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THE CHANGING SEASONS: Winter of the half-hardies

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Winter—a fascinating season during which many birds (and birders) are pushed to their physiological, ecological, and geographic limits by cold temperatures, inclement weather, and short days. It is the season when bird diversity is at a low in most regions, and when many birders take a brief hiatus to prepare for the impending rush of spring migration. We usually enjoy a gradual cessation of birding activities through winter, punctuated by an active Christmas Bird Count season and perhaps an annual outing on New Year's Day. But winter is also the season for other birding activities: gull watching (or simply "gulling," as some of our larophile friends call it), searches for winter irruptives (if they make it far enough south), and offshore pelagic trips for alcids and other oceanic visitors, to name a few. As in previous essays here, we provide a synopsis of weather patterns and bird distribution for selected species in winter 2002-2003, followed by a discussion of topics we hope will be of interest to readers: the subjects of species variability and of birders' relationship to science.

Weather

The continental weather pattern of winter 2002-2003 was one of stark contrast between East and West. Moderate El Niño conditions with mild temperatures and below-average precipitation prevailed across much of the West. When precipitation did fall, many localities that typically receive snow instead saw rain or slushy snow that melted quickly. Some northern regions, including the Pacific Coast north to Alaska and parts of the Intermountain West, experienced record or near-record warm temperatures. As an example, Alaska recorded one of its warmest winters on record, Idaho recorded its third warmest January on record, and January temperatures in Oregon averaged 8° F above normal. Accordingly, reservoirs remained ice-free, and many water birds wintered farther north than usual.

An articulate summary of the weather from New Mexico illustrates this pattern: "Continuing the trend of recent winters, warm and dry were the dominant weather themes for winter 2002-2003, with January witnessing the smashing of century-old records for high average temperatures at many stations. Birds continued to respond to this warming climate, with numerous species lingering late, wintering north of usual, or returning early and, for several species, nesting was underway by January." By contrast, most regions east of the Rocky Mountains saw a return to more "typical" winter conditions after two consecutive rather mild winters. Many areas experienced normal or below-normal temperatures, although December was unseasonably mild in some areas. As an indication of the severity of late winter, Lake Superior froze *completely* for the first time since 1979. Brian Dalzell, in the Atlantic Provinces' report, noted "that most observers under the age of 50 could not recall the last time it had been so cold for so long." Farther south, in Mexico, the winter was cooler than normal in the central highlands and closer to normal elsewhere.

The sinusoidal signature of the jet stream in such winters—riding very high in the West, running down through the middle of the continent, then curving up along the Atlantic coast—cut through the center of the Prairie Provinces region, so that while Alberta enjoyed milder temperatures and *six* lingering species of warblers, Manitoba and Saskatchewan were eventually, after a milder early winter, locked into winter conditions far different, with the coldest February since 1979 in Manitoba. The Great Lakes through the Northeast, the Maritimes, and indeed most of the East generally reflected the influence of the low-riding jet stream here: according to Pam Hunt in New England, "there was no hint of a January or February thaw." The United States' largest estuary, the Chesapeake Bay, even froze over briefly, for the first time since 1979. Still, the cold over much of the United States' Atlantic coast was not as severe as in the mid-1970s, particularly the winter of 1976-1977.

Precipitation patterns also drew attention. Many parts of the West saw mild relief from the long-term drought conditions. Parts of the Pacific Northwest, Idaho, Montana, the Great Basin, and the Great Plains received much-needed late-winter snowfall. Farther east, parts of the Great Lakes and the Midwest received below-normal snowfall, while other regions were at or near expected precipitation levels. Areas still suffering from below-normal precipitation levels in the East saw relief, but from Virginia northward, much of this came in the form of heavy snow, which hindered birding on many days.

Birds hardy, by half

In the West, winter finches were replaced this season by swallows, warblers, and a generally smart array of late-lingering birds that defies a simple summary here. With such a wealth of records to peruse, it seems a good winter in which to ask the question: "With the record warmth in the West and the bitter cold and snow in the East, did records of lingering Neotropical (and other) migrants reflect the difference in weather patterns?" The answer to the question is already well beyond reach ,as it must be based on observations profoundly influenced by weather conditions: many birders in the East found themselves snowbound on weekends, unable to check their local birding patches at all! Despite the rhetorical nature of the question, the regional reports' records do prompt one to wonder whether the season's climatic disparity was reflected in our informal summaries of bird distribution (our "sightings") this past winter.

From a cursory scan of regional reports, it would seem that the West outdid the East in lingering and overwintering birds by several orders of magnitude. Take a moment to appreciate the incredulity that runs through Thede Tobish's Alaska regional report—the record warmth allowed birds almost *never* seen in Alaska in winter to remain *all winter*

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and in *numbers* in some cases. Two species of rail, *four* species of warbler, a Swainson's Thrush, and a Brown Pelican in Alaska in winter? When one adds successfully overwintering Spotted Towhee, American Goldfinch, Western Meadowlark, and waterfowl and sparrows of all sorts to the roster, along with January records of species such as Red Phalarope and Greater Yellowlegs, the correlation here between record warmth and unprecedented lingerings and overwinterings seems clear and strong, and this impression continues all along the northern Pacific coast, with bird records from Idaho, Alberta, and Montana south through Texas similarly off the charts.

A White-faced Ibis in Idaho, for instance, was a winter first and unexpected for a species that rarely winters away from the southern tier of states. Stranger still, a Canada Warbler in California was on no one's list of expected overwinterers—there appear to be no other North American winter records. And plenty of other warblers were exceptional in their respective areas: Black-throated Blue and Hooded Warblers in British Columbia (!), Magnolia Warbler in Arizona, Wilson's Warbler in Idaho, Yellow-throated and Palm Warblers in Utah, Yellow and Hermit Warblers in Washington, and American Redstart in Oregon, Pine and Wilson's Warblers in New Mexico, and an overwintering Yellow-rumped Warbler in North Dakota (its first) are only some of the more striking examples. A Philadelphia Vireo in California constituted one of very few winter records for the United States, while a Common Poorwill in Colorado was extraordinary on the date of 15 December. The hummingbird show was good, by most standards, if not stellar: Broad-billeds in Colorado and Oklahoma, a Costa's in Oregon, and above-normal numbers of Violet-crowneds in the desert Southwest.

Shorebirds and seabirds also lingered. Notable wader reports included a total of 4 Ruffs in Oregon and Washington, a Pectoral Sandpiper in Colorado, Red Phalaropes in Alaska, and a Wilson's Phalarope in Utah. A Black-necked Stilt at Klamath Forest National Wildlife Refuge in eastern Oregon 22 February was rivaled only by the 25 American Avocets not far away at Lake Abert in early December. To the south, shorebirds overstaying their late dates were even more astounding: in mid-December, a Buff-breasted Sandpiper was discovered in southwestern Louisiana, while in Texas, a flock of over 200 Wilson's Phalaropes, plus 6 Red-necked Phalaropes, overwintered at La Sal del Rey in Hidalgo County. In addition to Alaska's Brown Pelican, out-of-season Pacific seabirds included many shearwaters—Pink-footed and Flesh-footed among them—off Washington, and *scrippsi* Xantus's Murrelets off Monterey County, California in December and January.

The winter distribution of various races of Fox Sparrow is poorly known, especially across large areas of the interior West. This Sooty Fox Sparrow (subspecies *unalaschcensis*), the first documented for Arizona, was found at the Boyce Thomson Arboretum State Park near Superior 26 (here 31) October 2002 and remained through 24 November. *Photograph by Gary Rosenberg.*

Normally absent from the United States in winter, as many as *nine* Swainson's Hawks were discovered wintering in South Texas this year. Granivores deserve some mention here, though their ability to overwinter is less surprising than is the insectivores': an Indigo Bunting in Idaho in late January and both Indigo and Lazuli Buntings in Oregon were impressive discoveries. Single Clay-colored Sparrows in North Dakota and Nebraska each represented a winter "first" for their respective areas, as did a Brewer's Sparrow in late January in Idaho.

One of the big stories in the Pacific Northwest was the widespread influx of Barn Swallows in January, a repeat of last winter's extraordinarily early migratory pulse but one involving far more individuals. Barn Swallows were widely noted from California north into British Columbia (see the "Special Attention" essays for relevant regions). Individuals in Arizona, New Mexico, Idaho (!), and the Great Basin also appeared to be part of this unusual movement. Most of the reports came from coastal sites, with only a few individuals recorded inland. Tagging along were three Cliff Swallows in British Columbia, four more in northern California, and a Northern Rough-winged Swallow in Washington. Although it is not possible to tie this "flight" to discrete atmospheric events, it seems a safe bet to say that such an event would not have been so widespread and so protracted had the western weather been more like the East's.

A superficial gloss of Midwestern and East-

ern regional reports will find adjectives less enthusiastic than in the West's reports—"dull" and "sparse" among them. The Atlantic Provinces, which of late have enjoyed spectacular winter warblering, had the worst showing of warblers and other Neotropical birds in the past 20 years. But on closer reading, it's clear that the Midwest and East had their own long-distance migrants that lingered, attempted to overwinter, and in a very few cases did overwinter. Eye-catching hangers-on were a Tennessee Warbler in Georgia through early January, a Purple Gallinule in Nova Scotia on 5 February, an Upland Sandpiper that tarried in northwestern Florida through mid-December (perhaps the only such record in North America), and a Black-throated Green Warbler in Pennsylvania.

Many regional editors east of the Rockies, however, noted a distinct die-off (or at least disappearance) of lingering semi-hardy species in mid- to late December, as temperatures plummeted and stayed low. Species found in small numbers across a wide geographic area such as Yellow-throated Warbler, Ovenbird, and Western Tanager apparently succumbed to a "normal" winter. Likewise, the northern Great Plains saw a noticeable exodus or die-off or lingering species in December and early January: semi-hardy species such as Gray Catbird seemed more widespread than normal in early winter, perhaps the results of late migrants being "trapped" by the sudden and harsh late-fall weather in this region, but these birds could not be found later in winter, and some birds, such as Saskatchewan's late Black-throated Blue Warbler, were confirmed as casualties of the cold. *None* of the notable migrants found lingering in winter north of North Carolina—Scarlet Tanager in Nova Scotia, Say's Phoebe in New Brunswick, Black-throated Gray Warbler in Connecticut, Northern Waterthrush in Minnesota, White-eyed Vireo in Ontario, Indigo Bunting in Missouri, Ovenbird in Québec, Hooded Warbler in Rhode Island, Hermit Warbler in Illinois, and Wood Thrush in Central Park, New York City—were thought to have survived the winter.

Even hardy species able to winter fairly far north (single Palm Warblers in Nebraska and Wisconsin are good examples) did not pull through, though the hardiest migrant species such as Eastern Phoebe amazed observers by hanging on as far north as snowy upstate New York, some very late into the season. So while many species that normally depart an area during winter lingered in average numbers or better, it would seem that many individuals probably did not survive past mid-January. This stands in contrast to areas just to the west: Colorado, despite the continuing effects of drought, had a mild winter with multiple lingering Gray Catbirds, Hermit Thrushes, and Brown Thrashers.

Hardiness is a difficult attribute to measure in a species, much less to understand about an individual bird, especially from our vantage as amateurs. We infer what we (imagine we) know, little by little, from a scattering of data points, often too few to allow generalizations about cold tolerance. Individual birds that disappear during cold spells might simply have moved on rather than perished. Rarely are data available on food and shelter source for exceptional lingerers and winterers, and almost never do we have insight into why such birds remain behind when their conspecifics have long ago departed. Proximate factors such as food availability and physiology are difficult to study adequately, let alone ultimate factors such as genetics. Expanding non-migratory species, such as Carolina Wren, provide at least some insight into this topic. In tough winters, many make appearances at backyard feeding stations, and in New York and New England this winter, it was clear that the many Carolina Wrens that survived the harsh conditions did so in part by attending feeders, as did outliers as far away from core range as North Dakota.

Winter hummingbirds' physiology and clear reliance on feeders, too, makes their hardiness a matter of great interest to birders. Stretching the limits in this respect were a Ruby-throated Hummingbird in Missouri and Rufous Hummingbird/*Selasphorus* hummingbird in Maine and Illinois; an unidentified hummingbird in *January* at Prince Edward Island was one that got away, unprecedented no matter what the species, and another unidentified hummer in Ohio 21 January would have been one for the record books as well. Overwintering Rufous and Ruby-throated Hummingbirds, however, have become almost not worthy of mention in many parts of the Southeast now; the Southern Atlantic region no longer lists them out, and Marshall Iliff notes that the Middle Atlantic may soon stop doing so (the latter region had a half-dozen or more hummingbirds not even identified to genus!). Every winter, *no matter what the weather*, records of hummingbirds out of range in the East appear to increase and to creep ever northward—Massachusetts's first Calliope Hummingbird was easily predicted by past seasons (Brinkley 2001).

The great diversity of hummingbirds out of typical (former?) winter range (Table 1) is impressive. Clearly, for Rufous, Allen's, Black-chinned, and Calliope Hummingbirds, the period October-November has the greatest influx far east of range (recent reports show migrant Rufous/*Selasphorus* well east of range already in late July and August, however). In the northernmost states, vagrant hummingbirds this winter tended to be present largely through early December, after which many were not present or not seen. To the south, from southeastern Virginia southward, there was a marked influx of Rufous and other hummingbirds in mid-December, perhaps birds fleeing the deep freeze to the north. It has sometimes been claimed that these wintering hummingbirds make short movements southward throughout the season, and the burgeoning supply of feeding stations makes

Table 1. Reports of western hummingbirds in the eastern United States and elsewhere out of range, winter 2002-2003.

SPECIES	CENTRAL SOUTHERN	TEXAS	OTHER REGIONS/STATES
Broad-billed	2 [AL, LA]	0	Oklahoma (1), Colorado (1)
Buff-bellied	55	3	none
Ruby-throated*	212++	1	Missouri (1), Virginia (2+)
Black-chinned	88	-	Southern Atlantic Coast (9), Florida (8)
Anna's	1 [LA]	0	none
Calliope	49	4	Southern Atlantic Coast (**10**), Massachusetts (1), Florida (3)
Broad-tailed	13	1	none
Rufous	628	-	Illinois (1), Delaware (1), Virginia (4+), Ohio (6), Pennsylvania (1), Tennessee (3); large numbers to the south of these areas
Allen's	28	5	North Carolina (1), Georgia (1), Delaware (1), Tennessee (1)
Selasphorus sp.	89++	-	Maine (1), Connecticut (1), Virginia (3+), Maryland (2), Tennessee (1)

* Ruby-throated Hummingbird was described as "coastally common" in the Carolinas, and there were numerous Florida reports as well.

such an explanation plausible. Nevertheless, careful searching in Tennessee and North Carolina after a late January cold spell revealed that several Rufous Hummingbirds attending feeders had frozen to death. This event may have been exceptional, but the question of winter hummingbird hardiness is still an open one, even if they appear to be captive subjects for study in our backyards.

Swallow records present a similarly fuzzy but interesting picture in the regional reports. The late-fall northward dispersal of Cave Swallows along the Atlantic Coast (Brinkley and Lehman 2003) continued into winter in the East, but these birds clearly either passed southward or passed away as winter set in. After the strong movement in November 2002, reports continued into December as far north as New Jersey into January in North Carolina, with most early-winter reports along the southern Atlantic Coast, including an incredible count of 40 at a single site in North Carolina! Northern Florida and Alabama also had midwinter reports of the species, but these birds could not be refound much after early January. The portrait here, again, is of lingering migrants either pushed southward (in short, facultative movements) or done in altogether by increasingly cold conditions in the East—quite a contrast to the January flight of *northbound* Barn Swallows in the West.

For some species in winter 2002-2003, however, there was a relatively clear apparent correlation between the consequences of cold weather and abrupt changes in winter distribution. The early-winter exodus of countless thousands of American Robins, Cedar Waxwings (which reached Costa Rica and Jamaica in the dozens!), and Eastern Bluebirds out of northern states into southern states was probably one such instance, and access to food (or extent of available food) probably also played a role in their southerly movements, while the same might be true of the northerly movements of the many Ruddy Ground-Doves and Rufous-backed Robins found in the Southwest this winter. Varied Thrushes were wildly out of range across much of the continent: a total of 28 was recorded from the Great Lakes eastward. The species was also found in high numbers in core range, such as the 220 at Cosumnes Regional Park in Sacramento County, California in December. One wonders to what extent this and the major flight of Golden-crowned Kinglets and Yellow-rumped Warblers into Texas, Florida, Mexico, and even Central America in the case of the warblers might pertain to drought-driven food shortages rather than to severe weather. Lee Jones's analysis of the warbler's abundance in Belize (over a thousand at one site!), however, suggests that a mild winter of 2001-2002 boosted survival rates.

A far more unusual case was the influx of Red-necked Grebes out of range, which materialized most fully in early March but clearly began in late February, as the Great Lakes began to freeze, almost entirely—the first such freezing in almost a decade. As the lakes began to close, not a few Internet prognosticators dared to forecast a wide "fallout" of Red-necked Grebes across the East, from New England to the Carolinas and well inland. In February 1994, when the lakes froze last, an unprecedented flight of Red-necked Grebes had been seen in these areas. The only hitch was: no one had really known that large numbers of Red-necked Grebes spent the winter on the tumultuous and frigid waters of the Great Lakes. The late-winter flight of Red-necked Grebes indeed did materialize on cue, and it would seem that, despite no direct evidence of many thousands of Red-neckeds wintering on the Great Lakes, eastern birders' sleuthing and scouring of local lakes, borrow pits, and ditches—which produced hundreds of records of displaced grebes—provided at least more circumstantial evidence for Great Lakes wintering.

What conclusions might we draw from the dichotomous winter portraits of East and West? Perhaps it's best to say that both sides of the continent began the winter with a fair number of birds much farther north than they should have been, but that these birds not surprisingly fared much better in the West, especially at lower latitudes and near ocean coasts, where clement conditions left water open, insects active, and birders in t-shirts much longer than usual. It's not that warm winter weather necessarily *induces* lingering in normally migratory birds; rather, warm weather in many cases simply gives them the opportunity to survive the winter at these latitudes. Indeed, one could argue that many passerines should not even be called "lingerers" but rather off-course reverse-migrants left over from this annual late-fall phenomenon.

Alcid extravaganza

At long last, this was a varied and long-playing "alcid winter" in the East, and those birders hardy enough to face the elements at the coast or offshore, from New England to Georgia, enjoyed a bounty of black-and-white "footballs" (as one contributor quipped) for three months, thanks in part to the unending spell of coastal storms that helped push these pelagic birds shoreward.

The show started in Massachusetts on 12 December, unquestionably, with a fierce northeasterly gale. The large alcids were first on stage, with a flight at Rockport that day of 420 Common Murres (previous state high count was 21!), 14 Thick-billed Murres, and 1180 Razorbills, plus 1800 large alcids, unidentified; Cape Cod had 650 Razorbills and 800 unidentified large alcids on the same day. It's refreshing to see these numbers of *un*-identified birds, the mark of honest seawatchers and conservative field observers. These birds truly are indistinguishable at very long range, and the temptation to identify all large alcids seen in the East is best resisted. Don't miss the source of many of these fine numbers: "RH" stands for Rick Heil, whose work at these shore-based point counts is redoubtable.

Large alcids also put in a fine showing in Long Island Sound, and Razorbills were especially recorded in good numbers off Rhode Island and Connecticut from the C.B.C. season through the winter, accompanied by smaller numbers of Thick-billed Murres. The southernmost Common Murre reached Quogue, Long Island. It's easy to forget that a total such as 891 Razorbills—recorded from eastern Long Island on the Montauk C.B.C.—would have been astonishing only a decade ago. This attractive species has become so common in recent years that even the venerable Bronx-Westchester C.B.C. had 116 before Christmas Day. By early December, Virginia and North Carolina had already recorded numbers of Razorbill, and a Virginia Beach pelagic trip 7 December had a Thick-billed Murre, rare in that state. In February, double-digit counts of Razorbill reached Georgia, with 36 off Savannah 21 February, the state's highest count by far. The status of Razorbill changed rather suddenly off North Carolina back in February 1994, when flights as large as 1184 were seen from shore, heralds of similar numbers in subsequent years; almost all prior records had been of single birds. A shift is prey resources is almost certainly the cause here.

A few Black Guillemots, a comparatively sedentary species, turn up in the context of these flights on occasion. This year's birds were found in December on the Montauk, New York C.B.C. and twice near Deal, New Jersey (that state's ninth), and on 15 February at Kill Devil Hills, North Carolina's second ever.

For birders south of Massachusetts, the prize alcid is the smallest, the Dovekie, and this was the first good flight since 1996 and 1997; in winter 2002-2003, the numbers of birds were less impressive than the extent of the flight. Despite the weathering-out of almost all winter pelagic trips after early December, New York and New Jersey managed to record 20 birds, with about the same number noted in North Carolina, where several birds put on a show at arm's length at Oregon Inlet in February. One reported in Charleston Harbor, South Carolina, was the southernmost, that state's first since the winter of 1993-1994. As Ricky Davis points out, the potential for confusing Dovekies with

vagrant Long-billed Murrelets—recorded in Massachusetts, Tennessee, and North Carolina this winter—is appreciable, and so, as for large alcids, conservative record-keeping is in order.

Swan songs

Trumpeter Swans, widely reintroduced (or introduced) and on the increase in many regions, drew attention in across an enormous part of the continent this winter, from the Southwest to Florida. Small groups, all known to be from the Great Lakes introduction programs, were again seen in Kentucky and Tennessee, and six in Nebraska were all apparently from the Iowa program. To the south of the middle tiers of states, Trumpeters are a new thing, so one in Mississippi near Starkville 12 January to 11 February was a state third, and four in Florida near Niceville all winter would provide a first state record. In Alabama and Mississippi, birders encountered other adult swans that might have been Trumpeters, Tundras, or possibly hybrids of the two (see the Central Southern regional report), and questions of both identification and provenance are likely to persist for some time yet. In Arizona, for instance, a group of seven unbanded Trumpeters, quite a rare sight, was not known to come from any particular introduction scheme, nor were two in Kansas and one in Oklahoma.

Notable by their absence: the "winter" finches and other irruptives

As has been the general theme for most years of the last decade, there was no large-scale southward movement of any of the fringillids. Parts of the East saw scattered sightings of Purple Finches, Pine Siskins, and Evening Grosbeaks, but all were in below-average numbers, and Evening Grosbeaks have become major rarities in parts of the East, even in areas where, a decade ago, they were reliable in small numbers. Pine Grosbeaks and both crossbills were virtually absent away from breeding areas, such as Algonquin Provincial Park in Ontario, which recorded 2060 White-winged Crossbills, many nesting, on its Christmas Bird Count. Only a handful of Common Redpolls was reported south of Canada, and most such reports were of single individuals. The only truly big news was from the Southwest, primarily Arizona and New Mexico, and involved the continued irruption of Lawrence's Goldfinches: the high of 747 on the Tucson C.B.C. was especially spectacular. Other winter irruptives failed to show as well. Northern owls, even Snowy Owls, were virtually absent from the Lower 48 this winter. Numbers of Rough-legged Hawks and Northern Shrikes were average or below in most places but did occupy most of their typical winter haunts. Bohemian Waxwings also remained in the far north, with only a brief appearance in numbers in Newfoundland.

Vagrants

It is always eye-opening to peruse the reports for vagrants, searching for those elusive patterns in distribution and seasonal occurrence. A few examples that caught our eye this winter included a Eurasian Bullfinch in Alaska, single Eastern Towhees in Colorado and in Arizona (the latter apparently the westernmost for North America), a Slaty-backed Gull in North Carolina and one continuing in Florida, a probable *asiatica* White-winged Dove in Nova Scotia, a Redwing in Newfoundland, Mexico's first Manx Shearwater, Yellow-legged Gulls in Newfoundland and Massachusetts, Green-tailed Towhees in Pennsylvania and Florida, a Bean Goose in Washington (race *middendorffi*), a Lesser Nighthawk in South Carolina, a Green-winged Teal (one of the Old World races) in Nevada, a Glaucous-winged Gull in El Salvador, a Sage Thrasher in Georgia, a Black-headed Grosbeak in Belize, a Reddish Egret in Bermuda, and a Spotted Towhee in Michigan. Almost all of these birds, rare as they are, fit patterns of vagrancy established by others of their species in past winters, and these emerging patterns, however faint, afford opportunities for both amateur and professional ornithologists to ponder and investigate changing bird distributions further. The lead article in this issue, on Gray Kingbird's vagrancy, is a fine example of this kind of investigation. Speaking of vagrant kingbirds, in the "One that Got Away" category, Massachusetts had an interesting kingbird, possibly a Thick-billed, that would provide a remarkable regional record if its identity were confirmed. Possibly *un*-assisted birds that as yet show little or no pattern of vagrancy—Florida's two Southern Lapwings and Eurasian Kestrel among them—might soon begin to show such patterns, and such records should continue to be countenanced in these pages.

What's in a species?

Living and birding in a particular region for a lengthy period of time affords ample opportunity to learn to identify the local species and their habits. We become familiar with the local spots favored by particular species, their migration patterns, and their plumages and vocalizations. When we travel to places away from our normal haunts, those same species sometimes look and sound quite different—different to the point that we may not immediately recognize them. Song Sparrow is a familiar example to many birders, as its plumage and song vary dramatically across North America. Away from home, we tend to credit this variation to just that—variation. However, when an unfamiliar variant (of whatever kind) turns up on our local stomping grounds, it may be mistaken for another species, particularly because "birding" so often incorporates a search for rare species.

Our desire to pin a name to every bird we see can predispose us to perceive species in the rather rigid terms of the familiar; we might know that a given species exhibits a range in bill length, back streaking, and undertail covert patterns, but we nevertheless sometimes misapprehend this heterogeneity, or "individual variation," as we usually call it, mistaking a variant for a vagrant species or subspecies. Most species exhibit a greater range of variation than our field guides illustrate; field guides are simply a composite of many individuals averaged together. And because birding is a little like prospecting—we enjoy the occasional experience of rare and unusual sightings—we can sometimes forget Occam's razor: all other things being equal, the simplest explanation is usually correct. An "odd" bird is most likely an individual of an expected species. Seeing a Fox Sparrow in the East that shows extensive gray above, for example, might indicate that one has found a Slate-colored Fox Sparrow (*schistacea*) or a bird from the western range of Red Fox Sparrow (*zaboria*), but the far more likely answer is that one has found a bird that is within the known range of variation of the eastern Red Fox Sparrow (*iliaca*), the expected form here (cf. Zink and Weckstein 2003). Field guides fail to show the variation in this form.

A species, then, is best defined by a range of variation, rather than by a single value, and this has at least two important implications for birders. First, "different" birds may just be individuals of an expected species, perhaps from a different area. However, to say that such sightings are uninteresting would be far from true. Study and documentation of "unusual" individuals of common species are extremely valuable, as they are the constant refinement of our perception of what a particular species (or subspecies) looks like in our area. At some level, of course, variation *does* become ascribable to particular populations or geographic areas, and in recent years, birders have begun to pay much more attention to identifiable forms of birds "below" the species level. Identifiable differences between populations or taxa are normally difficult to establish with confidence; such differences are typically worked out by ornithologists using specimen material, live birds, and, increasingly, molecular biology. Once the "word" gets out regarding field-perceivable distinctions, birders begin to take note of these in the field. This sort of birding activity

can begin to make important contributions to the science of ornithology. Our distributional knowledge of many subspecies and populations can be much enriched by birders and their field notes, and indeed birders' records are typically the source for nuanced distributional maps, such as the new ones in the eastern and western *Sibley Guides*. Fine examples from the regional reports this season were the Ipswich Sparrow in Québec, thought to represent the first far-inland record of that subspecies for North America, and the nicely photographed Sooty Fox Sparrows in Arizona, the first documented for that state (Figure 1). Subtle finds of eastern races west were multiple *sialis* Eastern Bluebirds in Arizona and a probable *pusilla* Field Sparrow in Colorado. A nominate Rock Sandpiper in Washington was not without precedent but provides nevertheless one of few Lower 48 records. Other, more general examples exist, including Western Scrub-Jays, White-breasted Nuthatches (Mountain West report), and White-crowned Sparrows (Eastern Highlands & Upper Ohio River Valley report), all of which have all received far more attention than they used to. Where once was heard, "Oh, it's just a White-breasted Nuthatch!" one now hears: "Did you get a look at the mantle color on that *nelsoni* White-breasted Nuthatch?" By appreciating this level of detail, birders are learning—or relearning in many cases, as field guides of the 1980s and 1990s often ignored these details—and appreciating the subtle variation between populations of birds.

Invariably, our observations in the field will sometimes be "ahead" of formal scientific inquiries: the millions of birding eyes uncover changes in bird distribution (especially in cases involving "vagrants") long before ornithological investigations can confirm such changes or occurrences. A recent issue of *North American Birds* (Vol. 56, No. 4) provides two marvelous examples of this with a pair of articles that consider the probable occurrence of *japonicus* American Pipit and "Gray-bellied Brant" out of range. In neither case have certain specimens of these forms been secured that would confirm their appearances in the areas described in the papers. And in both cases, field identification of these forms (the brant is not even a formally described taxon!) is tentative, and even examination of photographs can be equivocal. Nevertheless, these articles present birds that looked "different" or "unusual" and place them in a sophisticated context that offers much food for thought for ornithologist and birder alike, ensuring that both will pay closer attention to pipits and brant in the future. Though preliminary, these papers both demonstrate the value of paying attention to variation, whatever interpretation(s) may arise. And there is surely room for multiple interpretations in such cases.

Some birders pay attention to subspecies and variation out of sheer scientific curiosity or aesthetic appreciation, but other birders are motivated by the possibility that such birds might, at some point in the future, be "elevated" to the level of species. The often very-difficult-to-identify taxa in the complexes of the former "Solitary Vireo" and "Western Flycatcher" are well-known recent examples of this. But birders would do well to uncouple the interest in different subspecies (and forms generally) from the anticipation that such forms might be "split," for several reasons. First, there is no assurance that populations defined as species will necessarily be field-identifiable: just ask the hard-core Baja California birders about several tricky Blue-headed/Cassin's Vireos, or southern Mexican birders about recent wintering Cassin's/Plumbeous Vireos. And back East, who dares identify a wintering Pacific-slope/Cordilleran Flycatcher, even if it is calling? The temptation to "identify" a tricky bird that might in fact *not be identifiable*—perhaps not even in the hand—is exacerbated by the need to "count" such a bird. Secondly, birders should understand that "ornithology" is not monolithic, and the taxonomic arrangement of birds is always in flux over time, as different interpretations, new conceptual models, and new research come to light. Thus, we might find that later ornithologists see fit to "re-lump" closely-related taxa into species. Both the difficulties in distinguishing valid taxa in the field and the metamorphosis of taxonomy can be frustrating to birders whose motivation is finding a new "countable" bird or "banking" a vagrant subspecies that might later be split. This caution is not meant to imply that we should give up on flycatchers and vireos (by no means!) or to denigrate the pleasure birders may take in finding a "new" bird in a particular area, only to suggest that we be circumspect about our own motivations and recognize both the limitations in identifying "different" birds *and* the instability, or at least the malleability, of the concept "species" itself: the conservative skepticism of Occam cuts two ways.

The species "concept" is in fact plural, a set of concepts—and a field of great contention at the moment. Arguably, the best structure we have for classifying birds is the biological species concept (BSC for short), which defines a species as "a collection of actually or potentially interbreeding populations" (Campbell 2001) or better still "a system of populations representing an essentially monophyletic, genetically cohesive, and genealogically concordant lineage of individuals that share a common fertilization system through time and space, represent an independent evolutionary trajectory, and demonstrate essential but not necessarily complete reproductive isolation from other such systems" (Johnson et al. 1999). For birders hoping to keep up with the "latest," ornithological journals such as *Auk* and *Condor* contain numerous studies that bear on the issues surrounding the taxonomic arrangement of North America birds. For example, Robert Zink and his colleagues at the University of Minnesota have published many studies examining these questions in multiple taxa (woodpeckers, thrashers, sparrows, and *Passerina* buntings, to name a few). In one study, they examined Song Sparrows from across the United States and found no evidence of genetic differentiation despite marked differences in song, plumage, and morphology (Zink and Blackwell 1996). In another, they published molecular evidence demonstrating that Blue Grosbeaks are most closely related to the *Passerina* buntings (Klicka et al. 2001). The American Ornithologists' Union has subsequently updated its *Check-list* to reflect this, and the Blue Grosbeak is now a member of the genus *Passerina* (Banks et al. 2002).

"So what?" one might ask. The utility of such knowledge may seem negligible until one considers the vast amount of information involved in gaining general knowledge about a particular group of birds—sparrows, seabirds, gulls, whatever the group—to the point that we field birders become truly insightful. For instance, of Song Sparrows, we might ask ourselves, "How and why does all this variation arise?" Armed with the knowledge that populations of this sparrow do not appear to be genetically unique, we might begin to think about how natural selection acts on this species and how high levels of genetic variation might be beneficial for members of this widespread species. Of the Blue Grosbeak, we might note how its modulated call-note bears a family resemblance to those of Indigo and Lazuli Buntings. (One wonders whether it was this distinctive call-note that alerted the observer to the presence of a Blue Grosbeak at Chatham, Massachusetts—on 23 *February* 2003, one of the most outlandish incidents of "early-spring" overshoots in local history, surely!)

As birders, we collectively spend millions of hours in the field each year. This represents an enormous opportunity to gather useful information. Although it is easy to stop paying attention to a bird once you have identified it, watching it further and noting the finer details of its behavior, plumage, and habitat is an inherently valuable endeavor on some level. It will make you a better birder and, if you take good notes, might provide

Table 2. Valuable information that birders can easily record in the field, ideally on a site-by-site basis.

INFORMATION TYPE	VALUE
Counts of bird species	Allows computation of relative abundance
Hours spent birding	Observer effort
Number of observers	Observer effort
Distance driven/walked	Observer effort
Weather (wind, temperature, etc.)	Affects bird detectability

ornithologists with valuable information that can complement or even catalyze the type of insights created by the studies mentioned previously. Such activity, too, begins to move us away from a rather one-dimensional activity—species identification (at which we generally excel)—toward a more cautious, subtle, and perhaps more rewarding pastime. The promise of a new "tick" on a state or provincial list need not be the chief motivation to study birds in ever-greater detail—the glory of avian variation is its own reward. Indeed, it does not matter whether Arizona's Sooty Fox Sparrows or Québec's Ipswich Sparrow are accorded status as full species; their splendor is manifest in any context.

Birders and science

As birders, much of our field effort is ultimately focused on gaining knowledge of distribution and abundance: which species occur where, when do they occur, how many are there, and so forth. Recently, we have seen a barrage of regional and national efforts to involve citizens formally in the collection of scientific data. Most of these efforts will be familiar—The North American Migration Count, the Great Backyard Bird Count, BirdNotes, and eBird—in addition to long-standing efforts such as the North American Breeding Bird Survey and the Christmas Bird Count. The recent launch of eBird deserves mention here. As birders, each of us is limited in the time we spend afield and the amount of information we are able to record (Table 2). eBird is an effort initiated by the Cornell Lab of Ornithology to pool birders' resources. Each of us can visit the eBird website (www.ebird.org) and enter bird sightings, thus concentrating the power of our data and making it increasingly meaningful. If enough of us participate, the data collected by eBird could well become *the standard* for distributional data on the North American avifauna. It may also become the single greatest contribution birders make to North American ornithology.

"Are birders collecting meaningful scientific data in these endeavors?" so some members of the U. S. Congress ask us. Would that we could give them an answer as straightforward as their replies to our questions are! First, what is "science"? Science is a value-laden term that conjures up many images, most of which muddy the water when it comes to understanding the practices and principles collectively called "science." The types of information collected by birders might or might not fit a "scientific" framework; the answer depends on the frame of inference we desire: do we seek to make sweeping statements about continental populations of birds, or are we satisfied with more descriptive statements at a local level? In truth, birders contribute a wealth of information through their observational reports. We just need to be clear about how our reports should be interpreted. Birders, via their published records in *North American Birds*, the various state bird journals, and other publications, provide professional avian ecologists with a wealth of important information: distributional data, peak counts, nesting phenologies, migration timing, discovery of small populations, and much more, including especially the documentation of range expansion or contraction. Although the causes of such changes are not usually understandable without detailed investigation, birders' discoveries can serve as springboards for in-depth ecological studies of birds. For example, the recent range expansions of Eurasian Collared-Doves (Romagosa and McEneaney 1999) and Great-tailed Grackles (Dinsmore and Dinsmore 1993) were spurred on by and partly based upon documented sightings of birders. Christmas Bird Counts have both individually and collectively documented the effects of the conversion of agricultural and other open lands to suburban housing tracts across the United States—and have thus documented the supplanting of one avian community by another. There is no denying that this large-scale database constitutes a powerful manifestation of "science."

As the "Changing Seasons" essays strive to illustrate, birders' contributions to the ornithological literature—through detailed reports of field observations—are invaluable. Our reports often provide the first hint of a major change in a species' distribution, help sharpen our image of the distribution of various forms and subspecies, and provide ample impetus for both birders *and* professional ornithologists to ask more formal, nuanced questions. Our intent in raising these issues is twofold: 1) we want all birders, especially novices, to be aware of the potential value of detailed field reports, and 2) we hope to encourage birders to strive to increase the level of detail in their reports, even the "advanced" birders among us. (Don't give up on those flycatchers and vireos!) The more closely we look, the more we will learn, making our contributions to the scientific study of birds ever more robust.

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