

A Tale of Two Strategies Fall Molts of Adult

Separating the two dowitcher species has long been regarded as one of the most challenging ID problems in North America. This article examines how an understanding of molt—and in particular of the phenomenon of *molt migration*—can be of considerable aid in identifying adult dowitchers in fall. *Palo Alto Baylands, California; mid-August 2003.*

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Long-billed and Short-billed Dowitchers have long been a bane of birders. Anyone who has tried to distinguish between adults of these species undoubtedly has experienced real frustration. The bread-and-butter field marks for separation of adults center on details of plumage that are often frustratingly difficult to ascertain in the field. We need something a little simpler.

Dowitchers

Recent field guides such as NGS (1999) and Sibley (2000) briefly mention another feature: molt. They say that adult Long-billeds molt during fall migration, whereas adult Short-billeds molt only on their wintering grounds. So by these standards, any dowitcher molting where dowitchers don't winter would have to be a Long-billed. This powerful notion has become dogma for many in the birding community. However, no study to date has verified its generality on a continental scale, so it is not entirely clear whether molt status qualifies as a reliable field mark or not. Furthermore, the specific molt-related criteria for dowitcher identification are not clearly laid out in these statements, leaving birders to wonder if there's more to the story.

DOWITCHER MOLT: WHAT DO WE KNOW?

Popular attention was first drawn to dowitcher molt in the 1980s by David Sibley, Jon Dunn, and Dennis Paulson. These talented fellows observed differences in the scheduling of the adult prebasic molts of birds in the Great Lakes and mid-Atlantic regions and in the Pacific Northwest. In the prebasic molt, adults replace all their feathers and change from alternate plumage (mainly reddish and brown) to basic plumage (gray and white). This molt occurs from late July to October, at the time most shorebirds are moving southward. Sibley (2000) mentions that "Short-billed molts remiges only on [the] wintering grounds, while Long-billed often molts during migration..." NGS (1999), produced in consultation with Dunn, states that "adult Long-billed go to favored locations in late summer to molt" and that "Short-billed molt when they reach [the] winter grounds." In a less widely accessible forum, Dunn (1999) reported in *The Ohio Cardinal* that "[adult Long-billeds] in fall migrate to staging areas and then undergo a complete molt" and that "[a]dult Short-billeds ... do not molt during their southward flight." And similar sentiments were articulated by Paulson (1993) in his regional classic, *Shorebirds of the Pacific Northwest*.

So Long-billeds molt *during* fall migration and Short-billeds *after* it. But is this the end of the story? Exactly how do we use this information to identify dowitchers?

For instance, is it *always* safe to call a dowitcher molting during migration a Long-billed, or do some Short-billeds also molt on migration? Can we use

Caleb Putnam

1522 Valley NW

Grand Rapids MI 49504

larus10@hotmail.com

body molt, or only flight feather molt? And where are those “favored locations”? Furthermore, what is meant by “molting during migration”? Do dowitchers actually migrate while molting their remiges (flight feathers of the wing), or do they interrupt their migration at stopovers until molt is completed?

To clarify dowitcher molt strategies at the continental scale, I examined 636 adult dowitcher specimens (303 Long-billed, 333 Short-billed) from several museum collections (see Acknowledgments). They were collected between July and October at locations throughout both species’ range, and each specimen was examined for both body and flight-feather molt. Additional information was gleaned from a number of birders and ornithologists. The results of my study are summarized in the two tables on p. 386, and discussed in detail below.

MOLT AND DOWITCHER IDENTIFICATION

Each summer and fall, hundreds of thousands of dowitchers migrate south through North America. Adults migrate first, arriving at stopovers as early as late June (Short-billeds) or early to mid-July (Long-billeds). Stopovers are here defined

as any location between the breeding and wintering ranges. Young of the year (which are easier to identify) migrate later and do not replace flight feathers during the first fall. Of the three Short-billed subspecies, only the central Canadian (*hendersoni*) race regularly migrates through interior North America and along the Atlantic and Gulf coasts. The eastern *griseus* and western *caurinus* races, respectively, migrate almost exclusively coastally. Long-billeds are common inland, but they are found on both coasts as well. So most interior wetlands will host only Long-billeds and *hendersoni* Short-billeds, which happen to be the two most difficult populations to separate.

The winter ranges of the dowitchers are similar, but there are important differences. Short-billeds are a more-southerly species at all times, but only Long-billeds characteristically winter at inland locales. Because stopovers occur not just inland (there are several coastal stopovers north of the wintering range of either species), it is best to approach the molt problem from a coastal vs. inland perspective, not stopover vs. wintering grounds.

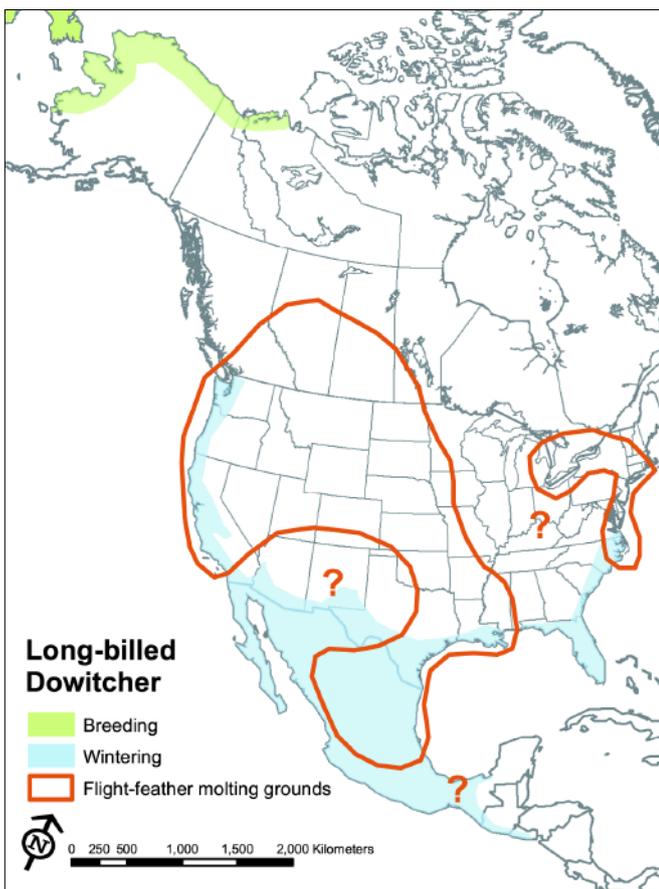


Fig. 1. This map shows the approximate geographical distribution of flight-feather molt in adult Long-billed Dowitchers, in relation to the breeding and wintering ranges. Question marks indicate areas lacking sufficient molt data. Because flight-feather molt takes place at locations between the breeding and wintering ranges, this species is a molt migrant. Flight-feather molt typically occurs at large, stable wetlands, and sometimes involves several thousand individuals at one site. Map by © Kei Sochi.

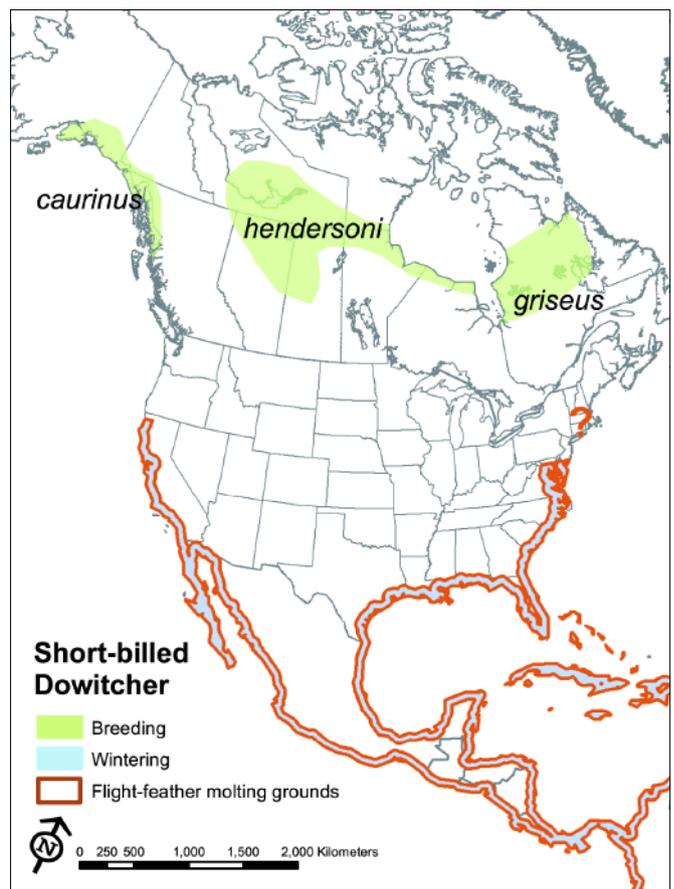


Fig. 2. This map shows the approximate geographical distribution of flight-feather molt in adult Short-billed Dowitchers, in relation to the breeding and wintering ranges. This species consists of three subspecies which are mostly disjunct on the breeding grounds but which overlap widely on the winter grounds. Question marks indicate areas lacking sufficient molt data. Short-billeds replace their flight feathers at coastal, saltwater wetlands on or just north of the wintering grounds. Map by © Kei Sochi.

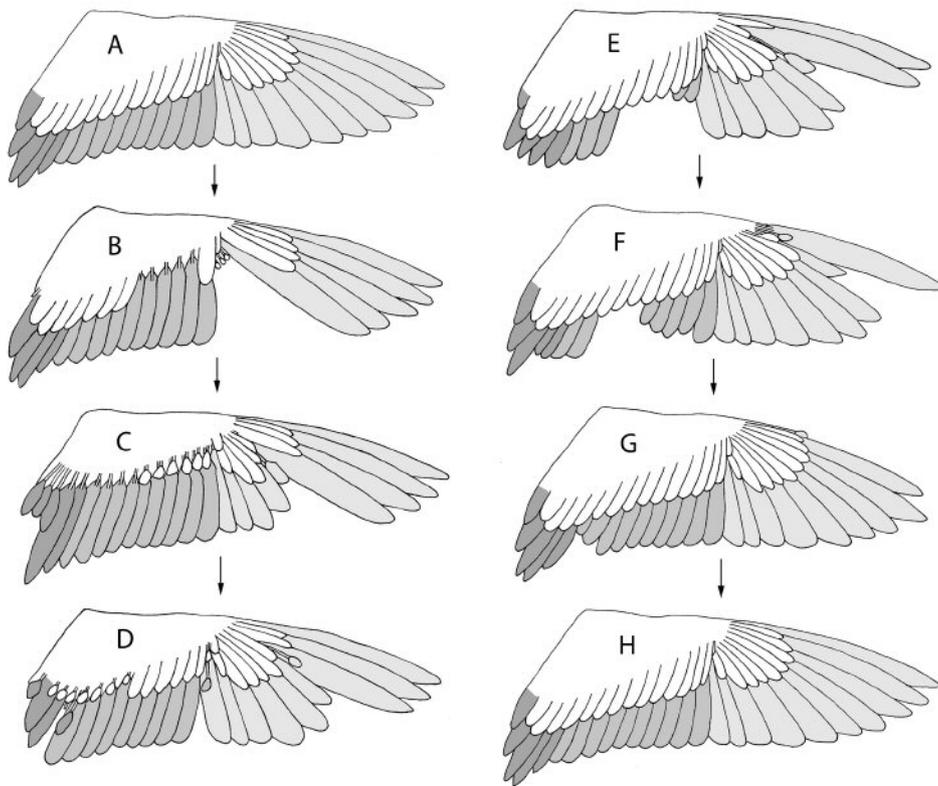
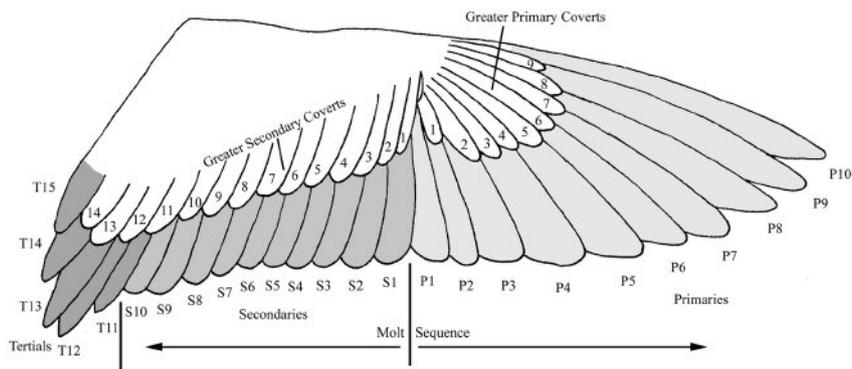


Fig. 3. Being aware of feather tracts and numbering helps us to understand the phenomenon of molt gaps in Long- and Short-billed Dowitchers. Primaries are shaded light gray, secondaries medium gray, and tertiaries dark gray. Stages A & H represent non-molting birds, while stages B–G represent actively molting birds, ordered from early to late in molt. Arrows indicate molt progression; illustrations are applicable to both species. See text for details. *Manipulated tracings by © Caleb Putnam.*

Three aspects of the fall molts of adult dowitchers are useful for identification: (1) the state of wing molt at inland stopovers, (2) the state of body molt at inland stopovers, and (3) habitat preferences during wing molt. Long-billeds in active wing molt are found in two broad geographical areas: much of the western United States, Canada, and Mexico; and the eastern Great Lakes and mid-Atlantic coast (Fig. 1). Short-billeds are found in wing molt only at coastal locations on or near their wintering grounds (Fig. 2).

Thus, only Long-billed Dowitchers molt their flight feathers at areas between their breeding and wintering ranges.

This pattern is known as *molt migration*, and it is rare among shorebirds, well-documented otherwise only in Wilson's Phalarope (Jehl 1987) and Wood Sandpiper (Hoffmann 1957). As a result, any dowitcher replacing its flight feathers away from the immediate coast is a Long-billed. Note: There is a single winter record of Short-billed Dowitcher for the Salton Sea, California (McCaskie and Garrett 2004), and it is conceivable that molt in that species may take place there. *Wing molt at the coast, where both species winter, is not diagnostic.*

This diagnosis relies on the absence of flight-feather molt at inland sites in Short-billeds, something that even a large sample size can never prove. Nevertheless, I found no specimens and only two reports of Short-billeds replacing flight feathers away from the coast, one from Wisconsin (J. Idzikowski, personal communication) and one from Saskatchewan (Alexander and Gratto-Trevor 1997). However, active wing molt was not verified beyond doubt in the former, and the identities of the latter birds were not known with certainty. Thus I have no "hard" evidence that Short-billed Dowitchers replace their flight feathers at inland stopovers. Observers should continue to watch for inland wing molt in Short-billeds and to obtain meticulous notes, photographs, and recordings of any suspect birds.

Interestingly, many Short-billeds do replace body feathers at stopovers;

99 of 119 (83%) Short-billed specimens collected at stopovers, both coastal and inland, were molting some body feathers. This involved only a light molt of the head, and occasionally a few breast, belly, or mantle feathers, something very difficult to confirm in the field. No Short-billeds were replacing tertiaries at stopovers, or exhibiting heavy overall body molt. Long-billeds, in contrast, regularly molt *all* their body feathers at stopovers, often intensely. As a general rule, very heavy body molt at inland stopovers is diagnostic for Long-billeds, but interpreting body molt in the field can be tricky (see below).

Because Short-billeds do not finish their prebasic molt

short of coastal wintering sites, *any fall adult dowitcher in full basic plumage away from the coast must be a Long-billed*. Using this feature requires the ability to age dowitchers. Juveniles of both species, themselves molting into a grayer body plumage, can be surprisingly difficult to separate from basic adults starting in September, when the adults become fully gray. These birds, however, generally retain at least a few juvenal tertials into October or even November. These feathers are recognizable by their diagnostic pale rusty fringes in Long-billed and internal “tiger-striping” in Short-billed. See Hayman et al. (1986), Paulson (1993), NGS (1999), and Sibley (2000) for further aging information.

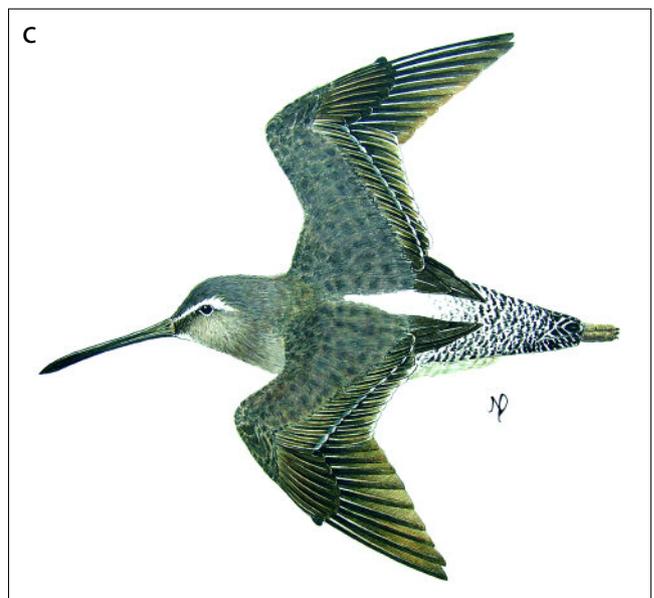
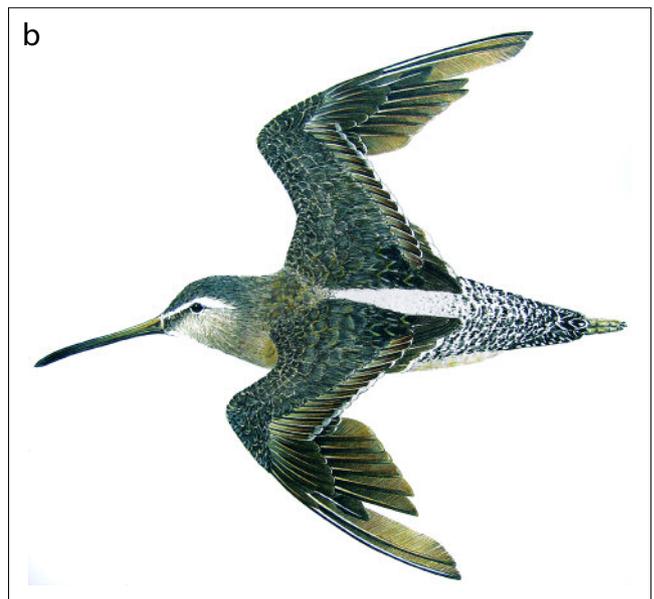
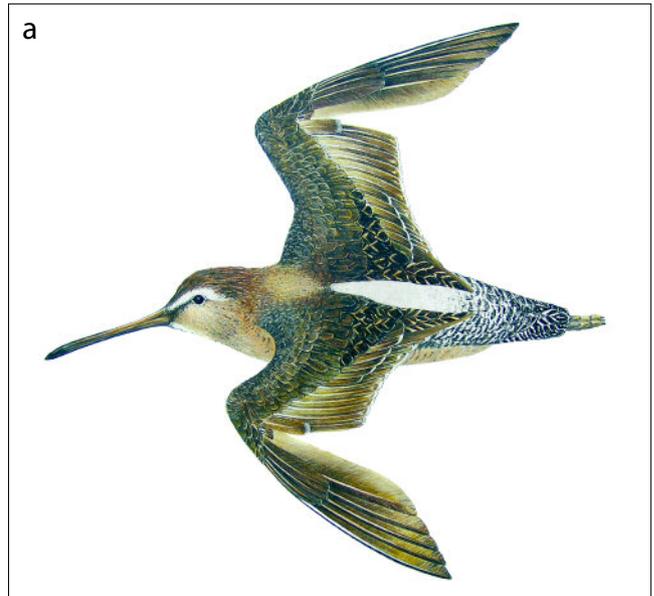
Unfortunately, coastal birders will not benefit from these molt criteria. This is because both species molt near the coast, and because both species occur there in both alternate and basic (and transitional) plumages. However, habitat preferences of the two species at the coast are fairly predictable, and may provide clues. Long-billeds favor freshwater, upland mudflats away from the coast (e.g., Bombay Hook, Delaware, or Marshfield, Massachusetts), whereas Short-billeds prefer sandy, marine habitats at the immediate coast (e.g., Cobb’s Island, Virginia, or Hatteras, North Carolina). This difference is likely to be most pronounced during molt, when preferred foraging conditions are essential. Unfortunately, though, habitat preferences are never diagnostic. Wing-molting Short-billeds in New Jersey are known occasionally to use freshwater wetlands during high tide (M. O’Brien, personal communication), and Long-billeds do occur at the immediate coast, for example at Chincoteague National Wildlife Refuge, Virginia, and Brigantine National Wildlife Refuge, New Jersey. Studies of the species molting side by side at such coastal mudflats could shed more light on the importance of habitat use in dowitcher identification.

RECOGNIZING MOLT IN THE FIELD

The easiest way to clinch active molt in dowitchers is by the presence of *molt gaps* in the wings of flying or standing birds. These are the spaces created by missing or growing consecutive flight feathers. The appearance of dowitcher molt gaps is illustrated in Figs. 3 & 4, using data from Long-billeds. Let us examine how molt gaps change during molt.

Flight-feather molt in both species begins with the rapid loss of one to five inner primaries in late July or early August. What results is a single, large gap mid-wing (Figs. 3b, 4a, & 5). At the same time, a block of outer greater secondary coverts is lost. In Long-billeds this block often does not include the outermost greater coverts, which then become fully exposed. Look for a

Fig. 4. Portrayed here are three examples of **Long-billed Dowitchers** in active flight feather molt, from early to late, respectively. Representative dates of occurrence of each molt stage might be late July (a), mid-August (b), and early September (c), respectively. Note the progression of body molt, especially the retention of barring on the sides of the breast in the first two birds, a feature supportive of Long-billed. The third individual would be very easy to mistake for a non-molting bird in full basic plumage, but note the shorter-than-normal wing-tips (P10 still growing) and the shallow molt gap in the inner secondaries. *Colored pencil by © Nick DePree.*



gray feather with a thin white tip (Figs. 4a & 5). On a standing Long-billed this is an excellent clue that a bird *may* have begun molting its remiges. This pattern was not evident in a small sample of Short-billeds ($n=5$).

As primary molt progresses outward, fewer primaries are replaced simultaneously (Putnam and Marks, in preparation), resulting in a narrower gap in the primaries (Fig. 3c–f). About the time Primary 7 (P7) is lost (Fig. 3d), a second molt gap forms at the outer secondaries. Secondaries 1 through 7 (S1–7) are then lost in rapid succession inward, the gap initially large, then smaller as molt reaches S10 (Fig. 3d–g). By the time secondary molt begins, the bird will appear mostly in basic plumage.

When P10 is dropped and the outer molt gap “disappears”, the wing will appear similar to a full-grown wing (Figs. 3g & 4c). However, the wing-tip is more rounded, and the innermost secondaries (S8–S10) still show a shallow molt gap. Birds in this stage of molt are very easy to confuse with non-molting birds in full basic plumage.

Body molt also provides useful identification clues, but recognizing it can be very tricky. Given adequate views, it is not difficult to recognize the presence of fresh gray basic feathers. However, this does not automatically signify active body molt! Both species regularly replace head feathers on the breeding grounds, suspend (temporarily pause) molt, and then fly south *without any apparent active molt* (Putnam and Marks, in preparation). These birds arrive at stopovers with basic head feathers but no active body molt. Such birds are the source of the oft-cited gray-headed appearance of fall Long-billeds. In Short-billeds, the head is not always noticeably grayer than the rest of the body, despite the similar molt pattern. Based on specimen review, it is my opinion that in Short-billeds there is often less contrast between the fresh gray head feathers and the worn orange-red underparts (see Fig. 6).

One should not assume that every gray-headed bird is in



Fig. 5. This adult Long-billed Dowitcher is in the early stages of wing molt. Note the exposed outer greater covert (single pale dot rear of wrist), an excellent clue for possible wing molt on standing birds. In this photograph, primary molt can also be verified because the bird is drooping its wing, exposing the stacked primaries. Note that only the five outer primaries are visible, indicating that P1–P5 were recently dropped. Many Long-billed Dowitchers at this stage of molt appear to be in full alternate plumage, but other individuals will already show a partially gray head (see Figs. 7 & 8). *Date and location unknown.* © Arthur Morris / VIREO.



Fig. 6. Plumage changes during the adult prebasic molt of dowitchers can be marked. Letters correspond to the approximate appearance of wing molt gaps for each specimen (see Fig. 3). See text for details. © Caleb Putnam. *Specimens lent by the Museum of Vertebrate Zoology, University of California, Berkeley, and by the National Museum of Natural History, Smithsonian Institution (see Acknowledgments).*

suspended molt. As body molt is resumed, many birds will still appear this way, albeit briefly. At inland stopovers, body molt becomes very heavy on Long-billeds, but at most moderate in Short-billeds. Active body molt produces a messy, disheveled appearance with a mixture of alternate and basic feathers. This pattern is most easily recognized on birds molting intensely, and it can be difficult or impossible to verify on those molting lightly. Again, heavy body molt present on all tracts is suggestive of Long-billed, whereas light body molt could indicate either species. Actively molting tertials are possibly diagnostic for Long-billed, but this character needs further verification.

Lastly, be sure to check molting dowitchers for any retained alternate body feathers. In particular, the lateral breast feathers, critical in the identification of alternate adults, are retained as late as September (Figs. 4b & 6–8). This character can be particularly helpful in separating Long-billeds from *hendersoni* Short-billeds. Long-billeds usually show obvious barring or chevron-shaped markings, whereas *hendersoni* Short-billeds show round spots (Paulson 1993). Obviously, caution must be exercised on birds nearing completion of molt. For a thorough review of the identification of alternate adults, see Wilds and Newlon (1983), Wilds (1990), Jaramillo et. al (1991), Jaramillo and Henshaw (1995), Chandler (1998), and Whan (2003).

DOWITCHER MOLT ECOLOGY AND CONSERVATION

The Long-billed Dowitcher may be the only shorebird in the world that regularly undergoes its entire adult prebasic molt at stopovers. My data suggest this possibility. First, I found an equal distribution of birds early and late in flight-feather molt, suggesting little or no southward movement during molt (Putnam and Marks, in preparation). Second,

the rapid flight-feather molt of Long-billeds results in large molt gaps that must impair flight performance. Finally, Long-billeds undergoing flight-feather molt maintain low body mass

until molt is nearly complete (Putnam and Marks, in preparation). Individuals with low fat stores and impaired flight performance likely are not capable of sustained migration.

If field work corroborates these results, stopover sites will be doubly confirmed as both molting grounds and refueling stations, since many individuals will need to migrate to the wintering grounds after completing molt. Assuming 66 days to complete molt (Putnam and Marks, in preparation) and 10 days to refuel (found in Short-billeds by Jehl 1963 and McNeil and Cadieux 1972), individuals could require up to 76 days at a stopover—totally unprecedented for a shorebird. Color-banding studies are necessary to verify this possibility, but ob-

servations of molting or basic-plumaged Long-billeds in Ohio range from August to November (B. Whan, personal communication) and are fully consistent with this stopover duration.

Migratory shorebirds are surprisingly dependent upon stopover sites. The degradation of stopover habitat in Delaware Bay, for example, has had devastating effects on eastern (*rufa*) Red Knots, triggering a very rapid population decline and put-

Table 1. Known flight-feather molting localities of Long-billed Dowitchers in eastern North America. Unless otherwise indicated, entries in the "Source" column refer to personal communications or to my own analysis of museum specimens (see "Dowitcher Molt: What Do We Know?", p. 381, for further details).

State/Province	Location	Source
Delaware	Bombay Hook NWR	J. Dunn
	Little Creek WMA	M. O'Brien
	Ted Harvey WMA	M. O'Brien
	Woodland Beach WMA	M. O'Brien
Iowa	Union Slough NWR	M. Kenne
Louisiana	Rockefeller NWR	museum data
Maryland	Blackwater NWR	M. O'Brien
	Deal Island WMA	M. O'Brien
	Easton Sewage Ponds	M. O'Brien
	West Ocean City Pond	M. O'Brien
Massachusetts	Ipswich	museum data
	Marshfield	museum data
Michigan	Erie Township, Monroe County	museum data
	Nayanquing Point, Bay County	museum data
Mississippi	Unspecified localities	S. Dinsmore
North Carolina	Pea Island NWR	M. O'Brien
New Jersey	Brigantine NWR	M. O'Brien
	Cape May	D. Sibley
	Wildwood Crest	M. O'Brien
New York	Jamaica Bay Wildlife Refuge	M. O'Brien
	Montezuma NWR	B. Winger
	Seaford, Long Island	museum data
Ohio	Metzger Marsh (until 1994)	B. Whan
	Ottawa NWR (1995–present)	B. Whan
Ontario	Nonquon Sewage Lagoon	R. Pittaway
Virginia	Chincoteague NWR	M. O'Brien

Table 2. Known flight-feather molting localities of Long-billed Dowitchers in western North America. Unless otherwise indicated, entries in the "Source" column refer to personal communications or to my own analysis of museum specimens (see "Dowitcher Molt: What Do We Know?", p. 381, for further details).

State/Province	Location	Source
Alberta	Beaverhill Lake	museum data
California	Davis	museum data
	Lower Klamath Lake	D. Paulson
	Merced	museum data
	Piute Ponds, Los Angeles County Stockton	J. Dunn museum data
Colorado	Barr Lake	museum data
Durango, Mexico	Durango	museum data
Guanajuato, Mexico	Irapuato	museum data
Idaho	Twin Falls	museum data
Kansas	Cheyenne Bottoms	museum data
Montana	Bowdoin NWR	personal observation
	Freezout Lake WMA	M. Schwitters
	Medicine Lake NWR	T. Nordhagen
Nevada	Carson Sink	museum data
North Dakota	Souris River	museum data
Oregon	Oregon Narrows	museum data
San Luis Potosi, Mexico	Laguna Magoritas	museum data
Saskatchewan	Dundurn	museum data
	Maple Creek	museum data
	Quill Lakes	Alexander and Gratto-Trevor (1997)
Texas	Brownsville	museum data
	Tivoli	museum data
Utah	Bear River mouth	museum data
	Ogden	museum data
Washington	Everett	D. Paulson
	Potholes Reservoir	D. Paulson

ting the population at risk of extinction (Baker et al. 2004). That Long-billeds often gather in large numbers, such as the 100,000 annually at Lahontan Valley, Nevada (Neel and Henry 1996), only exacerbates the risks to these birds. Maintaining high-quality habitat at key stopovers throughout the molting period is vital to protecting Long-billed Dowitcher populations. Although Long-billed Dowitchers are still common, there exist no data on population change for the species (Brown et al. 2001).

THE METZGER MARSH LONG-BILLED: A CASE STUDY

Rigorous data documenting the effect of habitat loss or disturbance on Long-billed Dowitchers at their molting grounds are rare. However, some anecdotal information exists for a small band of birds that staged annually at Metzger Marsh, Ohio (hereafter Metzger), in the mid- and late 1900s.

Metzger is a lacustrine freshwater marsh situated on the southwestern shore of Lake Erie. Molting dowitchers were observed there as early as the 1920s (Campbell 1940). Shorebird surveys conducted monthly during the falls of 1982–2002 showed that as many as 400 adult Long-billeds were using the site annually between August and November, often staying for weeks and showing signs of active molt (B. Whan, personal communication). Metzger was at the time the only known major staging area for the species in the region (Dunn 1999; museum data).

Mudflat habitat was eliminated from Metzger in 1995 by the construction of a dike by a joint federal and state restoration project. The dike was erected in an attempt to return Metzger to its apparent historical conditions: a freshwater marsh dominated by emergent vegetation (Kowalski and Wilcox 1999). After construction of the dike, Metzger rapidly converted from open mudflats to a *Phragmites*-choked marsh. Not surprisingly, Long-billeds have not been observed at the site since 1995 (B. Whan, personal communication). Interestingly, comparable numbers of molting Long-billeds began to appear annually at new estuarine sites at Ottawa National Wildlife Refuge (hereafter Ottawa) within 1.5 miles of Metzger. It is likely that these birds represent individuals displaced from Metzger, given that molting Long-billeds were not known to use these sites before 1995.

Although this apparent adaptability seems promising, it is unknown whether the habitat conditions at Ottawa are suitable for molting, or whether the birds simply re-



Fig. 7. On these molting Long-billed Dowitchers, note the differing stages of molt in the same flock. The left bird is in early molt, with P1–P5 growing or missing. Note the gray-headed appearance typical of Long-billeds in late summer and early fall, and the disheveled appearance, especially on the belly, indicating active body molt. The front right bird is much later in molt, with P9 & 10 the only unreplaced primaries and only a few retained alternate scapular, mantle, and breast feathers. On the right front bird, note the prominent horizontal bar on the retained breast feather, indicating Long-billed. *Pointe Mouillee, Michigan; 21 August 2004.* © Jerry Jourdan.

located there in the absence of better options. Arctic-breeding shorebird populations are vulnerable to any factor increasing adult mortality away from the breeding grounds (Evans 1991). For example, the Delaware Bay Red Knots suffered a 37% decrease in adult survivorship between May 2000 and May 2001 and a concomitant population decrease from 51,000 to 27,000 birds (Baker et al. 2004). Being displaced from optimal molting grounds, such as those at Metzger, conceivably could have a similar effect on Long-billed Dowitchers by decreasing their chance of successfully completing molt.

It seems that the importance of Metzger to molting adult Long-billeds was not considered in the management decisions at Metzger, despite concurrent efforts to

afford the site World Hemispheric Shorebird Reserve Network (WHSRN) status. A local expert stated that “one ... myth has been that of a sole concentration of Long-billed Dowitchers at [Metzger]. Systematic observational effort has shown that they are using habitat wherever it occurs when they are in the region” and that “the key isn’t a specific spot, but adequate habitat at the proper timing of the year” (BSBO 2000). However, detailed annual shorebird surveys in fact show the opposite. Prior to 1995, up to 400 Long-billeds were present at Metzger annually but nowhere else (B. Whan, personal communication). Molting Long-billeds at Ottawa were observed only *after* 1995. Furthermore, the fact that the birds are using the habitat at Ottawa says little about its suitability for molting dowitchers. The birds may simply have no other choice. Long-billeds tend to be highly selective during molt, and they are often absent from apparently suitable sites during this time (personal



Fig. 8. During preening the wings are often drooped, as on these Long-billed Dowitchers, allowing quick assessment of flight feather molt. On the two birds on the left, note the fresh (grayer) inner primaries separated by a gap from the retained (brown) outer primaries, indicating a molt gap in the outer primaries. On the right bird note the fully visible P6, indicating that P1–P5 are missing or growing. All but the tip of P6 is normally covered by these feathers. *Pointe Mouillee, Michigan; 21 August 2004.* © Jerry Jourdan.

observation). Without further data, we cannot know what effect this translocation has had on the Metzger Long-billed. Although the verdict is still out, the most recent survey data are not particularly promising: A season-high count of just 26 individuals was observed at Ottawa on 3 October 2004 (B. Whan, personal communication). Whether this figure represents fewer molting birds, emigration, or poor detection is not clear.

As we continue to unravel the habitat requirements of molting dowitchers, such considerations can be better evaluated in wetland management decisions. Perhaps an attempt to regain at least some mudflat at Metzger would allow the birds to resume staging there while also providing emergent vegetation for other species. In the meantime, studies investigating the stopover ecology of Long-billeds could begin to provide basic information valuable not only at Metzger but also at the many other staging areas across the range of the species.

WHAT TO RECORD IN YOUR NOTES

Much remains to be learned of the unusual molt migration of the Long-billed Dowitcher, and birders are in a significant position to contribute information. It is vital that we fully understand which sites are used as staging areas, and how the birds are using these sites both seasonally and annually.

The most basic information is descriptive in nature. Starting in July, check your local stopovers regularly. Keep track of the number of adult dowitchers present and whether any are molting. If possible, record the average stage of molt of any such birds throughout the season. Make note of the habitat conditions in which they are spending their time (e.g., water level, vegetative cover, amount of mudflat available). Some questions to consider include the following: Do groups of molting birds seem to move on before finishing molt, or do they stick around until reaching full basic plumage? At southerly stopovers such as

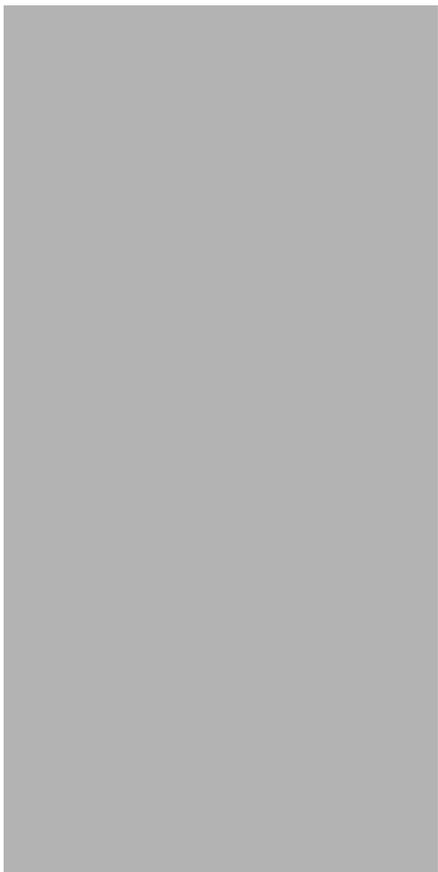
Cheyenne Bottoms, Kansas, does the number of molting birds increase toward the end of the molt period? Observations such as these would suggest that some Long-billeds do migrate south while in active molt. For northern observers—can you find molting or basic-plumaged Long-billeds in September or October?

As always, be sure you are correctly aging dowitchers, particularly late in the season, when young of the year increase in number and begin to appear more fully gray, like adults. Remember, juveniles will never show natural molt gaps, and they will typically retain several juvenal tertials well into November. Finally, I recommend that anyone watching dowitchers make every attempt to record molt information from other potential molt migrants, such as Greater Yellowlegs (see Sibley 2000; J. Marks, personal communication). This information will be helpful in elucidating poorly known molt strategies and in developing additional molt-related field marks useful to all birders.

Acknowledgments

I thank the curators and staff at the following museums for specimen loans: Smithsonian National Museum of Natural History (Washington), Field Museum of Natural History (Chicago), Natural History Museum and Biodiversity Research Center (University of Kansas), Moore Laboratory of Zoology (Occidental College), Museum of Comparative Zoology (Harvard University), American Museum of Natural History (New York), Museum of Vertebrate Zoology (University of California, Berkeley), Louisiana Museum of Natural History (Baton Rouge), University of Michigan Museum of Zoology (Ann Arbor), and Royal Ontario Museum (Toronto). I thank Dave Dyer of the P. L. Wright Zoological Museum (University of Montana) for help in obtaining, storing, and transporting loans. Discussions with Jeff Marks, Bill Whan, and contributors to the ID-Frontiers listserver <listserv.arizona.edu/archives/birdwg01.html> were integral to the formation of the ideas presented in this article. I also

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thank Nick DePree for the in-flight illustrations, Sharon Fuller and Tim Pitz for help with data collection, and Bill Whan, Jeff Marks, Andy Jones, Jeff Johnson, and Erich Peterson for reviewing the manuscript.

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