

saga was as interesting as always on the Overton route, which crosses the boundary for both of our nesting species. Several black-capped were found north of town, but only Carolinas could be found south of town. An osprey nest was obvious at Lake Rockwell, and herring gulls were also potential nesters there. The rural Chippewa Lake route provided a least bittern, cliff swallow, and prothonotary warbler, all real surprises for Medina County. The 82 species found on the Mohican route may prove to be tough to top; although I feel that this particular route could come up with more than 82 species on the right day, other potential Ohio routes might have a difficult time besting that mark. Certainly a carefully planned Hocking Hills route has a chance, and perhaps so does a meticulous Oak Openings route; regardless, I don't think a better mark will come easily. Prove me wrong. Goodies at Mohican included red-breasted nuthatch (three sites), hermit thrush, magnolia and Canada warblers, and dark-eyed junco (two sites). The Riverview Road route provided plenty of traffic, plus a yellow-throated warbler in someone's front yard. At the more peaceful Oak Hill area of the CVNP, interesting finds were two alder flycatchers, two more red-breasted nuthatches, brown creeper, and my first summer Summit County record of pine warbler, again in someone's front yard. They have good front yards there.

But what about other areas—can a good marshland route be devised? Perhaps something combining Big Island WA with Killdeer Plains. How would Adams County fare? A route through the eastern half of the CVNP should theoretically out-produce the two routes I ran there this season, now that I think about it. The key is to remember that the tough species must be readily findable from the road. Combine that with a variety of habitats, and you've got yourself a contending route. Please excuse me for a moment, I must check to see if a reasonable 10-mile Hocking Hills route can be made to stretch from Clear Creek Road to the northern tip of Lake Logan. Now where's my DeLorme... 🐦



These Caspian terns graced the beach at Caesar Creek State Park in Warren County on 21 April 2003. Photo by Jay Lehman.

## Molt Strategies in Adult Dowitchers: Criteria for Field Identification in Fall Migration in Ohio

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In the shorebird world, there are many clear and simple identifications that leave a birder feeling confident and well informed. There are also species groups frustrating enough to make one feel a distinct contempt for all avian life, and tempted to throw scope and binoculars into the mud in order to pursue a more unambiguous hobby—say, the field identification of teneral *Lestes* damselflies. The dowitchers form one such group.

Historically, the taxonomy of the genus *Limnodromus* has been tricky, going through a series of lumps and splits until 1950, when two distinct species were recognized: the short-billed dowitcher *L. griseus*, and the long-billed dowitcher *L. scolopaceus* (Pitelka 1950). Further complicating matters are three recognized subspecies of short-billed dowitchers. Nominate *L. g. griseus* migrates through the Atlantic coastal region, *L. g. hendersoni* is a more Midwestern breeder and migrant, and *L. g. caurinus* dwells in the Pacific coastal region. Fortunately for Ohio birders, only *hendersoni* regularly occurs in the Buckeye State. Unfortunately for Ohio birders, this is the subspecies of short-billed dowitcher most closely resembling the long-billed dowitcher in appearance. Thus, identification of Ohio dowitchers by plumage alone is seldom a matter of dull routine, in the field or even in the hand.

The various plumages of dowitchers have been treated in depth in several papers and field guides, such that despite the difficulties birders now have the resources available to separate most birds reliably. As fine as these articles are, however, important points of identification can remain confusing, even with the bird in hand. One author's "broken barring" can be another author's "wide spotting." "Dull rufous" can look all too similar to "dark salmon." The only good way to learn to identify dowitchers is to study them carefully in the field, take good notes, and establish one's own concepts compatible with the literature. One may even discover a reliable field mark no one has ever noticed or adequately treated heretofore. One emerging field mark in dowitcher identification is state of molt during the autumn migration.

It has been asserted in several recent publications that long-billed dowitchers undergo a complete molt during migration, while short-billed dowitchers, like most other shorebirds, do not molt until they reach the wintering grounds. Birders will find this information useful, but may wonder why this distinction is untreated, or even seemingly contradicted, in many respected sources on the genus *Limnodromus*. This paper will examine molt in Ohio dowitchers more closely, and attempt to clear up some of the potential confusion in the literature. Although the

information presented here may be applicable elsewhere, much of it may be unique to Ohio and neighboring states. Readers in other regions wishing to tackle this subject should use this article as a stepping-stone for their own observations and research.

### Shorebird Molt: A General Overview

Because the long-billed dowitcher's molt strategy is so unusual, even by contrast with its congener, it may be worth reviewing the fundamentals central to studying molt in any species. The importance of a knowledge of molt cycles and age classes cannot be overestimated when attempting to identify the harder groups of shorebirds. At times during fall migration, birds in juvenal, adult, and varying degrees of transitional plumages may be present side by side, making a single-species flock look surprisingly diverse. Couple this with normal variations among individuals of a given age and species, and things on the mudflat can get pretty confusing. A working knowledge of molt and aging first allows for proper identification as to age, which tremendously narrows down the possibilities for species identification. When identifying western and semipalmated sandpipers in fall, for example, the difference between adults and juveniles of the same species can be greater than the difference between different species of the same age.

Molt cycles are useful to know for the sake of identification, but are made still more fascinating by the role they play in a species' natural history, biology, and conservation. Molt is a metabolically demanding process, with increased energy requirements of 10-25%, depending on the climate (Cech et al. 2001). Thus, birds need more abundant food sources to undertake molt, which for most shorebirds means shallows and mudflats teeming with tasty invertebrates. Molt also can impair flight efficiency, as missing wing feathers compel a bird to beat its wings faster. Therefore most birds do not molt heavily during migration, as the energy requirements for sustaining migration and growing new feathers simultaneously would be far too great. There are, however, exceptions to this generalization. Recognizing that a few shorebird species do molt on migration, or use known stopover areas to complete molt during migration, is crucial to conservation applications such as proper wetlands management. In a quickly developing and evermore crowded world, the preservation of biodiversity hinges on such delicate intricacies.

Nearly all our shorebirds are medium- to long-distance migrants, breeding as far north as the high Arctic and wintering as far away as the limits of ice-free land in the southern hemisphere. They have evolved a rigorous schedule of breeding, migrating, and molting, each species' agenda varying with the particulars of its ranges, prey selection, and reproductive requirements. A typical schedule of plumage progression among shorebirds looks like this:

- Late spring to summer: Chick hatches, emerges from the egg with a covering of natal down. This briefly-held plumage is worn only close to the nest.
- Summer: The first full set of feathers, the juvenal plumage, comes in. Because of the stress of growing them all at once, juvenal feathers are smaller and weaker than adult feathers (Hayman et al. 1993). Scapulars smaller and more rounded than those of older birds will reveal neat rows of

wing coverts that on adult birds would often be obscured by longer, looser scapulars. In many species juvenal upperparts feathers are edged in bright buff, white, or rufous, creating a distinct scaly appearance. Juvenal plumage in nearly all species is worn during migration and not replaced until birds reach the wintering grounds. The exceptions in our region are purple sandpiper and dunlin, which undergo prebasic molt close to the breeding grounds (Pittaway 1999). Among migrants, the fresh, uniform, and bright appearance of juveniles sets them apart from adults.

- Fall: Upon arrival on the wintering grounds, juveniles of most species undergo prebasic molt, usually partial and involving only head and body feathers and a varying amount of scapulars and coverts. First-winter birds can often be identified as such by retained flight feathers, tertials, or coverts.
- Spring: First-winter birds molt into first-summer plumage. For many species this is the most poorly understood and variable plumage, ranging in overall appearance from essentially basic to nearly full alternate. This molt is usually partial, so by late summer flight feathers are a whole year old, and thus extremely worn, faded, and tattered. Often, birds stay on or near the wintering grounds during their first summer, while others may migrate like adults to the north.
- Fall: All birds, immature and adult, undergo a complete molt into definitive (adult) basic plumage. This molt, as stated earlier, is usually completed on the wintering grounds, although adults of many species, such as semipalmated, western, white-rumped, and stilt sandpipers display conspicuous contour feather molt during migration, with fresh gray scapulars and coverts showing up strongly against worn and faded alternate feathers. Aside from long-billed dowitchers, discussed in more detail later, only avocets, stilts, and Wilson's and red-necked phalaropes molt flight feathers on migration (Paulson, pers. comm.). Greater yellowlegs may initiate flight feather molt before migration and suspend it until after migration is completed (Cech et al. 2001), and as stated, dunlin and purple sandpiper complete prebasic molt before migration (Pittaway 1999). Otherwise, flight feather molt in shorebirds occurs on or near the wintering grounds.
- Spring: Birds acquire alternate (breeding) plumage through a partial molt, completed by the time a bird reaches the breeding grounds. Although there are fewer plumage types to grapple with in spring, there is no lack of variation. On a trip to Homer, Alaska this May, the author noticed that the vast majority of dunlins present were in full alternate plumage, while a larger percentage of western sandpipers still had basic feathers remaining and alternate feathers not fully grown in.

As stated, the above molt schedule is typical, and there are certainly other exceptions besides the ones noted above. Also, individual variation should never be neglected. With the basic principles of shorebird molt in mind, we can return to the study of dowitchers and their unique molt strategies.

### Evidence for Long-billed Dowitcher Staging and Molting in Ohio

In both species of dowitchers, as in many other shorebirds, southbound adults migrate well before the juveniles. Short-billed dowitcher adults arrive in Ohio in late June through early July, with numbers peaking in mid- to late July and tapering off by mid-August, when the first juvenile short-bills arrive (Peterjohn 2001). Juveniles peak in mid- to late September, and nearly all are gone by early October. Short-billed dowitchers are most numerous in the marshes of northwestern Ohio, with numbers occasionally exceeding 1000, and are common but less abundant elsewhere in Ohio (Peterjohn 2001).

The long-billed dowitcher is a later autumn migrant and although often numerous in Lucas and Ottawa counties of northwestern Ohio, it can be difficult to find elsewhere in the state. Adults appear by late July, peak by the end of August, and may stay in numbers through September and October. Juvenile long-billed dowitchers do not reach the state until September, peak during October, and remain through November (Peterjohn 2001).

The fall migration of long-billed dowitchers brings us to the more interesting characteristics of the species and to the heart of this article. Long-billed dowitchers are unique among North American shorebirds in that adults are known to migrate to staging areas during fall migration, then to undergo a complete molt before continuing their migration. As stated above, while some other shorebirds may undergo a limited amount of body molt during fall migration, they do not initiate flight-feather molt until they reach the wintering grounds.

The only published references to the staging and molting of Ohio long-billed dowitchers are Dunn (1999) and Peterjohn (2001), where the marshes of northwestern Ohio, especially Metzger Marsh Wildlife Area and adjacent Ottawa National Wildlife Refuge, are described as probably the only Midwestern locale where long-billed dowitchers are known to stage to molt, and the only known staging area in the interior of North America east of the Mississippi River (Peterjohn, pers. comm.). Although Dunn did not publish until 1999, he and others were aware of the phenomenon during the 1980s and early 1990s (Peterjohn, pers. comm., R. Harlan, pers. comm.). Examination of seasonal ornithological publications treating Ohio reveals many records of long-billed dowitchers numbering in the hundreds in marshes throughout northwestern Ohio in the late 1970s, 1980s and early 1990s, including 400 adults at Metzger in August 1991 (Harlan 1991), 250 on 29 August 1992 at Metzger (Harlan 1992), 300 in September 1988 along "western Lake Erie" (Peterjohn 1989), and 370 on 12 October 1983 (Peterjohn 1984). These September and October flocks may contain many basic or transitional adults, but 365 birds present at Ottawa on 4 November 1990 (McKinney & Thomas 1990) and 125 birds at Metzger on 10 November 1990 (Kemp 1990) were assuredly mostly juveniles.

The staging of birds at Metzger Marsh continued until 1996, after which a newly constructed dike eliminated suitable shorebird habitat (Dunn 1999, Harlan, pers. comm., Peterjohn, pers. comm.). Whether the hundreds of birds that used the habitat at Metzger Marsh Wildlife Area have relocated to other areas in northwest Ohio is unknown, but large numbers still occur at adjacent Ottawa National

Wildlife Refuge and at Pointe Mouillee State Game Area nearby in southern Michigan, as well as smaller numbers along the Toussaint River (M. Bolton, pers. comm.). Interestingly, the largest flocks of birds at these locations since the flooding of Metzger Marsh have been observed from mid-September through October, with few records from August (Bolton, unpubl. data). If they are adults, then certainly many of them have molted into basic plumage; but if they are juveniles, then perhaps the staging of adult dowitchers in Ohio was a short-lived phenomenon and the adults that staged at Metzger were unable to relocate.

Further evidence of long-billed dowitchers molting in northwestern Ohio is available upon examination of specimens at The Ohio State University. The author examined skins of 13 adult long-billed dowitchers and nine adult short-billed dowitchers, all collected in Ohio. Of the 13 adult long-bills, 10 were collected in the first half of August in Sandusky, Ottawa, or Lucas counties. Of these 10 August dowitchers, two were in full, worn alternate plumage and the rest were in varying degrees of body and wing molt. It is evident from these specimens that body molt starts on the crown and face and continues throughout the nape, throat, mantle, scapulars and coverts. Thus, the heads of the birds are completely gray, the upperparts are usually patchy gray and dark brown (the result of a mixture of alternate and basic feathers) and the breast and belly are still deep pinkish-red. More importantly, two of these August birds had missing or growing primaries. Of the remaining three adult long-bills, two were from mid-October and were in complete basic plumage. The last bird was from early September and was in nearly complete basic plumage except for a few alternate rufous feathers on the sides of the breast and one alternate scapular. This sample indicates that long-billed dowitchers in Ohio may initiate body and wing molt in August, molt that continues through September and is largely complete by October.

Conversely, the nine adult short-billed dowitchers examined, dating from late July and early August, showed no molt, except for one bird that showed whitish feathers coming in on the belly. Other birds showed whitish areas on the breast and belly, but these areas appeared to be the result of wear or damage to the specimen, rather than molt. Also, many birds had extensively basic lesser and median coverts, as well as smaller amounts of basic greater coverts and scapulars. Due to the large amount of wear on these feathers, the author, as well as other researchers (C. Putnam, pers. comm.) feel that these are basic feathers from the previous year's molt that were never replaced in spring by the prealternate molt. These old basic feathers are often extremely tattered as well as very pointed due to the pattern of wear, and will be replaced by new basic feathers later in the year, presumably on the wintering grounds. It should be noted that some of the more protected coverts, especially the lesser coverts, experience less wear and thus can be very similar to fresh basic feathers. This can be confusing even with a bird in the hand, so it is a potential pitfall in the field. Those who find short-billed dowitchers with extensively gray coverts must examine the bird very carefully to try to determine if these coverts are, indeed, from the previous year's molt.

## Discussion of Dowitchers in Ohio

It is well established that long-billed dowitchers have staged and molted in Ohio and hopefully continue to do so, but that does not mean that the issue is free of confusion or completely resolved. For example, do long-billed dowitchers stop in one particular location to initiate, undergo, and complete their molt, or do they initiate molt in one location and complete it throughout the rest of their migration? Dunn (1999 and pers. comm.) suggests that birds require a long-term stopover area to initiate and complete molt, based on observations that birds occurring in less established habitats for shorter periods of time are in largely alternate plumage and certainly have not yet begun flight-feather molt. Supporting this theory is the fact that most long-bills passing through Ontario, where there is apparently little suitable staging habitat, are not in wing or heavy body molt and most likely fly to other staging areas, such as in Ohio or the Atlantic coast, to undergo molt before traveling to the wintering grounds (Pittaway, pers. comm.). Some long-bills in passage through Ontario are, however, in heavy body and wing molt (Pittaway 1999); these are presumably birds that find enough food and habitat to stay for extended periods (Pittaway, pers. comm.). However, one cannot be absolutely certain until a large-scale study is done with a large group of staging long-billed dowitchers to determine how much turnover there is in a flock over a given period of time. If there is a large amount of turnover, then long-bills may indeed be able to migrate actively while molting (an even more unusual phenomenon) but if the membership of the flock is constant, then presumably the birds require a long-term stopover site to complete the molt before moving on. If this is the case—and so far it appears to be—then the long-bills that formerly staged at Metzger would be forced either to find a nearby staging area (such as Ottawa NWR or Pte. Mouillee) or overfly the state entirely. The extent to which the conversion of Metzger Marsh to a flooded diked impoundment has affected the overall populations of long-billed dowitchers is unknown, but in any case the staging of long-billed dowitchers is an unusual feature of Ohio's biodiversity that should be protected for its unique status in the Midwest as a resource for these birds.

Observers in other parts of Ohio, away from the traditional staging grounds, may be able to contribute valuable information about this phenomenon as well. If observers note and report the state of molt of every dowitcher they see, then we should have a clearer picture of exactly what is happening. If all long-billed dowitchers seen in short-term situations away from northwest Ohio are in full alternate or basic plumage, then it can be assumed that the birds require a long-term, dependable stopover site to molt. It would seem counterproductive for a bird that can't migrate with missing flight feathers to begin molting primaries or large patches of body feathers on a mudflat that could quickly dry up or flood (Dunn 1999). If, however, long-bills are seen away from northwestern Ohio with missing flight feathers, then perhaps they are able to molt these during active migration. This is unlikely, but possible. Body molt should be noted as well, as birds in extensive body molt are usually molting flight feathers simultaneously (Pittaway, pers. comm.), although flight-feather molt has been noted before body molt has

commenced (Takekawa and Warnock 2000). Flight-feather molt is easily seen when birds take flight and gaps in the wings are visible (Dunn, pers. comm.). Finally, it would be helpful if birders in nearby Midwestern states could be aware of all of the above considerations.

## Dowitchers Outside Ohio

In the United States outside of Ohio, long-billed dowitcher staging has been noted, among other places, in Idaho (Paulson 1993), Montana (Dunn 1999), Nevada, Utah, Kansas, and North Dakota (Takekawa and Warnock 2000), southern California (Dunn, pers. comm.), Delaware (Dunn 1999) and elsewhere on the east coast (M. O'Brien, pers. comm.). Paulson also noted many long-billed dowitchers in extensive wing molt from Washington and Oregon, including wing molt in a large number of specimens (pers. comm.). However, wing molt in the Pacific Northwest, California, the east coast, or the southern states may not necessarily carry the same implications as it would in the Midwest, as dowitchers are known to winter in all of those regions. Wing and body molt, for example, can be seen in both species in the mid-Atlantic states in late August (O'Brien, pers. comm.). To complicate things further, first-summer birds are more prevalent in areas on or near the wintering grounds, and these birds often begin flight-feather molt earlier (O'Brien, pers. comm.).

Ignoring areas on or near the wintering range of either species makes things far less complicated, but there are still intricacies in the timing and location of dowitcher migrations throughout the interior of the United States that are unknown to this author, and consequently this paper will not attempt to generalize. However, forthcoming papers by University of Montana graduate student Caleb Putnam should help by applying concrete evidence to questions still ridden with speculation. Putnam examined hundreds of fall adult dowitcher specimens from the interior of the North America, finding long-billed dowitchers commonly in wing molt, while finding no evidence of wing molt in short-billed dowitchers (Putnam, pers. comm.). It would be tremendously helpful if such an exhaustive specimen review could be followed by an equally thorough banding study of migrating birds.

## Sorting Out the Literature

So, the reader may be saying, long-billed dowitchers are known to molt on migration and short-bills don't, then what's all the fuss? Let us consider the following quotations from a series of well-known sources. Each is presented respectfully, and the intention is not to point out any error made by the author or authors, but to accurately portray the ongoing debate as well as show how confusion can arise simply from the structure of a sentence. Each quotation is followed by commentary in an attempt to sort out the information.

1) "...*scolopaceus* [long-billed dowitcher] often retains its breeding plumage longer than either *griseus* or *hendersoni*. Many, if not most, long-bills reaching the Atlantic coast in mid-August are still in this plumage; they are easily separated from short-bills, which by this time are decidedly gray. Replacement of the head

feathers apparently takes place early in *scolopaceus*' postnuptial molt. The result is that adult long-bills in late August take on a very *gray-faced*, red-bellied appearance, which is distinctive" (Jehl 1963).

This statement is especially important because information in several subsequent papers is based largely upon Jehl's extensive studies of dowitchers in New Jersey. Kept in the appropriate context, his statement is not necessarily definitive, as it applies only to dowitchers on the East coast. The short-billed dowitcher is known to winter on the East coast, and it arrives there much earlier than long-billed does, so it would make sense that it would start its molt earlier. The staging and molting in northwestern Ohio is not a recent phenomenon; the specimens at Ohio State University (see above) were collected between 1936 and 1972, with several collected in the late 1950s, around the time Jehl was conducting his studies. Therefore, the fully alternate long-billed dowitchers Jehl observed must have overflowed Ohio and other locales directly to New Jersey. Perhaps the birds that stage and molt in Ohio follow a different migration route to more southerly wintering grounds, rather than flying to the mid-Atlantic states in basic plumage. Only a large-scale banding or radio-telemetry study could determine this.

2) "By mid-August many Long-billed Dowitchers are in moult, being a mixture of red, gray and black...Moult in Longbills is later than in Shortbills...Yet the head and neck can be moulted rather early...Tertials and a few scapulars appear to be the last breeding feathers retained by Longbills.

"Late in summer, beginning in mid-July, [adult short-billed dowitchers] can begin to moult. Body feathers are lost in a different sequence than on Longbills; scapulars and underpart feathers are molted in an uneven pattern. Therefore, many individuals begin to lose their solidly colored underparts early-on" (Jaramillo et al. 1991).

This statement was based largely on Jehl (1963). Away from the wintering grounds, in the interior of North America (the above article was intended to describe the situation in southern Ontario), short-bills do not molt earlier than long-bills, and probably do not undergo such extensive body molt. Pittaway later retracted the above statement, saying, "During the mid-1990s I began to realize that southbound *hendersoni* were not molting in Ontario" (pers. comm.).

3) "In Long-billed Dowitcher, the post-breeding moult begins in early July. Moult in Long-billeds tends to begin with the neck and head, a few scapulars and the rear flanks. They retain the reddish underparts for some time after the moult has started, but a dowitcher displaying a white rear flank patch could well be a Long-billed in the first states of moult. In *hendersoni*, and probably also *griseus*, the underparts and scapulars are often the first feathers to be moulted, so birds appear patchy below from late July onwards" (Henshaw and Jaramillo 1995).

There is not necessarily anything contradictory about this statement, but observers should be aware that gray areas on the upperparts of short-billed dowitchers may be the result of retained basic feathers from the previous year's molt, rather than newly-molted feathers (see above).

4) "The molt from alternate to basic begins in late July and is complete by early September for Short-bills; Long-bill molt begins in early to mid-August and is usually complete by mid-September" (Wilds & Newlon 1983).

This statement is not incorrect if applied only to regions near the wintering grounds of short-billed dowitcher (i.e., the Atlantic coast). In Ohio, numbers of adult short-bills have passed their peak by late July and most are gone by mid-August, so the statement is irrelevant anyway. In this case, it is crucial to consider migration timing by including dates. Without dates, the quote could be misinterpreted as a blanket statement that short-bills molt before long-bills; in that case, it would imply for Midwestern birders that short-bills molt on migration. Had the authors mentioned location as well, it would have avoided potential confusion.

5) "Male [short-billed dowitchers] start molting head, face, and neck about 16 Jul on breeding grounds (females already departed). Adults in heavy body molt when they pass through Magdalen Is., Quebec, in mid-Jul and Aug...and in same time period along mid-Atlantic coast...Molt of body-feathering increases in intensity and molt of remiges begins as soon as birds leave breeding grounds. Along Atlantic coast, adult females may replace all but outer 3 primaries by 5-10 Aug, males all but the outermost primaries by 18 Aug. Primary molt typically completed 5-15 Sep. Some adults finish body molt by mid-Aug in New Jersey, but mid-Sep usual" (Jehl et al. 2001).

This quotation is from the *Birds of North America* account for short-billed dowitcher. The statement "molt of remiges begins as soon as birds leave breeding grounds" certainly does not apply to the *hendersoni* subspecies. To the extent it is accurate, perhaps it applies uniquely to the Atlantic *griseus* subspecies, based on the close proximity of its breeding grounds to its wintering grounds. As for adult females replacing primaries on the mid-Atlantic coast by the first half of August, these are most likely birds that winter in the region, but again, a banding study would prove valuable in establishing this.

6) "Adult [short-billed dowitchers] begin body molt soon after arrival [in the Pacific Northwest], underparts showing more and more white and then upperparts more and more gray. In northern part of region body molt essentially complete in some individuals by mid August" (Paulson 1993).

This statement applies only to *caurinus*, perhaps birds that winter in or near the Pacific Northwest region.

7) "Adult Long-billed may molt more rapidly than Short-billed in fall and typically look gray-headed (more so than Short-billed) while passing through [Pacific] Northwest. Molt into nonbreeding plumage begins in late August, and by late September many adult Long-billed are in virtually complete nonbreeding plumage" (Paulson 1993).

Paulson has rethought the statement (pers. comm.) that "adult Long-billed may molt more rapidly than Short-billed in fall," stating that migration timing may give the appearance of a different molt strategy. In other words, long-bills stick around in the Pacific Northwest to molt, whereas short-bills pass through too quickly for

observers to notice any molt. The same is true in Ohio: long-bills stay to molt during their migration, while short-bills do not molt until they reach the wintering grounds. How rapidly a molt is completed or even how early (see quotation number four above) is in fact irrelevant locally.

Clearly, the literature on dowitchers can be very confusing. It is important to pay close attention to the specific dates mentioned, and if possible, try to determine exactly to which region the author is referring. An author from the Atlantic coast, for example, may seem to generalize about all short-billed dowitchers, but may be influenced entirely by observations of local populations.

Elsewhere in the literature, little has been published on this subject. A recent study of dowitchers staging in Saskatchewan (Alexander & Gratto-Trevor 1997) mentioned primary molt in both species, but many, including one of the authors, have apparently questioned the ultimate validity of the species identifications during the study (B. Whan, pers. comm.). A DNA analysis of blood samples taken during the study is needed.

### Conclusions, Final Questions, and Cautions

There is ample evidence to support the conclusion that any fall adult dowitcher undergoing heavy body molt and any wing molt in Ohio, and likely the rest of interior North America north of the wintering grounds, is certainly a long-billed dowitcher. However, it is also clear that not all long-billed dowitchers passing through Ohio are in molt, so a dowitcher in fully alternate plumage could be either species. The appearance of body molt should be approached with caution for reasons discussed above. There is little evidence for *hendersoni* short-bills undergoing more than a sparse amount of body molt, but several references have noted that *griseus* and *caurinus* may be in heavier body molt on the Atlantic and Pacific coasts, respectively (see "Sorting Out the Literature"). Whether there is any subspecific difference in short-billed dowitcher molt strategy, or whether all differences are based on migration timing, needs further study. Birders on either coast cannot necessarily use molt alone as an identification criterion, as they may be too close to the wintering grounds, where either species may be molting. Timing of the molt, however, may prove useful (O'Brien, pers. comm.) in such cases.

The discussion above pertains to adult birds only. Dozens of Ohio specimens of juvenile long-billed dowitchers at the Ohio State University were in heavy body molt. Therefore, it is necessary first to identify a bird as to age. Juvenal-plumaged dowitchers are decidedly easier to identify, so any study of molt is incidental for them. Although quite unlikely in Ohio, first-summer birds molting into basic plumage could present further confusion.

Birders in Ohio and nearby states should more aware of the state of molt of dowitchers in passage, and take notes for publication in local journals. Birders should also pay close attention to habitats that may be used as staging grounds. Ohio has already lost one prime location; more losses in the future could be detrimental to the species.

Finally, even once we learn the particulars of molt in long-billed dowitchers and in all subspecies of short-billed dowitcher, we still have not answered the most interesting question of all: "Why?" Why do long-bills stage to molt on migration? What is it about the biology of the species that selects for this unique behavior? Does it have to do with prey selection, migration distance, or other factors? What percentage of the population stops during migration to molt, and what percentage flies directly to the wintering grounds? Are these different populations isolated on the breeding grounds? Have we overlooked other species that employ the same strategy? It may take an extensive study to answer these questions. But then again, it may not. Birders have keen eyes, observational skills that can't be learned in any classroom, good optics, natural curiosity, and most importantly, spend a great deal of time in the field. Dowitcher identification may seem like a task to some birders, but if one's observations are really worth something, it can become suddenly very interesting and consequential.

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## Short Note: Wintering Merlins in Cuyahoga County

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In preparation for the 2002-2003 Ohio Winter Bird Survey, I would occasionally stop at Calvary Cemetery and nearby sandpit ponds, east of Cleveland's Miles Avenue and along the border with Garfield Heights in Cuyahoga County, checking for new arrivals. As I scouted the area in December, the birds seemed not as numerous as in the past. The cemetery was not very exciting, but that was soon to change.

On 11 December 2002, while driving the perimeter as usual, I observed a falcon. Thinking it was the American kestrel I had observed on other occasions, I turned the car around for a better view. Then ahead I noticed what seemed to be another falcon. I got out to make sure I was seeing two birds, not the same one that might have moved. There they were: two merlins *Falco columbarius*, a brown female/immature and a gray male! I was not to observe two merlins at once here again until 6 January 2003, the beginning of an almost daily winter merlin survey.

On 30 December at 5:04 pm, I observed the gray bird fly from what I had identified as the pre-roost tree (PRT) to the roost tree for the night. This was a very exciting evening, but was it to be a one-time event? The answer was no. Every night the gray bird resorted to this same tree, except for evenings when the local Cooper's hawks were around hunting.

On 6 January 2003, I observed the gray merlin chasing another, a brown one. The next day I observed the gray bird in his PRT (a pine) and the brown bird in a deciduous tree in Section 85 that later became her PRT.

The gray bird, the "restroom merlin," as he came to be called because his roost tree stood beside the cemetery's brick restrooms building, was observed each night except 10 February, when Cleveland experienced a sudden, severe snowstorm that came in from Lake Erie, producing whiteout conditions with 45-mph winds. I suspect that gray bird got caught out hunting and chose an emergency roost. I did leave early that night, so he may have come in later.

The next day I drove around the cemetery and saw no merlins. I headed back to the restroom area and there on top of the utility pole just outside the cemetery was the gray bird, eating a house sparrow! I had observed the merlins eating on only two occasions. This was also the day I observed a third merlin, also a brown female/immature. Not a routine visitor, this third bird showed up at the cemetery perhaps only three times a week.

On 23 February, after a weekend away birding, I made the usual drive around, looking for the merlins. To my astonishment, the gray bird's PRT had been cut down! I couldn't believe it! I continued driving around and finally found the gray bird in a tree above the roadway south of the former PRT. After a few days, he settled in another pine.