

Variation in Winter Dowitchers

Close-up study of a common bird reveals intricate patterns of variation

The Rocky Mountain Arsenal National Wildlife Refuge is one of my favorite places to explore. The sprawling refuge is nearly 27 square miles, about the size of Manhattan, New York. “The Arsenal,” as it is known to locals, lies just outside Denver, Colorado, and offers a wonderful view of the Denver skyline on clear days. This refuge boasts a plethora of biodiversity, from multiple species of brilliantly colored tiger beetles (ferocious and ruthless insects that run and fly at high speeds) to a wide range of bird species, including shorebirds and falcons. Many people flock to The Arsenal to see the bison herd there, but, upon closer examination, one can find multiple reservoirs and wetland ponds, which I think are even cooler than seeing distant bison from your vehicle.

I was out on Sat., Oct. 24, 2020 with a friend of mine, Catalina, her father, and my

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dad. It was perhaps the last day to reliably find interesting insects, as the very next day a snowstorm was forecast. I was extremely grateful because the snow would help immensely with the awful wildfire season here in Colorado, but it was bittersweet knowing that my “summer” was coming to a close.

It was nippy in the morning (22 degrees Fahrenheit) as we walked hurriedly to a unit of the refuge called the Havana Ponds. When I mentioned the wonderful wetland ponds unbeknownst to most visitors of The Arsenal, I think I might have glamorized them. The Havana Ponds aren’t exactly what you would call a jewel. To even reach the edge of the water, you must trample through a field of spiky licorice brambles; then you have to watch out for the thick, dark mud; and when you finally reach the water, there is trash littered everywhere. The water is still, and the birds love it.

As we trekked to the ponds, Catalina lamented to our little group how a Greater Yellowlegs she’d seen in Denver earlier in the week had been “non-accepted” by eBird. By late October, shorebirds are getting scarce in northeastern Colorado. We continued the walk, and my hands were numb from the cold; I couldn’t even feel the sharp pricks of the licorice seed pods as I plucked them off my shoes and pant legs. The ground was hard and frozen. The shallower parts of the pond were covered in a thin sheet of ice, but there were

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birds. Including a Greater Yellowlegs! We laughed as the bird slipped and slid across the ice. There were shorebirds galore here. We saw an American Avocet, many Killdeer, a Least Sandpiper, an impressive 10 Greater Yellowlegs, two late Lesser Yellowlegs, and an uncommon Black-bellied Plover. But most interesting to me was a flock of 19 dowitchers.

I had seen dowitchers before, but they had always been at a distance, just hunched-over forms jabbing in the mud. The Havana Ponds dowitchers, however, were admirably obliging; I sat, stood, and lay flat on the ground, and some of the birds approached to within 15 feet of me. This offered me an appreciation of *variety* in dowitchers I’d never noticed before. I could see it in the field, but I really started to appreciate it as I reviewed my photos on my laptop after I got home. No two were alike!

I have a series of photos of birds that I believe are all first-winter birds, but each has a unique combination of feather marks. I also have a photo of a bird that I think is an adult, possibly a Short-billed Dowitcher, rare in our area—especially in late October. What to do? Why, send them to Peter Pyle, the ABA’s expert on analyzing birds by age, molt, and wear.

I will now turn things over to Peter...

FEATURED PHOTO: Variation in first-winter Long-billed Dowitchers. Adams County, Colorado; Oct. 24, 2020. Photo by © Hannah Floyd.

What Hannah Floyd describes is *exactly* what I did to learn about molts and plumages in shorebirds and other waterbirds such as gulls and terns. Find a flock of about 20 birds, sit there patiently, and scrutinize each feather generation and pattern, for as long as it takes to have the light bulb go on, to reach that satisfying point where what

had seemed nonsensical suddenly all makes sense. Twenty is about right—fewer than this and you may not be observing the full range of variation. More than this and your mind starts to crumble.

Back when I was doing a lot of this, in 2005 or so, a 20–60x scope was my apparatus of choice, as digital imagery was just coming along, and too costly for me at the time. In a way, though, I’m glad I didn’t own a digital camera back then, as I would have taken thousands of images to sift through, sort, delete, store, and forget that I had them or where they were located. I’ve become a

member of this club now, though I also rely a lot on other birders and photographers, like those enthusiastic contributors to places like the Cornell University Lab’s Macaulay Library through eBird, for a rapidly expanding availability of incredible images. It has become a treasure trove to those studying molts and plumages—and other aspects of bird identification. So I will reference my comments on Hannah’s birds with links to Macaulay Library images.

Hannah is correct about the age of most or all of her dowitchers. But rather than describe them as “first-winter birds,” I refer

Featured Photo





Supplemental Photo No. 1

to them as “undergoing the preformative molt” or “in their first cycle.” Slowly but increasingly we are striving for a more-precise global terminology to describe molts and plumages—and hence ages and cohort groups—of the birds we study. Although “first-fall” or “first-winter” makes sense for shorebirds from a boreal-centric viewpoint here in the Northern Hemisphere, what happens when the birds winter in Argentina and Chile, as many North American migratory species do? Some gulls, furthermore, keep their “first-winter” plumage through their “first” (or is it “second”?) summer. The beauty of describing plumages with precise molt-related terms is that they can be applied to all birds in the world at any time of year, irrespective of what time of year it is or relative to when young birds typically hatch or when adults typically breed. First-cycle birds can be in juvenile, formative, or first-alternate plumage, second-cycle birds can be in second basic or second-alternate

plumage, and older birds (“adults”) can be in definitive basic or definitive alternate plumage. Simple, right? (Truly, it is!) In any case, when you get to equatorial regions, boreal-centric terminology doesn’t work.

Variation among first-cycle dowitchers in October is better appreciated in Hannah’s supplemental images, as the three birds in our Featured Photo are rather similar in both the advancement of their preformative molt and in their overall appearance. Most of the back feathers and scapulars in the three featured birds, those plain grayish-brown ones with the black shaft streaks, are fresh and formative, having been replaced within the previous month or two. The remaining blackish feathers with rufous edging are juvenile feathers, grown on the natal territory; these will get replaced within the next month or so, leaving the bird in its plain formative appearance, as in Long-billed Dowitcher ML187939551.*

Long-billed Dowitchers undergo a “par-

tial” preformative molt, typically including all body feathers, some but not all wing coverts, and sometimes a few tertials and central rectrices, but few or no other flight feathers. This molt usually commences on the summer grounds, suspends for migration, and completes on the winter grounds, resulting in mixed generations during migration, as seen in the Featured Photo. Hence, all wing coverts, tertials, and primaries on the closest bird are still juvenile; some inner coverts and possibly some tertials will be replaced later in the fall along with the remaining juvenile upperpart feathers, while some to most outer coverts and the primaries will remain as juvenile feathers until the second prebasic molt next summer and fall. The retention of worn juvenile outer greater coverts and primaries allows reliable aging through the first breeding season, and even the second fall migration, as in, for example, ML71258231.

Besides analyzing feather generations,

* To study all the dowitchers referenced in the figure captions, copy and paste macaulaylibrary.org/asset/ into your browser window, followed by the eight digits after the letters ML. So, for ML187939551, go to macaulaylibrary.org/asset/187939551. You can also go to “Explore” in eBird, then “Search Photos and Sounds,” then “More Filters,” and then enter the ML number in the second box down on the right.



Supplemental Photo No. 2

Supplemental Photo No. 3



what other clues indicate formative plumage? One thing to note is how fresh the wing coverts and primaries are. Older birds usually do not complete molt of primaries until reaching the winter grounds, with the outer primaries being the last feathers replaced, following replacement of all body feathers. Those older birds, typically showing a mixture of definitive basic and alternate feathers (instead of formative and juvenile feathers), are much more worn-looking during migration, as in the first-cycle bird previously mentioned (ML71258231), and in older ones such as ML110392211 and ML43257141. Note also that the patterns of first-alternate and definitive alternate back feathers are different from juvenile feathers, with buff medial bars as opposed to the rufous fringes in our featured birds. Finally, although molt timing can be notoriously variable, by Oct. 24 virtually all adults have completed the prebasic molt, so even if these dowitchers will be wintering here (doubtful given Hannah's local knowledge!), they would be in complete gray definitive basic plumage, as in Long-billed Dowitcher ML21365151.

Often, I get so carried away with molts, plumages, and aging that I forget about species identification! Why aren't these Short-billed Dowitchers? Well, the easiest dowitcher field mark of all relies on proper designation of feather generation—in particular, the pattern of the tertials, once you have confirmed them to be juvenile, as we have done for these birds. These tertials are the long, pointed feathers that cover the outer primaries and tail in a feeding or roosting dowitcher, best seen in the back two birds of our Featured Photo. Note that the edging to these feathers is pale and even, giving a very plain look. The juvenile tertials of a Short-billed Dowitcher, by contrast, have “tiger stripes” through the outer webs, resulting in a fiercer look, as in first-cycle Short-billeds like ML176208151 and ML69268131. Note also that the juvenile upperpart feathers are more wildly patterned in Short-billed Dowitchers than in our featured birds. But you have to (a) correctly identify the tertials (those tiger stripes apparent in the middle bird in the Featured Photo are actually the central rectrices peeking through) and (b)

pay attention to whether the tertials are juvenile or have been replaced, as it gets a bit harder if all the tertials are formative. We'll get into that more when analyzing the supplemental photos.

Finally, there are some clues to differentiate these two species regarding space, time, and molt. Short-billed Dowitchers winter farther south, often in South America, resulting in a “Southern Hemisphere” molting strategy as described for shorebirds in Part II (2008) of my *Identification Guide* (pp. 500–505). This strategy typically involves earlier migrations, with less molting on the summer grounds and stopover locations, and more molting on the winter grounds. Most south-bound migrating Short-billed Dowitchers we see in the U. S., except those that have reached their winter grounds along southern coasts, are either in full juvenile or full alternate plumages, not in a transitional state as occurs with our featured Long-billed Dowitchers and other shorebirds with a “Northern Hemisphere” molt strategy.

Another feature of the Southern Hemisphere strategy is that the preformative molt is often more complete, which can provide clues to identifying first-cycle birds in winter and spring. For example, some Short-billed Dowitchers undergo an “eccentric” preformative molt, including outer primaries and inner secondaries, leaving a block of juvenile remiges in the middle of the wing. Long-billeds are not supposed to undergo such a molt, according to the “authorities” (for example, Part II of my *Identification Guide*). However, the presence or absence of eccentric molts appears to be related more to wintering latitude than to phylogeny, so might we expect a few eccentric first-cycle Long-billeds—for example, among those wintering at the southern reaches of their range in Central America?

As I mentioned at the outset, the Macaulay Library offers a helpful platform for the study of molts and plumages. While clicking through images for this article, I stumbled upon ML57080881, a first-alternate Long-billed Dowitcher showing an eccentric preformative molt pattern. Note that its outer four primaries, some inner secondaries, and most but not all of the greater coverts are formative; meanwhile, the outer three

greater coverts, inner primaries, and outer secondaries are juvenile. Assuming it is correctly identified (it was not “non-accepted” by eBird), we have some new insights into the preformative molt of Long-billed Dowitcher.

My thanks to Hannah for leading me down this path!

SUPPLEMENTAL PHOTO NO. 1:
First-winter Long-billed Dowitcher.
Adams County, Colorado; Oct. 24, 2020.
Photo by © Hannah Floyd.

The variation in plumage appearance that Hannah mentions, even within age groups on the same date, can result from various factors. This is a Long-billed Dowitcher undergoing its preformative molt, but note that it has a lot more juvenile feathers remaining in the upperparts than the three birds in the Featured Photo, resulting in a brighter and browner look overall. In fact, it is almost officially still a “juvenile,” technically a post-fledging bird that has not begun its preformative molt. But close inspection reveals a few formative feathers in the inner row of scapulars and on the upper breast.

SUPPLEMENTAL PHOTOS NOS. 2 & 3:
First-winter Long-billed Dowitcher.
Adams County, Colorado; Oct. 24, 2020.
Photos by © Hannah Floyd.

TOP: This Long-billed Dowitcher is preening its few juvenile scapulars remaining. Might the bird be encouraging its own formative development?

BOTTOM: No bill? No problem! Bill length, bill shape, and loral angle are oft-discussed but tricky ID characters for dowitchers. A view like this reminds us of the value and power of aging birds by their feathers.

SUPPLEMENTAL PHOTO NO. 4: Oddball dowitcher. **Adams County, Colorado; Oct. 24, 2020.** **Photo by © Hannah Floyd.**

Within any group of 20 birds there is usually, hopefully, one oddball, and this is it! For

one, there are no juvenile feathers remaining, as in the other featured birds. Second, this bird has a stubbier look to the back end. Third, the spots on its flanks are more distinct. And fourth, the bill seems a bit shorter. So is this dowitcher of a different age, a different sex, or perhaps even a different species than the others? All of the above? Or maybe none of the above?

Let's first consider whether this could be an "adult," undergoing its definitive prebasic molt. The stubby look to the back end could relate to growing rectrices and outer primaries, which occurs during prebasic but not preformative molts. However, as discussed above, replacement of these feathers does not typically occur until the winter grounds are reached. From Hannah's description, it sounds unlikely that this bird will be wintering here. What else could account for the stubby look? Where are the bird's tertials? They are there, but seem to be shorter than in the other birds. They are also not fringed pale, but rather are evenly gray, and a bit broader to boot. Aha! So the tertials are growing in and formative, something that can happen in some Long-billed Dowitchers during the preformative molt. This is in fact another first-cycle bird. There is a block of outer median and greater coverts slightly more faded and worn than the scapulars, showing white tips or corners, just as in the other dowitchers. These are juvenile coverts, contrasting with the formative scapulars, referred to as a "molt limit" between feather generations, in this case confirming the bird's age. So the only age-related difference here is that this dowitcher is farther along than the others in its molt and is in formative plumage.

Females of most shorebird species, including dowitchers, are larger and longer-billed than males. One possibility, then, is that this is a lucky young male among young female Long-billeds. A second possibility is that this is an unlucky Short-billed among Long-billed dowitchers. My guess is the former. Formative tertials are similar in the two species, so we can no longer use this field mark to separate them. The more distinctly spotted flanks are sometimes considered a feature of Short-billed Dowitcher, although I myself have had some



trouble with this. That mark may also relate to the advancement of the preformative molt, those feathers being formative, having replaced duller gray juvenile feathers like those found mixed in on this bird and in the other dowitchers shown here. Might this "field mark" be a result of molt timing rather than being an inherent difference?

Examination of the bill measurements in Table 55 in my *Identification Guide*, Part II, indicates that the overlap zone in exposed culmen length between Short-billed (51–67mm) and Long-billed (58–78mm) dowitchers represents only 42.3% of the overall range (11 ÷ 26). Although this puts a false spin on it (because more birds fall within the middle of the ranges), within any given flock of 20 dowitchers, we would

expect at least a few to fall in non-overlap zones, and I have used this to help identify dowitchers, especially those in mixed-species flocks. But culmen lengths of female Short-billeds and male Long-billeds hardly overlap (about 57–67mm in each), and so to use bill length effectively, we must also consider sex, which, in this case, is not possible by plumage.

A lesson for birders of all ages, one I learned the hard way, is that any oddball within a flock of birds is not necessarily a rare species. Other factors such as molt timing, molt extent, age, and sex could account for the variation. While I'm not 100% sure of my identification of this bird, I'm most comfortable defaulting to a first-cycle Long-billed Dowitcher. 🌊