Ontario Birds* is to provide a vehicle for documentation of the birds of Ontario. We encourage the submission of full length articles and short notes on the status, distribution, identification, and behaviour of birds in Ontario, as well as location guides to significant Ontario birdwatching areas, book reviews, and similar material of interest on Ontario birds.

Material submitted for publication should be on computer disk, or typewritten (double-spaced). Please follow the style of this issue of *Ontario Birds*. All submissions are subject to review and editing. Submit items for publication to the Editors at the address noted above.

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by *Michael King*

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Letters to the Editors

Thayer's Gull

The article by Banks and Browning in the December 1999 issue (*Ontario Birds* 17: 124-130) raises some interesting questions on Thayer's Gull. However, on page 126, it contains several errors, misinterpretations and misleading statements concerning a 1969 paper of mine (*Auk* 86: 106-109) on this form, which I wish to correct and clarify.

These are: 1) the specimen secured in 1945 was from the Fuhrmann Boulevard landfill in Buffalo Harbor, not the "Niagara Falls area"; 2) it was sent to Ludlow Griscom, whose opinion was that it was "probably" a "Kumlien's Gull", as noted in *Birds of the Niagara Frontier Region* (Beardslee and Mitchell 1965: 244), not just "identified as *L. glaucoides kumlieni*"; 3) the gull collected in 1957 that I stated was "almost identical in size and coloration" to the 1945 bird (Andrle 1969) was secured along the Niagara River at Squaw Island, not "the same area" as the 1945 specimen. This 1957 specimen was considered a probable Kumlien's or Iceland Gull, albeit a dark individual, from our extensive field experience on the Niagara River with these gulls, not solely from the also dark 1945 specimen. At that time, we had no other first year plumage Iceland specimens on hand and had not yet compared ours with the Canadian museums' specimens; and 4) my 1969 paper referred only to *Larus argentatus thayeri*, not to *Larus thayeri,* because it was before the American Ornithologists' Union recognized Thayer's Gull as a species. Consequently, my paper used "Thayer's" Gull only in quotes in the title, and the word "form" to refer to it as *L. a. thayeri,* a subspecies of the Herring Gull. Thus, all specimens referred to in my paper were considered by us (including W.E. Godfrey) at that time to be *L. a. thayeri* from comparing them to specimens in the Royal Ontario Museum and the National Museum of Canada. Banks and Browning's statement that "After Thayer's Gull was recognized as a species, those specimens were considered to be the first records of *Larus thayeri* for the Niagara Frontier region" is incorrect. We did not re-identify them subsequently as *L. thayeri.* Thus, their question why "if the first was Thayer's Gull after 1973" is not correct, and then their following query why "it was not identified as *L argentatus thayeri* originally" is also in error, as we did conclude that the first specimen was that subspecies after Griscom's first determination of it. Of course, further research could lead to changes in previous determinations of specimens, particularly birds in their first year plumage.

I hope that the stimulating discussions, speculations and papers by both birders and taxonomists on *L. thayeri* will eventually lead to a resolution of the problem. Perhaps a solution to it will come from genetic research. More investigation in the northern gull colonies may help as I suggested in my 1977 paper on "Gulls on the Niagara Frontier" (*The Kingbird* 27: 134-188). A pilot birder friend and I discussed such an endeavor in the 1970s by planning to use an amphibious aircraft, combined with other means, in order to cover more area and examine more gull colonies from Greenland across the Canadian Arctic archipelago than have heretofore been studied.

Robert F. Andrle
Eden, NY

Crows Preening

During February 1999, I watched the courtship of our local pair of crows. I did not see the dramatic "aerial gyrations of diving and wheeling" described by A.G. Gross in Bent's (1946) *Life Histories of North American Jays, Crows and Titmice.* Rather, the courtship consisted of the pair sitting side by side on the branches of the big American Elm and Silver Maple trees that form the backdrop of our yard. Perhaps the pair bond was so well established that this pair skipped the aerobatics.

However, on 22 February 1999, while watching the pair in full view on the branch closest to our house (and using 8X40 binoculars), I saw an example of courtship preening. The behaviour was initiated by (what I took to be) the female. She bowed her head until her beak was between her legs, thus presenting the back of her head to her mate. He then preened the back of her head, hind neck and upper back. They stayed on the same limb for about 15 minutes, and the performance was repeated several times. The female did not preen the male.

It is impossible for a bird to reach the back of its head for preening. However, judging by the time of year and the close association of the two birds, I am sure that what I was watching was courtship behaviour and a way of strengthening the pair bond.

George Fairfield
Toronto, Ontario

Articles

Heermann's Gull in Toronto: First For Ontario

Bob Yukich

On the afternoon of 14 November 1999 at 1300h, while making his rounds as an employee of the Toronto Public Works Department, Bruce Massey noticed a very dark gull in with several Ring-billed Gulls (*Larus delawarensis*) and Herring Gulls (*L. argentatus*) at one of the city's service yards on Eastern Avenue in Toronto. He did not recognize the bird. Upon returning home, he consulted his field guide and tentatively identified it as a first year Heermann's Gull (*L. heermanni*). He reported his find to Marcel Gahbauer, and together they looked for it again later that day, but without success. It was subsequently reported to the Toronto rare bird hotline. Exercising caution, the hotline coordinator described the bird as "an unusual dark brown gull" that had been seen near the Leslie Street Spit. Apparently, not many birders took notice. It was not reported again until 28 November, when Margaret Allen and Ted Reid observed it while they were out for a walk at Ashbridge's Bay, which is just east of the first site. After consulting several field guides, they also identified it as a Heermann's Gull. Neither of them was aware of the previous sighting. Again, it was reported to the Toronto rare bird hotline, and this time it went out as a "possible Heermann's Gull in first basic plumage", seen at Ashbridge's Bay.

That same evening, after listening to the hotline, Craig McLauchlan decided that he would look for the bird the next day. On 29 November at about 1000h, he arrived at Ashbridge's Bay along with Beverly Rellin and Rob Miller. After searching for the gull for 25 minutes without any luck, they decided to leave. They returned at 1300h to try again. As Craig was getting out of his car, he immediately noticed a dark brown gull sitting on the railing at the boat launch. He was able to get quite close to the bird, as it showed little fear. Everything he noted on the gull matched a first basic Heermann's Gull perfectly. He then got his camera and began taking photographs, staying back so as not to frighten the bird off. Next, he made a phone call to alert the birding community. That afternoon, many birders arrived, but unfortunately, the gull had flown off after Craig had watched it for about 15 minutes. It was not seen again that day. Craig had his photographs developed immediately, and that evening, three of them were posted on Rob Miller's website.

Figure 1: First basic Heermann's Gull in parking lot on Cherry Street, Toronto, 1 December 1999. Photo by *Craig McLauchlan.*

The following morning, on 30 November, after seeing Craig's photos on the internet, I decided to go directly to Ashbridge's Bay to try to see this bird. The gull in the photographs, although somewhat distant, clearly looked as if it could be a Heermann's Gull.

Upon my arrival at Ashbridge's Bay at 1000h, I was greeted by a multitude of birders. It was sunny and cold, about -5°C. The gull had not been seen all morning. Birders arrived throughout the day, but the gull did not reappear. At about 1400h, after a 4 hour vigil, my patience ran out and I decided to leave. I was travelling by bicycle, so I rode home in a westerly direction along the waterfront, checking out all gull flocks en route. About an hour later, after several diversions, I arrived at the Cherry Street ship canal. This has always been a good spot for gulls in winter.

It was now 1500h. The weather was clear and cold, about -2°C, and there was a light southeast wind. The sun was behind me, and as I scanned below and to the east with my binoculars, I noticed a very dark small gull. It was amongst a small group of Ring-billed Gulls, Herring Gulls and Great Black-backed Gulls (*L. marinus*) that were resting on the gravel near the base of the salt piles on the south side of the canal. I immediately knew that this was the bird. I made the following observations from a distance of 200 m to 50 m,

using a hand-held Kowa scope with a 27x and a 40x eyepiece. Lighting conditions were very good, with the bird in bright sunlight. I watched it for about 45 minutes.

The gull's plumage was a smooth, solid chocolate brown in colour. I saw it briefly with its wings raised, but not in flight. On a later visit I saw it once in flight. It had fairly quick, jerky wingbeats typical of a small gull. It showed no pale colouring anywhere other than on its bill. When it stood up, I could see the dark blackish-brown legs. They appeared relatively longer than those of a nearby Ring-billed Gull, and were the same thickness as the latter's. The wing coverts were slightly paler brown in contrast to the rest of the plumage. They were also quite worn, lacking the pale fringes seen in fresh juvenal plumage. I did not see any other feather wear on this bird. Later, in early January, I did notice that the scapulars as well as some of the contour plumage had become worn, and that the tips of the primaries and tail feathers were beginning to show some wear.

The flight feathers were a dark blackish brown, darker than the rest of the plumage. The wingtips extended well beyond the tail, giving it an attenuated appearance. The crown was smoothly rounded and the forehead was somewhat sloping. During later visits, the crown variably appeared rounded or flattish. The eye was dark, and it had a dark orbital ring (eye crescents). On subsequent visits, these eye crescents would at times appear whitish. The eyelid, visible as it slept, was also whitish. The bill was longish, relatively slender, and somewhat pointed. By comparison, the other gulls' bills appeared blunter. The gentle curve towards the tip of the upper mandible gave the bill tip a slightly droopy appearance. There was only a slight swelling at the gonys. The basal two-thirds of the bill variably appeared pinkish flesh or yellowish flesh, depending on the angle of light. The extreme base of the bill was slightly duskier. There was an evenly demarcated dark tip to the bill, extending farther back on the mandible than on the maxilla, but not as sharply demarcated on the mandible. During a later visit, I noted that its mouth lining was pink.

Many of the above features gave this gull a delicate, more elegant look. In a brief comparison, it appeared slightly larger than a nearby Ring-billed Gull. However, its darker colouring combined with a more delicate jizz gave it an overall smaller appearance. I was now certain that it was a Heermann's Gull. The only other similar species is the Gray Gull (*L. modestus*) from South America. The latter species could be ruled out by its all dark bill in first basic plumage, as well as other, structural differences.

When I had completed my observations, I reported my find from a pay phone, then returned home. Several birders arrived at the

Figure 2: Heermann's Gull at Polson Street, Toronto, 19 February 2000. Note light colour on throat indicating molt. Photo by *Sam Barone.*

ship canal before dusk, but the bird had once again disappeared, probably having gone to roost. However, the next morning it returned, and no one was disappointed. Throngs of birders got as close as one metre from this spectacular gull as it fed voraciously on garbage that was being dumped at the incinerating site at the corner of Cherry Street and Unwin Avenue. It was even accepting handouts from those eager to get close-up photographs.

Once its preferred haunts were known, the Heermann's Gull became very easy to find. Throughout the weeks that followed, it was easily seen at various locations along Cherry Street, almost always in the company of other gulls. During a short period in December when it had temporarily disappeared, one person reported seeing it briefly in a field at Jane Street and Cunningham Drive, near a major landfill site in the city of Vaughan, just north of Toronto. On 23 February, the Heermann's Gull was observed by several birders at LaSalle Park Marina in Burlington, and was not found in Toronto during that time. However, as of this writing in March 2000, it is still being seen regularly in Toronto in a parking lot at the end of Polson Street, which runs west off Cherry Street.

Discussion

Heermann's Gull breeds along the northwest coast of Mexico south to Nayarit, with isolated breeding reports from coastal southern

California. After breeding, it disperses as far south as the Pacific coast of Guatemala and as far north as the coast of southern British Columbia (American Ornithologists' Union 1998). In the United States, Heermann's Gull is accidental inland, and is an exceptional rarity even in the west. There are inland records from Oregon and Wyoming south to California and east to Texas and Oklahoma, as well as one for southeastern Alaska (American Ornithologists' Union 1998).

There is at least one previous record for eastern North America, that of a third year bird present at Lake St. Clair in Macomb County, Michigan from 26 August to early December 1979 (Tessen 1980). Probably the same individual (considered at the time to be a different bird) was observed in Lorain, Ohio on Lake Erie from 12 February to 12 March 1980 (Kleen 1980a, 1980b). Unaware of the Michigan sighting, the then Ohio regional editor for *American Birds* suggested it might be the first record for eastern North America (Kleen 1980a). It was described as a second year bird (Kleen 1980a), but photographs of the gull on page 783 in the next issue of *American Birds* (Kleen 1980b) clearly indicate it was a third year bird or older.

The Heermann's Gull returned again to Macomb County, Michigan from 24 October into November 1980 (Tessen 1981). It was back again in Lorain, Ohio on 20 December 1980 and was seen intermittently there throughout the winter period (Peterjohn 1981). It was last observed at Metrobeach on Lake St. Clair in Macomb County, Michigan from 12 October to 1 November 1981 (Tessen 1982). There was no overlap in dates of occurrence for any of the Michigan and Ohio sightings from 1979 to 1981. It seems likely that only one bird was involved in all of these observations, making Toronto's the second, as well as the most easterly, record of Heermann's Gull in eastern North America.

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An Apparent Dunlin x White-rumped Sandpiper Hybrid

Kevin A. McLaughlin and Alan Wormington

Near Point Pelee National Park, Ontario, at about 1600h on 18 May 1994, McLaughlin approached a group of birders who were intently studying a small group of Dunlin (*Calidris alpina*) at Hillman Marsh, Essex County. The birds were feeding along the shore of a water body just several feet from the main trail of Hillman Marsh Conservation Area.

The object of scrutiny was an unusual looking sandpiper that, at first glance, was thought to be a Dunlin in prealternate molt. However, several features were incorrect for that species. The bill, while resembling a Dunlin's in overall structure, was much too short for a typical individual of that species. The upperpart feathers were clearly alternate type, but were quite unlike those of a Dunlin as they lacked the extensive orange-red scapulars; instead, these feathers were slate-centred with rusty sides and grayish tips. The underparts were heavily streaked on the breast, but the characteristic large black belly patch of an alternate-plumaged Dunlin was completely missing. Puzzled, and being queried by several observers as to the bird's identity, McLaughlin then saw the bird raise its wings to reveal what appeared to be a white rump. He then stated that the bird was a White-rumped Sandpiper (*C. fuscicollis*), feeling that he had been deceived by the bird's very close proximity of only 5 to 7 metres. However, this assessment as to the bird's identity still seemed somewhat wrong. The bill was clearly more Dunlin-like in structure, and in colour was entirely shiny black right to its base. The base of the bill lacked any trace of yellow-brown colour that would be characteristic of a White-rumped Sandpiper. Furthermore, the upperparts seemed wrong for a White-rumped, with too much rust edging to all of the scapulars and tertials. The structure of the bird was also odd for a White-rumped, as it had rather short wings, a plump body, and legs that seemed too long for that species.

While exclaiming "What the hell is this thing?" the truth was becoming clear to McLaughlin. Aware of the bird's intermediate characters, he stated in a somewhat incredulous tone of voice: "This is a hybrid Dunlin x White-rumped Sandpiper!"

The apparent hybrid sandpiper was observed regularly at the Hillman Marsh location from 18 to 20 May inclusive, although occasionally it could not be found during this period. When present, the

Figure 1: Apparent Dunlin x White-rumped Sandpiper at Hillman Marsh, Essex County, 18 May 1994. Photo by *Alan Wormington.*

bird was always with a flock of feeding Dunlins numbering about 10-15 birds. When feeding, the bird tenaciously defended a 5 metre strip of shoreline from all intruding Dunlins. The proximity of the bird to a main trail, and its exceptional tameness, allowed it to be easily viewed and photographed by many observers, including Wormington.

DESCRIPTION

Bill: The bill was black. It was slightly downcurved at its tip, recalling that of a Dunlin, but was perhaps only two-thirds the length of that species' bill. The culmen was fairly straight, while the lower mandible was a bit downcurved at the tip. The bill was thick at the base, but tapered to a rather fine tip. It was about the length of the bird's head, or perhaps two to two and a half times the loral distance, compared to that of a Dunlin's bill of three to three and a half times the loral distance.

Head: The head had a steep forehead and a rounded crown. The crown was a mix of blackish and whitish streaks with a brown cast, particularly in the lateral crown area. There were fine black streaks on a whitish ground colour to the top of the bill. There was a broad, poorly defined white eyebrow with fine black streaks throughout. The

eyebrow broadened in the rear and ended at the nape. The lores were white-based, with a heavy concentration of fine black streaks and a bit of chestnut-brown near the bill base. The eyes were small and appeared black. Quite striking were oval-shaped chestnut-brown patches behind and below the eyes in the auriculars. The nape was a mix of black and brown streaks.

Upperparts: The mantle consisted of small black feather centres with broad grayish edges. There were two vague broad buff-white mantle lines. The forward-most upper scapulars were chestnut with small black centres. All of the remaining scapulars and tertials had solid black or dark brown centres with rusty sides to the feathers and abraded, broad, grayish-white tips. The exposed wing coverts appeared worn and were a dull brownish-gray. The visible primaries appeared faded brown. The primary tips seemed to fall a few millimetres short of the tip of the tail. A thin white wingstripe was evident when the bird extended its wings, perhaps a bit narrower than that of a Dunlin.

Tail: The rectrices appeared slaty in colour, with a thin white fringe on the outer edges and tip. The uppertail coverts were nearly all white (resembling a White-rumped Sandpiper) except for a few thin black streaks on the sides and a thin (poorly defined) blackish bar extending up the centre.

Underparts: The underparts were white-based. The chin and throat had fine black streaking. The breast was heavily streaked/spotted black with a number of black chevrons extending down the side of the belly to about the level of the legs. Some fine black streaks extended down the flanks to the undertail coverts. There was no evidence of a black belly patch, the entire belly being white.

Legs and Feet: These were a shiny black, with the leg length perhaps a bit shorter than a Dunlin's.

Size: In direct comparison to adjacent Dunlins, the bird's overall body size was slightly smaller.

Vocalizations: Calls were heard on a number of occasions by Wormington. These consisted of a slightly raspy "chip" and an almost squeal-like "creeep". These calls thus resembled one of the assumed parent types, or a combination thereof.

Age Determination: The faded brown colour on the visible folded primaries suggests that the bird was in first alternate plumage, with recently acquired alternate scapulars, mantle feathers and tertials contrasting with worn nine month old primaries.

DISCUSSION

At the time of observation, the authors were well aware of the extreme rarity of hybrid shorebirds. However, had it not been for the extreme tameness of this so-called "Hillman Sandpiper" and its presence along a heavily-used trail, it is quite probable that this bird would have gone undetected. Based on this assumption, one could argue that hybrid shorebirds in general might be going unnoticed on a regular basis. Only recently has it come to light that the possibility of encountering a hybrid shorebird is more likely than once believed.

There are, of course, several accounts describing the "Cox's Sandpiper" in Australia (for example, see Parker 1982), which has been shown by Christidis et al. (1996) on the basis of molecular analysis to be a hybrid between Curlew Sandpiper (*C. ferruginea*) and Pectoral Sandpiper (*C. melanotos*). There is a photographic record involving a supposed juvenile Cox's Sandpiper from Massachusetts (Kasprzyk et al. 1987, Vickery et al. 1987), which has since been disputed (Monroe 1991, American Ornithologists' Union 1998). "Cooper's Sandpiper," known from the unique type specimen taken in 1833 on Long Island, New York, is believed to be a Curlew Sandpiper x Sharp-tailed Sandpiper (*C. acuminata*) hybrid (Cox 1989, 1990; Monroe 1991). Additional new or suspected hybrids to appear recently on the scene include a presumed Baird's (*C. bairdii*) x Buff-breasted (*Tryngites subruficollis*) Sandpiper in Massachusetts (Laux 1994), an apparent Dunlin x Purple (*C. maritima*) Sandpiper in Great Britain (Millington 1994), and a bird in Newfoundland thought to be a Pectoral x White-rumped Sandpiper (Bain and Shanahan 1999).

Armed now with the knowledge that hybrid shorebirds are produced occasionally, it seems likely that experienced shorebird observers will soon detect additional examples of suspected hybrids involving new combinations of adult types.

Acknowledgements

Our thanks go to Ron Pittaway and Ron Tozer, who provided references and made comments on a draft of the manuscript.

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Figure 2: Presumed Dunlin x White-rumped Sandpiper at Hillman Marsh, Essex County, 19 May 1994. Photo by *Alan Wormington.*

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The November 1999 Cave Swallow Invasion in Ontario and Northeastern North America

Bob Curry and Kevin A. McLaughlin

THE DISCOVERY

At around 1215h EST, on Tuesday, 2 November 1999, KM drove into the Point Pelee National Park Visitor Centre parking lot. It had been a rather slow morning of "car birding" in a steady rain, with the only highlight being a Merlin (*Falco columbarius*) which landed in one of the tall trees at the small parking lot on the west side of the tip. In fact, the most eventful item was the drastic change in the weather. The previous several days had been balmy with southwest winds, conditions so benign that KM had seen nine species of butterflies on Monday morning, 1 November, under sunny skies and a temperature of 16-18° C. Cloud cover had increased by Monday afternoon, followed by rain overnight, with the wind shifting to northeast, resulting in a drop in temperature to around 4° C.

Parking the car, KM immediately noticed a group of five chunky swallows flying low, approaching the car from the vicinity of the Visitor Centre. Little could be seen on the birds through the rain-splattered windshield. Thinking that they were probably Tree Swallows (*Tachycineta bicolor*), KM got out of the car for a better look. Noting the off-white underparts and square-ended tails, he then realized that the birds had orange rumps, visible as they did a few ground level circuits of the parking lot. KM was enthused, not being able to remember having seen even one Cliff Swallow (*Petrochelidon pyrrhonota*) in Ontario as late as October, let alone five in early November. Something was wrong, however, for a brief look up through the rain had revealed what appeared to be a pale throat on one or two of the birds. No sooner had KM exclaimed to himself "Are these Cave Swallows?" than the birds disappeared somewhere behind the Visitor Centre. After failing to re-find the birds, KM decided to report the five as "*Petrochelidon*" swallows in the sightings book in the Centre, at the same time telling two staff members of his suspicions on the identity. He then returned to the parking lot to await the birds' return, seeking shelter in one of the transit cars which had been parked in the lot. After an hour and a half of fruitless watching, he drove north through the park, checking the Delaurier parking area and Northwest Beach, again with no success. Deciding around 1500h to check the West Beach parking lot, he found, towards the south end, five swallows foraging. The birds

flew past the car, quickly going inside one of the three picnic shelters bordering the parking lot, as if looking for a roosting site. They then disappeared, flying south, still not affording KM an identity-clinching view.

On Wednesday morning, 3 November, KM spent several hours on the sheltered east side of the tip, watching for migrants. The rain had ended overnight and the wind had shifted to northwest, blowing at near gale force, with the temperature around freezing. During this time, he saw several groups of swallows flying south off the Tip, adding up to at least 25 birds. All of the birds were "*Petrochelidons*", and those that could be seen in brief frontal views, appeared to have pale throats. Once again, however, totally conclusive views could not be realized.

KM returned to the east side of the tip around 1400h, and at once found a swallow foraging low over the water very close to shore. Finally, the hoped for conditions were realized. The bird flew methodically about, only inches above the surface, and approached to within a few feet. All frustrations vanished, as it was definitely a Cave Swallow (*P. fulva*)! Moments later, two more Cave Swallows joined this bird, permitting leisurely studies. KM now realized that he was witnessing an unprecedented Ontario invasion of this species and that all the birds seen Wednesday morning and Tuesday afternoon were Cave Swallows. He happily returned to the Visitor Centre, whereupon he contacted Tom Hince in Wheatley, who alerted ONTBIRDS (the Internet bird sightings listserve sponsored by the Ontario Field Ornithologists). Events proceeded quickly over the next several days, with Cave Swallows being found again at Point Pelee and elsewhere along the north shore of Lake Erie at Erieau, Port Burwell, Long Point and beyond.

DESCRIPTION OF POINT PELEE BIRDS

The field marks noted below are based on observations by KM on 2 to 5 November at Point Pelee. The study obtained at the south end of the Sanctuary Pond near the park entrance on 4 November involved a bird flying in the company of several Tree Swallows.

- Broad winged, husky swallow, slightly smaller than Tree Swallow.
- Pale orange throat and auriculars, which colour extended around the side of the head to the nape, and blended vaguely into the white breast.
- Chestnut patch on the forecrown, recalling Barn Swallow (*Hirundo rustica*). This patch was slightly contrasting with the slate colour of the top of the head, and contrasting more so with the pale orange throat.
- Dark line between the dark eye and black bill.
- Upperparts with broad dark gray

wings, slate-coloured back with several (3 or 4) white lines down the centre.
- Dull orange rump patch, perhaps best described as "burnt" orange, which seemed a bit darker orange than the throat.
- Underparts more off-white than Tree Swallow, not gleaming white, with a gray wash on the sides of the breast and belly.
- Tail dark gray or slate, at all times appearing essentially unforked or square-tipped.

THE ONTARIO STORY

Subsequent to the discovery and confirmation at Point Pelee, the next four days (Wednesday, 3 November to Saturday, 6 November) produced multiple sightings by many fortunate birders. In fact, so many observers were involved that we have decided to include names only for initial observations at a location and for the later observations, after the numbers of birds dropped off. Most of the information comes from ONTBIRDS. It is pleasing to note that virtually all sightings have been supported by documentation submitted to the Ontario Bird Records Committee (OBRC), and that OBRC has accepted these records (Kayo Roy, pers. comm.).

3 November: There may have been as many as 32 birds at Point Pelee on Wednesday (Alan Wormington, pers. comm). In addition to the observation of 25 birds leaving the Tip in the morning by KM, followed by another three in the afternoon, Tom Hince found two going to roost at Sturgeon Creek and another two in an old Barn Swallow nest at the Visitor Centre. Away from Point Pelee, Jim Burk flushed three Cave Swallows from his garage at Erie Beach about 6 km west of Erieau in Kent County. Also on this date, four birds reported initially as Cliff Swallows at Long Point Tip were seen the next day and subsequently confirmed as Cave Swallows.

4 November: It is significant that all but one Cave Swallow observation from Ontario was from the north shore of Lake Erie. Long Point was the epicentre. After information about birds roosting under eaves in Barn Swallow nests was posted, Long Point Bird Observatory staff at the Tip found three roosting in nests at their cottage on Thursday morning, one of which was captured, banded and photographed (Christine Jamieson, pers. comm.). See Figures 1 and 2. Over the course of the day, observers totalled 13 at the Tip and 25 at Old Cut. Inasmuch as the birds at Old Cut were flying west and foraging as they went, it is impossible to say how many left the Long Point peninsula and how many of those seen the next day were new.

At Point Pelee, the two birds in the nest at the Visitor Centre were watched from dawn until one flew

Figure 1: Juvenile Cave Swallow (*P.f. pallida*), Long Point Tip, 4 November 1999. New remiges are P1 to P6, as well as S1 and S2 and some tertials, indicating that this bird was farther into first prebasic molt than the Point Pelee bird. Photo by *Christine Jamieson*.

out. Subsequently, the other was picked up in a very weakened condition (BC) and died (Figure 3). Elsewhere at Point Pelee, three others were seen foraging over Sanctuary Pond for most of the day (Matt Baker et al.).

At Erieau, six birds were seen in the pier area (Steve Charbonneau, ONTBIRDS) until almost dusk and almost certainly must have roosted there. Whether these included the three at Erie Beach the day previous is impossible to say, but likely those were different birds.

5 November: Approximately 24 were at Long Point; eight at the Tip and about 16 near the base. These latter were enjoyed by a host of observers, as the birds foraged actively in the warm sun, mostly between the Provincial Park on the east and the Causeway on the west. Another three at Turkey Point (Jerry Guenther, ONTBIRDS) followed the shoreline in an easterly direction towards Port Dover. This observation indicates that all birds did not automatically fly west and further confounds attempts to estimate total numbers. This is the farthest east location in Ontario, except for a report of a Cliff Swallow just west of Port Dover by a casual observer (*fide* John Olmsted).

A day of diligent searching by seven observers was rewarded with

Figure 2: Long Point Tip bird. Note that the throat of this individual is barely perceptibly lighter in shade than the crown, and that the breast and flanks are greyish with *buff-orange tips.* These features are different from those shown on recently published photographs (see *Birders Journal* 8: 35 and 8: 267), and from what many observers noted in the field (e.g., see KM description above). Such differences likely pertain to known variation within the species, as well as varying light conditions (see Greg Lasley's comments in Wormington 1992:179). They illustrate the difficulty of subspecific determination of birds in the field. Photo by *Christine Jamieson.*

one Cave Swallow at Port Burwell approximately 33 km west of Long Point. This bird was observed for about 45 minutes in late morning (Dave Martin, ONTBIRDS). It is likely that this, the first and only for Elgin County, was a bird moving west from Long Point. Meanwhile the six birds at Erieau remained all day. At Pelee, two birds were observed leaving the Tip in the early morning (KM et al.) and the three remained at Sanctuary Pond until late morning at least.

6 November: A *Petrochelidon*, almost certainly a Cave Swallow, was seen flying west over Long Point Provincial Park (Don Graham, Anthony Lang, ONTBIRDS) and a hirundine at Turkey Point was most likely also a Cave Swallow (Marcel Gahbauer, ONTBIRDS). At least six observers saw the six birds at Erieau until approximately 0900h. They presumably departed soon after as birders looked unsuccessfully from 1400h on.

The only Cave Swallow found in

Ontario away from Lake Erie was well studied by 18 people on a **6 November** Detroit Audubon Society trip at Gallimere Beach on the southeast shore of Lake Huron in Lambton County (Karl Overman, ONTBIRDS).

The final two Ontario sightings were of a bird seen at the Tip of Long Point on **10 November** (CJ) and the same or another at Old Cut the next day, **11 November** (Hilbran Verstraete *per* Jul Wojnowski, ONTBIRDS).

Thus, in Ontario, the Cave Swallow invasion of 1999 lasted for a total of 10 days, from 2-11 November. As stated, it is extremely difficult to calculate just how many birds were involved. Our estimates range from a minimum of about 90 to a high of approximately 110 birds. As always in such bird invasions, some birds went unseen but the predisposition of these birds to collect at peninsulas extending into Lake Erie suggests that most of the Cave Swallows that occurred, at least from 3 November on, were seen. Doubtless, however, others left the province, unseen.

ELSEWHERE IN THE NORTHEAST

Quebec

Given the total lack of reports from the north shore of Lake Ontario, it is somewhat surprising that two birds were found by Pierre Bannon, Louise Simard and Guy Zenaitis on 6 November under a small bridge at Melocheville near Beauharnois (Bannon 2000). One bird remained until 11 November. An additional two birds were found by Michel Robert on 6-7 November at La Malbaie about 400 km northeast down the St. Lawrence River from Melocheville, and a buff-rumped swallow was reported on 6 November at Cap Tourmente down river from Quebec City. It is very interesting that these birds were not found until after most birds had disappeared from Ontario. This may have been a case of birders not discovering the birds until a weekend (Bannon 2000). Or, it is possible that some of the swallows upon attempting to reorient, left Ontario on a northeasterly bearing (i.e., 180 degrees in error) and flew down the St. Lawrence River to their demise.

Michigan

It was not until 13 November, after Ontario's last sighting, that Michigan's first ever Cave Swallow was found by almost the entire Michigan Bird Records Committee at Grand Haven, Ottawa County in the southwest of the state on the shore of Lake Michigan (Allen Chartier, ONTBIRDS). Sometimes meetings can be fun! Again, we are compelled to speculate that this may have been another bird attempting to reorient after having spent about ten days farther north and east than this.

Figure 3: Juvenile female Cave Swallow (*P. f. pallida*), Point Pelee, 4 November 1999 (ROM #66156). Note P1 and P2 are new, indicating that this is a HY bird, as adults will have completed their molt before this date. Photo by *Barry Cherriere.*

Northeastern USA

Many reports of Cave Swallows burned up the BIRDEAST hotlines. The first was a flyby at Cape May, New Jersey on 1 November. Between then and 1 December, Cape May totalled at least 35 birds, with 32 seen on 7 November and a single flock of 30 by Paul Lehman on 8 November. The large numbers first appeared there on 4 November. Elsewhere, the totals were as follows: elsewhere in New Jersey (2); New York (1); Connecticut (as many as 35) but some duplication may have been involved (Paul Lehman, pers. comm.); Rhode Island (4); western Pennsylvania (2 probables); Virginia (3); and North Carolina (5 or 6). As was the case in Ontario, concentrations occurred along the coast and at peninsulas on days with northwest winds.

In addition, some sightings occurred so much later and after intervening bouts of colder weather that they may represent different birds that wandered northeast (Paul Lehman, pers. comm.). Into this category fall birds on 11 December at Avalon, New Jersey and near Leipsic, Delaware (a first state record); three on 18 December at Hampton, Virginia, and one from 17 to 21 December at Cape May.

THE EFFECT OF WEATHER

The phenomenon of vagrant Cave

Swallows in the Northeast during the 1990s is more complex than an analysis of weather, but certainly the massive scale of this invasion must be attributable to weather events.

Over the period from 30 October to 4 November, weather events capable of displacing and concentrating the swallows developed. On Sunday, 31 October, a deep low pressure trough extended southwards from the Dakotas to Texas. To the east of this system, strong southwest winds blew from Texas to Ontario and the rest of the northeastern part of the continent during all of Sunday and Monday. Eventually, a large low pressure cell cut off from the trough and moved east-northeast very quickly, until by Tuesday, 2 November, it was centred over Tennessee. At about the same time, another low drifted eastward from western Canada, until by Tuesday, 2 November, it was centred over southern Hudson Bay. A strong, broad cold front extended between these two depressions. Rain ahead of the front extended to Ontario and strong northeast winds here blew towards the Tennessee low. By Wednesday, 3 November, the centre of this low had moved to north-central Pennsylvania, resulting in continued heavy precipitation from Lake Michigan to the Eastern Seaboard. Also, and more importantly, continued anti-cyclonic circulation around both lows and on the west side of the cold front now produced strong northwest winds in Ontario.

Thus, it seems likely that the swallows drifted northeast on the favourable winds of 31 October and 1 November. Birds arriving on those days would have been widely dispersed and gone unnoticed until the northerly winds and precipitation caused them to attempt to reorient, and at the same time concentrate, at peninsulas along the shorelines. There is some evidence to support this interpretation. One Cave Swallow flew by the hawk-watch at Cape May, NJ on Monday, 1 November, but it was not until Wednesday, 3 November, that concentrations began there (Paul Lehman, BIRDEAST).

Perhaps many Cave Swallows left Ontario undetected on 2 November. And perhaps by 3 and 4 November, those that remained were too hungry and stressed by the cold to leave. The bird banded at Long Point Tip on 4 November had no fat (Jul Wojnowski, pers. comm.) and, of course, the Point Pelee bird died on the same morning. Examination of this bird at the Royal Ontario Museum revealed that it had died of starvation (Mark Peck, pers. comm.). Fortunately, for both the swallows and birders, the next few days saw the return of sunny and mild conditions and the birds, now concentrated, were feeding actively and seen by many. The circumstantial evidence suggests that these birds managed to restore

enough strength and, for the most part, departed south and west on Friday, 5 November, with a few remaining until the next morning. The stragglers seen at Long Point on 10 and 11 November, Michigan on 13 November, and western Pennsylvania on 26 November could have been reorienting after having moved, in error, northeast along the shores of the lower Great Lakes (viz., the Quebec birds, 6 to 11 November).

Regardless of the exact situation, the question remains as to why this was almost solely a Cave Swallow event and how it fits into the pattern of vagrancy exhibited by the species over at least the last decade (see Appendix). Swallows may be more prone to being displaced by strong winds but the only other swallows positively identified with the Cave Swallows were a few Tree Swallows and it is not particularly unusual for this species to linger into November or even December. While there were several other rare western birds in Ontario over the late fall and winter, we see no compelling reason to suggest that they were in any way related to this particular weather system.

SUBSPECIES AND ORIGIN

The question of which subspecies of Cave Swallow are involved, and therefore, whence they have originated, has been a controversial issue among observers, especially pertaining to the 1990s incursions (Paul Lehman, pers. comm.; Wormington 1992, 1999). Observers have used field observations and circumstances to make a case for either West Indian or southwestern United States origin. There are six or seven currently recognized subspecies (Howard and Moore 1980, Turner and Rose 1989, Pyle 1997, Garrido et al. 1999). Of these, five occur in North America, although *citata* of the Yucatan Peninsula of Mexico is likely sedentary and not considered as a vagrant candidate to the north. The nominate subspecies *fulva* occurs in the Greater Antilles and now breeds in south Florida (West 1995). A poorly defined subspecies *cavicola* occurs in Cuba, and another has recently been described from Puerto Rico (Garrido et al. 1999). The "southwestern" subspecies *pallida* nests in southeast New Mexico, east to central Texas and locally south to coastal Texas and into northern Mexico (Turner and Rose 1989, West 1995).

The nomenclature of Cave Swallows is as dynamic as their breeding ranges (Michel Gosselin, pers. comm. to Ron Pittaway, 1999). The name *pelodoma* was created when the genus *Petrochelidon*, along with others, was lumped into *Hirundo*. Now that it has been teased out of *Hirundo* to its original generic name *Petrochelidon*, the correct appellation for the "Tex-Mex" subspecies is *pallida*.

In the field, these four subspecies are, with present knowl-

edge, impossible to determine with certainty. Moreover, for reasons of clarity here, it seems appropriate to lump the West Indian birds under the name *fulva*. Although some of the earlier Nova Scotia birds had been positively determined to be *fulva*, the balance of opinion, not without cogent opposition, pertaining to the 1990s records has been that most, and perhaps all, originated in the southwestern United States. Observers have noted subtle variations in colour and contrast and marshalled arguments using weather systems to support their contentions about origin and subspecies (Wormington 1992, 1999; Bannon 2000). Notwithstanding, what have been sorely needed are specimens or in-hand studies where morphometrics can be utilized to determine subspecies. We now have that information for the fall 1999 flight and for another eastern extralimital record. By inference, many of the intervening records in time and place are also likely from the same origins, although this cannot be proved.

The first specimen of Cave Swallow for South Carolina was picked up in a moribund condition on 31 October 1993 (McNair and Post 1999). Based upon measurements and coloration, and verification by Steve Cardiff and Van Remsen, this was the first specimen of *pallida* for eastern North America (McNair and Post 1999). In addition, we have one measurement of the banded Long Point bird and morphometrics on the Point Pelee specimen (ROM # 66156). Table 1 presents a comparison of measurements among these specimens and series of measurements from the known breeding ranges (Pyle 1997). It is clear from these comparisons that both the Long Point bird and the Point Pelee specimen are attributable to the subspecies *pallida* of the southwestern United States. Finally, a specimen obtained in North Carolina in late fall 1999 has also been identified as *pallida* (Harry LeGrand, ID FRONTIERS).

Another interesting point is that the two specimens and the in-hand bird were all hatching year birds with incomplete molt to first basic plumage (see Figures 1 and 3).

CAVE SWALLOW POPULATION DYNAMICS

Since the 1970s, the Cave Swallow has been dramatically expanding its range. Nominate *fulva,* native to the Greater Antilles, now nests in south Florida (Smith et al. 1988). It seems likely that the Nova Scotia records were related to this expansion, although the dearth of records since 1982 is puzzling. Similarly, *pallida* has advanced aggressively and rapidly eastwards across Texas, apparently usurping sites and even nests from Barn Swallows (Palmer 1988). Wormington (1999) described the banding of several juvenile Cave Swallows in Nebraska, which were

Table 1: Length Comparisons of Cave Swallows

	P. f. fulva (Pyle)	*P.f. pelodoma* = *pallida* (Pyle)	ROM # 66156 Point Pelee	Long Point (band #1651-05301)	S. Carolina specimen
WING	97 - 103	106 - 113	110*	104*	109.5*
TAIL	37 - 45	45 - 52	47		
TARSUS	11.1 – 11.9	12.1 – 13.0	12.9		

*Hatching year birds average 4–5 mm shorter in wing length (Pyle 1997).

presumed to have migrated north with Cliff Swallows. In the longer historical context, it is relevant to know that the first nest for Texas was not found until 1914 and the first for New Mexico was in 1930 (West 1995). So it is clear that this species has not yet stabilized its breeding range in North America.

One important factor affecting the range of swallows is the availability of suitable nest sites (Brewer 1987). As Cave Swallows are expanding along highways, adopting bridges and culverts for nesting (West 1995), there may be considerable range expansion yet to come. Palmer (1988) notes that in Texas, Cliff and Barn Swallows are losing ground to the Cave Swallow at these man-made nest sites. This expansion is somewhat akin to the rapid northeasterly range expansion of the Wild Indigo Dusky Wing (*Erynnis baptisiae*) along major highway systems. This butterfly now uses Crown Vetch (*Coronilla varia*), the pink ground cover planted along highways, as a larval food plant (Shapiro 1979).

Thus, we may be nowhere near the end of expansion of the Cave Swallow. We anticipate that Ontario will experience more April, and perhaps March, records (Wormington 1992) as weather conditions not unlike November 1999 are, if anything, more frequent in spring than in fall. In this regard, there is an intriguing report of a "Cliff Swallow" at Long Point on 8 March 1992. Moreover, Alan Wormington (pers. comm.) has observed two possible Cave Swallows (one in spring, the other in fall) leaving Point Pelee, much as McLaughlin did in fall 1999. As for the 1999 incursion, the Cave Swallow departure dates from the Carlsbad Caverns, New Mexico from 1981–1992 ranged from 28 October to 10 November (West 1995). While our birds are not necessarily from this precise location, it would appear that early November is a peak time for parties of this species to be migrating and hence vulnerable to displacement.

CONCLUSION

In summary, the late fall of 1999

witnessed a large movement of Cave Swallows into northeastern USA and Canada. Up to 110 birds were seen in Ontario and at least another 80 were elsewhere in northeastern North America. The precipitating factors were two intense low pressure systems and their accompanying wind vectors. While much more massive, this flight fits into a decade long pattern of increasing vagrancy to the northeast. Specimen evidence corroborates the postulation that the birds of the 1999 invasion (and likely many, if not most, of the other extralimital records) were *P.f. pallida* from the southwestern USA.

Clearly, these Cave Swallow extralimital occurrences are exciting in the short run and fascinating in the larger context. It may be that even the fall occurrences are part of the penchant of the species for expanding its range.

Acknowledgements

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Appendix: History of vagrant Cave Swallows in eastern North America

We thought that *Ontario Birds* readers would be interested in the full story of the vagrancy patterns of Cave Swallow. This list includes all those observations of vagrant Cave Swallows in northeastern North America that have been accepted or are thought to be valid.

It is interesting to revisit Alan Wormington's two papers in *Birders Journal* (Wormington 1992, 1999) in the light of these records below, together with the fall 1999 invasion. In 1992, he predicted that more Cave Swallows would occur north and east of Texas, including Ontario. Such occurrences, of course, happened virtually annually after the 1989 Point Pelee record. These extralimital incursions set the stage for the invasion in the fall of 1999.

At least five records, some of multiple birds, exist for Nova Scotia between 1968 and 1982 (Godfrey 1986: 379; Tufts 1986: 296). In the light of questions about subspecies involved, several points are of interest here:

1. The two Nova Scotia specimens that exist are referable to *P.f. fulva s.l.* (Godfrey 1986, American Ornithologists' Union 1998).

2. All these Nova Scotia records occurred before the recent spate of eastern North American records.

3. Dates for all of these birds ranged from May to July (i.e., none was in the late fall period when most have occurred in the 1990s).

Commencing in 1989, Cave Swallows have become virtually annual in the Northeast:

21 April 1989 – Point Pelee, Essex Co., ON (1); Wormington 1992

20 April to 5 June 1990 – Cape May, NJ (1); AB 44 (3): 404

23 May 1990 – Jamaica Bay, NY (1); AB 44 (3): 404

7 November 1992 (4), down to (1) 15 November 1992 – Cape May, NJ; AB 47 (1): 73

31 October 1993 – Folly Beach, Charleston Co., SC (1); McNair and Post 1999

20 November 1993 – Cape May, NJ (1); AB 48 (1): 94

8 to 19 November 1994 – Cape May, NJ; Wildwood, NJ (3); FN 49 (1): 28-29

6 November and 30 November 1995 – Cape May, NJ (1); FN 50 (1): 29

3 November 1996 – Cape May, NJ (1); FN 51 (1): 32

7 November to 16 November 1997 – Cape May, NJ (up to 5); FN 52 (1): 37

9 November 1997 – East Point, Cumberland Co., NJ (2); Paul Lehman, pers. comm.

4 November 1998 – Cape May, NJ (1 to 2); NAB 53 (1): 37

28 November 1998 – Long Island, NY (2); NAB 53 (1): 37

21 November to 13 December 1998 – Cape May, NJ (2); NAB 53 (2): 150

1 November 1998 – Fisherman I., VA (1); NAB 53 (1): 42

7 to 9 December 1998 – Point Pelee, Essex Co., ON (1); Wormington 1999

25 March 1999 – Cape May, NJ (1-2); NAB 53 (3): 263

Abbreviations: AB = *American Birds*
FN = *Field Notes*
NAB = *North American Birds*

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Plumage and Molt Terminology

Ron Pittaway

A knowledge of plumages, molts and ageing is essential to the modern birder. The identification of a rare gull or shorebird often hinges on knowing its correct plumage and stage of molt. Determining a bird's plumage and molt is an identification challenge that will add new fun and skills to your birding. It is also important to translate correctly between different terminologies. This article (1) defines the key general terms of plumage and molt, including the banding codes; (2) provides separate lists of birds that molt once and twice per year; and (3) compares a general terminology with that of Humphrey and Parkes (1959). *The Humphrey and Parkes terminology is recommended where there is a need to describe precisely a bird's plumages and molts.*

General Terminology

The following terms are used commonly by North American birders, but they are often used inconsistently by authors and birders. Here, each term is given an exact meaning in an attempt to standardize the definitions. Plumage terms are defined first, followed by the terms for molt.

PLUMAGES

Immature: A general and collective term that includes juvenile, first winter, first summer and all subsequent plumages until the non-changing adult (definitive) plumage is acquired.

Juvenile or Juvenal: To avoid confusion, it is best to use these two terms as having the same meaning. It is the first covering of true contour feathers following the natal down(s), or in certain species it succeeds the naked nestling stage without the natal down. *Juvenile has a precise meaning; it is the first immature plumage.* The juvenile plumage is worn briefly in most passerines, but much longer in loons, hawks, gulls, shorebirds and others. In most birds, the juvenile feathers appear looser, woollier, and differently coloured and shaped than subsequent stages. Some authors use juvenile, but not juvenal, as having the same meaning as immature, just adding to the confusion. Other authors use juvenile as a noun and juvenal as an adjective. For example, the juvenile is in its juvenal plumage. However, both words can be used as nouns and adjectives. See also the definition of Juvenal in the section below under the Humphrey and Parkes terminology.

First Year: This term applies to birds that molt once per year. It fol-

lows the postjuvenile molt and is retained until the first postbreeding molt. First year birds do *not* have separate first winter and first summer plumages. In many birds, first year plumage is worn from late summer or early fall to the following summer. First year plumage is adult-like in many species, especially passerines. Many breed in this plumage. First year birds often can be separated from adults by retained juvenile feathers. See the sections on Feather Generations and Ageing below. First year is also used as a general term to include birds in juvenile, first winter and first summer plumages.

First Winter: This is also called first nonbreeding plumage. First winter plumage follows the postjuvenile molt in birds having two plumages a year. First winter plumage is retained until the first prebreeding molt. First winter is adult-like in some species, but many other species are separable from adults in the field. See also the sections below under Feather Generations and Ageing.

First Summer: This term does *not* refer to a bird in the summer of its hatching year, but to the next summer in its second calendar year. Remember this point to avoid confusion. It refers to that plumage following the first winter plumage in birds having two plumages a year. It is acquired by the first prebreeding molt and retained until the first postbreeding molt. First summer plumage is adult-like in most species. Most passerines breed in first summer plumage, but they are not adults because they retain juvenile flight feathers. Many first summer birds are separable from adults in the field by their duller or incomplete plumage colour and molt contrast. See the sections below under Feather Generations and Ageing. First summer is sometimes called first breeding plumage. When you are unsure if the bird is in first summer or adult breeding plumage, just call it breeding plumage to include both age classes.

Second/Third Winter: Some birds that have two molts per year, such as large gulls, have recognizable second and third winter plumages.

Second/Third Summer: Some birds that have two molts per year, such as large gulls, have recognizable second and third summer plumages.

Second/Third/Fourth Year: Some species have recognizable second, third and fourth year plumages.

Adult: Adult refers to a bird's plumage, not to whether the bird is of breeding age. A bird is adult when it acquires its final or definitive plumage that is then repeated for life. Birds that molt once a year have only one adult plumage; they are *not* divided into adult winter and adult breeding plumages. The

sexes are often alike in birds having only one adult plumage and many are dull and cryptic in colour. Birds that molt twice per year have two adult plumages: adult winter and adult breeding. The sexes are often different, particularly the breeding plumage, in species having two adult plumages. Most passerines breed in their second year before they acquire adult plumage; they appear very adult-like but retain the juvenile flight feathers. *Accipter* hawks frequently breed in their second year when they are in juvenile plumage. They are "adults" only in terms of reproduction, but not plumage. Birds wearing any retained immature plumage, even though breeding, are not adults. Note: adult used here is synonymous with the term definitive of Humphrey and Parkes.

Adult Winter: Birds that molt twice per year have two adult plumages: adult winter and adult breeding. Adult winter plumage is also called adult nonbreeding plumage.

Adult Breeding: Birds that molt twice per year have two adult plumages: adult breeding and adult winter. Adult breeding plumage is also called adult summer plumage, and in the old literature it was known as adult nuptial plumage. In adult birds that have two distinct plumages, adult breeding and adult winter, there are a very few species where the sexes have identical plumages (e.g., loons).

Subadult: This is generally used to describe birds whose plumage is nearly adult in appearance, but shows traces of immaturity. It is most often used for birds that take several years to reach adult or definitive plumage, such as eagles. This term is confusing and is best avoided.

Eclipse: This female-like plumage is held very briefly by ducks in summer and early fall, and is most noticeable in the males. Eclipse is really the basic or winter plumage, but is worn in summer by most ducks, except the Ruddy Duck which wears eclipse to late winter. Most ducks acquire breeding plumage in the fall, six or seven months before other birds. This shift in the assumption of breeding plumage appears related to courtship during fall and winter.

Calendar Year Terminology: First calendar year refers to a bird up to the 31 December of its hatching year. Second calendar year goes from 1 January to 31 December, and so forth. Large birds, such as eagles, are often aged using the calendar year.

MOLTS

Traditional molt terms are postjuvenal or postjuvenile, prebreeding and postbreeding. These terms are defined below. Complete molts

replace all the feathers, sometimes interrupted by a pause between periods of molting. Anything less than a complete molt is termed a partial molt. Most partial molts replace the body feathers, but not the wings and tail. Some partial molts are limited, usually replacing only a few head and/or body feathers. Depending on the species, molts may be protracted such as in hawks, or suspended during migration and continued (offset) on the wintering grounds.

Postjuvenile Molt: This begins soon after fledging in most passerines and somewhat later in many non-passerines. It is a partial molt in most birds, producing first winter and first year plumages. A very few species have a complete postjuvenile molt. These species usually acquire adult plumage directly from the juvenile plumage; for example, the Horned Lark becomes an adult at about three months of age.

Prebreeding Molt: Some species have a molt in late winter or early spring that produces a separate, often more colourful, breeding or summer plumage. It is a partial molt in most species. A very few species, such as the Bobolink, have a complete prebreeding molt.

Postbreeding Molt: This is the complete annual molt found in nearly all species. In many species, this is the only yearly molt. It occurs after the breeding season in most species, but in other species it starts much earlier or later. In some species, the postbreeding molt takes place on the wintering grounds after migration. It produces a combination winter and summer (yearly) plumage in species that molt once per year. In species that molt twice per year, it produces the winter plumage. During the postbreeding molt, there is often a noticeable change in the behaviour of many birds, particularly in passerines; they become quiet and lethargic, avoiding long flights, and spending more time resting and skulking. Knowing differences in the timing of molts among similar species can help identify a difficult species; for example, some *Empidonax* flycatchers molt before, and others after, fall migration.

Feather Generations: The feathers acquired by a molt, whether partial or complete, form a feather generation. Most first winter and first year birds wear a combination of older juvenile and newer first winter feathers. First summer shorebirds often wear a combination of old juvenile, somewhat younger first winter and new first summer feathers. Most adult birds that molt twice per year are wearing two feather generations during the nesting season. Juvenile, first year, first winter, first summer and adult feathers often have different patterns, colours, shapes, lengths and amount of wear. Being able to recognize different feather genera-

tions is one of the keys to understanding molt. Practice on photographs, feeder birds, birds in the field and even dead birds, but do not keep them unless you are giving them to a museum. A visit to a museum or university collection is very instructional.

Ageing: Age and plumage terms often have the same meaning. Adult, juvenal, first summer, second winter and so forth are terms that have both plumage and age meanings. However, a Herring Gull in adult winter (definitive basic) plumage could be as young as 3.5 years in its first adult plumage or it could be 25 years old because its adult plumages change little with time. Many passerines in adult-like plumage, especially males, can be aged as first year, first winter and first summer by the *molt contrast* between their retained, browner juvenal flight feathers and the newer blacker remainder of the wing. Examples of the latter are first summer male Rose-breasted Grosbeak (see Figure 1) and Black-headed Grosbeak, first summer male Western Tanager and Scarlet Tanager (see Figure 2), and first year male Eastern Towhee and Spotted Towhee. Feather contrasts can also be noted in dull species (e.g., sparrows), but one must have a close look and considerable experience. This is an area where birders can greatly expand their knowledge. See Pyle (1997) for detailed information on ageing. Finally, many species cannot be aged exactly in the field.

Feather Wear: In time, feathers become frayed and faded and the bird is in worn plumage. Species that molt once a year in late summer and breed the following spring do so in worn plumage. The Eastern Towhee is a species in which the changes due to wear are rarely noticeable in the field. Some species, however, dramatically change their appearance and acquire their breeding dress by wearing off the tips of their feathers. The effects of feather wear on the changing seasonal appearance of birds are sometimes mistaken for molt. Early ornithologists called this *molt by wear*. The European Starling, House Sparrow and blackbirds are examples of species that have quite different fall (fresh) and spring (worn) appearances, but they have the same feathers. The Snow Bunting is an extreme example of changing its winter to summer appearance by feather breakage. In early spring, the brown feather tips break off as if cut by scissors, exposing a striking black and white breeding dress. The Snow Bunting attains the functional equivalent of a breeding plumage without molting; there is a very limited molt of some facial feathers, but this is inconsequential. The other extreme is the male Bobolink, which has a complete prebreeding molt. In very

Figure 1: Male Rose-breasted Grosbeak in first alternate plumage, told by retained juvenal brown instead of black primaries and secondaries. Photo courtesy of *Point Pelee National Park.*

fresh breeding plumage, it is clouded over with buff, which soon wears off. In most cases, the fresh plumaged birds in the fall are duller because of gray or buffy feather margins that wear off gradually, exposing a somewhat brighter or darker plumage by spring. However, a few species are actually brighter in fresh fall feathering becoming duller by spring (e.g., Grasshopper Sparrow).

Confusing Terms: Some books use seasonal descriptions for plumages and molts. Examples are fall plumage, spring plumage, summer molt and so forth, but these are *not* official terms. They simply refer to the time of year a plumage or molt occurs. Immature ducks in winter also cause problems with plumage names because most are in the homologous equivalent of breeding plumage. Eiders are often labelled as "first winter" in field guides when in fact they are molting or in first summer (alternate) plumage that is worn in winter! The European literature often uses first summer, second summer and so forth for birds that acquire their summer appearance by wear only. Do not assume that the plumage labels in field guides and birding journals are correct.

Banding Codes

Bird banders use an age code that is linked to the calendar year. This code is used by the Canadian Wildlife Service and the United States Fish and Wildlife Service.

U (unknown) is for a bird after the breeding season and before 1 January that cannot be placed in any of the age classes below. After 31 December use **AHY**.

L (local) is for a young bird incapable of sustained flight. Banders sometimes label these birds as **Juv** (juvenile), but it is not part of the official code.

HY (hatching year) is for a bird up to and including the 31 December of the calendar year in which it was hatched. It includes birds in juvenile, first winter and first year plumages. Banders sometimes use the label **Juv** for birds that are clearly in juvenile plumage, but this use is not officially part of the code.

AHY (after hatching year) is for a bird in at least its second calendar year or older. Year of hatch is unknown, but it is at least a **SY**.

SY (second calendar year) is for birds in their second calendar year from 1 January to 31 December. These birds are known to have hatched in the preceding calendar year.

ASY (after second year) is for a bird in at least its third calendar year. Year of hatch is unknown.

TY (third year) is for a bird known to be in its third calendar year.

ATY (after third year) is for a bird (normally adult) in at least its fourth calendar year. Year of hatch is unknown.

Humphrey and Parkes Terminology

The molt and plumage terminology of Humphrey and Parkes (1959) is used widely by North American ornithologists in the professional literature; for example, Palmer (1962, 1976, 1988) in the *Handbook of North American Birds*, and more recently in *The Birds of North America* series. The American Birding Association adopted Humphrey and Parkes as the standard in its journal *Birding* (Wilds 1989). In Canada, the Ontario Bird Records Committee uses the Humphrey and Parkes system in its annual reports published in *Ontario Birds*. The Humphrey and Parkes system can be used anywhere in the world because it is not linked to age, seasons or breeding cycle. **It is a joy to use, once mastered.**

Plumages: Plumages are named juvenal, basic, alternate and supplemental. A new plumage is acquired *only* by a molt. *Many birds wear*

more than one generation of feathers simultaneously, but their plumage is always named after the last acquired generation. For example, a male Scarlet Tanager in definitive alternate (adult breeding) plumage retains its definitive basic (adult winter) wing and tail feathers. If males have a prealternate molt, the females also usually molt. But in the case of the Scarlet Tanager, the female in basic and alternate plumages is similar.

Juvenal: This is the first generation or coat of true contour feathers following the natal down or downs. Humphrey and Parkes (1959) retained the widely used term juvenal from the earlier North American literature. Juvenal refers to both the bird and its plumage; it is both a noun and an adjective. To avoid confusion, I recommend that juvenal and juvenile be used as synonyms. Use juvenal if you want to be sure of not being misunderstood.

Basic: The basic plumage *usually* follows the juvenal plumage. See discussion below under Supplemental for exceptions. In species that molt once a year, the basic is repeated as the only plumage. The sequence is **juvenal** molt to **basic** molt to **basic** molt to **basic**, repeated for the life of the bird. In birds that molt twice a year, the basic plumage is one of two plumages: basic and alternate. Basic equals winter plumage *only* in birds that have an alternate plumage. Recognizable plumages may be numbered first basic, second basic and so forth to describe recognizable plumage stages until the definitive basic plumage is reached. Basic plumage is acquired by a prebasic molt. The first prebasic molt is a partial molt in most birds, replacing the body feathers, but usually not the wings and tail. The second and subsequent prebasic molts are complete in most birds, replacing all the feathers.

Alternate: This is the name of the second plumage for birds that molt twice a year: basic and alternate. The sequence is **juvenal** molt to **basic** molt to **alternate** molt to **basic** molt to **alternate**, repeated for the life of the bird. Alternate equals breeding or summer plumage. Recognizable plumages may be numbered first alternate, second alternate and so forth until definitive alternate plumage is reached. Alternate plumage is acquired by a prealternate molt, which is usually a partial molt in most birds, replacing only body feathers, but not the wings and tail. Alternate plumages are brighter and more colourful in many species, but in some the alternate is practically identical to the basic. Note: birds that molt once a year do *not* have an alternate plumage.

Supplemental: It was first defined as the name of the third plumage when there are three molts per year. The supplemental plumage precedes or

follows the alternate, depending on the species. There are a very few species with more than two definitive (adult) plumages. It occurs in pelicans, Oldsquaw, ptarmigan and a few other species, and is acquired by a presupplemental molt. Note: We now know that supplemental plumages also occur in the first year of life in birds that later have only one or two molts per year. Some young birds acquire a supplemental plumage before and/or overlapping with the first prebasic molt. Examples are the Phainopepla, Yellow-breasted Chat, *Passerina* buntings and Northern Cardinal. These species have a previously unknown sequence of molts and plumages that are probably more frequent in other birds than currently known. The sequence for these species is juvenal plumage, presupplemental molt, supplemental plumage, first prebasic molt, and first basic plumage. Later supplemental stages are apparently absent. When a new molt and plumage are discovered, the procedure to name it is to equate one of the plumages with later basic plumages and to compare it with basic plumages in related species to determine which is the additional supplemental plumage. The uncommon supplemental plumage is *not* treated in the comparison chart below (Table 1).

Definitive: Definitive equals adult plumage, except that it is used only as an adjective. A bird can be an adult, but not a definitive! It is the final plumage that does not change further with age; all subsequent stages of the same plumage are identical. It is an adjective: definitive basic plumage, definitive alternate plumage, definitive supplemental plumage, and so forth. Definitive is also used to describe molts; for example, the definitive prebasic molt.

Predefinitive: This is a useful collective term with the same general meaning as immature defined previously. Predefinitive refers to all plumages before the definitive stage is reached. Molts also may be termed predefinitive. Humphrey and Parkes (1959) did not define predefinitive.

Molt Names: Molts are named in terms of the incoming plumage: prebasic molt, prealternate molt and presupplemental molt. The following are some examples of how to describe a bird in molt: (1) the juvenal Bonaparte's Gull is beginning its first prebasic molt; (2) the male Scarlet Tanager is ending its definitive prealternate molt; and (3) the Stilt Sandpiper is in the middle of body molt from juvenal to first basic plumage, or you could say that it is in juvenal/first basic plumage. It is incorrect to say a bird is in its prebasic plumage or prealternate plumage because these terms refer to molts, not to plumages.

Figure 2: Male Scarlet Tanager in first alternate plumage, told by retained juvenal brownish instead of blackish primaries and secondaries. Photo by *Jim Flynn.*

Molt Equivalents: First prebasic molt equals postjuvenile molt, but note that the second and later prebasic molts equal postbreeding molts. Prealternate molt equals prebreeding molt. Humphrey and Parkes (1959) did not originally apply the term definitive to molts, but it is now used for the molts leading to definitive plumages. They are now called the definitive prebasic molt, definitive prealternate molt and definitive presupplemental molt.

Molt Patterns: Some of the information described below has been repeated from earlier sections for clarity. Molting includes both the shedding and replacing of a bird's feathers. Regular molts in birds are necessary because feathers wear out with time, becoming less effective for insulation and flight. The juvenal (juvenile) is the first plumage acquired after the natal down. The young bird then goes through a series of molts and plumages until definitive (adult) plumage is attained. There are four main molt strategies in definitive (adult) birds:

1. A *complete molt* renewing all feathers once a year, usually in late summer or early fall after the breeding season. This is called the definitive prebasic (adult postbreeding) molt.

2. Many other species have a *complete molt* as in (1) plus an additional *partial molt* of the head and body feathers, usually in late winter or early spring, acquiring definitive alternate (adult breeding) plumage. This is called the definitive prealternate (adult prebreeding) molt. Prealternate molts may have evolved in some species to produce a colourful courtship and breeding appearance. *The vast majority of birds use molt strategies (1) or (2) above.* The primaries, secondaries and tail of most birds are molted only once per year during the complete molt.

3. A very few species, such as the Bobolink, have *two complete molts* per year.

4. The Oldsquaw and a few other species have *three molts* per year; the third partial molt is called the presupplemental molt, leading to the supplemental plumage. See discussion above under Supplemental. Note: In birds that develop brood patches, the feathers are shed out of phase with the rest of the plumage.

Cycle: In definitive (adult) birds, a cycle is the time period that runs from a given plumage or molt to the next occurrence of the same plumage or molt. The number of molts and plumages equals the maximum number of times any feather follicle is normally activated. The basic plumage is commonly taken as the start of a plumage cycle. A cycle is a year in most temperate zone species, but shorter in some oceanic and tropical species. Cycles longer than a year are few. A cycle often straddles two calendar years. Most birds have either one basic plumage and one prebasic molt per year, or two plumages (basic and alternate) and two molts (prebasic and prealternate) per year. For example, a Horned Lark has only a basic plumage per year, and a Scarlet Tanager has two plumages, basic and alternate, per year.

Application: The Humphrey and Parkes system also can be used with Roman numerals, but capitalize the names of plumages and molts; for example, Alternate II plumage, Prebasic I molt and so forth. As well, some terms can be abbreviated but also must be capitalized; for example, Def. Basic plumage, Def. Alt. plumage, Def. Suppl. plumage, Alt. I plumage and so forth. The terms Basic and Prebasic are not abbreviated. Try not to mix terminologies, but adult alternate plumage, adult prebasic molt, adult in basic plumage and adult in prealternate molt and so forth are now widely used.

One or Two Molts?

Most birds molt either once or twice a year. Knowing whether a bird molts once a year or twice a year is the *key* to determining its plumage and age. For example, adult birds

that molt once a year have only one definitive (adult) plumage, called the definitive basic. Birds that molt twice a year have two definitive plumages: definitive basic (adult winter) and definitive alternate (adult breeding). Information below on the number of molts is based mainly on Oberholser (1974) and Pyle (1997).

One Molt: The following list applies *only* to those North American birds found north of Mexico. They have one molt and therefore one plumage per year. After the juvenal plumage, they molt from basic to basic, repeated as the only plumage. Any changes in appearance are caused by wear (loss of feather fringes) and fading in some species. In a few species, the change in appearance between fresh and worn plumage is striking, *but these are not separate plumages*. Birds that have one molt are: albatrosses; shearwaters and petrels; storm-petrels; tropicbirds; boobies and gannets, except Northern Gannet; frigatebirds; New World vultures; whistling-ducks; geese and swans; ospreys; kites, eagles and hawks; caracaras and falcons; Plain Chachalaca; partridges and pheasants; grouse, except ptarmigans; turkeys; jacanas; pigeons and doves; parrots; New World cuckoos; roadrunners; anis; owls; goatsuckers; swifts; hummingbirds; trogons; Eurasian Hoopoe; kingfishers; woodpeckers; *some* tyrant flycatchers, including Olive-sided Flycatcher, Greater Pewee, Western Wood-Pewee, Eastern Wood-Pewee, Black Phoebe, Eastern Phoebe [see Pyle (1997) for exceptions]; *some* vireos, including White-eyed Vireo, Bell's Vireo, Hutton's Vireo, Red-eyed Vireo, Yellow-green Vireo and Black-whiskered Vireo; jays, Clark's Nutcracker, magpies, Eurasian Jackdaw, crows and ravens; larks; *some* swallows, including Purple Martin and Cliff Swallow; chickadees and titmice; verdins; bushtits; White-breasted Nuthatch; creepers; wrens, except Sedge Wren and Marsh Wren; dippers; kinglets; thrushes; Wrentit; catbirds, mockingbirds and thrashers; starlings; accentors; waxwings; Phainopepla; Olive Warbler; *some* wood-warblers, including Yellow-throated Warbler, Pine Warbler, Prothonotary Warbler, Worm-eating Warbler, Swainson's Warbler, Hooded Warbler, Red-faced Warbler, Painted Redstart and Yellow-breasted Chat [see Pyle (1997) for other species having an absent to limited prealternate molt]; bananaquits; *some* tanagers, including Hepatic Tanager and Flame-colored Tanager; *some* sparrows and buntings (Emberizidae), including towhees, Vesper Sparrow, Black-throated Sparrow, Sage Sparrow, Snow Bunting and McKay's Bunting; *some* cardinals and grosbeaks (Cardinalidae), including Northern Cardinal, Pyrrhuloxia, Blue Grosbeak (has first prealternate molt only) and Varied Bunting; *most* blackbirds, except Bobolink, and *some* orioles (have mainly first

prealternate molt only); *most* finches, except goldfinches; and Old World sparrows. Note: Some birds listed above may have alternate and/or supplemental plumages that have not been detected. See Pyle (1997) for more information and exceptions to the above.

Two Molts: The following list applies *only* to those North American birds found north of Mexico. They have two molts and therefore two plumages a year, both basic and alternate plumages. These birds are: loons; grebes; Northern Gannet; pelicans; cormorants; darters; herons, bitterns and allies; ibises and spoonbills; storks; flamingos; shelducks; true ducks (Anatinae); ptarmigans; New World quail; rails, gallinules and coots; limpkins; cranes; lapwings and plovers; oystercatchers; stilts and avocets; sandpipers, phalaropes and allies; pratincoles; skuas, jaegers, gulls, terns and skimmers; auks, murres and puffins; Eurasian Wryneck; *most* tyrant flycatchers, including the genus *Empidonax* [see Pyle (1997) for exceptions]; shrikes; *some* vireos, including Black-capped Vireo, Yellow-throated Vireo and Warbling Vireo [see Pyle (1997) for details]; swallows (probably very limited prealternate molt in most species); nuthatches, except White-breasted Nuthatch; Sedge Wren and Marsh Wren; Old World warblers and gnatcatchers; Old World flycatchers; wagtails and pipits; *most* wood-warblers [see Pyle (1997) for exceptions]; *some* tanagers, including Summer Tanager, Scarlet Tanager and Western Tanager; *most* sparrows and buntings (Emberizidae); *most* Cardinalidae, including Rose-breasted Grosbeak, Black-headed Grosbeak, Blue Grosbeak (first prealternate molt only), Lazuli Bunting, Indigo Bunting, Painted Bunting and Dickcissel; *some* blackbirds, including Bobolink, and orioles (mainly first prealternate molt); and *a very few* finches, including goldfinches. Omitted from the above are some passerines whose prealternate molt is so very limited (e.g., a few head feathers) that little or no detectable change by molting occurs. Note: Some birds listed above may have a supplemental plumage that has not been detected. See Pyle (1997) for more information and exceptions to the above.

Figures 3 and 4 are **schematic colour illustrations** by Peter Burke showing sequence of plumages in American Robin and Scarlet Tanager. Colour scheme: juvenal (gray), first basic (bronze), first alternate (orange), definitive basic (cinnamon), definitive alternate (purple). Corresponding plumages are the same colours in both American Robin and Scarlet Tanager, but robin lacks an alternate plumage. Colours are not actual, but represent different feather generations after each molt. Note retained feathers by the same colour as the previous plumage(s), usually wings and tail, following partial molts in first basic, first alternate and definitive alternate plumages.

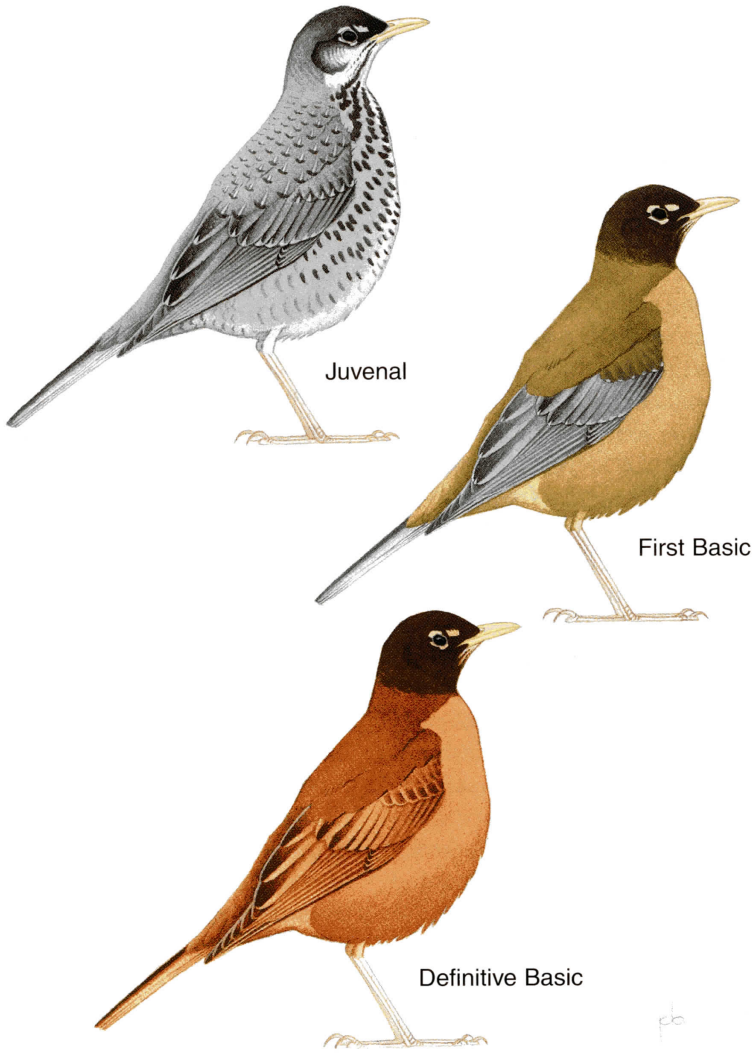

Figure 3: Male American Robin: example of species having one molt per year (cycle) after juvenal plumage. First basic acquired by partial molt; retained juvenal feathers shown in gray. Definitive basic acquired by complete molt. First basic and definitive basic plumages are very similar in robins, but careful examination will separate most birds. See Pyle (1997) for details.

See box on page 39 for colour scheme used in Figures 3 and 4.

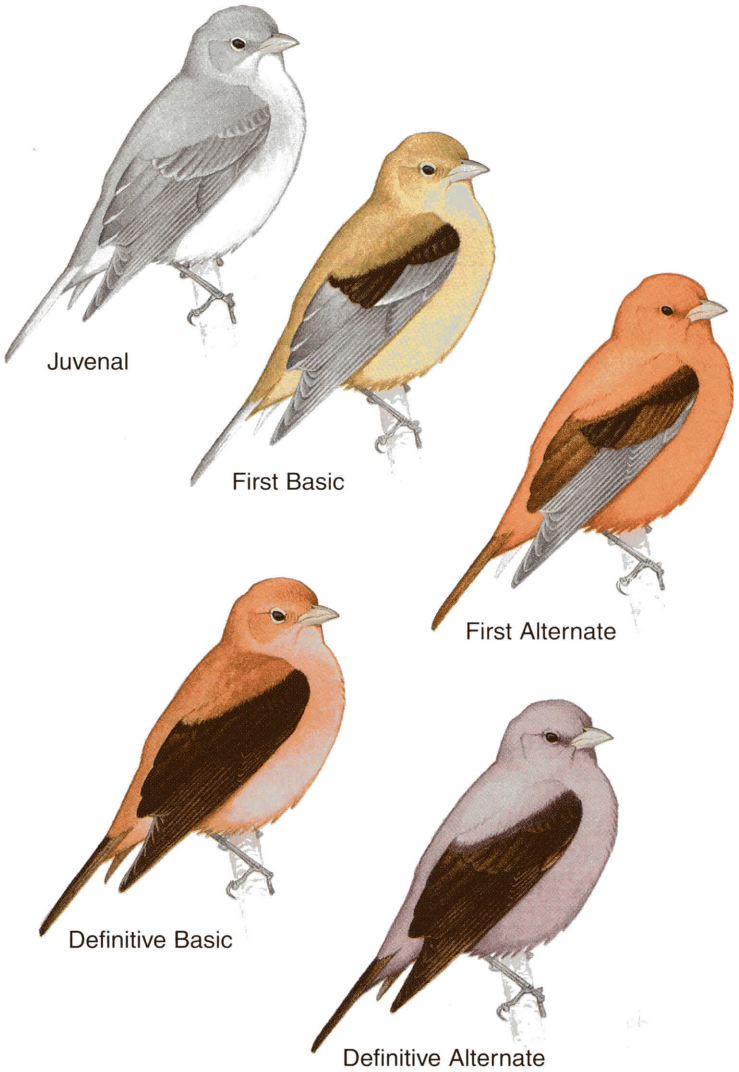

Figure 4: Male Scarlet Tanager: example of species having two molts per year (cycle) after juvenal plumage. First basic acquired by partial molt; retained juvenal feathers shown in gray. First alternate acquired by partial molt; retained juvenal primaries/secondaries shown in gray. Definitive basic acquired by complete molt. Definitive alternate acquired by partial molt. See Pyle (1997) for details. For actual colours of the Scarlet Tanager, see Peter Burke's illustrations on page 393 in the new third edition of the National Geographic Guide (1999). Juvenal plumage of Scarlet Tanager is not illustrated in NGG.

Table 1: Comparison of Plumage and Molt Terminologies

The two charts below compare the names of plumages and molts in general use with those of Humphrey and Parkes. Separate sequences are shown for birds that molt once a year and twice a year. The names of molts are in italics. See pages 38 and 39 for number of molts.

(A) Plumage sequence for birds that molt once a year

General	Humphrey and Parkes
juvenile plumage	juvenal plumage
postjuvenile molt	*first prebasic molt*
first year plumage	first basic plumage
adult postbreeding molt	*definitive prebasic molt*
adult plumage	definitive basic plumage

(B) Plumage sequence for birds that molt twice a year

General	Humphrey and Parkes
juvenile plumage	juvenal plumage
postjuvenile molt	*first prebasic molt*
first winter plumage	first basic plumage
first prebreeding molt	*first prealternate molt*
first summer plumage	first alternate plumage
adult postbreeding molt	*definitive prebasic molt*
adult winter plumage	definitive basic plumage
adult prebreeding molt	*definitive prealternate molt*
adult breeding plumage	definitive alternate plumage

Most birds, whether they molt once or twice per cycle (year), acquire their first definitive basic plumage in late summer or early fall of their second calendar year, when they are just over a year old. For most species that molt twice per cycle, they acquire their first definitive alternate plumage in late winter or spring of their third calendar year, somewhat before two years of age. Definitive plumages are repeated for the life of the bird. Additional molts and plumages can be added for species that take longer to reach definitive plumage. Presupplemental molts and supplemental plumages also can be inserted into the above sequences.

Recommendations

1. In your field guide, write the number 1 or 2 beside the birds that have either one or two molts per year. This is the key to knowing if a bird has only a basic plumage or both basic and alternate plumages.

2. Label the birds in your field guide, using the Humphrey and Parkes terminology

3. Practice looking closely at photographs of birds in books. Try ageing and assigning plumages and molts by looking for different feather generations, and signs of molt and wear.

4. Check out the selected references below. If you want to know more, request the cited papers and books from a library.

5. Get out in the field and study the common birds more closely. It takes work, but you will soon expand your knowledge and understanding.

6. Finally, I am always happy to discuss birds and answer questions. You may see me in the field or write to the address below or telephone in the early evening at (705) 286-3471.

Acknowledgements

I thank Peter Burke, Earl Godfrey, Michel Gosselin, Jean Iron, Alvaro Jaramillo, Michael King, Kevin McLaughlin and Ron Tozer for their valuable assistance. Peter Burke kindly prepared the illustrations.

Selected References

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Wilds, C. 1989. The terminology of plumage and molt. Birding 21: 148-154. This is one of the best articles written for birders on using plumage and molt terminologies. It strongly endorses the Humphrey and Parkes terminology.

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Notes

Breeding Record of Great Gray Owl in Bruce County: Southernmost in Canada

Michael Turisk

On 4 July 1999, two juvenile Great Gray Owls (*Strix nebulosa*) were observed near Stokes Bay, Bruce County, Ontario by the author. Earlier, in May, an adult bird had been observed by John Miles, Jean Iron and others in the vicinity of Stokes Bay; this is what prompted me to perform my relatively swift search of the area during a July visit to the Bruce Peninsula. Dead trees in wet, boggy areas were carefully scrutinized near the site of the initial May observation, in the hope of locating the owl.

My third stop proved fruitful, for I immediately noted a harsh, evenly-pitched call, reminiscent of a young Great Horned Owl (*Bubo virginianus*). Within several minutes, I was able to locate a juvenile Great Gray Owl perched fairly low, approximately 2 m up in a dead tree. The bird was in many respects structurally equivalent to an adult bird. However, its coloration tended to be brown overall, particularly on the back and tail. In addition, the facial discs were slate-coloured or blackish; these contrasted with the bright yellow eyes and discernible whitish crescents on both sides of the face. A small amount of down remained on both the nape and lower belly. A second bird was soon heard begging, and was subsequently located, its appearance matching closely that of the first. This second individual was rather more active in that it flew clumsily from tree to tree, all the while emitting harsh cries. Although the juveniles were observed for nearly ninety minutes, no adults were seen.

The selection of a breeding site by Great Gray Owls generally is dependent upon the existence of semi-open environments, such as bogs or meadows, that are in close proximity to dense coniferous or mixed forests (Johnsgard 1988). Habitat selection is also affected by the availability of microtine prey, shrub density (habitats containing dense shrub layers usually being avoided), and the relative abundance of suitable perches (Servos 1987).

The owls were observed in a beaver meadow and bog habitat. Surrounding the meadow and bog area was a mixed stand of conifers and hardwoods, including Eastern White Pine (*Pinus strobus*), Eastern Hemlock (*Tsuga canadensis*), and Sugar Maple (*Acer saccharum*), with scattered birch

(*Betula* spp.), and Balsam Poplar (*Populus balsamifera*) noted. Also present, especially around the immediate periphery of the wetland were Black Spruce (*Picea mariana*), Balsam Fir (*Abies balsamea*), and alder (*Alnus* sp.).

Central Algonquin Provincial Park, near Round Island Lake (45° 43' N), provided the previous southernmost known breeding location of this species in Canada (Forbes et al. 1989). The Stokes Bay site (44° 58' N) now constitutes the most southerly published breeding location for this owl. The Great Gray Owl, a semi-nomadic species, appears to show weak nesting site fidelity (Johnsgard 1988). However, if prey remains abundant, it is suggested that this species be checked for again during the breeding season in this region, as extensive suitable habitat exists on the Bruce Peninsula. In addition, it should be noted that young birds occasionally return to breed in the vicinity of their natal areas (Mikkola 1983).

Acknowledgements

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First Verified Nesting of Brewer's Blackbird in Muskoka District Municipality

Kenneth Walton

On 27 May 1999, Jon Grandfield, M. Lynn Sayers and Kenneth Walton observed a male Brewer's Blackbird (*Euphagus cyanocephalus*) flying over Falkenburg Road, near Bardsville, Muskoka District Municipality, Ontario. Through careful observations, we noted a male and a female Brewer's Blackbird on the wire over the road. The female flew to an open farmland area beside the road

I figured this might be a breeding pair. After consulting Harrison (1975), I looked throughout the field near the road and discovered a nest on the ground in a tuft of grass, with one side open. The nest was loosely woven with plant material, and had four young in it.

On 28 May, I came back to the same area and took a number of photographs of the nest and young, along with a male on the nest. I observed three young around the nest on 5 June. There were three males and three females in the same area, but I could only find one nest.

There is no previously published report of Brewer's Blackbird breeding in Muskoka (see Stepney and Power 1973; Gordon 1987; Peck and James 1987, 1998).

I would like to thank Jon Grandfield and M. Lynn Sayers for their assistance in the field.

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PRODUCT NOTICE

The Small Gulls of North America. 1999. The Advanced Birding Video Series (ABVS). Video Number 2. Narration by *Jon L. Dunn.* A Peregrine Video Production.

The small gull video is the second in this series and follows the large gulls (see my review in the April 1998 issue of *Ontario Birds* 16: 39). Narrated by Jon Dunn, the video includes 14 species of small and medium sized gulls: Ring-billed Gull, Mew Gull, Heermann's Gull, Black-tailed Gull, Laughing Gull, Franklin's Gull, Bonaparte's Gull, Black-headed Gull, Little Gull, Sabine's Gull, Black-legged Kittiwake, Red-legged Kittiwake, Ross's Gull and Ivory Gull. The photography is fabulous. The video covers most subspecies and some hybrids. The extensive treatment of Common Gull and Mew Gull, and comparison of Ring-billed Gull and Common Gull, will be of particular interest to Ontario birders.

At nearly three hours in length, the video is packed with information on identification, plumages, molts, effects of feather wear and soft part colours. Confusing species are directly compared. An hr/min/sec index allows easy finding of each species.

Gulls are rapidly becoming the most fascinating group of birds, eclipsing shorebirds, because they present so many plumage and identification challenges. I highly recommend both the small and large gull videos. They are an incredible reference resource. I understand that producer John Vanderpoel is working on a hawk video. I can't wait.

This video is available from John Vanderpoel at $34.95 US, plus shipping and handling. Phone toll free at 1-888-893-2287; e-mail <jvanderp@peregrinevideo.com>; or visit their website <http://www.peregrinevideo.com>. Visa and Mastercard are accepted. *Ron Pittaway*

Photo Quiz

Willie D'Anna

Examination of the photograph reveals a medium to large-sized gull with a relatively small, rounded head and only a moderately sloped forehead. The bill is certainly not massive, appearing slim and rather short, although the apparent length may be partly due to foreshortening. There is some slight thickening at the gonys (the ridge along the lower surface of the lower mandible, near the tip). Although the wings and the legs look short, I am hesitant to trust these impressions, again due to the angle between the bird and the photographer. The back and visible wing coverts are pale to medium gray and the wingtips are black with prominent white tips. While the head and neck are heavily streaked with dark, the forehead and chin are comparatively clean. The neck streaking is particularly heavy at the base, where it forms a collar, and some streaking extends onto the breast. Aside from these streaks, the ventral body looks to be all white. Some of the tail is visible on the near side of the wingtips and

there are no dusky markings to be seen. Although a black and white reproduction prevents us from determining the colour of the bare parts, we can at least tell that the legs and feet are not dark. Similarly, the bill is mostly pale but there is a dark spot on the gonys with a thin line of dark extending from there to the culmen. Lastly, but importantly, the eyes are dark.

Now take a second look at the bill. It is too big for any of the two-year species, that is to say the gulls that reach their first adult plumage in their second calendar year. On the other hand, it lacks the sharp gonydeal angle shown by some of the larger gulls. The back and wing coverts do not appear very dark in tone, and also, these areas lack any apparent dark markings. These observations eliminate the blackish-backed gulls as well as most immature plumages of the three and four-year gulls. We are left with about 14 species that have occurred in North America. Essentially, these are the gray-backed three and four-year gulls, and we can further limit our discussion to adults and near-adults. Furthermore, the obvious head and neck streaking puts the bird in basic (winter) plumage, as all adult and near-adult gulls would look cleaner in those areas in alternate plumage.

We can now whittle away the choices. The head pattern and pale legs and feet rule out Franklin's and Laughing Gulls and Black-legged Kittiwake. Second basic and adult Ring-billed Gulls would show pale eyes and a thicker band of dark on the upper mandible. Glaucous Gulls never have black on the wingtips, and the amount as well as intensity of the black is too much for even the darkest "Kumlien's" Iceland Gull. Glaucous-winged and Western Gulls and their hybrids would show a larger bulbous-tipped bill. In addition, the primary tips are unicolour with the rest of the upperwings in the former species and the mantle colour of both races of Western Gull is probably too dark for our bird. Herring and Yellow-legged Gulls can be removed from the list of contenders as they have pale eyes, larger less rounded heads, and longer thicker bills which usually have a stronger gonydeal angle. Black-tailed Gull has pale eyes and a black tail band, unlike our bird.

We are left with three possibilities: Mew, California, and Thayer's Gulls. In addition, we need to consider three of the four subspecies of Mew Gull: the European race or "Common Gull", the Siberian race or "Kamchatka Gull", and the North American race or Mew Gull. "Common" and "Kamchatka" Gulls often show a blackish ring on the bill in basic plumage and Mew Gull can also show a dusky ring. However, Mew and "Common" Gulls are smaller and slimmer than the quiz bird with a very fine bill that is often described as "weedy".

The bill is particularly thin at the tip. Also, they show an even smaller more rounded head than this bird. Although "Kamchatka Gull" is heavier and larger-billed than the other two races, I doubt that its bill would quite approach that of the quiz bird. In addition, it has somewhat pale eyes. Although all three of these races of Mew Gull can be fairly heavily marked on the head and neck, the markings tend to be more spotted and not as coarsely streaked as on the quiz bird. Based upon these distinctions I believe it is safe to consider these three races of Mew Gull ruled out. A fourth race, *heinei* of central Asia, is unknown from North America and has not been considered here.

Both Thayer's Gull and especially California Gull can appear very round headed and small-billed, like the quiz bird. Also, adult California Gulls in basic plumage normally have black and red marks on the bill. However, with a black and white photo, we cannot tell the colour of the bill markings. Besides, immature gulls also have dark marks on the bill. In fact, even adults of several species will occasionally show black markings on the bill, in addition to any red that might normally be present. Adult or not, we can still rule out Thayer's Gull by looking at the underside of the far wingtip. Although Thayer's Gull can show black primaries on the upperside of the wings, the undersides should appear white except at the very tips. The black showing on the underside of the far wing indicates that this is not a Thayer's Gull. Even the black showing on the upperside of the near wing is too extensive for Thayer's Gull. We would expect to see more gray nearer the base of the visible primaries.

We have eliminated all possibilities except California Gull. Even though we did not need to know, we can tell that this bird is an adult by the prominent white apical spots on the primaries. These spots are less evident or absent on immature birds. Although the size of these spots is variable, when they are as large as shown on this bird, we can assume that it is a full adult. And although we did not use the bill markings to help in the identification, we can use them as a confirmatory feature. The thin black ring going from the lower mandible up to the culmen, with an adjacent red spot on the gonys is highly characteristic of adult California Gulls. This **California Gull** in definitive basic (adult winter) plumage was photographed near Gibsons, British Columbia by Glenn Coady on 19 September 1998.

Had the photograph been in colour, the solution would have been much simpler. We would have seen the red on the gonys and Mew Gull would never have been considered. And the greenish yellow legs and feet would have eliminated Thayer's Gull from consideration.

The photo quiz is not meant to

be overly difficult, but it is meant to be instructive. Out in the field, our chances of identifying this bird would probably be better than with the black and white reproduction in this quiz. In all likelihood, we would have other gulls to compare it with. We could then see, for example, that it is smaller than a Herring Gull or larger than a Ring-billed Gull. We could also see that the mantle is slightly darker than on those species. If the bird took to the air, we could see that the long wings made it appear closer in size to a Herring Gull. We would look for more extensive black in the wingtips than on Herring Gull and also two prominent mirrors.

In the field, however, viewing conditions are often less than ideal. This is usually the case when California Gulls are seen on the Niagara River, where birds are seldom as close as the quiz bird. This species has been seen every fall on the river since it was initially discovered there in 1992. Elsewhere in Ontario, it is very rare and not recorded every year. Distance and dim lighting, or worse, strong contrasting lighting, make things like eye colour, bill markings, leg colour, and mantle shade difficult to record accurately. In addition, California Gulls are variable in the darkness of their mantle such that darker individuals can even be confused with pale Lesser Black-backed Gulls. In that case, it is necessary to see the bill markings and the eye colour. The most difficult challenge, however, remains those deceptive aberrant Herring Gull-like birds, a few of which appear on the Niagara River every year. These birds are typically slightly darker than a normal North American Herring Gull, immediately bringing to mind the possibility of California Gull. They may be smaller than a Herring Gull and they may have extensive black in the wingtips, with large mirrors. They may even have yellow legs! As yet, none of these different birds has had dark eyes, though given that the odd Herring Gull shows fairly dark eyes, that also seems like a possibility. One character I have never seen on these birds, and I suspect I never will, is the unique bill pattern of the adult California Gull. Unfortunately, that field mark is only present in fall and winter but, fortunately, that is when most of us are studying the gulls.

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