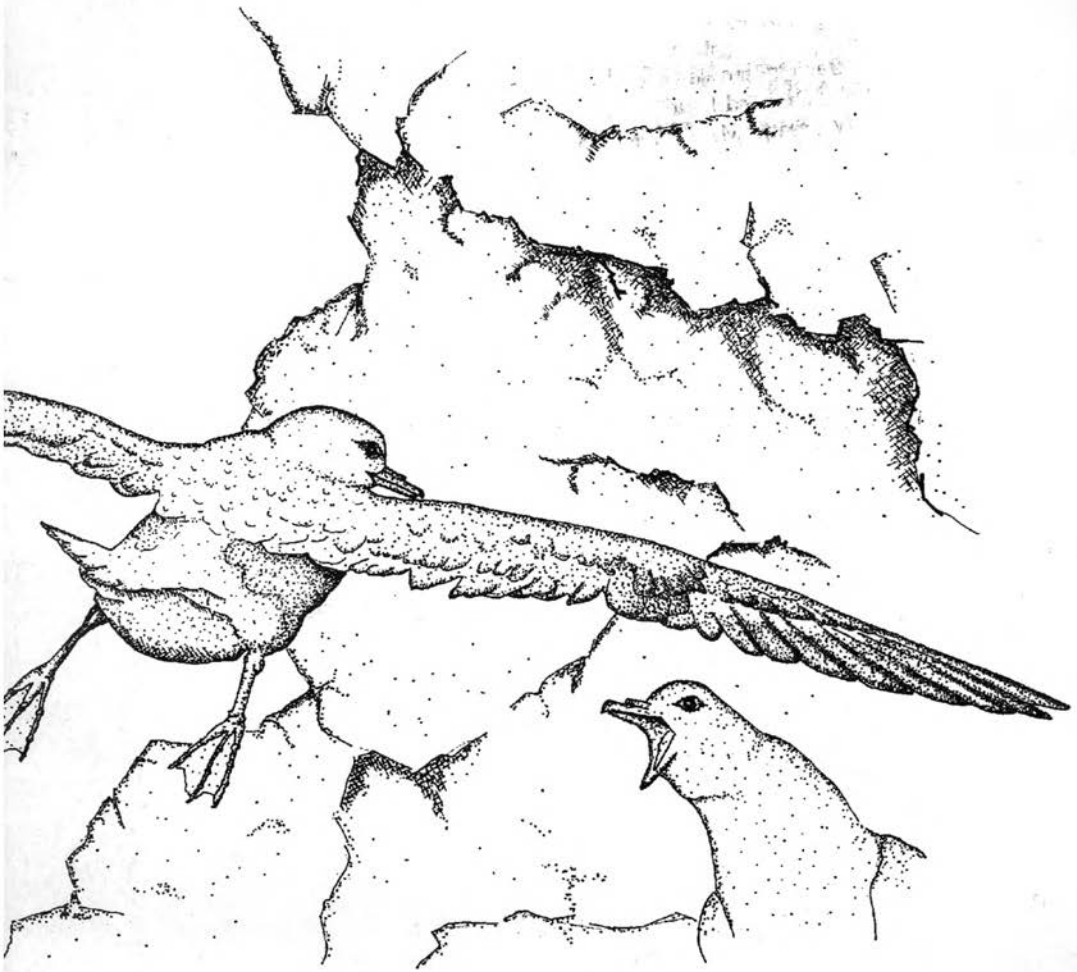
Bird Observer

VOLUME 30, NUMBER 5 OCTOBER 2002



HOT BIRDS

In May, an adult **Fork-tailed Flycatcher** visited Nantucket. Marvin Greenberg videotaped this handsome bird on May 25, 2002. The images shown here are screen captures from the VHS tape.

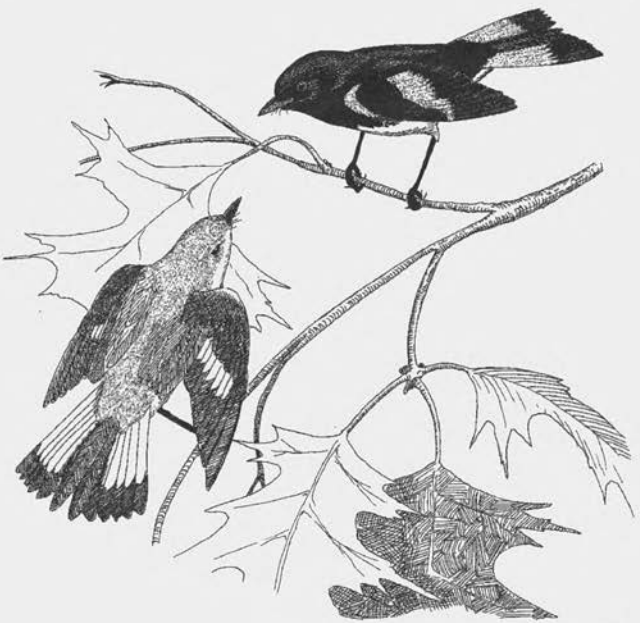
This **American Avocet** was found by Rick Heil at the Parker River National Wildlife Refuge on July 3, 2002. The bird stayed long enough for Phil Brown to arrive with his camera and take this image of a stunning male.

An **Elegant Tern**, originally described by Linda Pivacek and Geoff Wood on August 8, 2002, at South Beach in Chatham, was finally identified by Blair Nikula, Jeremiah Trimble, and others on August 17. Jeremiah Trimble took this photograph on that day. For a comparison of study skins of Elegant and other terns, see the image on page 351.

Another highlight from South Beach this fall was this **Curlew Sandpiper**, seen by many birders. David Larson took this digiscoped image on August 18, 2002.

On September 1, 2002, Mike and Toby Gooley saw a female **Magnificent Frigatebird** soaring over Rte. 28 between Brewster and Chatham. The next day, the bird was relocated at the Morris Island causeway in Chatham, where Libby Hadzima took the image to the left. On September 3, Dennis Abbott obtained the image below as the bird soared overhead in the fog in Orleans.

CONTENTS



AMERICAN REDSTART, GEORGE C. WEST

Bird Observer

A bimonthly journal — to enhance understanding, observation, and enjoyment of birds

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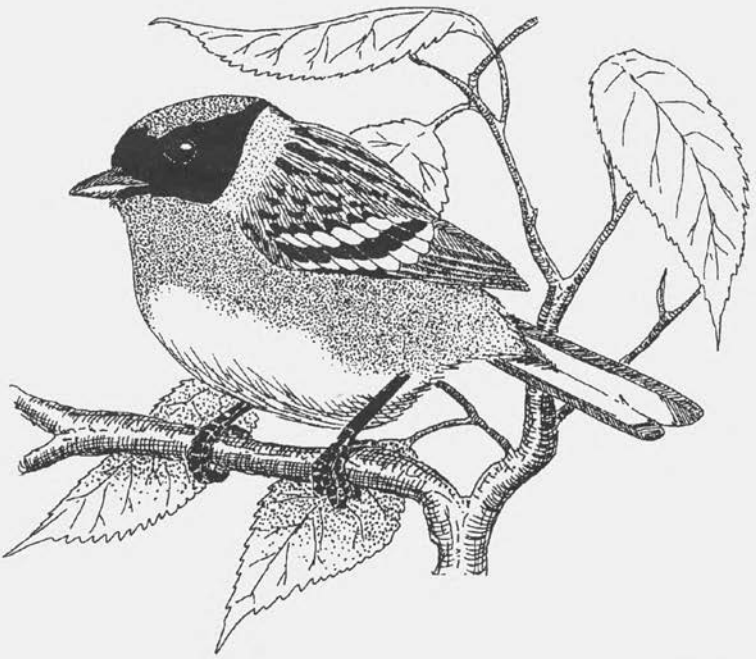
From the Editor

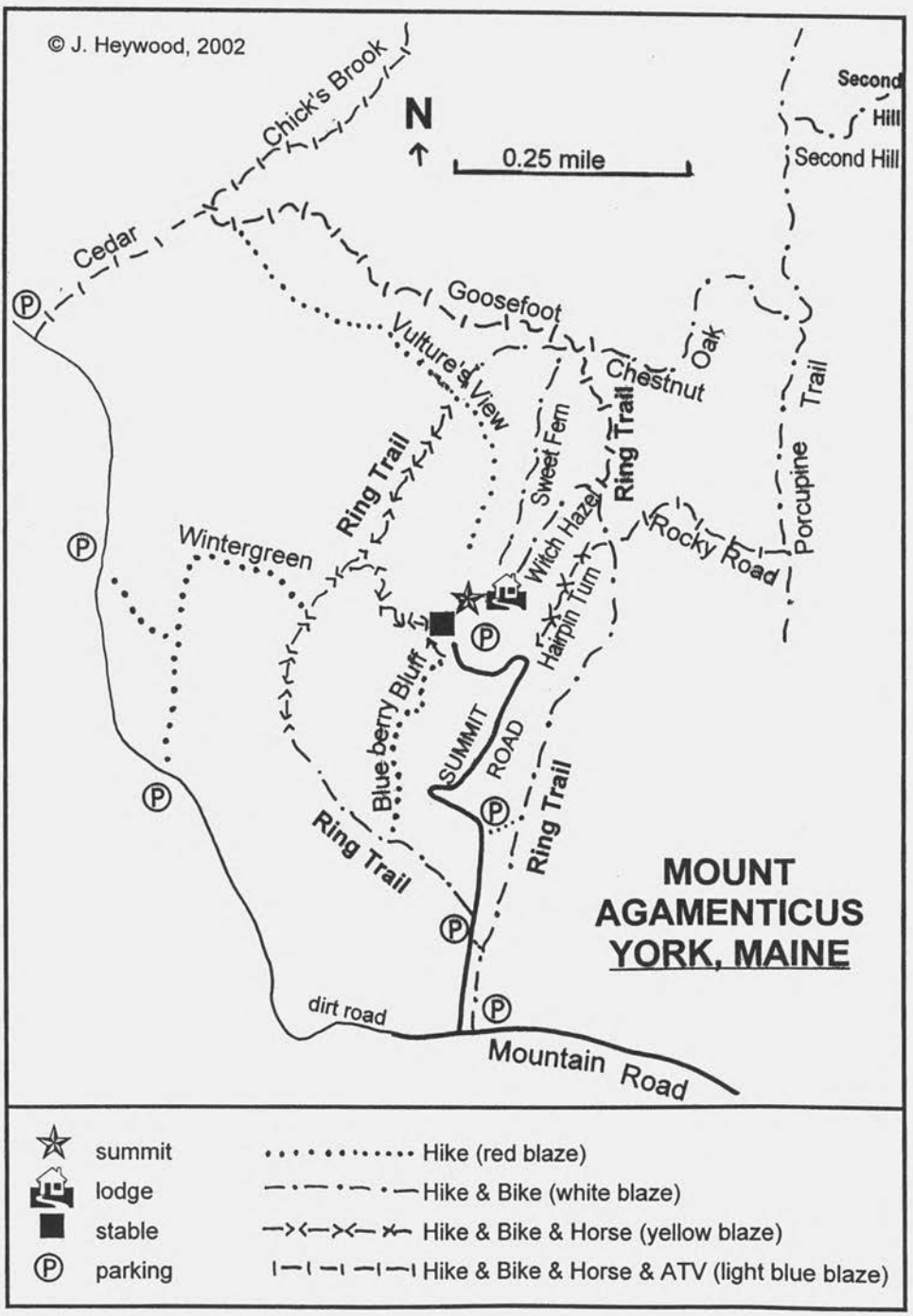
Remember May? Writing in the "Sightings" for this issue Bob Stymeist recalls the surprise storm that overtook Mass Audubon Birdathon birders on May 18. Over an inch of rain fell on Boston that day, "while in Worcester, a record low of 34 degrees, set in 1931, was broken when the thermometer leveled out at 33 degrees at noontime. It was also Worcester's latest snowfall on record. . . . In the higher elevations of northern Worcester County and in the Berkshires over two inches of snow was recorded. Birders were turned away from Mount Greylock where up to ten inches of snow closed the road."

Not all birders. Pushing on undaunted, spurred by the thought that it couldn't get any worse, Mark and Sheila Lynch were already on Mount Greylock that day as conditions deteriorated. In "A Tiny Bit of Olive and Grey Against a Field of White," Mark perfectly captures the mood of birding during this meteorological upheaval: "Every year while out birding, if you are very lucky, you will have a few experiences that will cause you to stop in your tracks and simply stare in amazement at the lives that birds lead. At these moments, you get a deep understanding, almost an empathetic epiphany, if you will, of how rigorous and dangerous birds' lives really are and how close they live to that fine edge between life and death."

Also, in this issue, two field notes that raise the bar on sitting still to a new level – Marj Rines' expanded account of "The Puddle," which first appeared last May as a Massbird post, and Henry Wiggin's diary of "Birdbath Birding." Enjoy.



BAY-BREASTED WARBLER, GEORGE C. WEST


© J. Heywood, 2002
N
0.25 mile
Chick's Brook
Cedar
Goosefoot
Vulture's View
Ring Trail
Wintergreen
Sweet Fern
Witch Hazel
Hairpin Turn
Chestnut
Oak
Second Hill
Second Hill
Porcupine Trail
Rocky Road
Blue berry Bluff
SUMMIT ROAD
Ring Trail
Ring Trail
Ring Trail
dirt road
Mountain Road
MOUNT AGAMENTICUS
YORK, MAINE
summit
lodge
stable
parking
Hike (red blaze)
Hike & Bike (white blaze)
Hike & Bike & Horse (yellow blaze)
Hike & Bike & Horse & ATV (light blue blaze)

Birding Mount Agamenticus

Scott Cronenweth

Mount Agamenticus is my mountain: I love and appreciate it in every way I can. Nearly every week, in every season of the year, I visit my dear Mount A to bird-hike, dog-walk, snowshoe, cross-country ski, census frogs, stargaze, watch fireworks, picnic, or just sit and watch the leaf-peepers, mountain bikers, horseback riders, kite-flyers, and ORV-ers. There are many ways to connect with this lovely place. Still, whenever I think of my mountain, I think first of the hawks. Local Red-tails kiting on territory. Broadwings streaming out of distant kettles. Sharpies and Coops hugging the summit contour. Ospreys drifting coastwise, carrying fish. A lone Peregrine Falcon loping south in a snow squall. An American Kestrel preening as I lift a child toward my scope. Merlin on a tree-top bomb run. A far-off Bald Eagle, rock-steady on the screaming wind. Red-shouldered Hawk, Northern Harrier, Northern Goshawk, Rough-legged Hawk, Golden Eagle, Black Vulture, Gyrfalcon. They all visit Mount A. For me, the drama of their lives is where the story of my mountain begins and ends.

Although Mount Agamenticus is Maine's most well-known fall hawkwatch site, the mountain and its trail network are infrequently birded in other seasons. Most folks come for the views or the hawks and never leave the summit. But for those who don't mind venturing down a trail or two, Mount A is the nexus of a natural area whose diversity and gentle beauty offer solitude, adventure, and yes, outstanding birding. This write-up describes the local hawkwatching scene, along with some recommendations for general birding on the mountain in any season. Whenever you can get here, you'll be glad you came.

A 692-foot monadnock, Mount A rises like one of Popeye's biceps from the surrounding coastal plain. "Agamenticus," by the way, is ostensibly a Native American word meaning "the other side of the river" – but I have no clue what river they meant! A mere hill by peak-bagging standards, Mount A is nevertheless the highest terrain in southwestern Maine. The view from the drive-up summit is wonderfully panoramic. On the finest fall mornings, Mount Washington and the peaks of the Presidentials loom in the northwest, while the coastal vista arcs from Halibut Point north to Cape Elizabeth and beyond. When the fog rolls in off the ocean, you'll do well to relocate your car in the parking lot.

Most reasonably clear days reveal Mount Chocorua to the west, the Kennebunks to the northeast, and Kittery to the south. Punctuating your view are a fire tower (a favorite roost for Turkey Vultures), a horse stable operated by the Town of York, and the obligatory cell tower array. During World War II the mountain was home to a radar base, and up to twenty-five military personnel were stationed here. The summit was also home to a ski area. Defunct since 1974, little remains but the lodge building

and a concrete lift stanchion that we hope will soon serve as the base for our hawkwatch platform. From the elevated porch of the summit lodge you can take in all of this, plus the serene woods and ponds of the surrounding towns of York and South Berwick.

Nearly 30,000 acres in size, the Mount Agamenticus region represents the largest intact coastal forest between Acadia National Park and the New Jersey Pine Barrens. More than 8000 acres on and around the mountain are currently under some form of environmental protection, and organizations like The Nature Conservancy, the York Land Trust, and the Great Works Regional Land Trust have made the rapid acquisition of up to 8000 more acres one of Maine's top land conservation priorities.

Several varieties of southern hardwoods, including chestnut oak, shagbark hickory, and flowering dogwood, reach the northern limit of their range on Mount A and are found nowhere else in Maine. Equally important are its wetlands. The Agamenticus region may have the highest concentration of vernal pools on the planet – critical breeding habitat for obligate species like wood frog, spotted salamander, and fairy shrimp. For state-endangered plants and animals such as Blanding's turtle, spotted turtle, swamp darter, and ringed boghaunter (a dragonfly), Mount A's ponds and cedar swamps may soon represent the last refuge of a viable population.

In short, Mount A is a natural gem equal to any place on the New England coastline, and a must-visit spot for birders and other naturalists. It is only a ninety-minute drive from metro Boston, and it is easy to combine a visit to Agamenticus with a trip to other nearby birding hot spots like Kennebunk Plains, Biddeford Pool, Scarborough Marsh, the Cliff House, or the Marginal Way.

Hawkwatching on Mount Agamenticus

To join the Mount A hawkwatch crew, simply drive up the short, twisty summit road to the end. Park in the gravel lot on your right (no fee); the lot on the left is for those renting horses. Pull up a picnic table, deploy your optics, and enjoy! An organized watch has covered Mount A in the past. Currently our coverage is a more ad hoc affair. Chances are you will find a kindred spirit or two, although on a weekday morning you might have the place to yourself.

If you are here for a peak Broadwing experience, your tally of hawks could well be in the thousands. But Mount A is not Cape May. A hundred hawks make a good fall day here. Perhaps twenty-five birds in a morning make for a solid spring flight. Even under decent conditions, the virtual absence of raptors is less than rare. What this site offers, more often than sheer numbers, is an opportunity for great looks at a wide range of raptor species. The mountain's location, five miles from the coast, east of the White Mountains, and considerably higher than the surrounding wooded terrain, brings on everything from ridge-hugging accipiters to thermal-seeking buteos to wandering eagles. Many individuals use the summit itself for whatever thermal or reflected lift it offers or exploit more powerful thermals that form on the comparatively flat ground to the north. Often, birds are in view for several minutes as they come on toward the summit, allowing for leisurely IDs.

RED-TAILED HAWK, SHAWN CAREY

As at most hawkwatch sites, local weather conditions play a key role in the strength of the hawk flight. Not surprisingly, the best winds are north-to-northwest throughout the fall, and south-to-southwest in spring. Early migrants that rely on optimum soaring conditions, in particular, Broadwings, typically are seen in higher numbers on mild days with moderate northwest winds (12-20 mph). These conditions allow thermals to form and also provide a tailwind for birds gliding south. A westerly component to the wind, particularly when sustained over several days, helps push birds traveling east of the White Mountains closer to the coast. By the same token, an overabundance of west winds (above 20 mph) in late September can make the Mount A summit a raptor-free zone, while coastal spots like Laudholm Farm in nearby Wells are racking up nice accipiter flights.

As the fall season progresses, higher wind velocities become increasingly favorable. The mountain and its adjacent north-south ridges reflect these winds upward, creating significant lift. Hawkwatch stalwarts have been heard to say that the best October flights on Mount A happen when strong cold fronts bring brisk northwest winds that make the guy wires on the fire tower hum. On days like this you might want to anchor your scope with tent stakes! By mid-October most of the birds have gone by, and those that remain are increasingly spread across the region. Conditions become harsh, and hawkwatch reports dwindle. Yet this is a time of strong Red-tail flights, perhaps accompanied by surges of the larger falcons and a smattering of Coops and Shoulders. And there's nothing like a distant, would-be Red-tail gradually transforming itself into a summit-hugging Goshawk to warm the heart and fingers of the hardy raptor fan.

To give you an idea of how awe-inspiring the mountain can be on the best of days, here's an unofficial report from Friday, September 22, 2000: 3,000+ Broad-winged Hawks, 92 Ospreys, 43 American Kestrels, 24 Merlins, 43 Red-tailed Hawks, 22 Sharp-shinned Hawks, 3 Cooper's Hawks, 2 Northern Harriers, 1 Northern Goshawk, 1 Red-shouldered Hawk (possibly local), and a lone Bald Eagle. This was one of the best hawk flights ever recorded on Mount A, leaving us exhausted with sheer happiness. I recall that the strongest push came on around 11 a.m., and that the birds kept moving well into the evening, with kettles still forming as I staggered home around 4 p.m., leaving my colleagues glued to their scopes.

As can be true of stellar flights at many New England hawkwatches, this one-day tally eclipses the site totals for more than a few entire seasons on the mountain. Data reported to HMANA (the Hawk Migration Association of North America) for the

years 1981 to 1994, for example, show an average of about 40 birds per observer hour, with annual totals averaging about 4100 raptors (including Turkey Vultures) over 129 observer-hours. Broad-winged Hawks were by far the most numerous species seen, with 2159 counted annually on average. Sharp-shinned Hawk, American Kestrel, and Osprey are the next most common species, averaging 733, 471, and 330 counted, respectively. Less common species during that time included Northern Goshawk (16 per year), Red-shouldered Hawk (18 per year), and Peregrine Falcon (16 per year). More recent data – at least what I was able to obtain for this article – may be less comprehensive, but it would be interesting to note whether comparative declines and increases might be noted for species like Goshawk, and Sharp-shinned and Cooper's hawks, in line with speculated regional trends. With regard to the true rarities, a Golden Eagle is spotted perhaps once every couple of years on Mount A, and a bona fide Gyrfalcon maybe once a decade. Black Vulture is not unprecedented and will no doubt be seen more often as the species expands its range to the north.

Here's a cross section of recent outstanding daily totals for various species: 1836 Broad-winged Hawks (9/16/00); 4 Northern Goshawks (10/12/99); 5 Red-shouldered Hawks (9/15/96); 93 Sharp-shinned Hawks (9/25/99); 20 Cooper's Hawks (9/23/99); 99 Ospreys (9/25/99); 21 Bald Eagles – wow! (9/14/99); 15 Northern Harriers (9/13/89); 32 Turkey Vultures (9/25/99); 6 Peregrine Falcons (9/25/99); 31 Red-tailed Hawks (10/12/99); 3 Rough-legged Hawks (11/6/99); 2 Golden Eagles (10/22/87); 129 American Kestrels (10/1/87); 30 Merlins (10/12/99); 1 Gyrfalcon (10/3/99).

Perhaps it's just my experiential bias, but my sense is that migrating raptors exploit thermal lift around Mount Agamenticus in many of the same ways they do at my former scoping grounds on Mount Watatic, in Ashburnham, MA. Both peaks constitute big bumps on comparatively flat terrain, flanked by one or more north-south ridges, and are positioned to attract birds moving east of the White Mountains. Both mountains generate thermals on their flat, tree-free summits, and both create similar reflected lift by virtue of their topography. Both also produce their share of surprise raptors (notably Sharpies, in my experience) behind the observers on the back side of the summit, particularly late in the day. This is a result of the uplift created by the rejoining of wind currents disrupted by the north-facing side of the mountain itself.

One difference between Agamenticus and Watatic, I suppose, is that conditions around Mount A are regularly affected by onshore breezes. According to the lore of glider pilots, when the temperature differential between the warmer land and the cooler water is great enough, and the ambient wind speed is low, a rising wall of air,

SHARP-SHINNED HAWK. SHAWN CAREY

essentially a convection current, may form along the coast, creating a narrow plateau of lift. On some days these conditions might steer birds inland far enough to be seen from Mount A. And, indeed, we frequently spot birds soaring, or gliding at high altitude, between Mount A and the ocean. No doubt many birds that choose that route go undetected.

Before we leave the hawkwatch and begin our general birding hike, please bear with some practical reminders. Bring water and food: there is none for sale on the summit. A port-a-john may be present in summer through early fall, but don't count on it. Bring extra clothing layers, too. Mount A's weather can be surprisingly distinct from the nearby coast, with comparatively lower temperatures and stronger winds on many days. This is especially true in the chillier months, which here in Maine can extend from October through April. Gloves and warm boots are a good hedge against discomfort, since you'll be standing on grass that may be wet or muddy and has been known to harbor both deer and wood ticks.

General Birding Suggestions

With its broad diversity of forest cover and pocket wetlands, Mount A offers an interesting mix of migrants, nesting species, and winter visitors. My most surprising find on the mountain so far is two Sandhill Cranes, seen at a distance one fine hawkless morning in late September 2000. Just as my mind finally wrapped itself around what my eyes were seeing, I managed to knock my scope over. Personal favorite sight records also include Evening Grosbeaks in June, Common Redpolls in winter, and a fine mix of boreal warblers in spring. Other observers have reported Whip-poor-will, American Golden-Plover, Common Nighthawk, Olive-sided Flycatcher, Purple Martin, Northern Shrike (typically in November), American Pipit (October), and Snow Bunting (November). Both cuckoos are regular, if elusive, as is Great Horned Owl. Irruptive finches are as likely here as anywhere, especially during the breeding season.

The renovated, well-marked Mount A trail system is highly birder-friendly. You can walk any distance you like and cover a range of interesting terrain without retracing your steps. The routes I'll suggest offer maximum flexibility, with tips for early morning strolls in the spring, when passerine diversity is likely to be highest. Please keep in mind that many of the trails are rocky, steep, boggy, heavily eroded, and quite possibly all of the above. In other words: it is best to wear boots. Please remember also that this is a multi-use area, and that trails are open to a combination of bikes, horses, and off-road vehicles in addition to hikers. You'll do well to pick up a trail map and stay on the marked trails. The informal trail network in these parts goes on for miles in every direction, and false trails abound. Many people (including me!) have gotten very, very lost around Mount A.

The Summit and Summit Road

No birding visit to Mount A would be complete without a stop at the summit area. Whatever the season, scan the sky for raptors: Red-tailed Hawk, Turkey Vulture, Red-shouldered Hawk, Broad-winged Hawk, Cooper's Hawk, Northern Goshawk, and

probably Sharp-shinned Hawk are all local nesters and/or winter residents. Ditto Common Raven. Other nonraptors we've seen from time to time at the fall hawkwatch include Snow Goose, Common Loon, Double-crested Cormorant, and Great Blue Heron. Watch also for Chipping Sparrow, Eastern Towhee, White-throated Sparrow, Northern Cardinal, Dark-eyed Junco, Eastern Kingbird, Eastern Phoebe, Great Crested Flycatcher, Baltimore Oriole, Tree Swallow, Red-Eyed Vireo, Yellow-Rumped Warbler, American Redstart, Common Yellowthroat, and Cedar Waxwing. Less common visitors include Indigo Bunting and Red-breasted Nuthatch. Golden-crowned Kinglet may be present in early winter during some years, while Ruby-crowned is most likely in spring. American Pipit is quite possible in October.

While you are here, don't neglect to climb the steps on the right side of the summit lodge and enjoy the view to the east. You might also want to take a few strides along the Vulture View Trail, which tumbles down the north face of the mountain. I've spished up Nashville, Wilson's, Canada, Prairie, Chestnut-sided, and Magnolia warblers here in spring.

If you are around on a chilly spring morning, you can find some of the most productive birding in the east-facing trees right along the summit road (0.4 miles one way, end-to-end). Walk down as far as you like and simply head back up, keeping an eye out for warblers and other migrant passerines in the sunny spots. You could happen upon just about anything here. Blackburnian, Bay-breasted, Blackpoll, Tennessee, Cape May, and other boreal warbler species are all distinct possibilities in season. Birding the summit road by car is strongly discouraged, since the road is full of tight, blind turns and there is no shoulder.

Here's another option, if you'd rather not retrace your steps: at roughly 0.25 mile from the summit, you will see a small pull-off on your right, with a trail marker and a box for trail maps. This is the Ring Trail (described below), which circles the mountain below the summit and enables you to walk as far as you like before returning.

The Ring Trail

One excellent way to bird-hike Mount A is via the Ring Trail, which girds the mountain and serves as a hub for the region's official trail network. The Ring Trail itself covers a total distance of 1.5 miles. You can bird it at a leisurely pace in under ninety minutes, hiking back up any one of numerous marked side trails to return to the summit at any point.

My favorite way to access the Ring Trail from the summit is via the Witch Hazel Trail, a short (0.1 mile) spur that begins on the east side of summit, near the east-facing corner of the lodge. It is an easy, downhill hike through second-growth mixed woodland. Near the junction with the Ring Trail is one of the largest hemlock trees you will ever stand under. Witch hazel is abundant near the summit end of the trail, and the generally uncommon chestnut oak is easy to find along the way. As you move from the grassy summit into the woods, be on the lookout for the likes of Ruffed Grouse, Pine, Black-throated Green, and Black-throated Blue warblers, Ovenbird,

Northern Parula, Red-eyed and Blue-headed vireos, Hermit Thrush, Veery, Wood Thrush, Brown Creeper, Scarlet Tanager, Hairy Woodpecker, Pileated Woodpecker, and other species typical of northern New England mixed woodlots. Wild Turkey was first reintroduced to Maine in this general area in 1977-1978, following its extirpation many decades earlier. (If the number of turkeys I've seen in my yard is any indication, the species has rebounded handily.)

At the end of the Witch Hazel Trail, turn left onto the Ring Trail and proceed northwest across the former ski slopes. In general, trails on the east side of the mountain are steeper and rockier, while those on the west side offer more gradual ascents. Hemlock and other conifers seem to constitute an increasingly high percentage of the forest as the trail jogs downslope. The mix of woods and understory changes constantly as you move across cut-over remains of the old ski slopes, which feature dense pockets of ferns and saplings. After you pass the Horse Trail on your left, the mountainside becomes increasingly steep, and the canopy opens up somewhat. As you move along, watch for signs of resident mammals like coyote, red fox, raccoon, striped skunk, porcupine, black bear, moose, white-tailed deer, southern flying squirrel, Virginia possum, snowshoe hare, and fisher.

Just past the Wintergreen Trail on your left, there is a fine overlook out to the west, where you might easily spy a local raptor cruising its territory. The view encompasses Bickel Mountain, Warren Hill, and the woods, ponds, and marshes of South Berwick.

SOUTHERN FLYING SQUIRREL, DAVID LARSON

If you are hungry and it happens to be midsummer, keep your eyes peeled for the aptly named Blueberry Bluff Trail, which leads up behind the stables and back to the summit. The crop varies from year to year, but if you hit it right you'll have more of those yummy little low-bush blueberries than you could ever eat. The trail itself, 0.3 mile in length, winds steeply over the exposed rocky flank of the mountain, offering fine views to the southwest. This is the place to look for bear tracks and scat.

Where it crosses the paved summit road, the Ring Trail jogs downhill to the right before reentering the woods. To continue on the Ring Trail, walk down on the summit road for about thirty yards. Reenter the woods at the unmarked trail junction on the left (east) side of the road. A few steps thereafter you will come to an unmarked Y-intersection. Bear right, and you will shortly see a trail marker. Turn left here to proceed along the Ring Trail as it moves steeply upslope and skirts the east side of the mountain, initially paralleling the summit road. This is a surprisingly lively birding area where I have consistently heard or seen Yellow-Billed Cuckoo, Great Horned Owl, various warblers, and Purple Finch. Be alert, and yield to mountain bikers

coming downhill here. At the unmarked Y-intersection partway up the hill, keep to your right. The left fork returns you to the summit road.

When you come to the little wooden bridge, your loop on the Ring Trail is complete. Turn left to take the Witch Hazel Trail back to the summit.

A Longer Hike

For those wishing to take a longer hike to one of the prettiest parts of the Mount A area, try the Chestnut Oak Trail. Its unmarked west end, which can be hard to spot, veers off from the Ring Trail about forty yards past the marked junction with the Goosefoot Trail, just before the trail levels out and turns to the left. Follow the Chestnut Oak Trail to its end, then turn left and follow the Porcupine Trail over to Second Hill (555 feet). This two-hour round-trip hike will reward you with pretty views and looks at vernal pools amid the northernmost oak/hickory forest in New England. But please don't undertake it without a trail map, compass, water, and sturdy boots.

Field Notes

If you are inclined to keep a daily field card or HMANA data sheet when you visit Mount Agamenticus or other spots south of Portland, the York County chapter of the National Audubon Society would be interested in your observations. Please forward sightings of general interest to Donald Tucker at dtucker@gwi.net. Thanks in advance!

Getting to Mount Agamenticus

The Mount Agamenticus summit is located in the town of York, Maine. Those coming from the south should proceed up I-95 North through New Hampshire and into Maine. Just before the first tollbooth in Maine, turn off at Exit 4 (The Yorks / Ogunquit). Take the left fork off the exit ramp. (For those coming down I-95 from the north, this same exit is numbered Exit 1; turn right at the top of the ramp, and follow these same directions.) Proceed 0.2 mile; turn right just before the park-and-ride lot onto Chase's Pond Road. After 3.8 miles, Mountain Road intersects Chases Pond Road from the right; thereafter it is called Mountain Road. Don't turn right here, or you will cross back over I-95; instead, follow the road around to the left as it climbs uphill. Continue another 2.7 miles to the base of the Mount A summit road. If the road turns to dirt under your tires, you've gone a few yards past the summit access.

An alternative route, if you happen to be on Route 1 (the "coast road" hereabouts), is to turn onto Mountain Road across from the famous Flo's Hot Dog stand in York. Follow Mountain Road until it intersects Chase's Pond Road, and follow the directions above. All these roads are shown on Map 1 of the DeLorme Maine Atlas.

As you leave the mountain, you may wish to honor the spirits of this gentle land by placing a stone on the ever-growing cairn that marks the grave of Saint Aspinquid, a legendary local medicine man. The placard commemorating his burial is adjacent to the northeast corner of the summit parking lot.

Sources

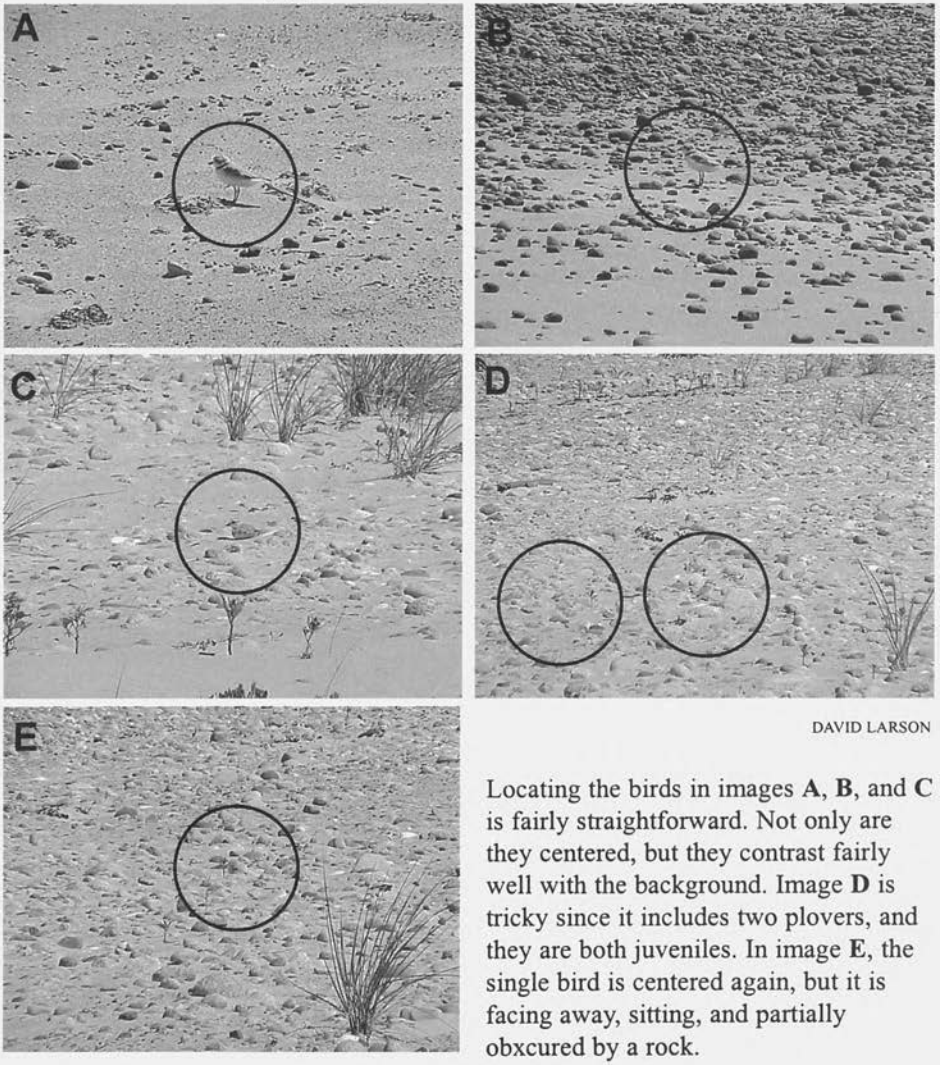
R. A. Wolters. 1971. *The Art and Technique of Soaring*. New York: McGraw-Hill.

Pierson, E. C., J. E. Pierson, and P. D. Vickery. 1996. *A Birder's Guide to Maine*. Camden, ME: Downeast Books.

Scott Cronenweth *(scottc@loa.com) is a freelance writer and an enthusiastic birder. He lives in Cape Neddick, Maine.* *He would like to thank J Dwight, Don Tucker, and Steve Mirick for their help with this article.*

Alternate Photo Quiz Answers: Piping Plovers on the Beach

(from *Bird Observer* 30 (4), p. 257)



DAVID LARSON

Locating the birds in images **A**, **B**, and **C** is fairly straightforward. Not only are they centered, but they contrast fairly well with the background. Image **D** is tricky since it includes two plovers, and they are both juveniles. In image **E**, the single bird is centered again, but it is facing away, sitting, and partially obxcured by a rock.

Singing Behavior of Dark-eyed Junco

Russell C. Titus

Most birders and ornithologists probably do not include Dark-eyed Juncos on their list of most interesting singers. The junco's conspicuous songs are repetitive trills that are sometimes hard to distinguish from those of Pine Warblers and Chipping Sparrows. Within flocks, juncos utter numerous, seemingly nondescript calls. But even a few minutes of quietly following a junco around will reveal that these birds have a more extensive repertoire. In fact, to me, having listened carefully for several years, juncos are remarkable vocalists. Throughout the year they produce a varied and complex assortment of songs and calls. Balph (1977), who studied winter flocks in Utah, described a minimum of seven call types. In my graduate work I looked at some of these, but I focused primarily on songs. Juncos produce two distinct types of song, one a trill and the other a lengthy complex series. For such a familiar and unimposing bird, this vocal repertoire presents an interesting challenge to one wishing to observe and understand animal communication.

In this article I discuss junco songs and mention calls only briefly. The distinction between calls and songs is not always clear. Calls are considered nonlearned, simple vocalizations that communicate messages such as alarm, distress, and the need to maintain contact. Songs, on the other hand, are often complex, longer, and in many species at least partially learned (Kroodsma and Miller 1996). Songs generally are considered advertisements for mates and of territorial ownership, and some function to stimulate a reproductive state in the singer or listeners.

It is helpful to define two terms: syllables and songs. Syllables (see Figures 1 and 2) are the units that make up songs. Blue-winged Warbler songs, for example, often are made up of the two syllables *bee* and *buzz*. Many bird songs are series of syllables repeated in a more or less unchanging order, with easily defined beginnings and endings. Examples include songs of Yellow Warbler and Red-winged Blackbird and the long-range songs of juncos (described below; see Figure 1). An individual bird may produce several song types, distinguished by differences in timing, pitch, and vocal quality (i.e., buzzy, rough, musical).

Other songs are more continuous, with the beginning and ending of each song less easily defined. Examples include many songs of Gray Catbird, European Starling, and short-range songs of juncos (Figure 2). Like the songs of warblers and blackbirds, these songs are composed of syllables, but the pattern in which the syllables are presented cannot be easily described.

A less often described but equally interesting way to look at songs is to consider the distances over which they function. Are they the equivalent of human whispers, normal conversations, or announcements made over loudspeakers? Is a particular type of bird song loud and easily carried over several territories? Or is it so quiet that only another bird a few feet away can hear it? The first type is conspicuous to human observers and has thus been well studied. The second type is more difficult to observe

but should be equally worthy of study. Junco songs of both types, which I term long-range songs and short-range songs, are described below.

I recorded juncos in the field during 1991-1993 (Blue Ridge Mountains, Virginia) and in captivity during 1994-1995. I attempted to record the entire repertoires of about sixty juncos (all birds were color-banded for individual recognition). Recordings were analyzed using one of several different sound analysis programs, and the resulting sonograms compared to determine repertoire size and amount of song sharing among individuals. I also looked at the function of songs through focal observations, song point counts, mate choice, and song playback experiments. This article includes information from several published papers (Titus 1997,1998; Titus et al. 1997; Nolan et al. in press), and unpublished results.

Two Song Categories of Junco Songs

Long-Range Songs (LRS, Figure 1). During the breeding season adult male juncos produce a loud trill that is normally considered the species' song. These songs most often consist of 7-23 repetitions of the same syllable over a period of 1.3 to 2.0 seconds (Titus 1998). About ten percent of LRS switch syllable types during the trill (similar to Nashville Warbler song). Most LRS sound fairly pleasant, although some are mechanical and buzzy. The song is followed after a period of 4-11 seconds by another nearly identical song (that is, of the same song type). This is the only vocalization given exclusively by males. Most males have 2-5 distinct LRS types. Because a song type is repeated many times before switching to a new type, an observer may need to listen for quite some time before hearing a new type.

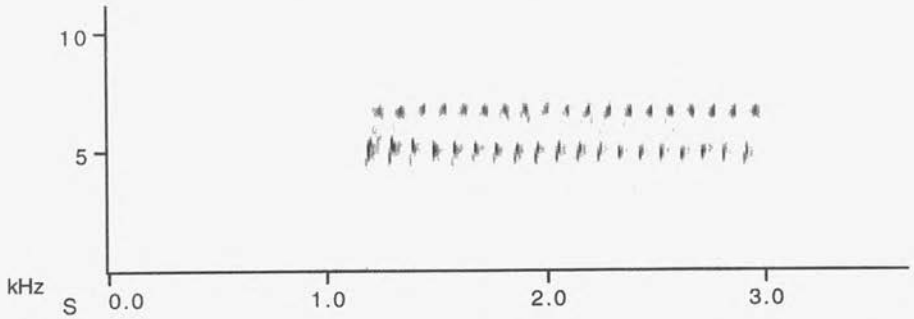


Figure 1. Junco Long Range Song: Frequency in kilohertz (kHz) versus time in seconds (S)

Junco LRS are similar to songs of Chipping Sparrow and Pine Warbler, but are usually distinguishable. Chipping Sparrow songs are usually longer than those of juncos, containing more syllables, up to sixty-two, compared with the junco maximum of twenty-five or so (Middleton 1998). The quality of Chipping Sparrow song is usually drier and more mechanical in a machine-gun-like way. Those junco LRS that sound mechanical tend to have a more ringing quality.

Pine Warbler songs are slightly shorter or the same length as junco songs, but tend to be softer and contain more notes sung at a faster pace. Some of the warbler's

songs vary in volume within the song, and some change in frequency and pace (Rodewald 1999). Where these three species occur together, however, I have occasionally heard songs that I could not positively assign to species by ear. Knowing local habitat preferences can help. In my study area, juncos occupied mixed high-altitude forests and openings, Chipping Sparrows were found in areas with short ground cover (such as lawns), and Pine Warblers were restricted to areas of mostly pines.

Within each male junco's repertoire of 2-5 versions of LRS, some may be slow and others rushed, some buzzy and others sweet, et cetera. Some song types cannot really be called trills — for example, they may resemble the mellow whistled songs of Tufted Titmouse. Occasional song types appear to be copied from other species but are still produced in the loud, lengthy bouts of long-range songs. One male in Virginia produced songs that sounded like those of an American Redstart. Williams and MacRoberts (1977) reported mimicry of a Brown Creeper by a male junco in California. All of these song variants were used at normal volume and seemed to function as normal LRS. Juncos in captivity (but able to hear wild birds outside their lab environment) have incorporated Spotted Towhee and House Finch songs into their long-range song repertoires (Marler et al. 1962).

Long-Range songs appear to function primarily as announcements of territorial ownership. They do not seem to be used in mate attraction early in the year since they are infrequent until after pairs have formed. Later in the breeding season, however, males whose mates have died greatly increase their rates of long-range song production. It seems likely that the function of this increase is to attract a new mate (Nolan et al. in press). LRS are given from the midupper levels of the forest canopy, from the tops of smaller trees, and from phone wires and similar locations (Nolan et al. in press). Males singing LRS very rarely forage or engage in other nonvocal behaviors, except for occasional preening. Normally, no other juncos are present within at least twenty meters (Titus 1998).

A variation of LRS appears to function over shorter distances. Quiet Long-Range Songs (an oxymoron; I've tried for several years to come up with a better term) are identical in structure to louder LRS but are produced at lower than normal volume, most often early in the breeding season. Males are unusually close to females during this type of LRS (average 3-10 meters), and they are usually perched in shrubs or low branches of trees (Titus 1998). Since no juncos other than the pair are likely to be within hearing range of these quiet songs, I believe that Quiet LRS may function to stimulate female reproductive condition. Songs have been documented to function this way in several species (Brockway 1969, Cheng 1992).

Short-Range Songs (SRS, Figure 2). Short-range songs are completely unlike the loud trills of LRS. Each syllable is most often followed by a different one, so instead of a trill one hears a complex song sometimes compared with that of American Goldfinch (Forbush 1929, Tanner 1958). Each junco repertoire contains 6-40 different syllable types, including whistles, rattles, buzzes, warbles, junco call types, and syllables from LRS. The maximum range at which SRS can be heard may be as short

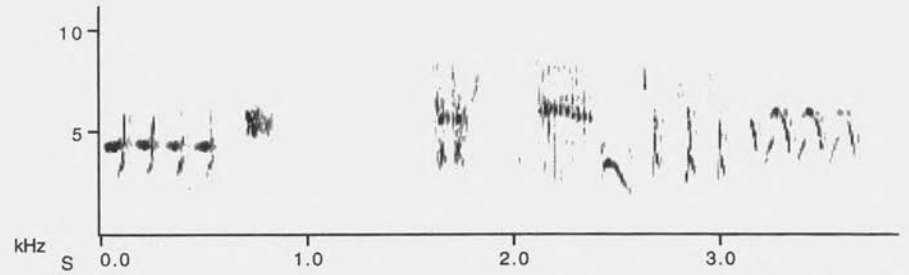


Figure 2. Junco Short Range Song: Frequency in kilohertz (kHz) versus time in seconds (s)

as 1-2 meters, but often lies between 10-20 m (Titus 1997; birds and humans are roughly equivalent in their powers of detection, and thus SRS should be audible to other juncos over only short distances).

SRS, like LRS, may contain phrases copied from other species' repertoires. In Virginia these included calls of American Goldfinch, Pine Siskin, and Red Crossbill (Titus 1998). Juncos housed in outdoor aviaries in Indiana included songs of Least Flycatcher and apparently Henslow's Sparrow (nearby breeders) in their repertoires (Nolan et al. in press).

Because short-range songs in many species are quiet and sound jumbled, they are often confused with subsong. Subsong is a transitory phase in song development given by juvenile birds or briefly by adults just prior to the breeding season. Subsongs are more varied than final adult songs and include syllables that will not ultimately remain in the adult's repertoire. Syllables do not have reliable pitch or timing, sounding different with each repetition. Junco subsong is infrequently observed. I have heard it during March and April in Massachusetts, and in captivity for only short periods in early spring and fall. In contrast, SRS is used throughout the breeding season, and syllables within SRS are stereotyped (sound the same throughout the breeding season). While subsong is thought to function only as a learning phase, observational and experimental evidence suggest that SRS is important in reproductive behavior. Use of SRS was highest when females were presumed to be fertile, and playback of SRS elicited strong responses by both males and females (Titus 1997, 1998). Most research on avian behavior has been conducted during the breeding season, when conditions are more favorable for field work. During this period true subsong should be rare, and many reports of subsong in the literature probably refer to SRS (Titus 1997).

As with LRS, Short-range songs can be divided into categories that differ in volume (thus range), structure, and function. The most frequently described SRS are used during courtship, when they are often part of a quite spectacular display (Forbush 1929, Hostetter 1961, Titus 1998). In these SRS, syllables are given at the rate of approximately one to three per second. Wide frequency sweeps (*tzweee*) and quiet call notes are often included in these songs. These SRS are generally difficult to hear at more than 15 m. These songs are often associated with particular behaviors. In the spring, males courting females may erect several tracts of feathers, including

those on the back, rump, sides, and crown, making themselves almost ball-shaped. Wings may be held low along the sides, and the tail is spread wide, flashing the bright white outer portions. Courting males may hop rapidly around females or between branches. Females may become moderately puffy at times but do not seem to vocalize when they do so. In addition to use in courtship displays, lone birds of either sex may produce these SRS, though without much display.

Rapid Short-Range Songs are faster and sometimes louder than regular SRS (although still carrying only short distances). They are frequently used during chases with other juncos, and often include quiet versions of LRS types. These and the previous SRS may be given during flight.

Simple Short-Range Songs are the lowest volume songs and are often composed of very few syllable types (note, however, that the ability to count syllable types depends on how easy it is to hear them, so I make the preceding statement cautiously). Simple SRS are used by pair members while they move about in close proximity to each other. Using standard recording techniques, it was usually impossible for me to determine with certainty which pair member(s) was singing. These songs are so quiet that they may be impossible to detect at distances of more than a few yards. Simple SRS appear more likely than the previous two songs to be composed of syllables that are repeated in recognizable patterns, for example ABC...ABC...AC...AC....

Seasonal Aspects of Junco Song

Spring: Males of most bird species return to breeding territories and, within the first day or two, begin singing their Long-Range Songs. In juncos, however, this sequence appears to be reversed. Males arrive a few days ahead of females, roaming in loose flocks. When females arrive, potential mating partners begin distancing themselves from flocks, possibly rejoining the flock later in the day, especially during inclement weather. LRS are infrequently heard. In this period, and until females begin incubating several weeks later, SRS are prevalent and easily observed by a careful, slow-moving observer who follows pairs at a few meters distance. During fights, presumably over territorial ownership, Rapid SRS may be observed. As the spring progresses, LRS become more common.

Summer: Males sing LRS throughout the day, with less evidence of a dawn chorus than in many species. By late summer LRS are infrequent. Females away from their mates may sing SRS or Simple SRS. SRS by males are uncommon at this time. In some cases, males courting potential new mates (such as males whose mates have died) have been observed singing SRS.

Fall: There are little data for this period. In the late summer/early fall I have seen hatching-year males sing SRS. Adult males occasionally produce LRS and SRS during the fall.

Winter: SRS are much more frequent than LRS during the winter, at least in eastern North America (Nolan et al. in press). Usually these are in the form of SRS or Simple SRS. They are often produced by lone males, although they also occur during

chases and fights. I have not yet observed females singing SRS in winter, but most females winter farther south than my study areas (Ketterson and Nolan 1976).

As outlined above, juncos use a variety of vocalizations throughout the year in a wide range of contexts. Many questions remain about singing behavior in this and other species. Some of the least studied areas for practically all species include nonbreeding season behavior, female song, and short-range song. Juncos, because of their abundance and approachability, provide an excellent opportunity to study the less conspicuous aspects of vocal communication.

References

Balph, M. H. 1977. Winter social behavior of Dark-eyed Juncos: Communication, social organization, and ecological implications. *Animal Behaviour* 25: 859-84.

Brockway, B. F. 1969. Roles of Budgerigar vocalization in the integration of breeding behaviour. Pp. 131-158, *Bird Vocalizations* (R. A. Hinde, Ed.). Cambridge, UK: Cambridge University Press.

Cheng, M.-F. 1992. For whom does the dove coo? A case for the role of vocal self-stimulation. *Animal Behaviour* 43: 1035-44.

Forbush, E. H. 1929. *Birds of Massachusetts and Other New England States*. Massachusetts Department of Agriculture.

Hostetter, D. 1961. Life history of the Carolina Junco *Junco hyemalis carolinensis*. Brewster. *Raven* 32: 97-145.

Ketterson, E. D. and V. Nolan, Jr. 1976. Geographic variation and its climatic correlates in the sex ratio of eastern-wintering Dark-eyed Juncos (*Junco hyemalis hyemalis*). *Ecology* 57: 679-93.

Kroodsma, D. E. and E. H. Miller (Eds.). 1996. *Ecology and Evolution of Acoustic Communication in Birds*. Ithaca, NY: Comstock Press.

Marler, P., M. Kreith, and M. Tamura. 1962. Song development in hand-raised Oregon Juncos. *Auk* 79: 12-30.

Middleton, A. L. A. 1998. Chipping Sparrow (*Spizella passerina*). In *The Birds of North America* (A. Poole and F. Gill, Eds.). Philadelphia: Academy of Natural Sciences, and Washington, DC: American Ornithologists' Union.

Nolan, V. Jr., E. Clotfelter, D. Cristol, C. Rogers, S. Schoech, E. Snajdr, R. Titus, and E. Ketterson. In press. Dark-eyed Junco (*Junco hyemalis*). In *The Birds of North America* (A. Poole and F. Gill, Eds.). Philadelphia: Academy of Natural Sciences, and Washington, DC: American Ornithologists' Union.

Rodewald, P. G., J. H. Withgott, and K. G. Smith. 1999. Pine Warbler (*Dendroica pinus*). In *The Birds of North America* (A. Poole and F. Gill, Eds.).Philadelphia: Academy of Natural Sciences, and Washington, DC: American Ornithologists' Union

Tanner, J. 1958. Juncos in the Great Smoky Mountains. *Migrant* 29: 60-5.

Titus, R. C. 1997. Song function and social influences on courtship behavior in Dark-eyed Juncos. Ph.D. dissertation, Bloomington, IN: Indiana University.

Titus, R. C. 1998. Short-range and long-range songs: Use of two acoustically distinct song classes by Dark-eyed Juncos. *Auk* 115: 386-93.

Titus, R. C., E. R. Chandler, E.D. Ketterson, and V. Nolan, Jr. 1997. Song rates of Dark-eyed Juncos do not increase when females are fertile. *Behavioral Ecology and Sociobiology* 41: 165-69.

Williams, L. and M. H. MacRoberts. 1977. Individual variation in the songs of Dark-eyed Juncos. *Condor* 79: 106-12.

***Russell C. Titus** has done research in Florida, upstate New York, Indiana, Virginia, and on the Standing Rock Sioux Reservation in North Dakota. He currently lives in Stoughton, MA.* *He would like to thank Ellen Ketterson and Andrew King for their research insight and Harold Stacey and Steve Weir for help with this article.*

DARK-EYED JUNCO, WILLIAM E. DAVIS, JR.

News from MassWildlife

Oystercatchers – MassWildlife coordinated the most comprehensive survey of breeding American Oystercatchers ever conducted in the Commonwealth by compiling data from 50 biologists censusing nearly 150 coastal beaches. . . . Preliminary results show the birds nesting at 48 sites along the coast with 41 pairs found on Nantucket, 38 pairs on the Vineyard and 25 pairs at the Monomoy National Wildlife Refuge in Chatham. One hundred fifty total breeding pairs were counted and overall reproductive success estimated at 0.6 chicks fledged per pair. As their name implies, oystercatchers feed on shellfish and sandworms. While the population is increasing in Massachusetts and expanding steadily northward along the New England coast, the species is receiving increasing conservation attention because of its overall rarity. The entire North American population is estimated at only 7500 individual birds.

Swan Survey – MassWildlife has been surveying the resident Mute Swan population in the Commonwealth since 1986, when 585 of the feral white birds were counted. The most recent survey, completed during the summer of 2002, reveals 947 swans now calling Bay State waters home. The survey is done every three years by flying over areas east of Route 495, including Cape Cod and the Islands, and counting the bright white adults and their grayish-colored cygnets. Greater Boston and inland swan reports are checked from the ground. The survey is scheduled for early August, a time when adult swans are molting and young swans are still unable to fly. Of the 947 total birds counted, 779 were adults and 168 were young. Fifty-seven pairs with broods were noted with an average of 2.9 cygnets per brood. Swans colonized Massachusetts decades ago when the birds, originally brought from Europe and introduced in New York, became established in the wild. Common in southeastern Massachusetts, swans have expanded north along the coast, up the Connecticut River valley from Long Island Sound, and have become established at scattered lakes and ponds in central Massachusetts. Subsequent to the 1986 survey when 585 swans were counted, surveys have been conducted in 1989 (565), 1993 (660), 1996 (917), 1999 (980) and 2002 (947).

Coloration of Bird Plumage

Robert W. Ricci

Birds are our most colorful of animals. Not only do birds incorporate many of the ways that nature provides for creating color, but they do so in a dynamic, evolving manner based on sex, age, and season of the year. During the course of a year a Massachusetts birder can expect to find well over a thousand different forms of plumage to sort through in identifying a bird. The purpose of this article is to provide the reader with a survey of the three color-producing processes – pigments, light scattering, and light interference – found to be important in birds and to show that the multifarious colors and appearances arise from a relatively simple pattern of development.

Light, Color, and Pigments

Our primary source of white light comes from the sun. White light is actually a mixture of colored lights which are revealed when white light passes through a prism. Water droplets in the atmosphere can act as prisms and are the source of the many colors seen in the rainbow. But what is light, and how is it related to the individual colors that we see as part of the surface properties of bird plumage?

Visible light as a source of energy is best considered as a particle, called a photon. As a photon it can interact directly on a one-to-one basis with individual molecules. Molecules called dyes or pigments can give color to objects that contain them. How these colors come about is illustrated in Figure 1. For illustration purposes, we will think of white light as a mixture of red, orange, yellow, green, and blue light. In this example, all but the red light is absorbed by the surface pigment molecules, and the red light reflects off the surface. We therefore perceive the surface as red. In this way the color of an object depends upon which components of the white light are lost to the pigment molecules. Of course, if the surface reflects all components it will appear white, and if the surface molecules absorb all components it will appear black.

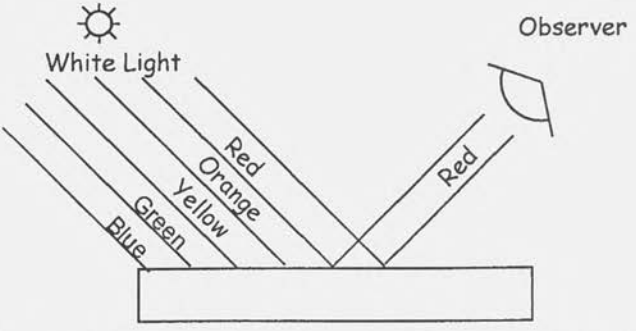


Figure 1. White light (seen as a composite of red, orange, yellow, green, and red lights) strikes a surface covered with a pigment capable of absorbing all the light components but red. The red light is reflected toward the observer.

Plumage Pigments

The typical feather structure is illustrated in Figure 2. The rachis is the central stem of the feather. Barbs come out of the rachis, and to these are attached the barbules. Most of the surface area of the feather is found on the barbules, and this is where the color resides. Pigment coloration is an important feature of bird plumage, and in this section we will discuss some of the important pigments found in birds.

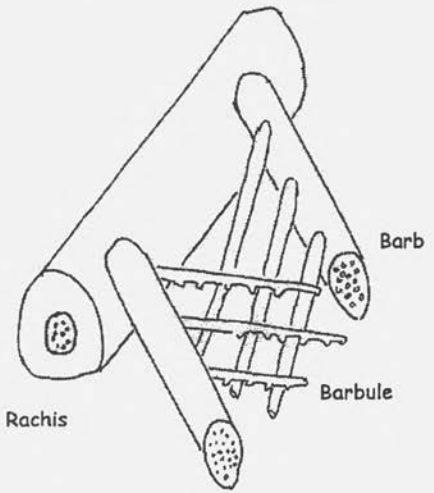


Figure 2. A bird feather, illustrating the rachis, barb, and barbules.

Blacks, Browns, and Grays. The most common pigments found in bird feathers are from the melanin family of chemical compounds that give rise to the black, brown, gray, and related colors. The melanin is synthesized in special cells called melanocytes, and then it is transported to the feather cells through tiny tubes or dendrites. In most cases, the melanin appears in the form of very small granules that are randomly distributed in the feather cells of the barbules. This arrangement gives rise to the deep velvet black seen, for example, in the American Crow.

Yellows, Oranges, and Reds. The bright yellows and reds found in birds are due almost exclusively to the presence of the carotenoid family of compounds. Unlike the melanins, birds are incapable of synthesizing their own carotenoids and depend on their diet to obtain them. One of the most common yellow carotenoids found in birds is lutein, which is widely distributed not only in feathers but also in bills, egg yolk, and the skin of the bird's feet. Lutein is probably most familiar to most New England birders as the yellow pigment seen in fall foliage. The pigment is always present in leaves, but its color is masked during the spring and summer by the green pigment chlorophyll. Lutein is ingested directly by foraging ducks, geese, and other plant eaters. Herbivorous insects, such as caterpillars, consume lutein and store it in their bodies, thus making it available to insect-eating birds such as warblers. Most insect eggs, small crustaceans, snails, and frogs are other sources of carotenoids.

Some ingested carotenoids are chemically altered by the bird's metabolism before being assimilated in the feather structure. A common example is the red pigment, canthaxanthin, which is found in a wide variety of birds from cardinals to flamingos. The widespread availability of carotenoids in nature normally assures that birds will not lack the materials needed to maintain their expected coloration. Under unnatural conditions, such as captivity, however, unexpected color changes can occur unless an effort is made to duplicate the bird's normal diet.

The respiratory pigment hemoglobin is a source of red color in the exposed skin areas of some birds. The head of the adult Turkey Vulture, the Wild Turkey's wattle, and the red patch on the head of the Sandhill Crane are three examples that birders will recognize.

Greens, Blues, and Whites. Green, blue, and white pigment in animals is rare, and I do not believe they are found in any birds typically found in this area. If we are to discover the source of these colors in local birds, therefore, we must first look at the wave nature of light.

Light and Structural Colors

Visible light as a radiating entity is best thought of as a wave characterized by a wavelength, as illustrated in Figure 3. The distance between successive crests or troughs determines the wavelength, and it is the difference in wavelength that characterizes the different colors of a light source. Visible light with the longest wavelengths is perceived as red, and as we scan through the spectral colors of orange, yellow, green, and blue, the wavelength decreases, with blue having the shortest wavelength in the visible range. The wave nature of light plays an important role in light scattering and light interference, two important methods of color development in bird plumage, and they will be discussed next.

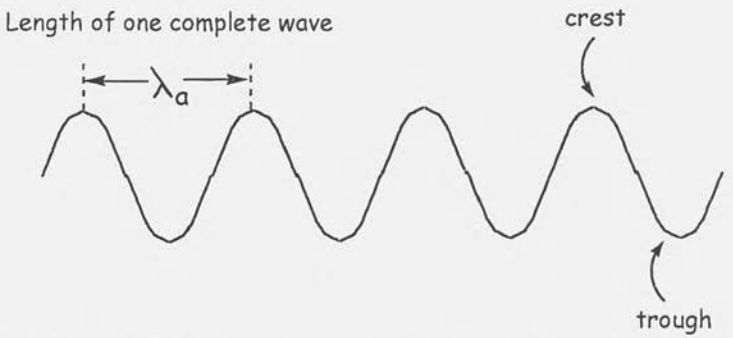


Figure 3. Light seen as a wave propagating through space. The light is characterized by a wavelength represented by the distance between successive crests.

Light Scattering

All surfaces, even those of transparent substances such as ice or glass, are capable of reflecting or scattering light. This is evident, for example, from the fact that we can see images reflected from the surface of a window pane. Increasing the surface area of an object will result in increased scattering of light. An icicle is clear and colorless, but snow is opaque and white, although they are both created from frozen water. The difference in appearance is due entirely to the enormous increase in surface area resulting from dispersing the ice in the form of tiny snow flakes. If the ambient light is white, such as sunlight, then the scattering will give the snow the appearance of being white. Notice that the change in appearance arises not because of a change in

the chemical makeup of the material, but solely due to its structure, i.e., solid icicle versus tiny snow flakes. For this reason, scientists refer to this type of coloring as a "structural color."

A typical white feather is composed of barbules that are made up of a transparent solid protein called keratin. This material is filled with tiny air-filled cells, giving it a sponge-like appearance. These air-filled cells increase the total interior surface area of the barbules and effectively scatter the sunlight as it passes through. (It is for this reason that our own hair appears white in the absence of melanin.) The vast majority of white-winged creatures owe their coloration to the existence of these air-filled cells. Many flowers also owe their white color to the same phenomenon. For example, the white flowers of the petunia contain air-filled cells that scatter the sunlight to give them their brilliant white coloration. The cellular structure of flowers is delicate and can be easily crushed between your fingers. Squeezing a petal from a white petunia will destroy the air-filled cells, causing the petal to lose its coloration and become transparent. The cellular structure of a white feather is more resilient than that of a petal, but can be crushed by a few blows from a hammer, resulting in the loss of its white coloration also.

Tyndall Light Scattering

In the case of the white feather, the air-filled cells that scatter the light into a diffuse white glow are longer and wider than the wavelength of visible light. In that case all of the wavelengths are scattered back to our eyes, resulting in our perception of white. However, if the size of an air-filled cell is smaller than the wavelength of visible light, then there is a different interaction between the visible light and the cells. In this situation the air-filled cells do not scatter all the frequencies of light equally, but scatter the shorter wavelength components more. Thus we find that blue light is scattered most. Green light is also scattered, but much less so, and yellow, orange, and red are scattered the least. This type of light scattering will result in the light reaching our eyes being mostly blue. The effect can be quite dramatic, as in the Blue Jay, Indigo Bunting, and other birds with blue feathers. In each case the barbules contain air-filled cells that are smaller than the wavelength of visible light. The presence of similar-sized cavities is also responsible for the Scaup's pale blue bill and the powder-blue bill of the breeding male Ruddy Duck.

Wavelength-dependent scattering is also called Tyndall light scattering, after the British scientist John Tyndall, known for his research on the blue color of the sky. Sky blue is also due to light scattering; however, in this case the sunlight scatters from tiny solid dust-like particles suspended in the atmosphere.

In a similar way, the light, grayish-blue color of the Great Blue Heron is partly due to light scattering. The heron's downy underfeathers are fragile and in time disintegrate into dust-like particles that become trapped in the outer flight feathers. The dust particles then act as scattering centers, giving the light reflected from its feathers a bluish cast.

On my desk is a test tube filled with alcohol in which I have placed a Blue Jay feather. The feather has lost its blue color and has turned as black as the Jay's necklace. The liquid has diffused into the feather structure and filled the cells with alcohol. The alcohol molecules are – in an optical sense – similar to the molecules that make up the horny material of the feather, and as a consequence the cells have "disappeared" as far as the white light is concerned. If I were to remove the feather from the alcohol and allow it to dry, it would turn blue again.

Now, filling the cells with alcohol explains why the blue disappeared, but does not explain why the feather turned black. It turned black because, just below the light-scattering region of the feather, there is a layer of melanin-filled cells that absorb the light. This layer also plays an important role in the intensity of the blue shade of the feather because it acts as an absorber of all the radiation that is *not* scattered by the scattering layer. If the melanin in the bottom layer of the Jay's feather is removed with a bleaching agent such as hydrogen peroxide, the blue pales considerably as white light now reflected from the bottom layer mixes with the scattered blue light. Painting the back surface with black paint would restore the deep blue color.

In many cases, the light-scattering feather surfaces contain a third top layer of transparent cells that can acquire a yellowish appearance through the presence of a blue-absorbing pigment. This is the case with many green-plumaged birds, where the color is a result of the combination of yellow outer layer, a Tyndall light-scattering middle layer, and a bottom, melanin-filled, light-absorbing lower layer. The yellow outer layer acts as a light filter, both absorbing some of the blue component of the

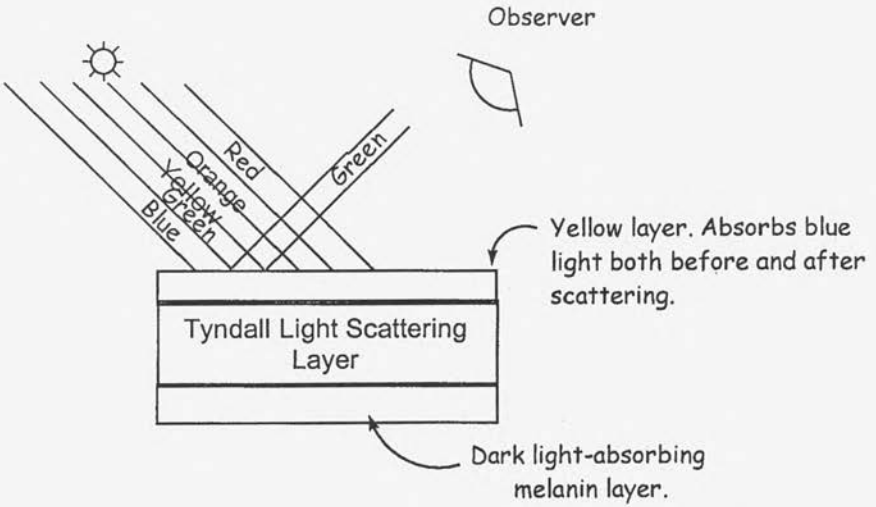


Figure 4. How green plumage is created. A top yellow layer acts as a filter for the blue component of white light, and it also absorbs the scattered blue light. Bottom melanin layer absorbs all light not scattered (mostly red, orange and yellow). Only the scattered green light emerges from the feather surface.

entering white light before it reaches the Tyndall layer and most of the remaining blue light scattered out of the Tyndall layer. The green component of the light from the scattering layer is unaffected by the blue-absorbing pigment, and this light emerges from the feather to provide the green hue. Again, any light not scattered by the middle layer or scattered downward by the middle layer is removed through absorption into the melanin-filled lower layer. This coloring process is illustrated in Figure 4. With some birds, the top layer of cells acquires a reddish translucent quality that results in purple-colored plumage.

Each of the three layers are subject to genetic variation, and this enables bird breeders to produce blue, white, and yellow-plumaged birds from green-plumaged stock, as is seen, for example, with domesticated parakeets. Breeding birds that have little or no yellow pigment in their top layer will eventually result in offspring that are blue. By selecting for a lot of pigment in the top layer, breeders can produce the yellow variety; breeding for transparent outer layers, white-light-scattering middle layer, and loss of melanin backing will result in light blue and white parakeets.

Iridescence

Iridescent colors represent the third manner that nature employs to adorn our avian friends.

Iridescent colors are intense, simmering, and change with angle of view. More than fifty Massachusetts' species display iridescence. The green speculum of marsh ducks, the bronze plumage of Wild Turkeys, and the glimmering green and purple coloration of starlings in winter are a few notable examples.

To understand how iridescence arises, we must first look at a third property of light called wave interference. Visible lights coming from two light sources are capable of interacting with each other (see Figure 5). In one case, when the two light waves interact, the crest of one wave overlaps the crest of the second wave, and trough meets trough, resulting in a combined wave that is more intense than the two original beams. This process is called constructive interference and results in the

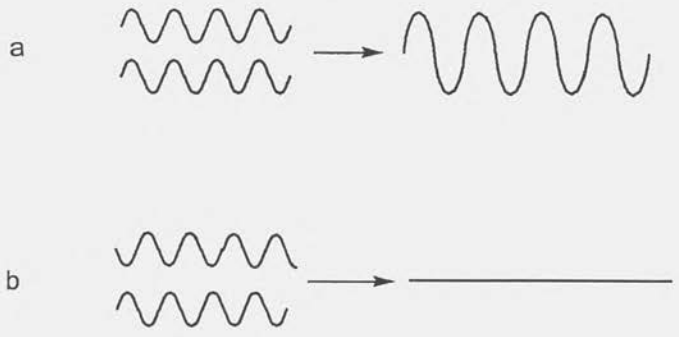


Figure 5. (a) Constructive interference of two waves. (b) Destructive interference of two waves.

reinforcement of the light intensity. In the second case, when the two waves interact, the crest of one wave overlaps the trough of the second, resulting in a much less intense beam than either of the two individual beams. In this case the two waves cancel each other out in a process called destructive interference.

Iridescence arises due to the interaction between light waves and the structure of the material through which the light is passing. It is another example of a structural color. Some species of birds are equipped with genes that precisely control the arrangement of a translucent melanin-like material in the feather cells. For example, the material may be deposited in the form of tubes. Each tube in the feather cell is of the same size, arranged side by side in neat layers, with the same spacing between layers, and looking for all the world like the "supermarket shelf" stacking of canned goods. In other species the tubes are replaced by an orderly arrangement of thin, flat, rigid plates, giving the appearance of a tiled floor. It is these orderly cellular structures that give rise to the iridescent colors found in birds.

Hummingbirds have flat barbules, and the iridescent cells in the barbules are stacked together like shingles on a house. The cells consist of ultrathin layers of translucent air-filled plates. The plates are all of the same thickness and form a series of layers. Sunlight enters the plates, and some light is reflected back out from each surface of each layer toward the observer. These reflected beams of sunlight act as secondary light sources capable of interfering with each other. For light of a particular color, the extra distance traveled between layers will be equivalent to its wavelength, and this color will be reinforced through constructive interference. The effect will be amplified at each layer, giving rise to an intense burst of color.

This process is illustrated in Figure 6. Green is the most typical iridescent color, but other colors are found. In general, thicker optical layers give rise to yellows (brassy colors) and reds, and thinner layers to violet and blues.

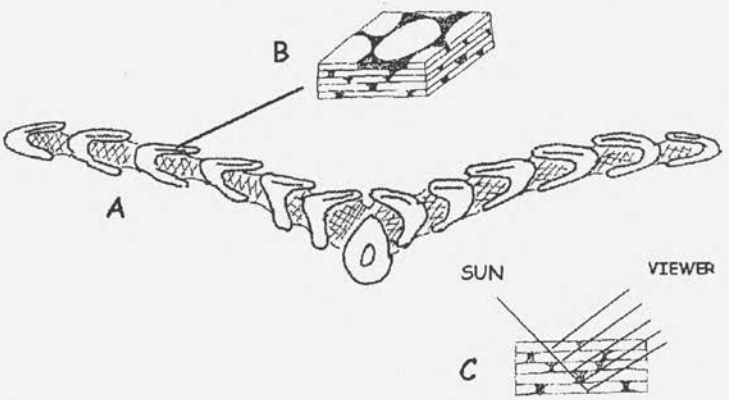


Figure 6. The structure of a hummingbird wing. A. Cross sectional view of a hummingbird barb and two attached barbules. B. An expanded view of the plate structure of the barbule cells. C. Illustration of how sunlight reflects from each surface of the plates, resulting in constructive interference for light of the correct wavelength (color).

Sources

Durrer, H. 1984. Colouration. In *Biology of the Integument*, 239-247, New York: Springer-Verlag.

Farrant, P. A. 1997. *Color in Nature: A Visual and Scientific Exploration*. New York: Sterling Publishing Co, Inc.

Fox, D. L. 1979. *Biochromy: Natural Coloration of Living Things*. Berkeley: University of California Press.

Greenwaldt, C. H., Werner, B., Friell, D. D. 1960. "The Iridescent Colors of Hummingbird Feathers." *Proceedings of the American Philosophical Society*, Vol. 104, No. 3.

Nassau, K. 1983. *The Physics and Chemistry of Color*. New York: John Wiley & Sons.

Simons, H. 1971 *The Splendor of Iridescence*. New York: Dodd, Mead & Co.

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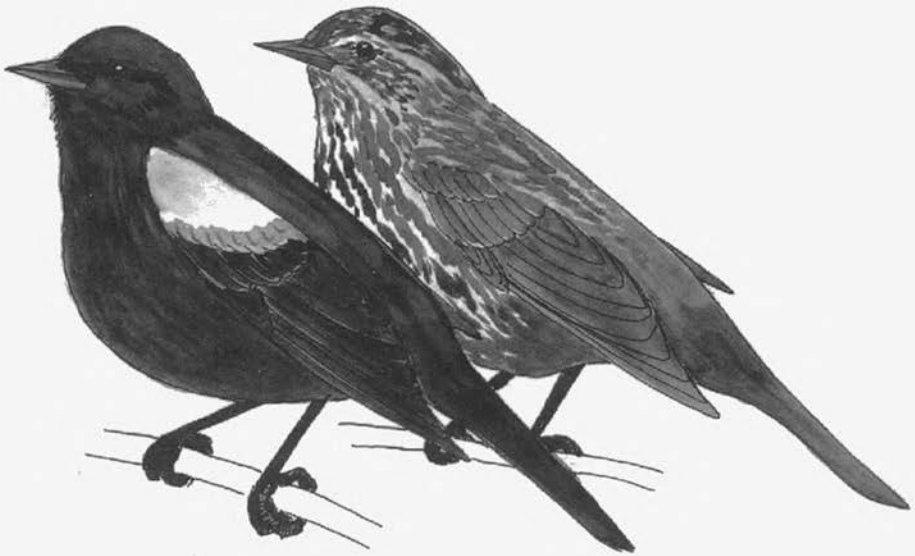


RED-WINGED BLACKBIRD, GEORGE C WEST

A Tiny Bit of Olive and Gray Against a Field of White

Mark Lynch

Every year while out birding, if you are very lucky, you will have a few experiences that will cause you to stop in your tracks and simply stare in amazement at the lives that birds lead. At these moments, you get a deep understanding, almost an empathetic epiphany if you will, of how rigorous and dangerous bird's lives really are and how close they live to that fine edge between life and death.

It started out typical enough: covering the Berkshires for Birdathon 2002 for Broad Meadow Brook. Friday, May 17, was an outstanding kickoff to the marathon and rates as some of the finest, most exciting and rewarding birding I have ever done in inland Massachusetts. But *that*, as they say, is a story for another time. Suffice it to say that, as Sheila and I turned in at 11 p.m. in Pittsfield, with smiles, I remarked that, because we had seen so many good birds that day, the next day we would probably die in an auto accident by some unforgiving laws of birding karma. Nothing quite so dramatic happened, but....

We had been expecting foul weather all week at some point during Birdathon. Watching local forecasts and the Weather Channel in the hotel room, we knew that we would be waking up to rain and that all teams would have a tough day of it. Dawn broke and, peeking out the window, we glumly observed a cold hard rain. "Well," I observed, "this will be as bad as it gets...it's supposed to clear up by the afternoon." After all, we had birded the Berkshires during Birdathon in the rain many times. Last year we started the event Friday at 6 p.m. in Florida, Savoy, and Windsor in fog, wind, and cold, and we made the best of it. We donned our foul-weather gear and headed out.

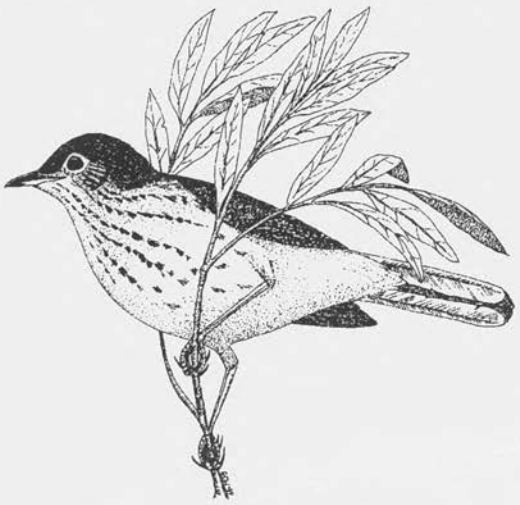
We started in Pittsfield proper, eventually arriving at Onota Lake, where despite less than perfect visibility, we saw White-winged and Black scoters, Common Mergansers, Spotted Sandpipers, and even a drake Gadwall. It was then that it started to snow. Initially, it was just some wet clumps among the drops, but it was obvious that the weather was turning uglier. "This will be as bad as it gets," I stupidly remarked.

Pontosuc Lake had few ducks, and landbirds were, as you can imagine, very tough to come by. A small flock of warblers in some pines was a welcome relief. I began to notice the Yellow Warblers. They were the only really visible warbler in this miserable weather. Several times we watched them dashing frantically from bush to bush, chipping loudly. We concluded that they may already have been on the nest, which started us thinking about the effects this weather had on small nesting insect-eating birds. Numerous swallows, mostly Trees and Barns, cruised low over the ponds in the chilly mist searching for some food. In certain spots we started to see bushes and trees covered with cold, dripping wet swallows and reflected on how

prolonged wet weather at this point in their breeding season can cause high mortality among aerial feeders. I started to feel guilty being out and about trying to tick birds that were under so much stress.

Hoosac Lake in Cheshire at least had a Solitary Sandpiper that flew in calling right in front of us. Any bird at this point was cheery. The temperature was dropping, and it was snowing in earnest. But it wasn't sticking to the wet pavement. "This will be as bad as it gets," I said once again, this time not at all believing myself. We still had to try Mount Greylock and decided to get to the mountain without delay.

By the time we got to the Greylock Visitor's Center it was really snowing, and trees, fields, houses, and roads were covered with a few inches of heavy, wet snow. We started to drive up the mountain and quickly noticed that the trees were bent ominously over the road, the branches weighed down with the snow. Broken branches began to appear on the road, and we saw newly fallen trees. Amazingly, there was bird song just a short distance up the road from the Visitor's Center. It was a real disconnect to hear and see Black-throated Blue Warbler, Redstart, Red-eyed Vireo, and even a lone Mourning Warbler singing amid a scene better suited for January. As we slowly drove farther, even more trees were bent low over the road, creating the effect of a gloomy, wet tunnel along stretches. Warblers quickly disappeared but were replaced by thrushes. Thrushes of every sort were out on the road in areas where, because of the cover of the bent trees, there was no snow. Interestingly, there was no thrush song whatsoever. These thrushes were loath to fly back into the forest, so we could stop the car and get killer looks. The thrushes hopped back and forth across the road or flew short distances, but never went very far into the trees. These birds were mostly Hermits, but with good numbers of Veerys and a few Swainson's. A single Gray-cheeked/Bicknell's gave us good views, but frankly we were getting worried at this point. A service truck had passed us going down slope. We had seen no other cars going up slope. We continued a short distance. The thrushes soon petered out as we climbed higher, and all we could find was a single female towhee. We began to hear the loud crack of breaking branches, and the snow was seriously starting to choke the road. We headed down slope in a bit of a panic and into the Visitor's Center. We informed the woman behind the desk that the road conditions on the mountain were getting dangerous. She told us that a trail repair crew was on the mountain, and she remarked that she was concerned about getting them down. We left and drove the Greylock-West Mountain Road. The dirt stretch



SWAINSON'S THRUSH, GEORGE C. WEST

of this road along the base of Greylock was sloppy and a bit dicey to navigate. Again, on open snowless stretches, we were treated to a thrush show the likes of which I had never seen.

We decided to continue to Savoy and Florida State forests and see whether we could turn up winter finches for the Birdathon. I rationalized that the severest weather would be confined to the highest point, Greylock. After all, it couldn't get any worse than it was on the mountain. By this time, all the snow was having a strange effect on us. We were losing our sense of what time of the year it was. Intellectually, I knew it was May and that we should be looking for warblers, but almost instinctively I was looking for Pine Grosbeaks, Northern Shrikes, and Boreal Chickadees.

As we started to drive through the state parks, conditions really deteriorated. It was still snowing heavily, and it was piling up on the unplowed roads. Branches and entire trees were crashing down loudly all over. The temperature was thirty-two degrees on the nose, and it didn't budge from there for the next several hours. We started to think about the prospects of running into snowmobiles. We managed to see a few Golden-crowned Kinglets which seemed right at home in the snow-draped evergreens. We kept reminding ourselves out loud that it was mid-May. A desperate-looking woodcock flew from an open seep to an area of deep snow under some birches. Sheila stuck her hand into the snow. It went from the tip of her extended index finger and covered her entire palm, and it was still snowing. In Florida, we found a pair of Common Mergansers at a small pond and also heard a sapsucker. A pair of Canada Geese with their five goslings were nibbling at a tiny patch of grass that hadn't been covered yet. On short stretches of road with minimal snow, we again experienced a phenomenal thrush show. A utility truck zipped by us, and the prospect of coming across downed wires added to our tension. The trees here were overburdened by snow and were bent so low that the car scraped the branches as we continued. Perhaps the strangest sight was coming across a caravan of jeeps, obviously out for a lark. They turned around and left. We rationalized that they were heading to some dirt road in the park, but we never saw them again.

Still winter finchless, and certainly in an extended period of diminishing returns for our efforts, we decided to head up to Monroe and make a last crazy try for some Evening Grosbeaks, which are usually around here as breeding birds. We were caught up in the whole surreal aspect of what we were doing and didn't want to simply quit now. Driving down Tilda Hill Road was a familiar experience. We had birded the feeders along here many times in January and February. Indeed, under the feeders were the juncos and White-throats you would expect in such a snow-covered scene. At the intersection of Main Road and Turner Hill Road, we heard an unfamiliar call (yes, we were driving through all this slop with the windows open). We stopped and got out, and it was then that I had my epiphany. The unfamiliar call was coming from a Blue-headed Vireo high up in a birch. Its call was like some shortened, hoarse version of its typical song. It was poking itself into the snow-caked leaf clusters looking for food, disappearing briefly into the snow while doing so. It was then that it really, deeply hit me what a life-threatening event this weather was for the migrants, especially for the vireos and warblers. At the risk of sounding anthropomorphic, I

don't think I have ever seen a sadder looking bird. I found it depressing in the extreme. As we continued down Turner Hill road toward the Vermont border, we stopped by a familiar snowy field backed by a dense row of snow-covered planted conifers where we had seen shrike and winter finches in January and February years before. It looked precisely as we had seen it in those deep winter months, and we had again to keep reminding ourselves aloud that it was indeed late spring. But I couldn't get that vireo out of my mind. As we drove back to Main Road, an Ovenbird flew in front of us and dove behind some snow at the base of some trees. Suddenly Birdathon seemed very far away and a bit trivial.

At the corner of Main Road and Kingsley Hill Road, a small flock of White-crowned Sparrows cheered us when we really needed our spirits elevated. Sheila then proceeded to drive down Kingsley Hill Road. For those of you who have never driven this theme park thrill ride disguised as a road, it is one of the most unrelentingly steep stretches of pavement in the state, deadending suddenly at Readsboro Road and the Deerfield River after dropping close to a thousand feet. This road is not for the faint of heart or for those who find the smell of straining brakes annoying. Of course, driving it in freezing temperatures and abundant snow conditions like we were experiencing at that moment can at best be called questionable or foolhardy. After all, the road is typically closed in the winter months.

Arriving at the lower elevation along the river, we noticed that down here, there was very little, if any, snow on the ground. Everything was lush and green. The acutely steep, round-topped hills of Monroe and Rowe closely hem in this little valley on either side of the winding river, creating some of the most dramatic scenery in the state. The hills all around were white with snow, but here at eye level it was spring again. The snow was changing over to rain, so finally things were really looking up. If this contrast in landscapes wasn't mind-boggling enough, we were amazed to suddenly hear warbler song and lots of it. Even though it was still overcast and wet, the trees all along the river rang with the songs of Redstarts, Black-throated Greens and Blues, Magnolias, Chestnut-sideds, and Red-eyed Vireos. Hermit Thrushes and Veerys could also now be heard. It was such a dramatic contrast to literally just minutes ago that the snowy world of the hilltops seemed like a distant dream, although all you had to do was look up across the river to see what we had left. These were not just breeding birds on territory, because the flocks included species like Northern Parula, Tennessee, and Bay-breasted warblers. Other unusual sightings included two Savannah Sparrows, an atypical species for this immediate area, although they breed in fields on the hilltops. Three Bobolinks were found feeding on a lawn like so many starlings. Here too were winter finches, and we found White-winged Crossbills and Evening Grosbeaks. After all, why would an Evening Grosbeak prefer a cold snow-covered hill in the breeding season any more than other species? We just assume they would because we most often encounter them in the dead of winter. We reveled in the experience of finding lots of thriving birds and enjoyed every last species and song.

The next day, all that snow seemed very far away in miles and time. But I still thought about that vireo. I don't think I shall ever forget watching that bird. I

wondered about the effect that weather would have on the trees and plants of the Northern Berkshires, and therefore the insects, and ultimately the nesting season of migrants. What about the May butterflies like the early hairstreak? Of course, migrating birds face this type of meteorological disaster on a somewhat regular basis, whether snow or fog, or floods or hurricanes. And I am sure that these events do take their toll on the population. It is the fate for many landbird migrants. But it is one thing to read about such events; it is quite humbling and sobering to witness them. I recalled a quote from Roger Tory Peterson: "Migration is the greatest adventure in the life of a bird, the greatest risk it must take."

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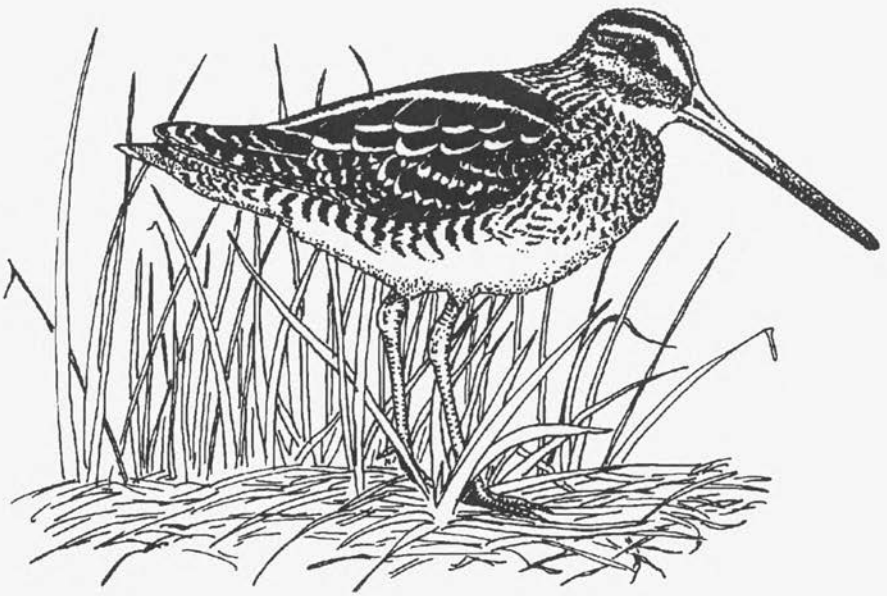


WILSON'S SNIPE, GEORGE C. WEST

Big Day Birding: A New Massachusetts Record

Bob Lawson

In our third or fourth year of trying to set a new Big Day Record for Massachusetts in the month of May, we finally did it – by one bird! (ABA rules go from midnight to midnight, so most Mass Audubon Birdathons, when we only birded from 6 p.m. to 6 p.m., could not count as attempts.) The previous record was 161 species, and the best we have ever done was 156. On Memorial Day, May 27, 2002, we got the magic number of 162. The birders were Strickland Wheelock (the man with the plan), my son Barrett, and myself. Here is our story.

Early Morning

At 2 a.m. Strickland, Barrett, and I pulled into the parking lot at Bolton Flats, and opened the car door to hear a Swamp Sparrow singing. It was mild and humid, with the full moon shining behind a layer of mist. The birds were in a singing mood. A Willow Flycatcher was vocalizing, and a Woodcock beeped from across the road. A Great Horned Owl began calling, and before long we heard several Screech-Owls calling. We also picked up Virginia and Sora rails, but no bitterns or nighthawks. We proceeded to the Old Rifle Range in Concord, but got zilch from our semi-reliable Barred Owl. Not to fret, we were on our way to Crooked Pond, which we felt certain would produce a Barred Owl for us.

We arrived there in plenty of darkness, and heard three or four Barred Owls. There were pools of water in the trail, and we were finally cut off by a flooded area, where we got a Louisiana Waterthrush singing. We took a new upland fork, which proved to be a great place to be as morning light first appeared. We had Veery, Wood, and Hermit thrushes singing, and then a Swainson's Thrush sang, which was the first time I had ever heard one sing in the East. We were feeling pretty good despite the lack of Ruffed Grouse drumming. We were picking up Blackburnian and other warblers, Yellow-throated and Blue-headed vireos, Yellow-billed Cuckoo, Pewee, and more. As we were departing, Barrett remembered that we had ditched a flashlight along the way, so he ran back for it. I thought that the mistake was at least good for his endurance training, but it also worked out well for our bird list; he picked up kingfisher and Green Heron. The Green Heron would be our only one of the day.

Newburyport Area

On to Newburyport, with a quick stop at Uptack Road. The power line break at Uptack Road was not up to Strickland's expectations, and he made a point of reminding me of this for the rest of the day. Personally, I enjoyed getting our only Prairie Warbler and Red-bellied Woodpecker of the day, but what can I say. Our next stop was in an area behind Cherry Hill Reservoir where a Golden-winged Warbler had been reported for the past several days. We picked up it on cue, as well as other birds. We drove by a field where there was a magnificent male turkey strutting his stuff out in the open, with two females lurking along the sides. He put on a spectacular show,

with his tail fanned out in a full circle. At first glance, he looked like a piece of wind-powered farm equipment! We moved on to get the early-morning warblers on Plum Island, but when we saw that the tide was dead low, we decided to make a quick foray for shorebirds instead. We waded out and picked up Dunlin, dowitcher, and other shorebirds.

Arriving on Plum Island, we made our way to Hellcat, picking up Purple Martin, Gadwall, Wilson's Phalarope, Common and Least terns. We trekked around Hellcat, but our most memorable stop on Plum Island was at The Pines. There was a good little flurry of birds here, including our only Black-throated Blue Warbler of the day. Then Barrett spotted a large lump on top of a horizontal pine branch, which proved to be a sleeping nighthawk. Strickland scraped an arrow in the walkway with his shoe to mark the spot for other birders. Then, on the backside of the circle, we had beautiful looks at a Yellow-bellied Flycatcher. Feeling rather pumped, we proceeded down to Stage Island where Strickland picked up a far-off hard-to-spot Green-winged Teal. He followed that act with a impressive detection of a Mourning Warbler song along the side of the road. At the end we picked up Piping Plover and Black Tern. Strickland and Barrett took the upland trail toward Emerson Rocks and got an Alder Flycatcher. At the beach we got Sanderling and Oldsquaw.

On the way out we made a second stop at Hellcat. Then we attached our Brown Thrasher deflector and made our way to the entrance where we would try to hear the Clapper Rail that was reported. We not only had success with the rail, but a guy there asked us if we had seen the Tricolored Heron at the Maintenance Shed. (He also asked us if we had heard about the Nighthawk.) We flew back for the heron, and found a skinny neck and head sticking up over the far embankment.

On to Newbury. We ventured into the tidal grass on Old Pines Road and flushed lots of Saltmarsh Sharp-tailed Sparrows, but no Seaside Sparrows. We did have a bonus bird, however, when a Black-billed Cuckoo called from the distant grove of trees, then we picked up Cliff Swallow at the bridge. In Rowley, we pulled into Stackyard Road and picked up Mute Swan and the guaranteed Orchard Orioles, and proceeded toward Cape Ann.

Bust

Right about now, we were realizing that we were in great shape! We had all our target owls and rails, and a great start on the flycatchers. Our goal seemed entirely realistic. It was only shortly after noon, and we had more than 130 species. We had twelve more hours and needed only 32 more birds! We checked our list, and made an executive decision to forget about spending the later part of the day on the South Shore as planned. We felt that there were more unique species to be found at the Quabbin area. And we had plenty of time, right? Wrong!

Going to Cape Ann almost proved fatal. Two days earlier, Strickland and Barrett had done some scouting up there, and it seemed probable that we could pick up seven or eight new species. As it turned out, we got only three. Moreover, the driving took forever. Our progress on the little winding road down there and on the roads on Cape

Ann was slow – especially getting mixed up in traffic in the Rockport area on Memorial Day. All we got was Surf Scoter, Common Eider, Great Cormorant, and Rough-winged Swallow.

Feeling duped as we headed south on Route 128, we vowed to omit Cape Ann next year. But we weren't too discouraged. Barrett and I had scouted Hanscom Airfield and Great Meadows also on Saturday, and we had some goodies to look forward to there. Along the way we kept our eyes peeled for raptors, because this was a group of birds that had eluded us. We had none! I say that we kept our eyes peeled, but actually the only eye activity Strickland had was in his dreams. The truth be known, he was sleeping like a baby. Until Barrett shouted out "Red-tail!"

The bust continued. We arrived at the Bedford end of Hanscom, but no sign of the Grasshopper Sparrow which had been singing on Saturday. No Fish Crows. Just lots of plane and helicopter activity. On to Virginia Road. Bust. There were huge lawn mowers where there had been Upland Sandpipers. You have to be concerned about their nesting habitat! Strickland finally spotted a pair of kestrels. Wow, one bird!

On to Great Meadows. No new birds. The Bufflehead that had been there was gone. Same with the Ring-necked Ducks. No sandpipers. Nothing. Only Dick Walton, up on the tower videotaping activities at a kingbird nest and oriole nest. This was getting ridiculous, almost pointless. It was now close to 5 p.m., and we had only gotten six species since leaving the Newburyport area. Our great position had become dismal. I said that we should reassess whether it was even possible to break the record at this point. Did we want to push on? Strickland, similarly, had a pretty discouraged look on his face. Thank goodness for youth. Barrett wouldn't hear of it. Strickland and I quickly fell into line and, without missing a beat, we were heading west on Route 2.

Fourth Quarter Head of Steam

The rest of our story was a series of surgical hits, with a wee bit of luck thrown in. We were heading to areas where we knew what to find and where to find it. On the ride out Route 2 we looked out for raptors, but saw not even a Turkey Vulture! Then we had two lucky hits when we got off the highway: a Broad-winged Hawk circling over the trees and a Pileated Woodpecker flying across the road in front of us. First surgical stop was the parking lot on the road leading up Mount Wachusett, where we got our junco with little problem. The sapsucker didn't materialize, but he has been unreliable anyway. Strickland made up for it by bringing us up to the chairlift break where he knew of an Indigo Bunting nesting – beautiful bird!

On to Barre Falls Dam. We got the bluebird on cue in the Bobolink field, and the ravens croaking from under the bridge near the dam. (Good to know that they seem to actually have their nest under there, for future reference.) We then got the *che-bek* at the *che-bek* spot, and the White-throated Sparrow at the White-throated Sparrow spot. The Red-breasted Nuthatch and Golden-crowned Kinglet seemed to be waiting for us, but the Winter Wren was a disappointing miss. Fortunately, we made up for it by getting the Northern Waterthrush in the expected swampy spot, plus a bonus Yellow-

rumped Warbler. The Evening Grosbeaks have not been seen out on Cold Brook Road this year.

We took stock of where we were, and figured we needed only a couple more species to break the record. Evening was coming on. Strickland said there were two possibilities: shoot over to the Uxbridge sewer beds for our needed Solitary and Least sandpipers and Lesser Yellowlegs, or head to Brookfield Marsh and go for bitterns. We decided on Brookfield. Strickland "led" the way. Maybe I should say he struggled to find the way. We got a bit lost out there in the vast heartland of Massachusetts, and the sun was getting lower. But I was enjoying the ride. The weather was mild and clear, and the scenery was beautiful. We were traveling through many lovely small towns of central Massachusetts, where time seems to have stood still for the last fifty years. As we passed fishermen along the sides of small lakes, I was thinking to myself: what a wonderful scavenger hunt this Big Day birding is.

Barrett discovered that Common Eider had not been checked on the list (E for error!) and that we had therefore already tied the previous record. The search for Brookfield marsh continued. (I was surprised at the end of the night to learn that Strickland actually had a map in the car. I guess he is that rare breed of man who would rather ask directions than use a map.) But to his credit, we actually made it with lingering daylight as we drove down alongside the railroad tracks to the middle of the vast marshland. Upon opening the door, we heard the pumping of the American Bittern. A new ABA record for the state of Massachusetts! Least Bittern never called, and we tried some longshots like Yellow Rail and Sedge Wren, but heard nothing. We figured we might as well try to put a little more margin on our victory, so we headed to the sewer beds in Uxbridge, to see if we could get sandpipers in the dark. We checked out most of the pools with our huge owl light, but not a bird was to be found. We would settle for a narrow victory, and a stop at Burger King. We arrived home at 11:20 p.m.

Next year we are going to try the super-duper ultimate plan . . . .

Bob Lawson *and his oldest son, Barrett, live in Concord, Massachusetts. For the past twenty-two years Bob was the owner and manager of BlueJay Recording Studio, which served the needs of local musicians as well as international acts such as Billy Joel and Yo Yo Ma. In 2001 Bob sold the studio, and now devotes his time to his small record label, which features an award-winning series he produced called The Kids Collection of Greatest Classics. Bob is coauthor of the* Birding by Ear *series (Peterson Field Guides). Barrett is a sophomore at Bowdoin College, Brunswick, Maine. He has been an avid birder since he was a toddler. From kindergarten through senior year in high school, he raised over $60,000 for Mass Audubon's annual birdathon. He is currently focusing his studies on economics and biology-ecology. Aside from birding, his favorite activities are music and tennis. Strickland Wheelock has been leading domestic and international birding trips for Mass Audubon's Drumlin Farm, Joppa Flats, and Stony Brook Wildlife Sanctuaries for the past fifteen years. Strickland is an active bird bander in the Uxbridge area and a member of the Forbush Bird Club. When not birding, Strickland is president of Wheelock Textiles, manufacturing specialized textiles for several niche markets.*

Editor's note: The previous official Massachusetts big day record was May 25, 1987, held by G. d'Entremont, D. Brown, and S. J. Dinsmore.

FIELD NOTES

Birdbath Birding

Henry T. Wiggin

In 1984 my live-in housekeeper and I went to the New England spring flower show. After we had thoroughly seen all the articles on exhibit, Miss Rielly wanted to go to the commercial section. So we did and soon met a man named Monti. He was selling shallow birdbaths. Bridie said, "We have to buy two so the small birds can take a bath." I protested feebly but ended by purchasing two of them. This was the best purchase I ever made. At my house birding has never been the same. The best – never equaled – was May 17, 1987. Coming to one or the other Monti birdbaths that day were: 1 Blue-gray Gnatcatcher, 4 species of thrushes (including Gray-cheeked, no Wood), 1 Philadelphia Vireo, 33 warblers (including 4 Tennessees, 2 Cape Mays, 1 Blackburnian, 6 Bay-breasteds, 1 Wilson's, and 1 Canada), and 1 Scarlet Tanager male. To see 6 Bay-breasteds splashing away all at once is something I will never forget.

Other highlights:

May 7, 1985. A Bay-breasted took a bath. After he left, a Worm-eating took his bath.

May 14, 1985. A gorgeous Orange-crowned Warbler showing his topknot splashed around in a birdbath for five minutes. Why couldn't it be ten minutes, I thought wistfully.

April 22, 1988. I was sitting in the living room reading a newspaper, and my housekeeper said, "There's a red bird in the birdbath." "A cardinal," I said casually. "Oh no," said Bridie, "I know cardinals. This bird does not have a crest and this bird is pinkish red." " Jesus Christ!" I hollered. " SUMMER TANAGER!" Bridie said, somewhat severely, "Don't swear." It was a Summer Tanager – he was beautiful.

May 19, 1991. A Swainson's Thrush bathed to the point that he looked almost all water. Gray-cheeked? Then he showed us his cheek and eye ring. I still like to see him, I mumbled to myself. Later in the day a Cape May Warbler and a Black-throated Blue took baths. I like the BTB – he looks so clean and neat.

May 1 1992. My housekeeper said, "There is a funny-looking oriole in the birdbath." I went, "Orchard!"

May 13, 1992. A Nashville Warbler in one of the birdbaths. I like his looks too.

May 21, 1992. A Swainson's Thrush in a birdbath.

May 11, 1993. A Magnolia Warbler splashing away happily. To me this is a lousy name. I like Audubon's "Black-and-Yellow Warbler" much better.

May 19, 1994. My housekeeper sang out, "There is a funny-looking chickadee in a birdbath." I went, "Blackpoll Warbler."

May 3, 1995. A Yellow-throated Vireo in a birdbath, a first for Brookline.

May 14, 1997. A handsome Gray-cheeked Thrush took a bath.

April 20, 1998. Brown Thrasher took a bath. One of my favorite birds. I grieve they

are so much scarcer than in my youth. Mockingbirds drive them out? It always seems to me that they have too much tail. Could it be that when God made the birds He had a lot of tail left over so the thrasher got the extra tail?

August 21, 2000. An Ovenbird in the birdbath.

May 10, 2000. I was working at my desk and a bird sang out, *chick it to be stick.* Sounds like a White-eyed Vireo, but not bloody likely, I mumbled to myself. Just to be on the safe side, I'll check the birdbaths. There he was!

October 22, 2001. An Orange-Crowned Warbler in a birdbath. It made my day.

April 16, 2002. A Louisiana Waterthrush splashing away happily. A first for Brookline.

May 12, 2002. A Lincoln's Sparrow in a birdbath. He looks so small, I thought, so fragile.

Date unknown, within last ten years. I must have been a real bonehead that day – I made no record. I was watching a Yellow-rumped Warbler in a birdbath. The bird had its back to me. Why couldn't this warbler have been more interesting, I thought. The warbler turned around. Solid yellow throat. Audubon's!

Christopher's Puddle

Marjorie W. Rines

Christopher was surfing the web one day and came across the Sibley-Monroe list of all bird species in the world. He told his mother it was the most exciting day of his life. "Better than Christmas?" asked his mother. "Oh yes," he sighed. Christopher is five years old.

By May Chris could think of nothing but warblers. He had pored through his books, memorizing field marks, and was impatient to test his skills. But so far spring had been a disappointment. His intellectual skills far surpassed his coordination, and he couldn't line his binoculars up with a bird seen high above his head. If, by chance, he lucked upon the bird, his five-year-old hands were too small to reach the focus knob. He often just gave up in disgust, and refused to use the binoculars.

In mid-May I had a birding date with Chris and Debora Diggins, his naturalist tutor. We wanted to keep Christopher focused on the positive, so we agreed beforehand not to talk about birds we were hearing high in the trees, and just to call attention to the lower birds that might be seen with the naked eye.

When we got to our destination, we were assaulted with bird song, loud and insistent from every side. Warblers flickered everywhere in the foliage, appearing and disappearing among the leaves. It was one of those mornings every birder dreams of. We were able to get close looks at a handful of warblers by working the thickets, but the song around us was tantalizing, and after an hour or so of many misses, Chris was getting frustrated.

I knew about a Hairy Woodpecker nest nearby, so decided to show it to him, hoping that the chance to capture an intimate view of a bird family would pique his interest. The dead tree hosting the woodpeckers is right on the edge of a clearing with a little puddle, maybe twenty feet across. To minimize any disturbance to the woodpeckers, we all sat down on logs right beside the puddle. The young were close to fledging and stuck their heads out begging noisily. A grackle flew in to perch near the hole and eyed one of the young. The adult flew in and drove it off.

Debora and I continued to watch the woodpeckers, but Chris's attention drifted away. "Catbird," said Chris. We looked to see the catbird that had come in to the puddle for a bath. We stayed very still as it lowered itself to shake, raising its feathers for full water exposure. All of a sudden, an awed expression came over Chris's face and he pointed, whispering "Wilson's Warbler!" There it was, only a dozen feet away, hopping along the edge of the puddle, then picking its way across sticks and leaves closer and closer to us, until it settled into the water to shiver its feathers.

WILSON'S WARBLER, MARJORIE W. RINES

The Wilson's was still bathing when the Blackburnian followed, the bane of "warbler neck," allowing a rare glimpse of it from above, its flame-colored throat reflecting in the water. But the parade had just begun. A Tennessee Warbler dipped and shook, just below eye level, and we delighted in seeing the gray head contrasting with its olive back. Then its frustratingly similar sibling species, Orange-crowned, came and loitered, and we carefully compared the field marks – yellow undertail coverts, yellowy streaked breast, eyeline.

The clearing was silent apart from the songs of the birds, a magical silence that we barely dared to break with our quietest whispers. The sunlight filtered through the foliage, splashing plumages with a rich and luminescent color. And the birds continued, one after another, seemingly unaware of our presence.

A Black-billed Cuckoo called nearby, and as we searched for it we caught glimpsing views of a Yellow-billed ten feet above the puddle. An oriole poked through the debris at the edge, finally selected a piece of monofilament line for her nest, then flew treewards. And still the parade continued. One after another warbler, sixteen species in all, visited the puddle, plus Wood Thrush, Veery, and five species of sparrow, including one Lincoln's.

Being there was a strange mix of languor and excitement. We were immobile, none of us daring (or wanting) to move, yet with each new bird that visited the puddle, we felt a little whisper of adrenalin. After an hour and a half, Debora and I were worried that Chris might be getting bored and reluctantly asked him if he wanted to do something else. He just looked at us, starry eyed, and simply whispered, "This is so exciting." We stayed for another half hour, and only left when the activity level had subsided.

Returning to the road was a little shock of reality. We had been spellbound by the experience, and suddenly there were cars and people and dogs. The late morning sun was high in the sky, bright and harsh. Speaking aloud for the first time in two hours, trying to talk about what had happened, we chattered, gushing, searching for words to relive it and falling short.

LINCOLN'S SPARROW, MARJORIE W. RINES

I went back to the puddle many times that spring and saw many more wonderful birds, but nothing ever touched the thrill of that first day. It was not just seeing so many birds at so close range, it was seeing them again for the first time with a small boy. Thinking back, the magic returns as I recall the birds, the light, but most of all the look in Christopher's eyes. Memory is a wonderful thing.

Red-eyed Vireo
Carolina Wren
Veery
Wood Thrush
American Robin
Gray Catbird
Brown Thrasher
Cedar Waxwing
Tennessee Warbler
Orange-crowned Warbler
Nashville Warbler
Northern Parula
Yellow Warbler
Chestnut-sided Warbler
Magnolia Warbler
Black-throated Blue Warbler
Yellow-rumped Warbler
Black-throated Green Warbler
Blackburnian Warbler
Blackpoll Warbler
Black-and-white Warbler
American Redstart
Ovenbird
Northern Waterthrush
Mourning Warbler
Common Yellowthroat
Wilson's Warbler
Canada Warbler
Chipping Sparrow
Song Sparrow
Lincoln's Sparrow
Swamp Sparrow
White-throated Sparrow
Northern Cardinal
Indigo Bunting
Red-winged Blackbird
Common Grackle
Baltimore Oriole

DAVID LARSON

ABOUT BOOKS

Four Anomalous Volumes: pampered birds, missing birds, dead birds, and bird leftovers

Mark Lynch

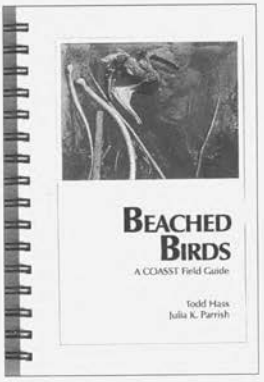
Beached Birds: A COASST Field Guide. Todd Hass and Julia K. Parrish. 2000. Wavefall Press. Seattle, Washington.

Bird Tracks and Signs. Mark Elbroch with Eleanor Marks. 2001. Stackpole Books. Mechanicsburg, Pennsylvania.

Elephant Slaves and Pampered Parrots: Exotic Animals in Eighteenth-century Paris. Louise E. Robbins. 2002. The Johns Hopkins University Press. Baltimore, Maryland.

The Ghost with Trembling Wings: Science, Wishful Thinking and the Search for Lost Species. Scott Weidensaul. 2002. North Point Press. New York, New York.

For the most part bird books fall into just a few rather typical categories. There are the endless field and identification guides to seemingly every group of birds that has ever lived. Regional breeding bird atlases are a technical category of bird books that are becoming increasingly popular. There are now also "where-to-go" guides for most states and many areas of the globe, that are read voraciously by the twitching set. In addition, there are a small number of interesting personal accounts of a life birding, birder bios if you will. Books of art and photography of birds are always popular, even if they only end up on that coffee table. Finally, there are a smattering of popular books on bird lives and behavior. In this review I will consider four books, very different from one another. These titles should be of interest to birders, but they definitely stand apart from the usual birder's books. Two are unusual guides, and two are books about how humans think about the natural world.



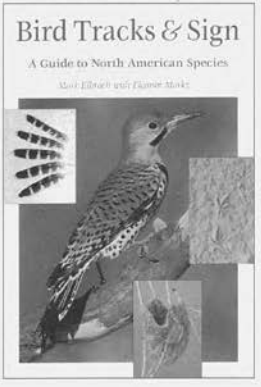
I have to admit that when one of my students, who works at Tufts Wild Animal Clinic, handed me *Beached Birds*, I thought it was a joke. After all, there have already been conceptually droll (but dull in execution) parodies of field guides that focused on the identification of road kills or bird droppings. When I realized that *Beached Birds* was a serious guide, my reaction was at first both repulsion and fascination. After all, it takes a bit of getting used to a photographic guide to dead birds washed up on shore. Amazingly, this is also a state-of-the art guide created for a very serious purpose.

The Coastal Observation and Seabird Survey Team (COASST) of the state of Washington is a "citizen science program established to identify the carcasses of marine birds found on beaches along the outer coast of Washington State" (p.1). Volunteers systematically walk beaches and measure, identify, and photograph dead seabirds. As is pointed out in the introduction to this unique volume, dead birds can provide a wealth of information about changes in habitat, disease, and the health of fisheries. In the event of a human-caused coastal environmental catastrophe like an oil spill, these data can provide a background level of typical mortality as well as help identify the victims. This project is a great example of citizen science with a real goal.

In each two-page species account, there are color photographs of typical carcasses. Some of these are not for the weak-stomached. Written details include all the key plumage field marks to look for in a beached, as opposed to a living, specimen. The book includes a table of complete measurements, notes on similar species, abundance charts of when this species is most often found beached, and a checklist of special points for observers to check. There is even a life-size drawn profile of the bill in every species account, so that you can literally lay the specimen on the field guide and compare. There are special sections on identification of legs and feet, wings, and identification flow charts for groups of birds with similar species like gulls. An important section is the "Guidelines for Dealing With Dead Birds" (p.4), which outlines both the practical and health challenges of handling long-dead and possibly oiled birds. The book is printed on heavy duty, slick stiff paper that appears somewhat water-resistant, and is spiral bound so that it opens easily and flat.

The only drawback to this outstanding and very useful guide is that it is created for the Pacific Northwest coast. This means that species like Marbled and Ancient murrelets, Tufted Puffin, and Pelagic Cormorant are fully described, but Razorbill, Atlantic Puffin, or Great Cormorant are not. It would be great to have a similar book on Atlantic Coast beached birds.

If the idea of necro-birding leaves you cold, then how about being a bird detective? *Bird Tracks and Signs: A Guide To North American Species* will quickly make you realize how much more there is to birding than just looking at the bird. Birds are complex creatures with richly varied behaviors, and sometimes those behaviors leave traces behind long after the bird has flown away from our prying bins. There are obvious signs like tracks, pellets, and feathers, as well as the more subtle signs of a bird's life like the particular way woodpeckers open nuts and galls. Many of these clues to a bird's presence are detailed in this fine volume. There was actually a precedent for this book when *Tracks and Signs of the Birds of Britain and Europe* by Brown, Ferguson, Lawrence and Lees was published in 1987 by Christopher Helm. When I bought that book years back, I lamented that we did not have a companion volume for our side of the pond because of how unique and useful a book that European guide was. Finally, here is the book I had hoped for.



While out in the field, I am sure all of you have found some errant feather you could not immediately recognize. So far, I have found the lengthy chapter on feather identification in *Bird Tracks and Signs* to be the most useful section, and now often use the book in the field for this purpose. Color photographs show several typical feathers for each species listed. A sampling of feathers from several different feather types is shown for each species. In my experience, the ones chosen appear to be those feathers that are most commonly found.

There are other lengthy chapters on pellet, track, and dropping (always popular) identification. The color photographs that are used throughout the book are supplemented by good line drawings. Overall, the photos are of a high quality, although a few are just a tad dark or not as contrasty as one would like, but this is a very minor complaint. Measurements are typically given with each photograph, which is important because objects are not reproduced to scale. Naturally, any volume this broad in scope cannot include all the species of North America, but surprisingly many of the common or representative species are included. The focus of *Bird Tracks and Signs* is always on trying to get the reader to first look for signs of birds, to expand the birders' field of focus, and then where possible to identify these signs to species or at least to family of birds. After all, it is one thing to recognize that a fish has been picked over by a gull, and quite another to be able to say with certainty what the gull species was. The writing throughout is chatty, personal, and informative:

> On any number of occasions, just before I begin teaching a class or workshop, I've been approached by a person who tentatively asked 'We're not going to be looking at a lot of turds, are we? We aren't going to pull any apart, right?' And I always smile 'As much as we can find.' Then I attempt to sell them on the educational wonders of scatology (p.187).

There is a meaty chapter on "Signs of Feeding and Other behaviors" (pp. 211-297) that covers a myriad of topics like caches, carcasses left over by predatory birds, and various woodpecker signs. But I did find the chapter on nests to be surprisingly short since it focuses more on general nest types. Birders interested in nest specifics should consult a book like *Birds' Nests* by Hal Harrison. The chapter on skulls is also short but does illustrate some of the basic skull types, although the illustrations are small and not to scale. The skulls are also grouped according to some very general characteristics like "typical bills," "duck bills" (only two examples), "hooked bills," and "unusual bills."

While leading a trip to Quabbin recently, we found a few small feathers amid the hemlocks that we identified, thanks to this book, as those of a Saw-whet Owl. Just knowing that this elusive owl was right where we had hiked added a special "zing" to our experience that day. *Bird Tracks and Signs* opens up a world beyond the simple identification of a species and allows us to peer into the lives of birds. There is also a deeper effect this book has on birders, because it changes the way we see the natural environment, expanding our mind to consider not only the bird but the branch the bird rested on.

Have people always been so obsessive about birds? The next book offers part of an answer. In many ways *Elephant Slaves and Pampered Parrots* is an archetypal academic press book. In other words, a well-researched volume about a narrow and little-known subject. But Louise Robbins has chosen a fascinating historical corner to noodle around in. Intending to write a biography of the great natural historian, the Comte de Buffon, Robbins became increasingly fascinated by the numerous accounts of the many parrots, monkeys, elephants, and rhinos exhibited or kept as pets in Paris in the eighteenth century. The sheer volume of this exotic pet trade is breathtaking. By way of just a small example: "Between 1687 and 1694 the purveyor brought at least nine hundred animals to Versailles, including more than one hundred ostriches and five hundred purple swamphens" (p.20). The exotic animal trade just kept growing after that point as keeping monkeys and parrots became all the fashionable rage in Paris.

Exotic birds were such a big business that there even existed a bird seller's guild called the oiseleurs. These gentlemen, sometimes prone to street fighting when they did not get their way, controlled all aspects of the capture, import, and selling of birds like canaries, linnets, goldfinches, chaffinches, parrots of every type, and African firefinches, as well as other creatures like small monkeys. The trade was brisk and lucrative. But as in all entrepreneurial endeavors, there was an eventual economic downturn for the oiseleurs, during what Robbins amusingly calls "the canary bubble." This occurred when wily Swiss bird sellers infiltrated the Paris markets and undersold their competitors. The trade in feathered pets was indeed fiercely competitive.

Some of the species of birds the Parisians kept as pets were not only the expected pretty cage birds mentioned above, but also species that would be considered odd even by today's standards. Bizarrely, the South American trumpeter (*Psophia* species, possibly *Psophia crepitans*) was considered by contemporary French intelligentsia among the best, and most moral of animals: "De La Borde had contended that tame trumpeters were as faithful as dogs; they obey and follow their masters and exhibit joy in seeing them, but chase away ugly or bad-smelling people..." (p.155). Of all the birds they could have chosen as a replacement for the guard dog, the choice of this tropical relative of the rails is truly strange.

But *Elephant Slaves and Pampered Parrots* is not just a dry cataloguing of the popular pet trade. Robbins is really interested in how these animals were considered and discussed by a society very much in violent transition. She details the complex history of the royal menagerie. This zoo was originally an eclectic collection of strange and exotic animals and birds chosen by the king for reasons of personal fashion and whim. The menagerie's architectural design allowed the animals to be viewed by the public, and they were exhibited as symbols of status and power: "They (historians) have shown how rulers metaphorically demonstrated their control of domestic and international affairs through demonstrating their control of exotic plants and animals" (p. 38). Robbins traces the menagerie's ups and downs, the changes in

the types of animals exhibited, and how these poor creatures were procured. As one can imagine, huge numbers of these birds and animals died in transport. The history of this menagerie is also shown in relation to the tumultuous social and historical events that occurred in Paris during and after the revolution. Robbins is particularly interested in what Parisians thought about the animals they kept and exhibited, and the use of these animals in literature, philosophy, and art as symbols of freedom and liberty, and as metaphors for the human condition.

Elephant Slaves and Pampered Parrots is a unique social history, meticulously researched and well written. It is filled with numerous interesting details and fascinating insights about how a human society imagines, manipulates, and interacts with the natural world.

The Ghost With Trembling Wings is another book that looks at human obsession with natural history. Scott Weidensaul has written one of the most intriguing and far-ranging books about our feelings about extinction and the resurrection of species that are thought to have vanished long ago.

The book begins with Weidensaul's richly detailed account of his search for Semper's Warbler in St. Lucia. This nondescript bird that he refers to as "the dullest tropical bird on Earth" has not been reliably reported since the 1960s, although there has been a handful of unsubstantiated sight records since then. In telling the story of Semper's Warbler, Weidensaul relates other stories of species of birds, animals, and plants that were thought to have become extinct, but then are seemingly miraculously rediscovered. Typically, a passionate search for a long-lost bird or mammal ends in failure, like the recent search for the Ivory-billed Woodpecker. But just often enough, as in the case of the Night Parrot of Australia or the Indian Forest Owlet, lucky biologists find evidence that these ghosts still fly among us. These stories of rediscovery hold a special fascination for us, and Weidensaul is interested in why this is so. But finding a lost species is one thing and holding onto it quite another. He details the numerous setbacks and challenges that the rediscovery of the Black-footed Ferret incurred as it became a nightmare of frantic wildlife management and failed captive breeding. Once a "thought-to-be-extinct" species is discovered, only then do the problems really start, because usually that species' habitat is under extreme pressure or almost nonexistent. Often there are too few individuals to maintain a viable, genetically varied population.

It is at this point in the book that Weidensaul broadens his scope of inquiry in some surprising ways. He talks to cryptozoologists, folks searching for the likes of the Loch Ness Monster. There is an amusing interlude when he flies to England to talk with a group of people convinced that a sizable population of large wild cats, like leopards, are now living in Cornwall. Weidensaul lets these eccentric researchers have their say, but not without reasoned criticism. He is more interested in why these

people have such a strong desire to believe that large wild creatures still walk among us. He sees a relationship between the cryptobiologists' strange convictions and our passionate interest in the finding of extinct species of birds. *The Ghost With Trembling Wings* charts some unusual and original territory in this investigation. There are chapters on people trying to "breed back" current species to recover extinct species like the auroch and the Quagga. There are also several schemes, à la Jurassic Park, to recover the DNA from extinct species and bring them back to life. Although I knew of such (still impossible) plans for the woolly mammoth, I was absolutely surprised to learn that folks have similar schemes for the thylacine of Tasmania, the Huia of New Zealand, and even the Moa!

The book ends with a thrilling chapter describing the author's expedition to the jungles of Mato Grosso Brazil in search of the Cone-billed Tanager. The only specimen of this bird was taken by a doctor in the 1930s who sold his skins to a French ornithologist, and that is the extent of what we know of this bird. I will not reveal whether Weidensaul does see his quarry, because the larger question for him is why do we care if this obscure bird still exists? And we *do* care; after all, look at the intense interest in the search for the Ivory-billed Woodpecker. It's a complex question with many possible answers. In an interview with Weidensaul, we talked about a need to feel that the world is still as wild and as complex and rich in creatures as it always was. We want to believe that we have not unalterably changed the world. We want unknown wild pockets of nature to still exist, to continue to surprise us. Perhaps these feelings are even ingrained in us from a time when numerous large, now extinct animals roamed all around early humans. I personally believe that these feelings of longing also lie at the very heart of birders who have ever quested after the rare, the extralimital, and the atypical. As Weidensaul describes it at the end of *The Ghost With Trembling Wings*:

> What makes the cone-billed tanager special is its mystery; should it ever reappear, it would become just another rare bird in a world already saddled with too many threatened organisms. It may be that we need icons of faith and aspiration, objects of great quixotic quests, more than we need the reality (p. 310).

Literature cited:

Brown, R., J. Ferguson, M. Lawrence, and D. Lees. 1987. *Tracks and Signs of the Birds of Britain and Europe*. London: Christopher Helm.

Harrison, H. 1975. *Birds' Nests*. Boston: Houghton Mifflin Company.

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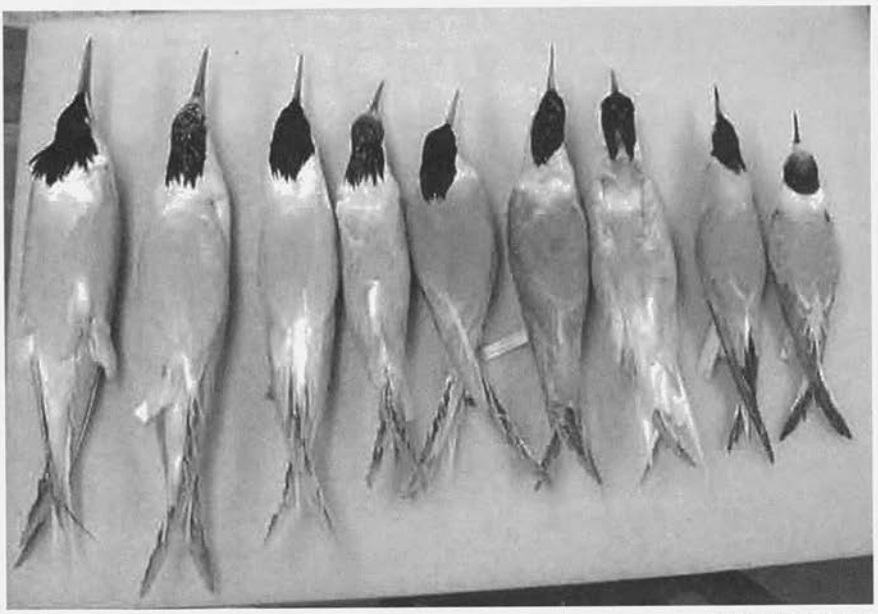
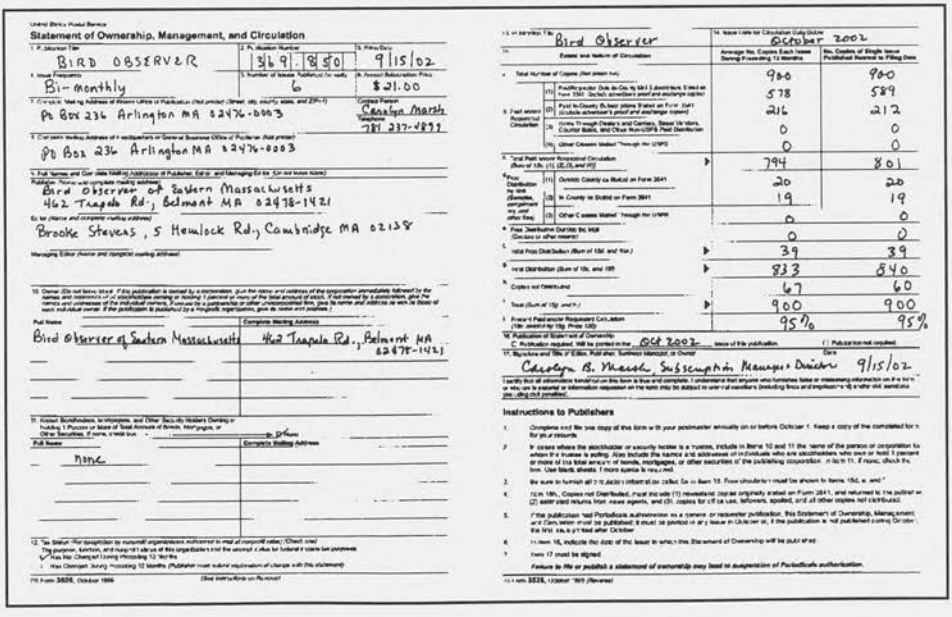


JEREMIAH TRIMBLE

A comparison of the relative size and coloration of five species of terns from the Museum of Comparative Zoology (Harvard University) collection, illustrating relative sizes and mantle coloration. From left to right are two Royal Terns (*Sternamaxima*), two Elegant Terns (*Sterna elegans*), two Lesser Crested Terns (*Sterna bengalensis* - two races), a single Sandwich Tern (*Sterna sandvicencis*), and two Common Terns (*Sterna hirundo*). Compare these images with the bird seen on South Beach in August (Hot Birds). This image is copyrighted by the Museum of Comparative Zoology.



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a. Total Number of Copies (Net press run)	980	980
b. Paid and/or Requested Circulation (1) Paid/Requested Outside-County Mail Subscriptions Stated on Form 3541. (Include advertiser's proof and exchange copies)	578	589
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17. Signature and Title of Editor, Publisher, Business Manager, or Owner: Carolyn B. Marsh, Subscription Manager + Director — Date: 9/15/02
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PS Form 3526, October 1999 (Reverse)

BIRD SIGHTINGS

May/June, 2002

Richard S. Heil, Seth Kellogg, Marjorie W. Rines, Robert H. Stymeist, Fay Vale

The migration period was wet, cool, and sunny. In June the temperature averaged 66.5 degrees in Boston, 1.5 degrees below the average. In May the temperature averaged 57.7 degrees, about a degree below normal; the high mark was 84 degrees on May 24, but the low of 37 degrees on May 18 was the first new low record since October 1, 1992. A surprise storm on May 18 was just in time for the Mass Audubon Birdathon birders to endure an array of heavy rain, sleet, and snow. Over an inch of rain fell on Boston on May 18, while in Worcester, a record low of 34 degrees, set in 1931, was broken when the thermometer leveled out at 33 degrees at noontime. It was also Worcester's latest snowfall on record. Small accumulations of snow were reported around the region, and in many areas north and west of Route 495 there was an inch or more of snow. In the higher elevations of northern Worcester County and in the Berkshires over two inches of snow were recorded. Birders were turned away from Mount Greylock, where up to ten inches of snow closed the road. The unseasonable weather resulted in slick roadways, which contributed to a number of accidents. Total rainfall for Boston during May was 5.09 inches, 1.85 inches more than normal, and in June total precipitation was 4.78 inches in Boston, 1.56 inches above average. Thunder was noted on six days both in May and June; the very heavy thunderstorm on June 27 brought hail along with torrential rains. Winds were noted coming out of a southerly direction on May 2, 5, 6, 12, 17 (SW), 22, 23, 26 (SW), 29-31 and June 8 (SW). *R. Stymeist*

LOONS THROUGH ALCIDS

Glassy seas and excellent visibility facilitated a large late-season count of 117 Red-throated and 47 Common loons, nearly all first year birds, off the beach at Plum Island on May 12. Nearly a third of all recent (since 1997) **Pacific Loon** sightings in the state come from May. This spring one was discovered on the Vineyard, at Chilmark, May 18. The breeding pair of Pied-billed Grebes was reported on location in Ipswich for at least a second season, but late reports suggest that they may not have been successful this year. A couple of modest nor'easters in June produced some good seabird counts from traditional coastal vantage points. On June 15 some 3600 Greater Shearwaters and 2000 Sooty Shearwaters, along with 1600 Wilson's Storm-Petrels paraded past Race Point in Provincetown. On Cape Ann, an unexpected Northern Fulmar, 430 Wilson's Storm-Petrels, and 1400 Northern Gannets were among the seabirds tallied at Andrew's Point on June 20. Ten active nest burrows of Leach's Storm-Petrels were found under a section of a rock wall on No-Mans Land, just south of Martha's Vineyard, where they were first discovered breeding just last year. The population there is believed to be far greater however, since numerous other walls occurring across the island were not surveyed. Other Leach's were reportedly also present at the more historical Penikese Island site this summer. An **American White Pelican**, less than annual in Massachusetts, spent two days along the Connecticut River at Northampton in late May. Eight hundred and fifty pairs of Double-crested Cormorants were censused at Weepecket Island in Buzzards Bay in June. This figure is actually well below surveys cited in the mid-1980s (1135 pairs in 1984). Nevertheless, it still represents a lot of guano.

American Bittern may be essentially gone as a breeding bird east of Route 495, with no reports during June anywhere in eastern Massachusetts this year and reports of only four individuals at two sites throughout the rest of the state. Again this spring counts were made of herons flying to the Kettle Island rookery in Manchester, on the south side off Cape Ann, at dusk. A June 30 tally (c.f., last season's counts on June 24 in parenthesis) included 143 (93) Great Egrets, 631 (497) Snowy Egrets, 42 (48) Little Blue Herons, 2 (4) Tricolored Herons, and 152 (154) Glossy Ibis. Three separate Snowy Egrets in the western part of the state, where they are always scarce, were the most reported there in spring in 25 years. A single Glossy Ibis was likewise rare far inland at Northampton May 9-16.

Gadwall are rather local in their summer distribution in Massachusetts. Currently they are found in two primary breeding areas: South Monomoy, where 35 were observed June 11-12; and in the North Shore "Great Marsh" stretching from Essex to Salisbury, where they continue to do very well. Within the latter expanse, 31 adults and 14 young were noted at Plum Island June 16. Several other species of waterfowl, at the margins of their distribution here in New England, but that formerly bred in Massachusetts with some regularity, are, or nearly are, withdrawn from the state. Among these are (with date and site of last known MA nesting): American Wigeon (S. Monomoy, 1987), Northern Shoveler (S. Monomoy, 1998), Green-winged Teal (Muskeget I., 1999), and Ruddy Duck (S. Monomoy, ca. 1997). On the North Shore, in Essex County, the situation is even more grim. Northern Shoveler has not bred there since 1977 (Stage I. Pool, P. I.), Green-winged Teal not since 1992 (Ipswich), and Ruddy Duck likewise has been extirpated since 1984 (Stage I. Pool, P.I.). The widespread degradation of freshwater wetlands once dominated by cattails, including the once vibrant impoundments on Plum Island, in part due to the dominance of invasive plant species such as phragmites and purple loosestrife, have undoubtedly been a factor in the disappearance of these ducks, as well as that of other marsh denizens such as American and Least bitterns, Sora, and Common Moorhen.

At Plum Island a drake **Eurasian Teal** was present in the salt pans May 5, but may have been the same bird present earlier in the spring. Common Eider may now be expected to be found nesting in small numbers virtually anywhere along Massachusetts' sections of rocky coast. This June females with young were noted in Gloucester and Bourne. A Barrow's Goldeneye was rare inland at Monroe, and very late on May 14. Other "out of season" late waterfowl included a Snow Goose at Penikese Island on June 1, a drake Greater Scaup at Newburyport June 30, and a scattering of nonbreeding Ruddy Ducks throughout June. Hooded Mergansers continue to do well. Broods were noted at Concord (GMNWR), Hopkinton, and Bolton (DWMA).

Currently undergoing a rapidly expanding breeding range in the south, **Mississippi Kites** have been appearing in the northeast with increasing frequency in recent years. However, a single day count of *nine* identifiably different individuals, based on age and molt, including four in view at once, at the North Truro hawkwatch at Pilgrim Heights on June 1 was unprecedented, and certainly the highest single day tally north of at least Cape May, New Jersey. The birds predictably arrived on southwest winds in a bubble of warm air. Mississippi Kite is reliable and expected on the outer Cape under these conditions at this time of the year. These late raptor flights also often typically feature numbers of immature Broad-winged Hawks and northward dispersing Ospreys and juvenile southern Bald Eagles. On Plum Island, the pair of state-listed (threatened) Northern Harriers was nesting for the second season in the North Pool cattail marsh, a site proposed by the refuge for conversion to salt marsh. The **Eurasian Kestrel** in Chatham, which arrived about the same April date as the Plum Island **Pacific Golden-Plover**, also apparently departed on the same day, both being last seen on May 5. The spring hawkwatch at Plum Island recorded 75 Northern Harriers, 518 Sharp-shinned Hawks,

227 American Kestrels, 83 Merlins, and 21 Peregrine Falcons, all during the first two weeks of May. A female Merlin, displaying the features of the prairie race *F. c. richardsoni,* including very pale brown upperparts and complete, broad, grayish white tail bands, was closely observed at Plum Island May 20.

American Coots were always scarce breeders in the state, unlike their cousin, the Common Moorhen, which was locally fairly common at several prime freshwater wetlands into the late 1970s (e.g., 60 adults and juveniles observed at the fresh impoundments at Plum Island, September 1973: Birds of Massachusetts, Veit and Petersen, 1993). Common Moorhen has essentially been extirpated from Massachusetts for many years now, but sightings of individuals at three sites hold out hope that they may still nest in the state, albeit rarely. There is no doubt that Sora continues to be in dire straits in Massachusetts, and has been for a couple of decades, as its decline follows that of the moorhen. The three highest counts this spring were of three or four birds, each in May, and a total of a mere three individuals was reported statewide during June. Oddly, MassWildlife archaically continues to maintain a rail season and a daily bag allowance of five Soras per day per hunter during the fall season. At least one pair of Clapper Rails remained on territory at Plum Island throughout the period, while a very rare King Rail was found in Stockbridge May 17. Two Sandhill Cranes set down at Bolton Flats May 4, and Provincetown May 16-27, the latter frequenting a horse paddock.

The Plum Island **Pacific Golden-Plover**, accepted by the MARC as a first state record, as previously mentioned remained *in situ* until May 5. Probably representing a single bird, reports of **American Avocet**, locally much rarer in spring than in late summer and fall, came from Squantum May 11, and nearby East Boston (Belle Isle) May 12-25. A Western Willet (*inornatus*), perhaps a first year bird, was unseasonable at N. Monomoy June 28. On Martha's Vineyard, a Bar-tailed Godwit at Katama May 4 was of the dark-rumped Siberian race *baueri*, of which there is only one previous Massachusetts (and East Coast!) record. Pectoral Sandpipers continued their poor showing this spring, with only eleven individuals found during May. Short-billed Dowitchers were also lacking this spring. The best count was of 100 at Newburyport in late May, well below normal. Contrary to the trend noted in most recent Junes, there was virtually no evidence of an early southbound shorebird migration at the end of the month. One or two pairs of territorial Wilson's Phalaropes again were resident in the salt marshes at Plum Island, but proof of breeding was not obtained.

Rarely seen from shore in Massachusetts, two adult **Long-tailed Jaegers** passed Andrew's Point in Rockport during the June 15 nor'easter, a typical date for this species in spring. Laughing Gulls increased by better than twenty-five percent at the South Monomoy colony, to nearly 1100 pairs this season. The June 15 storm also produced a flurry of Black-legged Kittiwake sightings at both Cape Cod and Cape Ann, very unusual for June. The massive

Numbers Of Nesting Pairs on South Monomoy Island

Year	Roseate Tern	Common Tern	Least Tern	Black Skimmer	Laughing Gull	Piping Plover
1995	0	63	28	0	0	14
1996	3	694	103	5	9	16
1997	0	641	6	0	0	22
1998	22	2363	246	3	0	24
1999	27	5480	103	3	19	26
2000	3	6886	119	1	376	27
2001	6	7807	16	0	805	26
2002	3	8032	50	0	1094	32

(Courtesy of Sharon Marino, USFWS)

Common Tern colony at South Monomoy also continues to swell. This season a remarkable 8032 pairs were present (see table for the recent history of breeding birds at South Monomoy). However, another major Cape Cod colony, at New Island, Orleans, has been abandoned and is now entirely defunct, although Monomoy has apparently absorbed many of the New Island birds over the past several years. Perhaps others shifted far north to Seavey Island in the Isle of Shoals, off the New Hampshire coast (and distantly visible offshore from the beach at Plum Island), the site of a tern restoration project which is managed by the Audubon Society of New Hampshire and the state nongame program. At Seavey there was a dramatic increase in nesting Commons this year, to 1687 pairs, up from 140 pairs just three years ago. Interestingly, about twenty-five pairs of Roseate Terns also nested at Seavey Island this spring. Two pairs of Arctic Terns were reported nesting at Penikese Island in mid-June. Apparently no Black Skimmer nests were found in the state this year. A flyby Common Murre at Andrew's Point in Rockport was a surprise on June 7. *R. Heil*

Red-throated Loon			
5/11	Squantum	6	G. d'Entremont#
5/12	P.I.	117	R. Heil
5/22	Bourne	2	J. Kricher
5/25	Eastham	2	G. d'Entremont#
6/23	Duxbury	1	D. Furbish#
Pacific Loon			
5/18	Chilmark	1	A. Keith
Common Loon			
5/2-17	Mt.A.	16 migr	R. Stymeist + v.o.
5/7	Stoughton	4	R. Titus
5/12	P.I.	47	R. Heil
5/12	S. Quabbin	4	M. Lynch#
5/18	Pittsfield (Onota)	4 ad	M. Lynch#
5/19	N. Scituate	5	D. Peacock#
6/1	Truro	13	D. Manchester#
6/8	P.I.	2	P. + F. Vale
6/20	Rockport (A.P.)	2	R. Heil
Pied-billed Grebe			
5/thr, 6/20	Ipswich	pr, 3 ad	J. Berry#
5/11	Northampton	1	T. Gagnon
5/18	Egremont	1	D. St. James
5/18	Sheffield	1	R. Ferren
6/22	Stockbridge	2	J. Hoye#
Northern Fulmar			
6/20	Rockport (A.P.)	1 lt.	R. Heil
Greater Shearwater			
6/15	P'town	3600	B. Nikula
6/20	Rockport (A.P.)	10	R. Heil
6/30	Jeffrey's L.	1	S. Moore#
Sooty Shearwater			
5/25	Eastham	2	G. d'Entremont#
5/25	P'town	2	B. Nikula
5/28	Chatham (S.B.)	3	S. Perkins
6/3	Stellwagen	50	B. Machover
6/15	P'town	2000	B. Nikula
6/20	Rockport (A.P.)	89	R. Heil
6/30	Jeffrey's L.	4	S. Moore#
Manx Shearwater			
5/17	Revere	2	E. Nielsen#
5/19	N. Scituate	1	D. Peacock#
5/25	Eastham	1	G. d'Entremont#
6/15	Dennis (Corp. B.)	5	P. Flood
6/15	P'town	18	B. Nikula
6/30	Jeffrey's L.	1	S. Moore#
Wilson's Storm-Petrel			
6/3	Stellwagen	12	B. Machover
6/12	Cohasset	15	R. Titus
6/15	P'town	1600	B. Nikula
6/16	Chatham (S.B.)	130+	B. Nikula
6/20	Rockport (A.P.)	430	R. Heil
6/30	Jeffrey's L.	175	S. Moore#
Leach's Storm-Petrel			
6/11	Noman's Land	10 nests	T. French
6/12	Penikese I.	5	fide J. Garvey
6/30	Jeffrey's L.	1	S. Moore#
Northern Gannet			
5/4	Chatham	110	S. Spangenberg#
5/18	Eastham (F.E.)	800+	B. Nikula
5/19, 6/15	P'town	275, 600	B. Nikula
5/29	Stellwagen	100	T. Seiter#
6/15	Dennis (Corp. B.)	500+ imm	P. Flood
6/17	Stellwagen	30	B. Machover
6/20	Rockport (A.P.)	1410 imm	R. Heil
American White Pelican (no details) *			
5/23-24	Northampton	1	T. Gagnon#
Great Cormorant			
5/14	Duxbury B.	2 imm	D. Furbish
5/18	Gill	1 imm	J. Morris-Siegel#
5/19	N. Scituate	5	D. Peacock#
5/25	Westport	2 imm	G. d'Entremont#
Double-crested Cormorant			
5/12	Newbypt/P.I.	475	J. Berry
5/19	Hampden Cnty	75	Allen Club
5/22	Salisbury	400	J. Berry
6/11	S. Monomoy	182	R. Lockwood#
6/16	Manchester	111	M. Lynch#
6/18	Weepecket I.	850 pr n	C. Buelow
American Bittern			
5/5	P.I.	2	D. Allen#
5/8-12	Bolton Flats	2	R. Lockwood
5/17	Stockbridge	3	M. Lynch#
5/19	Hampden Cnty	7	Allen Club
5/29	Brookfield	3	Allen Club
6/1	Stockbr/Gt Barring.	3	M. Lynch#
6/2	Warwick	1	B. Nikula#
5/thr	Reports of indiv. from 17 locations		
Least Bittern			
5/15	Duxbury	1	D. Furbish
5/19	Gloucester	1	B. Bernie
5/19	Cumb. Farms	1	D. Peacock#
6/5	IRWS	1	J. MacDougall#
6/9	W. Brookfield	2	M. Lynch#
6/20	Ipswich	1 m	J. Berry
Great Blue Heron			
5/4	Weston	6 nests	BBC (B. Howell)
5/5	Barre F.D./Rutland S.P.	7 nests	M. Lynch#
5/18	Pittsfield	10 nests	M. Lynch#
5/thr	DWMA	25 nests	S. Sutton
6/21	Boxford	77 nests	J. Berry
6/thr	DWMA	27 nests	S. Sutton
Great Egret			
5/1	Essex	15	J. Nelson
5/1	Manchester	12	BBC (S. Hedman)
5/9	Medford	1	A. Ankers#
6/16	P.I.	18	M. Lynch#
6/30	Manchester (K.I.)	143	R. Heil
Snowy Egret			
5/1	Essex	17	J. Nelson
5/1	Turners Falls	1	A. Moeckel
5/15	P.I.	6	P. + F. Vale
5/23	Northampton	1	B. Bieda
6/5	Westfield	1	S. Kellogg

Snowy Egret (continued)

6/11	S. Monomoy	17	R. Lockwood#
6/16	P.I.	17	M. Lynch#
6/18	Penikese I.	24 pr n	C. Buelow
6/30	Manchester (K.I.)	631	R. Heil

Little Blue Heron

5/1	Essex	2	J. Nelson
5/5	Marblehead	1	F. Bouchard
5/26	Easton	1 ad	K. Ryan
6/16	Essex	2	M. Lynch#
6/20	P.I.	2 ad	R. Heil
6/27	DWWS	1 br pl	D. Furbish
6/30	Manchester (K.I.)	42	R. Heil

Tricolored Heron

5/10	P.I.	1	J. Nelson
6/30	P.I.	1 ad	R. Heil
6/30	Manchester (K.I.)	2	R. Heil

Cattle Egret

5/4	Beverly Farms	2	M. + J. Halloran
5/9-18	Boston (Logan)	1	N. Smith
5/17	Concord (NAC)	1	N. O'Hara
6/16	Beverly	3	M. Lynch#
6/29	Westport	1	V. Zollo
6/30	Essex	1	C. Corley#

Green Heron

5/5	P.I.	3	R. Lockwood#
5/5	Sherborn	3	E. Taylor
5/17	MNWS	2	P. + F. Vale
5/19	Hampden Cnty	17	Allen Club
5/21	Gloucester (E.P.)	2	M. Swift
5/23	Hingham	3	R. Titus
5/27	Hopkinton	2	E. Taylor
6/14	P.I.	2	D. Chickering

Black-crowned Night-Heron

5/4	Hingham H.	12	D. + S. Larson
5/17	Boston	7	G. Tepke
6/6	Medford	115	M. Rines
6/11-12	S. Monomoy	94	R. Lockwood#
6/18	Penikese I.	9 pr n	C. Buelow
6/21	Chilmark	10	A. Keith
6/30	Manchester (K.I.)	18	R. Heil

Yellow-crowned Night-Heron

5/2	Salem	1	I. Lynch
5/4	W. Harwich	1	C. Gentes#
5/17	Magnolia	1	B. Stevens
5/19	P.I.	1	BBC (I. Giriunas)
5/26	Stockbridge	1	T. Gagnon
5/28	Duxbury	1	S. Hecker
6/30	Salisbury	1	S. Grinley#

Glossy Ibis

5/6	Manchester	6	S. Hedman
5/9-16	Northampton	1	J. Gerome
5/25	Westport	3	G. d'Entremont#
6/11	S. Monomoy	3	R. Lockwood#
6/15	Quincy	2	K. Ryan
6/18	Penikese I.	3 pr n	C. Buelow
6/29	Rowley	40	J. Soucy#
6/30	Manchester (K.I.)	152	R. Heil
6/30	Wompatuck S.P.	2	G. d'Entremont

Black Vulture

5/16	Sheffield	1	K. Ryan
5/19	Brewster	1	G.Martin
6/15	Sheffield	4	D. Norton#

Turkey Vulture

5/1	Randolph	8	G. d'Entremont
5/4-11	N. Truro	68	EMHW
5/9	Amherst	24	H. Allen
5/10	Millbury	13	M. Lynch#
5/19	Sheffield	30+	M. Lynch#
5/21	P.I.	10	T. Carrolan
5/25	Blackstone	8	M. Lynch#
5/26	Milton (Blue Hills)	8	BBC (A. Joslin)
6/1-21	Truro	58	D. Manchester#
6/15	Sheffield	30	D. Norton#
6/29	Northboro	9	A. Baranczak

Snow Goose

6/1	Penikese I.	1	fide J. Garvey

Brant

5/1	Chatham	25	M. Williams
5/8	Gloucester (E.P.)	50	S. Hedman
5/11	Squantum	75	G. d'Entremont#
5/12	Newbypt.	460	R. Heil
5/14	Duxbury B.	90	D. Furbish
5/16	P.I.	120	BBC (S. Grinley)
5/17	Nahant	150	R. Heil
5/18	Hingham	10	E. Taylor
5/18	Pittsfield	1	C. Blagdon

Mute Swan

5/5	N. Scituate	43 w/5 yg	G. d'Entremont
5/6	W. Harwich	33	B. Nikula
5/19	Hampden Cnty	12	Allen Club
5/25	Westport	57	G. d'Entremont#
6/11	S. Monomoy	22	R. Lockwood#

Wood Duck

5/3	Bolton Flats	14	S. Sutton
5/17	Stockbridge	15+	M. Lynch#
5/19	Hampden Cnty	76	Allen Club
6/3	Warren	15	M. Lynch#
6/25	Ipswich	10 ad + 11 yng	J. & N. Berry
6/30	Wakefield	16 ad, 5 juv	P. + F. Vale

Gadwall

5/18	Richmond	1	D. St. James
5/18	Pittsfield	1	C. Blagdon
5/27, 6/18	Penikese I.	4, 1	C. Buelow
6/11-12	S. Monomoy	35	R. Lockwood#
6/16	P.I.	31ad + 19 yg	M. Lynch#

Blue-winged Teal

5/2	Northfield	2 m, 1 f	M. Taylor
5/2	Northampton	8	E. Labato
5/12	GMNWR	3	C. Caron
5/17	Rowley	2	R. Heil
5/19	Agawam	2	J. Hutchison#
5/24	W. Newbury	3	R. Heil
5/25	Lenox	2	R. Laubach
6/11-12	S. Monomoy	2	R. Lockwood#
6/27	P.I.	6	R. Heil
6/30	Nauset	1 m	M. Faherty

Northern Shoveler

5/16	GMNWR	1 pr	J. Forbes
6/11-12	S. Monomoy	4	R. Lockwood#
6/20, 27	P.I.	2	R. Heil

Northern Pintail

5/4	P.I	pr	P. + F. Vale
6/11-12	S. Monomoy	9	R. Lockwood#

Green-winged Teal

5/3	Bolton Flats	160	S. Sutton
5/3	Northampton	2	R. Packard
5/4	P.I	25	P. + F. Vale
6/11-12	S. Monomoy	9	R. Lockwood#
6/21	Boxford	1 f	J. Berry
6/23	Bolton Flats	3 m	S. Sutton
6/28	P.I.	6	D. Chickering

Eurasian Teal

5/5	P.I.	1 m	R. Heil

Ring-necked Duck

5/1	Randolph	1 m	G. d'Entremont
5/16	GMNWR	1 pr	J. Forbes

Greater Scaup

6/30	Newbypt. H.	1 m	R. Heil

Lesser Scaup

5/1	Randolph	13	G. d'Entremont

Common Eider

5/19	N. Scituate	50	D. Peacock#
5/27	Penikese I.	125	C. Buelow
5/30	Gloucester	21	J. Berry#
6/1	Chilmark-Gay Head	95	A. Keith
6/11	Gloucester H.	1 f + 3 yg	R. Heil
6/28	Bourne	2 f + 8 yg	J. Kricher
6/28	N. Monomoy	60+	B. Nikula
6/30	Boston H.	50	B. Mustard

Surf Scoter

5/11	Squantum	50	G. d'Entremont#
5/12	P.I.	2	J. Berry
5/19	N. Scituate	55	D. Peacock#
6/11	Bird I.	4	C. Buelow

Surf Scoter (continued)
6/11 S. Monomoy 2 R. Lockwood#
White-winged Scoter
5/11 Squantum 75 G. d'Entremont#
5/12, 21 P.I. 200, 90 J. Berry
5/17 Lynn 70 R. Heil
5/18 Pittsfield (Onota) pr M. Lynch#
5/19 N. Scituate 20 D. Peacock#
5/30 Gloucester 7 J. Berry#
6/12 S. Monomoy 4 R. Lockwood#
Black Scoter
5/1 Chatham 35 M. Williams
5/18 Pittsfield (Onota) 2 M. Lynch#
5/19 N. Scituate 15 D. Peacock#
6/1 Gay Head 10+ A. Keith
6/19 Chatham (S.B.) 2 m, 2 f P. Flood#
Long-tailed Duck
5/7 Newbypt./P.I. 450 R. Heil
6/8 Newbypt. H. 1 f C. Nims
Bufflehead
5/1-17 Randolph 31 max 5/1 G. d'Entremont
5/4 W. Newbury 4 P. + F. Vale
5/4 Westboro 11 A. Petersen
5/5 N. Scituate 29 G. d'Entremont
5/12 S. Quabbin 1 f M. Lynch#
5/19 Hingham 3 D. Peacock#
5/25 GMNWR 1 J. Forbes
Common Goldeneye
5/1 Randolph 1 f G. d'Entremont
5/5 P.I. 2 D. Allen#
5/17 Belchertown 1 M. Faherty
5/18 Turners Falls 1 pr J. Morris-Siegel#
Barrow's Goldeneye
5/14 **Monroe** 1 W. Lafley
Hooded Merganser
5/5 GMNWR f + 7 yg M. Rines
5/14 Pepperell 5 E. Stromsted
5/19 HRWMA 2 T. Pirro
5/27 Hopkinton 1 f + 8yg E. Taylor
6/10 DWMA f + 3 yg M. Lynch#
6/22 Plainfield 2 f J. Hoye#
6/22 Hopkinton 2 f + 6 yg E. Taylor
Red-breasted Merganser
5/8 Bird I. 1 f C. Buelow
5/11 Squantum 14 f G. d'Entremont#
5/12 Ipswich, P.I. 4 f J. Berry
5/12 S. Quabbin 4 M. Lynch#
5/19 N. Scituate 1 f D. Peacock#
5/25 Eastham 1 f G. d'Entremont#
5/27 N. Truro 75+ B. Nikula
6/11 S. Monomoy 1 R. Lockwood#
Common Merganser
5/12 S. Quabbin pr M. Lynch#
5/16 Mt.A. 1 L. O'Bryan#
5/18 Pittsfield (Onota) 4 M. Lynch#
5/18 Mt. Watatic 2 C. Caron
5/18 Savoy-Florida pr M. Lynch#
5/22 Turners Falls 1 pr G. d'Entremont#
5/26 Huntington 2 B. Packard#
6/16 Williamsburg 1 R. Packard
6/25 Ashfield 2 R. Packard
6/29 Huntington 21 Allen Club
Ruddy Duck
5/1-4, 6/22 Melrose 3, 1 D. + I. Jewell
5/4 Boston 2 m G. d'Entremont
5/4 W. Newbury 3 P. + F. Vale
5/11 Randolph 3 G. d'Entremont#
5/24 Cumb. Farms 5 R. Buckner
6/8 P.I. 1 m br pl P. + F. Vale
6/19 Winchester 2 m, 1 f R. LaFontaine
6/22 W. Newbury (C.H.) 1 m br pl R. Heil
Osprey
5/1 Barre Falls 7 B. Kamp
5/1-21 P.I. 49 T. Carrolan#
5/4-11 N. Truro 38 EMHW
5/27 Mattapoisett 4 pr n M. Lynch#
5/27 Fairhaven 3 pr n M. Lynch#
5/thr Pepperell pr n E. Stromsted
5/thr Rowley pr n J. Berry
6/1-21 Truro 40 D. Manchester#
6/thr Westboro pr n E. Taylor
6/thr Rowley pr n J. Berry#
6/thr Essex pr n J. Berry#
6/thr P.I. pr n J. Berry#
Mississippi Kite (no details) *
5/16 N. Truro 1 EMHW (M. Lowe)
6/1 N. Truro 9 EMHW (D. Manchester)
6/6 Lincoln 1 W. Harrington
Bald Eagle
5/2 Northampton 1 E. Labato
5/4-19 N. Truro 7 EMHW
5/5 E. Boston (B.I.) 1 1st yr S. Zendeh
5/11-16 P.I. 4 T. Carrolan#
5/16 Hingham H. 1 imm C. Dalton
5/17 DWWS 1 imm D. Furbish
5/18 Essex 1 imm J. + M. Nelson
5/26 Quabbin (G40) 1 R. Lockwood#
6/1,3 Truro 1, 2 D. Manchester#
6/3 P.I. 1 juv T. Carrolan
6/19, 21 Truro 1, 1 D. Manchester#
6/23-28 Chilmark 1 T. Rivers#
Northern Harrier
thr P.I. **pr n** R. Heil
5/1-14 P.I. 75 T. Carrolan#
5/4, 19 N. Truro 3, 7 EMHW
5/4 Rowley 3 P. + F. Vale
5/5 Bolton Flats 2 M. Lynch#
5/19 Cumb. Farms pr D. Peacock#
6/11 S. Monomoy 2 R. Lockwood#
6/18 Naushon I. 2 C. Buelow
6/19 DWWS 1 f D. Furbish
Sharp-shinned Hawk
5/1 Barre Falls 16 B. Kamp
5/1-11 P.I. 518 T. Carrolan#
5/3 Hingham (W.E.) 57 C. Dalton
5/4-17 N. Truro 299 EMHW
5/4 Hingham (W.E.) 35 D. + S. Larson
5/5 E. Boston (B.I.) 13 S. Zendeh
6/1-21 Truro 7 D. Manchester#
6/3-30 Saugus pr n D. + I. Jewell
6/24 Goshen 1 R. Packard
6/30 Hinsdale 1 R. Packard
Cooper's Hawk
5/1-5 P.I. 6 T. Carrolan#
5/3 Hingham (W.E.) 3 C. Dalton
5/4 Newbypt 3 BBC (S. Grinley)
5/5-16 N. Truro 17 EMHW
5/thr Ipswich pr n J. Berry
6/1-9 Truro 5 D. Manchester#
6/11 Edgartown pr n T. Benoit#
6/29 Northampton 1 R. Packard
Northern Goshawk
5/thr E. Middleboro pr K. Anderson
5/4 S. Quabbin 1 S. Surner
5/6 N. Truro 1 EMHW (M. Lowe)
5/12 Petersham 1 D. Chapman
5/14 Monroe 1 W. Lafley
5/19 Groveland 1 R. Lombard
5/19 HRWMA 1 imm T. Pirro
5/19 Westboro 1 E. Taylor
5/19 Sheffield 1 M. Lynch#
5/19 Gardner 1 T. Pirro
6/13 Wendell 1 M. Williams
6/16 Williamsburg 1 R. Packard
6/23 Plymouth (MSSF) 1 SSBC survey
6/23 Stoughton 2 D. + S. Larson
Red-shouldered Hawk
thr E. Middleboro 2 pr K. Anderson
5/1 Barre Falls 1 B. Kamp
5/6 Bourne 1 ad J. Kricher
5/9 DWWS 1 D. Furbish
5/10 Stoughton 2 D. Larson#
5/25 Petersham 2 J. Baird
5/27 Mattapoisett 1 M. Lynch#
6/1 Duxbury 1 G. d'Entremont
6/1 Huntington 1 M. Lynch#

Red-shouldered Hawk (continued)

6/1	Bolton	1	R. Lockwood
6/3	S. Monson	1	M. Lynch#
6/8	Quabbin (G37)	1	BBC (R. Lockwood)
6/10	Whately	1	M. Williams
6/22	Southampton	1	T. Gagnon#
6/24	Goshen	1	B. Packard

Broad-winged Hawk

5/1	Barre Falls	16	B. Kamp
5/5-19	N. Truro	177	EMHW
5/5	Wayland	3	D. Peebles#
5/16	P.I.	3 imm	R. Heil
5/18	Mt. Watatic	3	C. Caron
6/thr	Ipswich	pr n	J. Berry
6/1-21	Truro	124	D. Manchester#
6/10	DWMA	pr	M. Lynch#
6/13	Wendell	2	M. Williams
6/21	Monroe	pr	M. Lynch#

Eurasian Kestrel

5/1-5	Chatham	1	v.o.

American Kestrel

5/1-11	P.I.	227	T. Carrolan#
5/3	Lancaster	8	R. Lockwood
5/3	Hingham (W.E.)	15	C. Dalton
5/4-6	N. Truro	41	EMHW
6/4-21	Truro	4	D. Manchester#

Merlin

5/1	Barre Falls	4	B. Kamp
5/1-14	P.I.	83	T. Carrolan#
5/4-19	N. Truro	25	EMHW
5/28	P.I.	1 f	J. Berry
6/1-21	Truro	2	D. Manchester#
6/5	Medford	1	M. Rines

Prairie Merlin

5/20	P.I.	1 f	R. Heil

Peregrine Falcon

5/1	Essex	1	J. Nelson
5/1-14	P.I.	21	T. Carrolan#
5/1	Chatham (S.B.)	1 ad	B. Nikula
5/5-19	N. Truro	12	EMHW (P. Flood)
5/12	Bolton Flats	1	S. Sutton
5/12	Westboro	1	A. Petersen#
5/14	Squantum	1	K. Ryan
5/19	Quincy	1 ad	D. Peacock#
5/30	Lawrence	2	J. Hogan#
6/1	Plymouth B.	1 ad	G. d'Entremont#
6/1	Erving	2 ad 3 yg	R. Stymeist#
6/16	Boston	1 pr, 2 juv	B. Mustard
6/19	Monomoy	1	P. Flood#

Ring-necked Pheasant

5/8	Lexington	2	P. Savage
5/27	W. Newbury	3	P. + F. Vale
6/17	Burlington	4	M. Rines

Ruffed Grouse

5/5	Wompatuck S.P.	3	D. Peacock#
5/7	Stoughton	3	R. Titus
5/11	Stow	3	R. Lockwood#
5/19	ONWR	5	R. Lockwood
6/18	Quabbin (G37)	2	R. Buckner
6/18	Ashburnham	1 f ,6yg	C. Caron
6/21	Rowe	f + 5 yg	M. Lynch#
6/23	Plymouth (MSSF)	2	SSBC survey

Wild Turkey

5/14	Templeton	17	C. Caron
5/19	Petersham	9	P. + F. Vale
5/19	Hampden Cnty	4	Allen Club
5/22	Pepperell	6	E. Stromsted
5/23	Ipswich	3	J. Berry
5/24	Stow	14	R. Lockwood#
5/26	Quabbin Park	2	MAS (J. Liller)
6/9	Concord	4	P. + F. Vale
6/19	DWWS	4 ad, 5 yg	D. Furbish
6/20	Stoughton	4	D. Cabral
6/20	Topsfield	f w 12 newborns	J. Berry
6/23	Plymouth (MSSF)	12	SSBC survey
6/27	Lincoln	1 f, 6 juv	D. Peebles

Northern Bobwhite

5/16	Brewster	8	S. Finnegan#
5/21	Craigville	1	B. Kunkel
5/25	WBWS	3	G. d'Entremont#
5/26	Falmouth	7	BBC (R. Petersen)
5/31	E. Sandwich	2	J. Kricher
6/1	Plymouth (MSSF)	2	G. d'Entremont#
6/17	Truro	1	D. Manchester#

Clapper Rail

thr	P.I.	2-3	R. Heil

King Rail

5/17	Stockbridge	1	M. Lynch#

Virginia Rail

5/7	P.I.	5	R. Heil
5/9	Barre	12	C. Buelow
5/9	Bolton Flats	3	R. Lockwood
5/17	Ipswich	3+	R. Heil
5/17	Egremont	6	M. Lynch#
5/17	Stow	3	R. Lockwood#
5/27	Penikese I.	4	C. Buelow
6/1	Stockbr/Gt Barring.	4	M. Lynch#
6/9	W. Brookfield	10	M. Lynch#
6/10	DWMA	20	M. Lynch#
6/22	W. Newbury	3	R. Heil

Sora

5/5	Oxford	1	P. Meleski#
5/5	Bolton Flats	4	M. Lynch#
5/12	Gloucester (E.P.)	1	BBC (J. Nove)
5/17	Ipswich	3+	R. Heil
5/17	P'town	1	B. Nikula
5/17	Ludlow	1	T. Gagnon
5/19	Longmeadow	4	J. Weeks#
5/19	Hadley	3	B. Bieda
5/24	GMNWR	2	L. Nachtrab
6/8	Rowley	1	J. Berry
6/22	W. Newbury	1	R. Heil
6/22	Worc. (BMB)	1	J. Liller#

Common Moorhen

5/12	Nantucket	1	R. Kennedy
5/17-6/30	Stockbridge	1	M. Lynch#
5/18	Sheffield	1	R. Ferren
5/25	Lenox	1	S. St. Lames

American Coot

5/4	Boston	1	G. d'Entremont

Sandhill Crane

5/4	Bolton Flats	1	K. Gabor
5/16-27	P'town	1	B. Goode + v.o.

Black-bellied Plover

5/14	Duxbury B.	40	D. Furbish
5/19	Chatham (S.B.)	1100	B. Nikula
5/31	Newbypt	450	J. Berry#
6/1	Plymouth B.	25	G. d'Entremont#
6/1	Bolton Flats	1	R. Lockwood#
6/17	Chatham (S.B.)	215	B. Nikula
6/30	P.I.	17	R. Heil

American Golden-Plover

5/4-10	Chatham	1	v.o.
5/12	Nantucket	1	R. Kennedy

Pacific Golden-Plover (details submitted) *

5/1-5	P.I.	1 ad m br pl ph	R. Heil + v.o.

Semipalmated Plover

5/12	GMNWR	2	C. Caron
5/14	Plymouth	12	D. Furbish
5/17	Nahant	15	R. Heil
5/19	Chatham (S.B.)	80	B. Nikula
5/29	Gloucester (E.P.)	6	S. Hedman#
6/17	N. Monomoy	8	B. Nikula

Piping Plover

5/3	P.I.	5	R. Min#
5/4	Ipswich	24	J. Berry
6/5	Ipswich (C.B.)	12	BBC (J. Berry)
6/11	S. Monomoy	10	R. Lockwood#
6/18	Naushon I.	1 pr	C. Buelow
6/18	Cuttyhunk	pr n	C. Buelow
6/18	Pasque I.	pr + 2 yg	C. Buelow
6/22	Plymouth B.	31 inc yg	R. Stymeist#
6/30	Nauset	4	M. Faherty

American Oystercatcher

5/thr	Boston	2 pr n	v. o.
5/thr	N. Monomoy	18 max	B. Nikula

American Oystercatcher (continued)

5/16	Hingham H.	2	C. Dalton
5/19	Squantum	1	D. Peacock#
5/26	Penikese I.	3 + 2 yg	C. Buelow
6/2	P.I.	1	S. Haydock
6/11	S. Monomoy	23	R. Lockwood#
6/12	Mattapoisett	8 ad + 5 yg	C. Buelow
6/28	N. Monomoy	20	B. Nikula

American Avocet

5/11	Squantum	1	K. Ryan#
5/12-15	E. Boston (B.I.)	1	P. + F. Vale + v.o.

Greater Yellowlegs

5/2	Northampton	9	T. Gagnon
5/3	Newbypt.	480	R. Heil
5/3	Cumb. Farms	12	D. Furbish#
5/4	Newbypt.	40+	P. + F. Vale
5/15	Bolton Flats	27	S. Sutton
5/15	Southwick	10	S. Kellogg
5/15	Topsfield	7	P. + F. Vale
6/11	S. Monomoy	1	R. Lockwood#
6/21-27	DWWS	1	D. Furbish
6/28	N. Monomoy	2	B. Nikula

Lesser Yellowlegs

5/3	P.I.	35	R. Heil
5/3	Northampton	3	R. Packard
5/4	Arlington Res.	2	M. Rines
5/6	W .Harwich	10+	B. Nikula
5/11	P'town	6	B. Nikula
5/12	GMNWR	15	C. Caron
5/12	Rowley	74	J. Berry
5/15	Bolton Flats	15	C. Caron
6/11	S. Monomoy	1	R. Lockwood#

Solitary Sandpiper

5/2	Northampton	11	T. Gagnon
5/7, 10	P.I.	4, 5 migr	R. Heil
5/13	Arlington Res.	12	C. Floyd
5/16	Hatfield	19	B. Packard
5/19	Deerfield	9	B. Packard#
5/19	Hampden Cnty	22	Allen Club
5/22	Bolton Flats	20	G. d'Entremont#

Willet

5/3	Chatham	110	B. Nikula
5/6	W. Dennis B.	32	P. Flood
5/7	P.I.	36	R. Heil
5/27	Mattapoisett	9	M. Lynch#
5/thr	N. Monomoy	45 max	B. Nikula
6/11	S. Monomoy	10	R. Lockwood#
6/12	Mattapoisett	6	C. Buelow
6/28	P.I.	55	J. Berry
6/28	N. Monomoy	90	B. Nikula

Western Willet

6/28	N. Monomoy	1	B. Nikula

Spotted Sandpiper

5/11	Randolph	4	G. d'Entremont#
5/14	Arlington Res.	5	J. Forbes
5/18	Pittsfield (Onota)	6	M. Lynch#
5/19	Hampden Cnty	40	Allen Club
5/20	Westminster	6	C. Caron
5/26	Penikese I.	5	C. Buelow
5/26	Huntington	5	B. Packard#
5/26	Quabbin Park	6	MAS (J. Liller)
6/2	Paxton	7	M. Lynch#

Upland Sandpiper

5/3	Lancaster	2	R. Lockwood
5/17	Agawam	1	S. Kellogg
5/19	Cumb. Farms	2	D. Peacock#
5/20	Boston (Logan)	6	N. Smith
5/21	Bedford	2	J. Paluzzi#
6/thr	Lancaster	4	R. Lockwood
6/18	Falmouth	2	J. Kricher
6/29	Westover	1	T. Gagnon

Whimbrel

5/1, 12, 25	P.I.	1	v.o.

Bar-tailed Godwit (*baueri*) (details submitted) *

5/4	Katama	1 br pl	V. Laux

Ruddy Turnstone

5/14	Bird I.	12	C. Buelow
5/14	Duxbury B.	3	D. Furbish
5/27	Bourne	14	J. Kricher
5/31, 6/17	Chatham (S.B.)	230, 5	B. Nikula
6/1	Plymouth B.	4	G. d'Entremont#
6/1	Nahant	4	L. Pivacek
6/3	P.I.	10	T. Wetmore
6/3	N. Monomoy	350	B. Nikula
6/12	Mattapoisett	8	C. Buelow

Red Knot

5/31, 6/17	Chatham (S.B.)	65, 26	B. Nikula
6/3	Newbypt. H.	3	T. Wetmore
6/3	N. Monomoy	45	B. Nikula
6/5	Edgartown	60	A. Keith

Sanderling

5/6	Lynn	700	G. d'Entremont#
5/26, 31	Chatham (S.B.)	1700	B. Nikula
6/1	Plymouth B.	125	G. d'Entremont#
6/3	N. Monomoy	2	B. Nikula
6/4	P.I.	3	T. Wetmore

Semipalmated Sandpiper

5/6, 12	P.I.	1, 7	R. Heil
5/8	DWWS	12	R. Titus
5/19	Chatham (S.B.)	200	B. Nikula
6/1	Plymouth B.	11	G. d'Entremont#
6/1	Nahant	11	L. Pivacek
6/3, 17	N. Monomoy	650, 35	B. Nikula
6/9	P.I.	100	S. Mirick#
6/10	Edgartown	15	A. Keith
6/20	P.I.	12	R. Heil

Least Sandpiper

5/6	W. Harwich	110	B. Nikula
5/6	W. Dennis B.	128	P. Flood
5/7	Newbypt.	110	R. Heil
5/10	Bolton Flats	23	S. Sutton
5/11	Arlington Res.	60	M. Rines
5/12	P.I.	82	J. Berry
5/12	Newbypt.	3000	R. Heil
5/12	Chatham	260	B. Nikula
5/12	GMNWR	32	C. Caron
5/12	W. Harwich	175+	B. Nikula
5/17	N. Monomoy	170	B. Nikula
5/19	Cumb. Farms	200	K. Anderson
5/19	Chatham (S.B.)	120	B. Nikula

White-rumped Sandpiper

5/12	Newbypt.	21	R. Heil
5/19	Chatham (S.B.)	30	B. Nikula
5/25	Westport	3	G. d'Entremont#
5/29	Gloucester (E.P.)	2	S. Hedman#
6/2	P.I.	15	T. Wetmore
6/3, 17	N. Monomoy	15, 10	B. Nikula
6/20	P.I.	9	R. Heil

Pectoral Sandpiper

5/5	Easton	2	K. Ryan
5/5	Bolton Flats	2	M. Lynch#
5/7	P.I.	1	R. Heil
5/10	Rowley	5	J. Berry
5/11	Arlington	1	M. Rines

Purple Sandpiper

5/4	Nahant	150	L. Pivacek
5/7	Gloucester (B.R.)	100	B. + S. Ross
5/7	Sandwich	40	St. Miller
5/17	Lynn	35	R. Heil
5/19	N. Scituate	75	D. Peacock#
5/25	Penikese I.	15	C. Buelow

Dunlin

5/1	N. Monomoy	1800	B. Nikula
5/12	Newbypt.	525	R. Heil
5/14	Plymouth	100	D. Furbish
5/18	Northfield	1	J. Morris-Siegel#
5/18	GMNWR	1	L. Nachtrab
5/18	Turner's Falls	2	J. Morris-Siegel
5/26	Chatham (S.B.)	1150	B. Nikula
6/3	N. Monomoy	6	B. Nikula

Short-billed Dowitcher

5/17, 6/17	N. Monomoy	15, 28	B. Nikula
5/20	Bird I.	72	C. Buelow
5/24	GMNWR	27	L. Nachtrab
5/28	Newbypt	100	J. Berry
6/11	Bird I.	8	C. Buelow

Short-billed Dowitcher (continued)			
6/27	Chatham (S.B.)	3	CCBC (M. Dettrey)
6/30	P.I.	6	R. Heil
Common Snipe			
5/1	Newbypt.	10	MAS (N. Soulette)
5/3	Northampton	3	R. Packard
5/9	Bolton Flats	4	R. Lockwood
5/17	Rowley	3	J. Nelson
5/17	Windsor	3	M. Lynch#
5/17	Stockbridge	2+	M. Lynch#
5/25	Tyringham	1	Allen Club
6/21	Windsor	2	M. Lynch
American Woodcock			
5/11	Worcester	10	M. Lynch#
5/17	Windsor-Cheshire	8	M. Lynch#
5/19	Hampden Cnty	16	Allen Club
Wilson's Phalarope			
5/7-6/30	P.I.	1-3	R. Heil
5/12	E. Boston (B.I.)	1	P. Brown
5/17-20	Rowley	6	R. Heil
Parasitic Jaeger			
5/18	Eastham (F.E.)	1 ad.	B. Nikula
5/19	Chatham (S.B.)	1 ad	B. Nikula#
6/5	Edgartown	1	A. Keith
6/15	Dennis (Corp. B.)	1 sub-ad	P. Flood
6/19	Chatham (S.B.)	3	P. Flood#
Long-tailed Jaeger			
6/15	Rockport (A.P.)	2 ads	R. Heil
Laughing Gull			
5/9	DWWS	1	D. Furbish
5/12	Gloucester (E.P.)	1	BBC (J. Nove)
5/14	Duxbury B.	3	D. Furbish
5/28	P.I.	3 ad	R. Heil
6/15	Dennis (Corp. B.)	135+	P. Flood
6/15	P'town	160	B. Nikula
6/22	Plymouth B.	31	R. Stymeist#
6/30	Nauset	1000+	M. Faherty
Little Gull			
5/5, 19	P.I.	1	D. Allen#
5/23-31	Newbypt.	1 1S	R. Heil + v.o.
6/15	Rockport (A.P.)	1 1S	R. Heil
6/30	Nauset	1 1S	M. Faherty
Bonaparte's Gull			
5/6	Lynn	450	G. d'Entremont#
5/11	Swampscott B.	72	P. + F. Vale
5/14	Turners Falls	2	B. Lafley
5/17	Nahant	175 1S	R. Heil
5/27	Newbypt. H.	150+	P. + F. Vale
Iceland Gull			
5/18	Salisbury	1	S. Grinley#
Lesser Black-backed Gull			
6/18	Eastham	1 2S	M. Faherty
6/28	N. Monomoy	1 2S	B. Nikula
6/29	Chappaquiddick	1 2S	A. Keith#
6/30	Nauset	4	M. Faherty
Glaucous Gull			
5/7	S. Boston	1	R. Donovan
Black-legged Kittiwake			
6/15	Rockport (A.P.)	3	R. Heil
6/15	Dennis (Corp. B.)	3	P. Flood
6/15	P'town	3	B. Nikula
Caspian Tern			
5/11	N. Truro	2	D. Manchester#
5/19	Squantum	1 ad	D. Peacock#
5/24	P.I.	1	M. Taylor#
Royal Tern			
6/17	Nantucket	1	R. Kennedy
6/30	Nauset	1	M. Faherty
Roseate Tern			
5/8, 23	Bird I.	75, 1500	C. Buelow
5/26	Penikese I.	6	C. Buelow
6/12	Mattapoisett	1500	C. Buelow
6/15	Rockport (A.P.)	4 ad	R. Heil
6/18	Buzzard's Bay	2000+	C. Buelow
6/19	Chatham (S.B.)	7	P. Flood#
6/30	Nantucket	10	E. Ray
Common Tern			
5/6	Duxbury	40	B. Machover
5/7	Newbypt.	135	R. Heil
5/12, 6/11	Bird I.	1000, 1500	C. Buelow
5/22	Salisbury	300	J. Berry
5/26	Penikese I.	550	C. Buelow
6/1	Plymouth B.	200	G. d'Entremont#
6/12	Mattapoisett	2500	C. Buelow
6/15	Dennis (Corp. B.)	225	P. Flood
6/18	Buzzard's Bay	4500+	C. Buelow
6/22	Plymouth B.	5	R. Stymeist#
Arctic Tern			
5/28	Chatham (S.B.)	2	S. Perkins
6/1	Plymouth B.	2	G. d'Entremont#
6/15	Rockport (A.P.)	1 1S	R. Heil
6/18	Penikese I.	2 pr n	C. Buelow
6/19	Chatham (S.B.)	5 1S	P. Flood#
6/22	Plymouth B.	2	R. Stymeist#
Forster's Tern			
5/10	P.I.	2 ad	R. Heil
5/18	Edgartown	1	V. Laux
6/5	Newbypt. H.	1	MAS (B. Stevens)
Least Tern			
5/6	P.I.	2	R. Heil
5/6	W. Dennis B.	19	P. Flood
5/21	Craigville	50+	B. Kunkel
5/25	Westport	25	G. d'Entremont#
6/1	Plymouth B.	50	G. d'Entremont#
6/5	Ipswich (C.B.)	150+	BBC (J. Berry)
6/11-12	S. Monomoy	44	R. Lockwood#
6/18	Pasque I.	10 pr n	C. Buelow
6/18	Cuttyhunk	14 pr n	C. Buelow
Black Tern			
5/9	Bourne	5	St. Miller
5/14	Bird I.	1	C. Buelow
5/17	Egremont	1	M. Lynch#
5/17	Newbypt. H.	8	S. Grinley
5/18	Eastham (F.E.)	1	B. Nikula
5/18	Stockbridge	1	R. Ferren
5/18	Richmond	1	C. Blagdon
5/21	Salisbury	3	M. Tingley#
5/31	Chatham (S.B.)	1	B. Nikula
6/20	P.I.	1 ad alt	R. Heil
Black Skimmer			
5/28	Eastham	4	O. Spalding#
6/11	S. Monomoy	1	R. Lockwood#
6/12	W. Dennis	1	P. Flood
6/26	Chatham (S.B.)	1	CCBC (St. Miller)
6/27	N. Monomoy	1	MAS (M. Dettrey)
Common Murre			
6/7	Rockport (A.P.)	1	J. Soucy
Black Guillemot			
6/15	Rockport (A.P.)	2	R. Heil
6/15	Gloucester (B.R.)	1 br pl	P. + F. Vale
6/18	P.I.	1 br pl	N. Eaton

MALLARDS, DAVID LARSON

PARAKEETS THROUGH FINCHES

Unlike last year, the weather cooperated for a fairly nice migration this spring. The exceptionally warm weather of April cooled down, slowing the advancing foliage, and birders reported fallouts in many locations. Winds were noted from a southerly direction on twelve days during May, but only on two days from the southwest, those considered best for spring passerine migration. It is interesting that noticeable fallouts happened on May 1 and 10, both days with a west wind. Rick Heil reported a major push of diurnal migrants on Plum Island on May 10, when strong west winds from a big high to our west displaced birds to the coast. Some of the highlights noted on the island that day included 14 Ruby-throated Hummingbirds, 237 Blue Jays, over 650 Tree and 475 Barn swallows, and 522 American Goldfinches.

Several bird surveys, such as the Hampden County Census sponsored by the Allen Bird Club (ABC) of Springfield, and the breeding bird survey of Myles Standish State Forest (MSSF) in Plymouth organized through the South Shore Bird Club, give us a better understanding of trends and fluctuations of bird populations. On the ABC count held on May 19, the fortieth year, 28 observers roamed the 23 towns of the county and recorded over 14,000 individuals of 142 species, including 25 different warblers! Another highlight of the census was the highest number ever recorded on the count for Red-bellied Woodpecker (87), Carolina Wren (26), and Chimney Swift (413). Alas, some lowlights were fewer Blue-gray Gnatcatchers and the least number of Baltimore Orioles (191) since 1993. Warbler species in lower numbers included Blue-winged, Golden-winged (only twice since 1997), Chestnut-sided, Blackburnian, and American Redstart. The Breeding Bird Census at MSSF held on June 23 recorded among its highlights 16 Black-billed and 17 Yellow-billed cuckoos, 31 Eastern Wood-Pewees, 117 Hermit Thrushes, 153 Gray Catbirds, 201 Pine Warblers, 73 Prairie Warblers, 66 Ovenbirds, 143 Common Yellowthroats, and 373 Eastern Towhees. Looking for all the nests of all these breeding birds were 124 Brown-headed Cowbirds. The breeding season is a great time to be in the field, and on another survey at Barre Falls Dam-Rutland State Park held on June 26, birders tallied good numbers of nesting birds. Among the highlights were 35 Blue-headed and 148 Red-eyed vireos, 44 Veeries, 63 Chestnut-sideds, 48 Black-throated Greens, 83 Ovenbirds, and 97 Common Yellowthroats.

The spreading of the wooly adelgid may have some impact on breeding birds. This scale insect was introduced from Japan about forty years ago and has within the last few years started to do a lot of damage to hemlock trees in our area. Some of the species worth watching would be Black-throated Green Warbler, Blackburnian Warbler, Blue-headed Vireo, and Golden-crowned Kinglet, to see if there is any decline in the population, since these species are fond of healthy hemlocks.

Some birds seemed to linger well beyond the normal time for heading north. A Snowy Owl, one of three individuals found at Logan during May, was still present there on May 26. A Long-eared Owl was still being seen as late as May 19 at Daniel Webster Wildlife Sanctuary in Marshfield. Red and White-winged crossbills, Pine Siskins, and Evening Grosbeaks all were reported as well.

Many species have been continuing to expand their range. In addition to Red-bellied Woodpecker and Carolina Wren, the Fish Crow has been much more numerous and widespread in western Massachusetts, as has Worm-eating and Cerulean warbler. Common Raven continues to nest in new spots, and sightings in the eastern parts of the state have increased significantly. However, the numbers of Purple Martins, Blue-gray Gnatcatchers, and Louisiana Waterthrushes are down.

Among noteworthy birds, this year saw the return of the Chuck-will's-widow in Wellfleet for the sixth year in a row, although it continues to escape confirmation of any breeding. On May 24 an adult **Fork-tailed Flycatcher** was found on Nantucket and was photographed and seen by several island birders. This is just the fifth spring record. A probable Scissor-tailed Flycatcher was reported on Plum Island on May 28, but the observers did not get a long look since the bird was noted in flight and then disappeared. Sedge Wrens were noted in Athol and Marshfield. A Prothonotary Warbler took up residence for nearly a month in Hingham, to the delight of many observers. A **Harris' Sparrow** was observed from the Salisbury Beach Campground on May 18. The clear highlight of the month was the first state record of **Lazuli Bunting,** found and photographed on Nantucket coming to a puddle in the village of Sconset May 5-10.

R. Stymeist

Monk Parakeet
6/30 S. Dartmouth 1 J. Hoye#
Black-billed Cuckoo
5/15 Agawam 1 S. Kellogg
5/17 Hingham (W.E.) 4 R. Titus
5/17 DWWS 3 D. Furbish
5/19 Medford 4 M. Rines
5/19 Cumb. Farms 3 D. Peacock#
5/24 MNWS 2 P. + F. Vale
5/27 Milton (F.M.) 2 L. Tyrala#
5/27 Wompatuck S.P. 3 C. Nims
5/28 GMNWR 2 R. Lockwood#
5/30 P.I. 4 T. Wetmore
6/20 Westminster 4 C. Caron
6/23 Plymouth (MSSF) 16 SSBC survey
Yellow-billed Cuckoo
5/13 Hingham 1 G. d'Entremont
5/19 Medford 2 M. Rines
5/27 Wompatuck S.P. 3 C. Nims
6/3 Essex 2 D. Brown#
6/23 Plymouth (MSSF) 17 SSBC survey
Barn Owl
6/24 Nantucket 4 b E. Andrews
Eastern Screech-Owl
thr Reports of indiv. from 10 locations
Great Horned Owl
5/1-25 Ipswich pr n J. Berry#
5/1-8 Rowley 2 pr n J. Berry#
5/17 Windsor-Cheshire 5 M. Lynch#
5/19 Cumb. Farms 2 D. Peacock#
6/11 S. Monomoy 2 R. Lockwood#
thr Reports of indiv. from 12 locations
Snowy Owl
5/1-26 Boston (Logan) 3 ind. N. Smith
5/1-7 Duxbury B. 2 ind. N. Smith
5/2 P.I. 1 M. Halloran
Barred Owl
5/5 Hardwick 2 C. Buelow
5/16 Ipswich 2 J. Berry#
5/17 Windsor-Cheshire 6 M. Lynch#
5/26 Bolton 2 R. Lockwood
5/thr Pepperell 2 E. Stromsted
6/1-2 Bolton 2 R. Lockwood
thr Reports of indiv. from 15 locations
Long-eared Owl
5/19 DWWS 1 M. Sylvia
Northern Saw-whet Owl
5/17 Windsor-Cheshire 3 M. Lynch#
5/20 Granville 1 S. Kellogg
5/20 Windsor 2 T. Collins
6/9 Stoughton 1 juv G. d'Entremont
6/20 Wellfleet 2 M. Faherty
Common Nighthawk
5/8 Bolton Flats 1 R. Lockwood
5/16 Danvers 1 J. Brown
5/17 S. Peabody 3 R. Heil
5/19 Longmeadow 10 J. Weeks#
5/19 S. Hadley 7 H. Allen
5/24 Hamilton 6 J. Berry
5/27 IRWS 15 D. Hill
5/27 Wayland 11 S. Perkins#
5/27 Stockbridge 6 K. Reed
5/28 P.I. 5 J. Paluzzi
5/28 GMNWR 3 R. Lockwood#
5/30 Foxboro 3 C. Buelow
Chuck-will's-widow
thr Wellfleet 1 v.o.
6/30 Truro 1 T. Lipsky
Whip-poor-will
5/6 W. Gloucester 4 J. Soucy#
5/11 Worcester 4 M. Lynch#
5/19 Plymouth (MSSF) 7 D. Peacock#
5/29 Newbury 4 P. + F. Vale
6/2 S. Carver 17 A. Brissette
6/8 Falmouth 12 C. Buelow
6/9 Winchendon 4 T. Pirro
6/13 Montague 10 M. Williams
6/19 Stow 16 R. Lockwood
6/20 Wellfleet 13 M. Faherty
6/24 Lancaster 37 R. Lockwood
Chimney Swift
5/5-31 P.I. 240 migr, 89 max 5/10 R. Heil
5/8 Boston 50 G. Tepke
5/12 GMNWR 28 C. Caron
5/12 Arlington Res. 50 K. Hartel
5/15 Winchester 100 J. Berry
5/19 Hampden Cnty 413 Allen Club
5/22 Stow 35 R. Lockwood
6/7 Attleboro 50+ J. Sweeney
Ruby-throated Hummingbird
5/1 Mattapoisett 2 m F. Smith
5/6 Easton 2 m K. Ryan
5/6-29 P.I. 72 migr, 14 max 5/10 R. Heil
5/12 Florence 5 T. Gagnon
5/18 Topsfield 3 J. Berry#
5/19 Quabbin (G33) 3 B. Packard#
5/19 Hampden Cnty 8 Allen Club
5/22 Mt.A. 3 S. Noonan
5/24 Stow 3 S. Sutton
5/26 Huntington 4 B. Packard#
Belted Kingfisher
5/19 Hampden Cnty 20 Allen Club
Red-headed Woodpecker
5/1-19 Melrose 1 D. + I. Jewell + v.o.
5/5 IRWS 1 J. MacDougall
5/21 Tuckernuck 1 S. Robinson
5/thr Weston 1 B. Fullerton
Red-bellied Woodpecker
5/thr Pepperell 10 max E. Stromsted*
5/7 Stoughton 3 R. Titus
5/10 Blackstone 4 M. Lynch#
5/19 Hampden Cnty 87 Allen Club
5/28-31 GMNWR 3 R. Lockwood#
5/29 Boxford 3 J. Berry
6/thr Ipswich 2 pr n J. Berry
6/11 Wakefield 1 pr, 1 imm F. Vale
6/21 Boxford 4 J. Berry
6/22 Worc. (BMB) 3 J. Liller#
6/30 Sutton 8 M. Lynch#

Yellow-bellied Sapsucker
5/16 Ashfield 4 S. Sauter
5/26 Quabbin (G46) 3 R. Lockwood#
5/26 Huntington 3 B. Packard#
5/26 Quabbin Park 2 MAS (J. Liller)
6/10 Westminster 3 C. Caron
6/20 Northampton 4 B. Packard#
6/22 Mt. Graylock 5 G. d'Entremont#
6/22 Southampton 4 T. Gagnon#
6/23 Lee 7 G. d'Entremont#
6/28 Barre 2 M. Lynch#

Hairy Woodpecker
5/5 Barre F.D./Rutland S.P. 8 M. Lynch#
5/15 Boxford (C.P.) 3 P. + F. Vale
6/22 Mt. Graylock 7 G. d'Entremont#
6/23 Bolton Flats 3 S. Sutton

Pileated Woodpecker
5/4 GMNWR 2 B. Packard
5/5 Barre F.D./Rutland S.P. 4 M. Lynch#
5/19 Hampden Cnty 9 Allen Club
5/25 Pepperell 2 S. Stromsted
5/31 Hardwick ad + 4 yg C. Buelow
6/8 Quabbin (G37) 3 BBC (R. Lockwood)
6/16 Wenham 2 P. + F. Vale
6/20 Northampton 2 B. Packard#

Olive-sided Flycatcher
5/12, 27 Mt. Tom 1 T. Gagnon#
6/16 Wenham 1 F. Vale
5/17-6/9 Reports of indiv. from 28 locations

Eastern Wood-Pewee
5/11 Medford 1 R. LaFontaine#
5/11 S. Quabbin 1 Allen Club
5/19 Hampden Cnty 56 Allen Club
5/25 Lancaster 11 R. Lockwood
6/8 Quabbin (G37) 16 BBC (R. Lockwood)
6/8 Holden 19 M. Lynch#
6/10 Westminster 15 C. Caron
6/22 Worc. (BMB) 15 J. Liller#
6/23 Plymouth (MSSF) 31 SSBC survey
6/25 Merrimac 12 J. Berry
6/28 Barre 21 M. Lynch#
6/29 Concord 13 R. Lockwood
6/30 Sutton 18 M. Lynch#

Yellow-bellied Flycatcher
5/12 Boxford 1 C. Jackson
5/19 Agawam 4 J. Hutchison#
5/28, 6/7 Medford 1, 1 M. Rines
5/29 P.I. 2 R. Heil
6/7 Nahant 1 L. Pivacek
5/17-29 Reports of indiv. from 12 locations

Acadian Flycatcher
5/11 Chilmark 2 T. Rivers
5/26 Huntington 1 B. Packard#
5/26 Quabbin (G15) 5 R. Lockwood#
6/1 Beckett 1 M. Lynch#
6/4 Ipswich 1 m J. Berry
6/9 Medford 1 R. LaFontaine
6/22 Granville 1 S. Kellogg

Alder Flycatcher
5/16 Ashfield 2 S. Sauter
5/29 P.I. 7 R. Heil
6/1 Otis 6 M. Lynch#
6/1 Athol 4 R. Stymeist#
6/1 Stockbr/Gt Barring. 9 M. Lynch#
6/2 Worcester 5 M. Lynch#
6/9 W. Brookfield 5 M. Lynch#
6/21 Boxford 3 J. Berry
6/21 Windsor 7 M. Lynch#
6/23 Lee 3 G. d'Entremont#

Willow Flycatcher
5/15 Agawam 1 S. Kellogg
5/19 Cumb. Farms 3 D. Peacock#
5/28-31 GMNWR 17 R. Lockwood#
5/30 Lexington 9 M. Rines
6/8 P.I. 26 P. + F. Vale
6/8 Sterling Peat 7 M. Lynch#
6/9 W. Brookfield 7 M. Lynch#
6/9 Bolton Flats 9 S. Sutton
6/16 Wenham 5 P. + F. Vale
6/21 Cumb. Farms 5 m A. Brissette
6/22 W. Newbury 9 m R. Heil
6/30 Wakefield 10 P. + F. Vale

Least Flycatcher
5/5 Barre F.D./Rutland S.P. 13 M. Lynch#
5/5 P.I. 4 R. Heil
5/8 Westminster 6 C. Caron
5/8-25 Mt.A. 4 max 5/15 v.o.
5/17 MNWS 5 R. Heil
5/19 Hampden Cnty 15 Allen Club
5/26 Quabbin (G46) 4 R. Lockwood#
5/26 Huntington 9 B. Packard#
5/26 Quabbin (G40) 12 R. Lockwood#
6/8 Holden 6 M. Lynch#
6/8 Quabbin (G37) 14 BBC (R. Lockwood)
6/26 Barre F.D./Rutland S.P. 39 M. Lynch#

Great Crested Flycatcher
5/4 Melrose 1 C. Jackson
5/4 Lenox 1 R. Laubach
5/5 P.I. 7 D. Allen#
5/12 Medford 6 M. Rines
5/17 Stow 6 R. Lockwood#
5/19 Hampden Cnty 51 Allen Club
5/23 Hingham 6 R. Titus
5/26 Milton (Blue Hills) 9 BBC (A. Joslin)
5/27 Mattapoisett 22 M. Lynch#
5/28-31 GMNWR 9 R. Lockwood#
6/22 Worc. (BMB) 9 J. Liller#
6/23 Plymouth (MSSF) 6 SSBC survey
6/23 Manchester 6 J. Berry

Eastern Kingbird
5/10-28 P.I. 85 migr R. Heil
5/19 Hampden Cnty 51 Allen Club
5/28 P.I. 29 migr R. Heil
6/23 Plymouth (MSSF) 23 SSBC survey

Fork-tailed Flycatcher (no details) *
5/24 Nantucket 1 B. Kennedy

White-eyed Vireo
5/1-5 Mt.A. 1 L. Ferraresso + v.o.
5/4 Holyoke 1 B. Bieda
5/8 Marblehead 1 K. Haley#
5/8 Boston 1 F. Bouchard
5/8 WBWS 1 M. Dettrey
5/14-17 Medford 1 A. Ankers
5/27 Mattapoisett 4 M. Lynch#
6/2 Belmont 1 M. Rines

Blue-headed Vireo
5/1-15 Mt.A. 11 max 5/5 v.o.
5/5 MNWS 10 P. + F. Vale
5/5 P.I. 16 R. Lockwood#
5/6 P'town 10 B. Nikula
5/6 Medford 10 M. Rines
5/19 Quabbin (G33) 9 B. Packard#
6/21 Savoy/Florida 11 M. Lynch#
6/28 Barre 21 M. Lynch#
6/29 Concord 1 R. Lockwood

Yellow-throated Vireo
5/6 Southwick 2 S. Kellogg
5/12 ONWR 4 R. Lockwood
5/12 S. Quabbin 4 M. Lynch#
5/19 HRWMA 2 T. Pirro
5/19 Hampden Cnty 6 Allen Club
5/24 W. Newbury 2 P. + F. Vale
5/26 Huntington 4 B. Packard#
6/2 Quabbin (G45) 3 R. Lockwood
6/8 Holden 3 M. Lynch#
6/20 Ipswich 2 m J. Berry
6/21 Boxford 2 m J. Berry
6/29 Concord 2 R. Lockwood
6/30 Sutton 4 M. Lynch#

Warbling Vireo
5/1 GMNWR 6 J. Offermann
5/5 Woburn 6 M. Rines
5/6 Hadley 11 B. Packard
5/10 Blackstone 16 M. Lynch#
5/19 Hampden Cnty 103 Allen Club
6/1 Stockbr/Gt Barring. 11 M. Lynch#

Warbling Vireo (continued)

6/2	Worcester	10	M. Lynch#
6/30	Sutton	16	M. Lynch#

Philadelphia Vireo

5/11	P'town	1	B. Nikula
5/14	Monroe	1	B. Lafley
5/14	Princeton	1	B. VanDusen
5/18	Medford	1	F. Vale
5/21	Hamilton	1	B. Stevens
5/22	Gloucester (E.P.)	1	J. Nelson
5/23	P'town	1	J. Kricher
5/29	P.I.	2	R. Heil

Red-eyed Vireo

5/9	Wompatuck S.P.	1	C. Nims#
5/9	Southwick	1	S. Kellogg
5/19	Hampden Cnty	126	Allen Club
5/21	Medford	18	M. Rines
5/25	Lancaster	54	R. Lockwood
5/27	Andover	17 m	J. Berry
6/8	Holden	47	M. Lynch#
6/8	Quabbin (G37)	72	BBC (R. Lockwood)
6/21	Monroe	42	M. Lynch#
6/21	Savoy/Florida	46	M. Lynch#
6/22	Mt. Graylock	65	G. d'Entremont#
6/28	Barre	61	M. Lynch#

Blue Jay

5/5	Barre F.D./Rutland S.P.	126 migr	M. Lynch#
5/5-29	P.I.	550 migr, 237 max 5/10	R. Heil
5/16	N. Truro	120	D. Manchester

Fish Crow

5/4	Westfield	3	Allen Club
5/7	W. Springfield	8	S. Kellogg
5/9	DWWS	5	D. Furbish
5/14	Northampton	2	R. Packard
5/19	Agawam	2	J. Hutchison#
5/20	Westfield	2	S. Kellogg
6/1	Plymouth (MSSF)	2	G. d'Entremont#
6/16	E. Sandwich	11	D. Manchester
6/23	Bourne	2	J. Kricher

Common Raven

5/thr	Blackstone	pr n + 4 yg	J. Collins
5/1-14	Rochester	1	M. Maurer
5/3	Paxton	pr n	M. Lynch#
5/4	Oxford	1	P. Meleski
5/5	Hadley	1	E. Labato
5/7	Worcester	1	M. Lynch#
5/8	Canton	1 w/food	K. Ryan
5/9	Rutland	1	C. Buelow
5/12	S. Quabbin	pr + 4 yg	M. Lynch#
5/17	Maynard	1	L. Nachtrab
5/18	Melrose	1	C. Floyd#
5/18	Monroe	1 ad + 1 yg	M. Lynch#
5/24	Westwood	1	W. Peterson
5/26	Quabbin (G15)	2	R. Lockwood#
6/2	Paxton	5	M. Lynch#
6/22	Needham	1	D. Furbish
6/22	Mt. Graylock	3	G. d'Entremont#
6/24	Goshen	2	B. Packard

Horned Lark

5/5	Bolton Flats	1	M. + B. Torpey
5/18	Northampton	2	R. Packard
5/19	Plymouth	2	D. Peacock#
5/27	Mashpee	2-3 imm	S.Leonard
6/11-12	S. Monomoy	13	R. Lockwood#
6/22	Westfield	1	T. Gagnon#
6/27	Chatham (S.B.)	4	CCBC (M. Dettrey)

Purple Martin

5/3	Hingham (W.E.)	4	C. Dalton
5/4, 6/23	P.I	2, 20	P. + F. Vale
5/5	Oxford	1	P. Meleski#
5/9, 6/27	DWWS	36, 70	D. Furbish
5/10	Whately	1	M. Williams
5/28	Chatham (S.B.)	2	S. Perkins
6/21	Truro	1	D. Manchester#
6/thr	Rowley	pr n	R. Buchsbaum

Tree Swallow

5/1	GMNWR	1000	J. Offermann
5/5-24	P.I.	1598 migr, 650 max 5/10	R. Heil
5/17	Stockbridge	1000+	M. Lynch#
5/19	S. Hadley	410	H. Allen

Northern Rough-winged Swallow

5/4	Wakefield	17	P. + F. Vale
5/8	W. Bridgewater	15	D. Cabral
5/10-23	P.I.	22 migr	R. Heil
5/11	Oxford	18	P. Meleski
5/17	Stockbridge	40+	M. Lynch#
5/19	S. Hadley	35	H. Allen

Bank Swallow

5/1	Gay Head	1	A. Keith
5/5-29	P.I.	423 migr, 235 max 5/10	R. Heil
5/9	Bolton Flats	24	R. Lockwood
5/11	Oxford	39	P. Meleski
5/16	Northfield	200	M. Taylor
5/16	Gill	200	M. Taylor
5/19	S. Hadley	1524	H. Allen
5/27	Burlington	125	M. Rines
5/27	Sutton	50 nests	M. Lynch#
6/1	Bolton Flats	33	R. Lockwood#
6/5	Ipswich (C.B.)	100+	BBC (J. Berry)
6/18	Nashawena I.	50 pr n	C. Buelow
6/23	Bolton Flats	100	S. Sutton

Barn Swallow

5/1	Penikese I.	25	C. Buelow
5/1	GMNWR	250	J. Offermann
5/4	W. Newbury	42	P. + F. Vale
5/5-28	P.I.	1372 migr, 474 max 5/10	R. Heil
5/13	Arlington Res.	25+	C. Floyd
5/17	Egremont	30+	M. Lynch#
5/17	Stockbridge	200+	M. Lynch#
5/19	S. Hadley	450	H. Allen
6/28	Hubbardston	26	M. Lynch#

Cliff Swallow

5/2	Northampton	3+	T. Gagnon
5/5-29	P.I.	123 migr, 83 max 5/10	R. Heil
5/10	W. Newbury	30+	J. Berry
5/18	GMNWR	45	S. Perkins
5/18	Gill	54	B. Bieda
5/28	Chatham (S.B.)	8	S. Perkins
5/29	Newbury	6	P. + F. Vale
5/31	Hardwick	3	C. Buelow
6/5	Lunenburg	34	T. Pirro
6/15	Wilbraham	8	J. Gawienowski
6/23	Ware	8	J. Hoye#

Red-breasted Nuthatch

5/4	Hyannis	3	C. Buelow
5/5	Barre F.D./Rutland S.P.	17	M. Lynch#
5/14	Marion	4	C. Buelow
5/18	Mt. Watatic	8	C. Caron
5/19	Hampden Cnty	7	Allen Club
5/22	Gloucester (E.P.)	3	J. Nelson
5/24	Stow	3	R. Lockwood#
6/10	DWMA	6	M. Lynch#
6/22	Mt. Graylock	4	G. d'Entremont#
6/23	Plymouth (MSSF)	3	SSBC survey

Brown Creeper

5/4	Stow	6	R. Lockwood
5/5	Barre F.D./Rutland S.P.	15	M. Lynch#
5/5	Wompatuck S.P.	4	BBC (D. Peacock)
5/26	Quabbin (G40)	4	R. Lockwood#
5/28-31	GMNWR	8	R. Lockwood#
6/1	Monterrey	4	M. Lynch#
6/8	Quabbin (G37)	5	BBC (R. Lockwood)
6/10	DWMA	6	M. Lynch#
6/22	Petersham	7	P. + F. Vale
6/28	Barre	8	M. Lynch#

Carolina Wren

5/thr	Mt.A.	3-5	R. Stymeist# +v.o.
5/10	Blackstone	6	M. Lynch#
5/19	Hampden Cnty	26	Allen Club
5/27	Mattapoisett	37	M. Lynch#
5/28-31	GMNWR	8	R. Lockwood#
6/16	Berkeley	7	G. d'Entremont#
6/16	Taunton	8	G. d'Entremont#
6/30	Sutton	7	M. Lynch#

House Wren

5/4	Oxford	9	P. Meleski

House Wren (continued)

5/4	Medford	8	M. Rines#
5/11	Oxford	13	P. Meleski
5/19	Hampden Cnty	51	Allen Club
5/28-31	GMNWR	14	R. Lockwood#
6/1	Plymouth (MSSF)	10	G. d'Entremont#
6/10	DWMA	9	M. Lynch#
6/23	Plymouth (MSSF)	59	SSBC survey
6/30	Sutton	24	M. Lynch#

Winter Wren

5/5	Wompatuck S.P.	2	D. Peacock#
5/16	Ashfield	2	S. Sauter
5/31	GMNWR	2	R. Lockwood#
6/21	Savoy/Florida	4	M. Lynch#
6/22	Mt. Graylock	6	G. d'Entremont#
6/22	Petersham	3	P. + F. Vale
6/28	Barre	2	M. Lynch#
6/29	Concord	2	R. Lockwood

Sedge Wren

5/27-6/30	Athol	1	J. Johnstone# + v.o.
5/31	DWWS	1	D. Furbish

Marsh Wren

5/2	Northfield	2	M. Taylor
5/4	W. Harwich	3	C. Gentes#
5/19	Cumb. Farms	7	D. Peacock#
5/27	W. Newbury	3	P. + F. Vale
5/28-31	GMNWR	13	R. Lockwood#
6/9	W. Brookfield	9 m	M. Lynch#
6/28	P.I.	21 m	J. Berry
6/30	Wakefield	9	P. + F. Vale

Blue-gray Gnatcatcher

5/4	Hingham	10	D. + S. Larson
5/4	Bolton Flats	10	S. Moore#
5/5	Boxford (C.P.)	10+	T. Martin
5/5	Wompatuck S.P.	12	D. Peacock#
5/10	Blackstone	7	M. Lynch#
5/11	Oxford	3	P. Meleski
5/12	S. Quabbin	6	M. Lynch#
5/19	Hampden Cnty	19	Allen Club
6/26	ONWR	9	S. Sutton

Golden-crowned Kinglet

5/3	Wakefield	1	F. Vale
5/5	P.I.	1	R. Lockwood#
5/18	Mt. Watatic	10	C. Caron
6/2	Washington	5	Allen Club
6/21	Savoy/Florida	6	M. Lynch#
6/22	Mt. Graylock	6	G. d'Entremont#
6/22	Essex	8	J. Berry#
6/23	Lee	7	G. d'Entremont#

Ruby-crowned Kinglet

5/3	Medford	12	P. + F. Vale
5/5	P'town	20	B. Nikula
5/5	P.I.	65+	R. Heil
5/7	MNWS	7	P. + F. Vale
5/8	Mt.A.	4	P. + F. Vale
5/12	ONWR	3	R. Lockwood
5/17	Boston	1	G. Tepke
5/22	Salisbury	1	J. Berry
6/2	Washington	1	Allen Club
6/23	Lee	1	G. d'Entremont#

Eastern Bluebird

5/19	Hampden Cnty	17	Allen Club
5/26	Quabbin Park	6	MAS (J. Liller)
5/29	GMNWR	5	R. Lockwood#
6/30	Sutton	6	M. Lynch#

Veery

5/4	Lenox	2	R. Laubach
5/4	Northampton	2	E. Labato
5/19	ONWR	18	R. Lockwood
5/19	Hampden Cnty	88	Allen Club
5/24	Hingham	15	R. Titus
5/28-31	GMNWR	16	R. Lockwood#
6/1	Stockbr/Gt Barring.	17	M. Lynch#
6/8	Quabbin (G37)	18	BBC (R. Lockwood)
6/9	W. Brookfield	16	M. Lynch#
6/16	Wenham	17	P. + F. Vale
6/26	Ipswich/Rowley	20	J. Berry
6/28	Barre	31	M. Lynch#
6/30	Sutton	37	M. Lynch#
6/30	Wompatuck S.P.	26	G. d'Entremont

Bicknell's Thrush

5/17	Worcester	1 heard	M. Lynch#

Gray-cheeked/Bicknell's Thrush

5/12, 19, 22	Mt.A.	1	v.o.
5/18	Mt. Greylock	1	M. Lynch#
5/19	Springfield	1	A. + L Richardson
5/20	Mt. Tom	1	T. Gagnon
5/20	Westfield	1	J. Hutchison
5/23	P'town	1	J. Kricher
5/24	Wompatuck S.P.	1	W. Peterson

Swainson's Thrush

5/7	Pepperell	1	M. Resch
5/7-29	Mt.A.	16 max 5/19	v.o.
5/18	Mt. Greylock	5	M. Lynch#
5/18	Melrose	8	P. + F. Vale
5/19	HRWMA	7	T. Pirro
5/19	Hampden Cnty	57	Allen Club
5/19	Springfield	17	A. + L Richardson
5/27	Mt. Tom	1	T. Gagnon
5/30	Becket	1	R. Laubach
6/22	Mt. Graylock	1	G. d'Entremont#
6/22	Petersham	1	P. + F. Vale

Hermit Thrush

5/5	MNWS	10	P. + F. Vale
5/18	Monroe	14	M. Lynch#
5/18	Mt. Greylock	24	M. Lynch#
5/18	Savoy-Florida	14	M. Lynch#
6/1-30	Sherborn	10	E. Taylor
6/8	Falmouth	6	C. Buelow
6/23	Plymouth (MSSF)	117	SSBC survey
6/28	Barre	40	M. Lynch#
6/29	Concord	9	R. Lockwood

Wood Thrush

5/2, 12	Medford	1, 14	M. Rines
5/19	Hampden Cnty	175	Allen Club
5/20	ONWR	24	R. Lockwood
5/23	Hingham	10	R. Titus
5/23	Stow	14	R. Lockwood
5/25	Lancaster	21	R. Lockwood
5/28-31	GMNWR	23	R. Lockwood#
6/2	Quabbin (G45)	10	R. Lockwood
6/8	Holden	13	M. Lynch#
6/22	Worc. (BMB)	10	J. Liller#
6/25	Merrimac	12	J. Berry
6/30	Sutton	26	M. Lynch#

American Robin

6/23	Plymouth (MSSF)	99	SSBC survey

Gray Catbird

5/10	Stoughton	42	D. Larson#
5/19	Hampden Cnty	437	Allen Club
5/27	Mattapoisett	87	M. Lynch#
6/8	Holden	55	M. Lynch#
6/16	P.I.	54	M. Lynch#
6/22	Worc. (BMB)	59	J. Liller#
6/23	Plymouth (MSSF)	153	SSBC survey
6/30	Sutton	87	M. Lynch#

Brown Thrasher

5/1	Lancaster	6	R. Lockwood
5/7	P.I.	23	R. Heil
5/10	Blackstone	5	M. Lynch#
5/19	Hampden Cnty	23	Allen Club
5/28	Wakefield	4	P. + F. Vale
5/thr	Mt.A.	4 max 5/15	v.o.
6/21	Lancaster	7	R. Lockwood
6/23	Plymouth (MSSF)	8	SSBC survey
6/29	Worc. (BMB)	5	J. Liller

American Pipit

5/1	Randolph	3	G. d'Entremont
5/4	Bolton Flats	25	S. Moore#
5/14	Concord (NAC)	35	S. Perkins
5/15	Bolton Flats	3	C. Caron
5/18	Orange	1	J. Morris-Siegel#
5/18	Eastham (F.E.)	2	B. Nikula

Cedar Waxwing

5/16	N. Truro	160	D. Manchester
5/thr	Medford	80-125	M. Rines

Cedar Waxwing (continued)

6/1	Braintree	100	K. Vespaziani
6/1	Truro	353	D. Manchester#
6/23	Plymouth (MSSF)	89	SSBC survey

Blue-winged Warbler

5/1	Medford	2	M. Rines
5/4	W. Bridgewater	4	R. Finch#
5/10	Stoughton	12	D. Larson#
5/12	MBWMA	8	MAS (M. Halloran)
5/19	Hampden Cnty	49	Allen Club
5/23	Hingham	11	R. Titus
5/25	Lancaster	12	R. Lockwood
5/27, 6/17	Burlington	7, 9	M. Rines
5/28-31	GMNWR	6	R. Lockwood#
6/22	Worc. (BMB)	7	J. Liller#
6/22	W. Newbury	7 m	R. Heil
6/26	Barre F.D./Rutland S.P.	13	M. Lynch#

Golden-winged Warbler

5/17	Quabbin (G40)	1 m	P. Meleski
5/17-6/28	W. Newbury	1 m	S. Grinley + v.o.

Brewster's Warbler

5/17-31	MBWMA	1 ad	B. Crowley#
5/18	Newbypt.	1	J. Hoye#
5/22	Montague	1	M. Williams
5/26	Newbury	1 m	J. Berry#
6/5	W. Newbury	1 f	MAS (B. Stevens)
6/8	Lexington	1 m	M. Rines#

Lawrence's Warbler

5/3	Pittsfield	1	T. Collins
5/10	Whately	1	M. Williams
6/9-11	Pittsfield	1	T. Collins#
6/10, 12	DWMA	1	S. Sutton

Tennessee Warbler

5/8	Mt.A.	1	P. + F. Vale
5/12	Worcester	6	M. Lynch#
5/14, 25	Medford	2, 3	M. Rines
5/18	Monroe	2	M. Lynch#
5/19	W. Springfield	3	J. + T. Zepko
5/19	Agawam	5	J. Hutchison#
5/20	Worc. (BMB)	2	J. Liller
5/27	Wompatuck S.P.	1	C. Nims

Orange-crowned Warbler

5/4	Amherst	1	S. Surner
5/11	Braintree	1	G. d'Entremont#
5/16, 22	Medford	1	M. Rines
5/18	Brookline	1	H. Wiggin
5/24	P.I.	1	M. Taylor#
5/30	Boston	1	G. Tepke

Nashville Warbler

5/1, 12	Medford	1, 12	M. Rines
5/3-23	Mt.A.	20 max 5/14	v.o.
5/5	Hingham	6	G. d'Entremont
5/5	P.I.	5	D. Allen#
5/5	Wompatuck S.P.	5	D. Peacock#
5/10	Gardner	5	T. Pirro
5/11	Stow	5	R. Lockwood#
5/14	Worcester	6	M. Lynch#
5/17	MNWS	15+	P. + F. Vale
6/30	Hinsdale	7	R. Packard

Northern Parula

5/1, 12	Medford	1, 24	M. Rines
5/1-23	Mt.A.	20+ max 5/20	v.o.
5/5, 17	MNWS	3, 25	P. + F. Vale
5/14	Worcester	11	M. Lynch#
5/16	Mattapan	20+	BBC (L.Ferraresso)
5/17	Newbypt.	10	P. + F. Vale
5/19	Hampden Cnty	22	Allen Club
6/23	Mt. Greylock	1	J. Hoye#
6/25	E. Harwich	2	B. Nikula

Yellow Warbler

5/8	DWWS	35	R. Titus
5/9	Bolton Flats	38	R. Lockwood
5/17	Egremont	30+	M. Lynch#
5/17	Stockbridge	30+	M. Lynch#
5/19	Hampden Cnty	178	Allen Club
5/27	Mattapoisett	55	M. Lynch#
5/27	Fairhaven	77	M. Lynch#
5/28-31	GMNWR	56	R. Lockwood#
6/16	P.I.	47	M. Lynch#

Chestnut-sided Warbler

5/1	GMNWR	1	J. Offermann
5/5, 6/26	Barre F.D./Rutland S.P.	9, 63	M. Lynch#
5/12	S. Quabbin	19	M. Lynch#
5/18	Monroe	24	M. Lynch#
5/19	Hampden Cnty	27	Allen Club
5/21	Medford	8	M. Rines
5/25	Lancaster	23	R. Lockwood
5/26	Huntington	17	B. Packard#
6/2	Quabbin (G45)	14	R. Lockwood
6/21	Monroe	27	M. Lynch#
6/22	Mt. Graylock	18	G. d'Entremont#
6/22	W. Newbury	5 m	R. Heil

Magnolia Warbler

5/4	Westfield	1	Allen Club
5/5, 17	MNWS	1, 30	P. + F. Vale
5/5-27	Mt.A.	15 max 5/14	v.o.
5/6-6/5	Medford	31 max 5/20	M. Rines
5/12	ONWR	12	R. Lockwood
5/12	Agawam	28	ABC (J. Hutchison)
5/17	P.I.	60+	R. Heil
5/17	Newbypt.	15	P. + F. Vale
5/19	Hampden Cnty	47	Allen Club
5/20	P'town	15	B. Nikula
6/23	Lee	11	G. d'Entremont#
6/26	Barre F.D./Rutland S.P.	11	M. Lynch#

Cape May Warbler

5/5, 15	Mt.A.	3, 1	v.o.
5/14	Worcester	1	M. Lynch#
5/16	Hadley	1	B. Bieda
5/16	Lexington	1	J. Forbes
5/16	Hingham (W.E.)	1 m	C. Dalton
5/17	Amherst	1	M. Taylor#
5/17	Boston	1 f	B. Guenther
5/17	Nantucket	1	S. Langer

Black-throated Blue Warbler

5/4-26	Medford	17 max 5/12	M. Rines#
5/5-25	Mt.A.	15 max 5/12	v.o.
5/11	Newbypt.	12	P. + F. Vale
5/12	Agawam	16	ABC (J. Hutchison)
5/17	P.I.	15	R. Heil
5/19	Hampden Cnty	30	Allen Club
6/8	Quabbin (G37)	14	BBC (R. Lockwood)
6/20	Westminster	9	C. Caron
6/22	Mt. Graylock	9	G. d'Entremont#
6/28	Barre	11	M. Lynch#

Yellow-rumped Warbler

5/1-25	Medford	230 max 5/4	M. Rines
5/1-26	Mt.A.	150 max 5/12	v.o.
5/5	P'town	100	B. Nikula
5/5	P.I.	210	R. Heil
5/5, 6/26	Barre F.D./Rutland S.P.	116, 40	M. Lynch#
5/17	Amherst	100+	M. Taylor#
5/19	Hampden Cnty	121	Allen Club
6/8	Quabbin (G37)	15	BBC (R. Lockwood)
6/8	Mt. Toby	4	M. Williams
6/8	Holden	6	M. Lynch#
6/22	Mt. Graylock	11	G. d'Entremont#

Black-throated Green Warbler

5/1-25	Mt.A.	12 max 5/12	v.o.
5/5	P.I.	16	R. Lockwood#
5/12	Agawam	18	ABC (J. Hutchison)
5/12	Medford	24	M. Rines
5/19	Hampden Cnty	38	Allen Club
5/26	Quabbin (G15)	14	R. Lockwood#
6/8	Quabbin (G37)	21	BBC (R. Lockwood)
6/22	Petersham	26	P. + F. Vale
6/28	Barre	45	M. Lynch#

Blackburnian Warbler

5/5, 6/26	Barre F.D./Rutland S.P.	2, 7	M. Lynch#
5/6	Southwick	1	S. Kellogg
5/13	Wompatuck S.P.	5	C. Dalton
5/14, 20	Medford	4, 4	M. Rines
5/17	Newbypt.	6	P. + F. Vale
5/19	Quabbin (G33)	7	B. Packard#
5/26	Quabbin (G15)	13	R. Lockwood#
6/1	Monterrey	10	M. Lynch#

Blackburnian Warbler (continued)

6/8	Quabbin (G37)	10	BBC (R. Lockwood)
6/22	Mt. Graylock	22	G. d'Entremont#
6/28	Hubbardston	6	M. Lynch#

Yellow-throated Warbler

5/20	Fall River	1	M. Boucher
6/1	Fall River	1	R. Hopping

Pine Warbler

5/5, 6/26	Barre F.D./Rutland S.P.	25, 41	M. Lynch#
5/7	Stoughton	15	R. Titus
5/19	ONWR	10	R. Lockwood
5/19	Hampden Cnty	34	Allen Club
5/23	Stow	17	R. Lockwood
5/28-31	GMNWR	14	R. Lockwood#
6/8	Quabbin (G37)	13	BBC (R. Lockwood)
6/23	Plymouth (MSSF)	201	SSBC survey
6/30	Sutton	19	M. Lynch#

Prairie Warbler

5/4	Oxford	4	P. Meleski
5/5	Marshfield	4	S. Maguire#
5/5	P.I.	3 m	R. Heil
5/11	Sherborn	4	E. Taylor
5/19	Hampden Cnty	15	Allen Club
5/26	Milton (Blue Hills)	4	BBC (A. Joslin)
6/3	Lancaster	6	R. Lockwood
6/8	Quabbin (G37)	7	BBC (R. Lockwood)
6/22	Worc. (BMB)	6	J. Liller#
6/23	Plymouth (MSSF)	73	SSBC survey

Palm Warbler

5/1	Lunenburg	6	C. Caron
5/1, 12	Medford	12, 1	M. Rines
5/5	P.I.	20	R. Heil
5/5	Barre F.D./Rutland S.P.	7	M. Lynch#
5/16	Salem	1	C. Jackson
5/17	MNWS	1	P. + F. Vale

Bay-breasted Warbler

5/5-26	Mt.A.	5 max 5/19	v.o.
5/8	W. Springfield	1	Allen Club
5/8	WBWS	1	M. Dettrey
5/16, 25	Medford	1, 3	P. + F. Vale
5/17	Nahant	3	T. Martin
5/17	Worcester	6	M. Lynch#
5/19	Springfield	3	A. + L Richardson
5/23	MNWS	10+	M. Burns
5/28	P.I.	4	J. Berry#
6/23	Mt. Greylock	1	J. Hoye#

Blackpoll Warbler

5/12-28	Medford	15 max 5/20	M. Rines
5/19	Hampden Cnty	26	Allen Club
5/27	Mattapoisett	19	M. Lynch#
5/28	P.I.	16	J. Berry#
5/29	P'town	100+	P. Flood
5/30	Gloucester	14	J. Berry#
6/1	P.I.	7	P. + F. Vale
6/22	Mt. Graylock	2	G. d'Entremont#

Cerulean Warbler

5/6	Mt.A.	1	P. Riehl#
5/7	Worcester	1 m	M. Lynch#
5/7-29	Hadley	2-4	E. Labato
5/11-6/30	S. Quabbin	pr	v.o.
5/20	Mt. Tom	1	T. Gagnon
6/1	Mt. Holyoke	1	R. Stymeist#
6/7	Medford	1 m	R. LaFontaine

Black-and-white Warbler

5/1-25	Medford	21 max 5/14	M. Rines
5/1-21	Mt.A.	20 max 5/12	v.o.
5/5	P.I.	20	R. Heil
5/10	Stoughton	13	D. Larson#
5/10	Wakefield	13	F. Vale
5/19	Hampden Cnty	50	Allen Club
6/1	Stockbr/Gt Barring.	14	M. Lynch#
6/8	Quabbin (G37)	11	BBC (R. Lockwood)
6/9	W. Brookfield	12	M. Lynch#
6/16	Wenham	23	P. + F. Vale
6/22	Petersham	11	P. + F. Vale
6/28	Barre	14	M. Lynch#

American Redstart

5/3	Northampton	1	R. Packard
5/6-27	Mt.A.	17 max 5/22	v.o.
5/8-6/5	Medford	31 max 5/21	M. Rines
5/8	P.I.	100+	R. Heil
5/12	S. Quabbin	38	M. Lynch#
5/18	Monroe	29	M. Lynch#
5/19	Hampden Cnty	101	Allen Club
5/22	Hadley	25	G. d'Entremont#
5/24	MNWS	20+	P. + F. Vale
5/28	P.I.	37	J. Berry
6/1	Monterrey	28	M. Lynch#
6/8	Quabbin (G37)	26	BBC (R. Lockwood)
6/9	W. Brookfield	28	M. Lynch#
6/21	Rowe	18	M. Lynch#

Prothonotary Warbler

5/11-6/4	Hingham	1 m	D. Furbish# + v.o.

Worm-eating Warbler

5/5-29	Hadley	1-2	E. Labato
5/8, 19	Medford	2, 1	M. Rines
5/10	Blackstone	2 m	M. Lynch#
5/13	Wompatuck S.P.	3	C. Dalton
6/2	Quabbin Park	1	BBC (E. Giles)
6/10	Mt. Washington	1	D. St. James

Ovenbird

5/3-23	Mt.A.	14 max 5/14	v.o
5/3, 25	Lancaster	2, 24	R. Lockwood
5/5-27	Medford	25 max 5/14	M. Rines
5/7	Stoughton	37	R. Titus
5/19	Hampden Cnty	109	Allen Club
5/24	Stow	30	R. Lockwood
5/27	Wompatuck S.P.	33+	C. Nims
6/8	Quabbin (G37)	25	BBC (R. Lockwood)
6/22	Mt. Graylock	23	G. d'Entremont#
6/23	Manchester	29 m	J. Berry
6/23	Plymouth (MSSF)	66	SSBC survey
6/28	Barre	63	M. Lynch#

Northern Waterthrush

5/4	Stow	5	R. Lockwood
5/4	W. Bridgewater	5	R. Finch#
5/6, 6/23	Manchester	6 m, 3 m	J. Berry#
5/11	Oxford	4	P. Meleski
5/17	MNWS	10	J. Berry#
5/17	Nahant	4	T. Martin
5/17	Medford	6	M. Rines
5/18	P.I.	7	M. Rines#
5/19	Hampden Cnty	21	Allen Club
5/22	Longmeadow	8	ABC (J. LaPointe)
6/20	Westminster	4	C. Caron
6/26	Ipwich/Rowley	5 m	J. Berry

Louisiana Waterthrush

5/6	Manchester	2 m	J. Berry
5/11	Oxford	2	P. Meleski
5/16	Carlisle	2	T. Brownrigg
5/19	Hampden Cnty	6	Allen Club
5/24	Wompatuck S.P.	2	W. Peterson
5/26	Quabbin (G46)	2	R. Lockwood#
6/8	Mt. Toby	7	M. Williams

Kentucky Warbler

5/7	Stougthon	1	R. Titus
5/8	WBWS	1	R.Everett
5/12	Carlisle	1	K. Harte
5/12	Yarmouthport	2 m	St. Miller#
5/14-15	Medford	1 m	M. Rines + v.o.
5/16	P'town	1	S. Thompson
5/16	Sandwich	1	P. Trimble
6/4	Granby	1	M. Williams
6/4	Ipswich	1 m	J. Berry

Mourning Warbler

5/17-25	Medford	3 max 5/19	M. Rines
5/20-31	Mt.A.	3-4 indiv.	v.o.
5/28	Hingham (W.E.)	2 m	C. Dalton
5/29	Washington	5	D. St. James
6/11	Pittsfield	1	R. Laubach
6/21	Windsor	1	M. Lynch#
6/23	Mt. Greylock	6	J. Hoye#
6/23	Lee	3	G. d'Entremont#
5/18-6/3	Reports of indiv. from 21 locations		

Common Yellowthroat

5/1	Longmeadow	1	Allen Club

Common Yellowthroat (continued)

5/9	Bolton Flats	21	R. Lockwood
5/17	MNWS	50+	P. + F. Vale
5/17	P.I.	150+	R. Heil
5/17	Egremont	40+	M. Lynch#
5/19	Hampden Cnty	158	Allen Club
6/9	W. Brookfield	53	M. Lynch#
6/11-12	S. Monomoy	78	R. Lockwood#
6/22	Worc. (BMB)	35	J. Liller#
6/22	W. Newbury	50	R. Heil
6/23	Plymouth (MSSF)	143	SSBC survey
6/26	Barre F.D./Rutland S.P.	97	M. Lynch#
6/30	Sutton	42	M. Lynch#

Hooded Warbler

5/7-10	Mt.A.	1	J. Barton# + v.o.
5/8	P.I.	1 m	I. Jewell + v.o.
5/10	W. Newbury	1 m	J. Berry#
5/12-15	Medford	1 m	M. Rines + v.o.
5/17	Nantucket	1	S. Langer
5/22	Longmeadow	1	ABC (J. LaPointe)
5/25	W. Newbury	1	J. Smith
5/27	Mattapoisett	1 m	M. Lynch#
6/2	Lexington	1	M. Rines
6/6	Pepperell	1 m	M. Resch

Wilson's Warbler

5/7-26	Mt.A.	6 max 5/21	v.o.
5/9-25	Medford	8 max 5/20	M. Rines
5/17	Hingham (W.E.)	6	R. Titus
5/19	Hampden Cnty	7	Allen Club
5/19	Marblehead	12	K. Haley
5/19	Boston	7+	G. Tepke
5/23	MNWS	10+	M. Burns
5/24	Boston	3	G. Tepke
5/28	P.I.	3	J. Berry

Canada Warbler

5/5	P.I.	1	S. McGrath#
5/6	Manomet	1 b	T. Lloyd-Evans
5/8-27	Mt.A.	4 max 5/23	v.o.
5/12-6/5	Medford	8 max 5/27	M. Rines
5/17	Hingham (W.E.)	5	R. Titus
5/19	Hampden Cnty	15	Allen Club
5/23	MNWS	10+	M. Burns
6/10	Westminster	8	C. Caron
6/23	Mt. Greylock	5	J. Hoye#
6/24	Goshen	7	B. Packard
6/28	Barre	10	M. Lynch#

Yellow-breasted Chat

5/10	Medford	1	A. Ankers#
5/11	N. Scituate	1	J. Norton
5/18	P.I.	1	R. Titus
5/21	Gloucester (E.P.)	2	M. Swift

Summer Tanager

5/6	Nantucket	1 f	K. Blackshaw#
5/11	Boston (F.P.)	1	J. Young
5/13	Wompatuck S.P.	1 m ad	C. Dalton
5/16	Chilmark	1	A. Keith
5/29	Hadley	1 m ad	G. LeBaron
6/21	Truro	1 m 1S	M. Faherty

Scarlet Tanager

5/5, 6/26	Barre F.D./Rutland S.P.	4, 33	M. Lynch#
5/7	Stoughton	4	R. Titus
5/9-6/30	Medford	17 max 5/20	M. Rines
5/19	Quabbin Park	13	P. + F. Vale
5/19	ONWR	13	R. Lockwood
5/19	Hampden Cnty	75	Allen Club
5/24	Stow	11	R. Lockwood#
5/25	Lancaster	18	R. Lockwood
6/10	Westminster	17	C. Caron
6/28	Barre	14	M. Lynch#
6/29	Concord	18	R. Lockwood

Eastern Towhee

5/4	Stow	33	R. Lockwood
5/7	Stoughton	48	R. Titus
5/19	Hampden Cnty	68	Allen Club
5/23	Marion	24	C. Buelow
5/27	Mattapoisett	39	M. Lynch#
6/22	Worc. (BMB)	33	J. Liller#
6/23	Plymouth (MSSF)	373	SSBC survey
6/26	Barre F.D./Rutland S.P.	42	M. Lynch#
6/30	Wompatuck S.P.	24	G. d'Entremont
6/30	Sutton	23	M. Lynch#

Clay-colored Sparrow

6/9	MBWMA	1	S. Mirick#
6/11-18+	WBWS	1	v.o.
6/3-30	Lancaster	1	R. Lockwood

Field Sparrow

5/1	Lancaster	24	R. Lockwood
5/4	Stow	7	R. Lockwood
5/19	Hampden Cnty	21	Allen Club
5/26	MBWMA	8	J. Berry#
6/3	Lancaster	10	R. Lockwood
6/22	Worc. (BMB)	15	J. Liller#
6/23	Plymouth (MSSF)	32	SSBC survey
6/26	Barre F.D./Rutland S.P.	9	M. Lynch#

Vesper Sparrow

thr	Lancaster	1-2	R. Lockwood
5/4	Westboro	3	A. Petersen
5/7	P.I.	1	R. Heil
5/11	P'town	1	B. Nikula
5/20	Hawley	5	T. Collins
5/26	Falmouth	1	BBC (R. Petersen)
6/1	Southwick	1	Allen Club
6/7	Sunderland	2	Allen Club
6/22	Westfield	2	T. Gagnon#

Savannah Sparrow

5/12	Bolton Flats	40	S. Sutton
5/19	Hampden Cnty	17	Allen Club
5/25	Penikese I.	15	C. Buelow
6/11-12	S. Monomoy	73	R. Lockwood#

Grasshopper Sparrow

5/9-6/1	Southwick	1	S. Kellogg
5/16, 6/18	Lancaster	4, 49	R. Lockwood
5/19	Concord	1	P. + F. Vale
6/7	Sunderland	2	Allen Club
6/8	Falmouth	3	C. Buelow
6/13	Turners Falls	4	M. Williams
6/22	Westfield	1	T. Gagnon#
6/25	Hatchville	1	B. Good

Saltmarsh Sharp-tailed Sparrow

5/12	E. Boston (B.I.)	1	P. + F. Vale
5/16	Brewster	1	S. Finnegan#
5/25	S. Dart. (A.Pd)	12	G. d'Entremont#
5/29	P.I.	35+	R. Heil
5/31	E. Sandwich	3	J. Kricher
6/3	N. Monomoy	6+	B. Nikula
6/5	Newbury	2	B. Stevens
6/11	S. Monomoy	4	R. Lockwood#
6/12	Mattapoisett	4	C. Buelow

Seaside Sparrow

5/25	S. Dart. (A.Pd)	4	G. d'Entremont#
6/5	Mattapoisett	1	C. Buelow
6/16	P.I.	4	M. Lynch#

Lincoln's Sparrow

5/5	P.I.	1	S. McGrath#
5/12	ONWR	2	R. Lockwood
5/16	Ipswich, IRWS	2	J. Berry#
5/19	Hampden Cnty	6	Allen Club
5/19	Boston	5+	G. Tepke
thr	Reports of indiv. from 17 locations		

Swamp Sparrow

6/1	Stockbr/Gt Barring.	31	M. Lynch#
6/22	W. Newbury	28	R. Heil
6/26	Barre F.D./Rutland S.P.	26	M. Lynch#
6/30	Wakefield	25	P. + F. Vale

White-throated Sparrow

5/5	Hingham	78	G. d'Entremont
5/5	P'town	70	B. Nikula
5/5	P.I.	325	R. Heil
5/7	MNWS	50+	P. + F. Vale
5/8	Boston	200	G. Tepke#
5/14	Mt.A.	80	C. Floyd#
5/18	Monroe	22	M. Lynch#
6/23	Lee	8	G. d'Entremont#
6/26	Barre F.D./Rutland S.P.	22	M. Lynch#

Harris's Sparrow (no details) *

5/18	Salisbury	1	J. Hoye#

White-crowned Sparrow

5/7	Bolton Flats	7	S. Sutton
5/7	P.I.	26	R. Heil
5/8	Boston	5+	S. Carey
5/9	DWWS	5	D. Furbish
5/13	Essex	7	P. Brown
5/14	Rockport	8	J. Soucy
5/16	Mattapan	8	BBC (L.Ferraresso)
5/18	Monroe	6	M. Lynch#
5/22	Northampton	5	C. Gentes

Dark-eyed Junco

5/1	E. Middleboro	2	K. Anderson
5/5	Wompatuck S.P.	1	BBC (D. Peacock)
5/11	Medford	1	R. LaFontaine#
5/18	Mt.A.	1	S. Shepard#
6/22	Mt. Graylock	17	G. d'Entremont#

Rose-breasted Grosbeak

5/5-27	Mt.A.	8 max 5/16	v.o.
5/19	ONWR	19	R. Lockwood
5/19	Hampden Cnty	73	Allen Club
5/25	Lancaster	20	R. Lockwood
5/26	MBWMA	9	J. Berry#
5/28-31	GMNWR	11	R. Lockwood#
6/8	Holden	8	M. Lynch#
6/30	Sutton	13	M. Lynch#

Blue Grosbeak

5/19	Nantucket	1	C. Jackson
5/22	P'town	1 f.	B. Nikula
6/26	Scituate	1	E. Burbank

Lazuli Bunting (no details) *

5/5-10	Nantucket	1 m ph	M. Aguiar + v.o.

Indigo Bunting

5/2	Northampton	1	E. Labato
5/7	Ashfield	1	S. Sauter
5/19	Hampden Cnty	14	Allen Club
5/22	Hadley	6	G. d'Entremont#
5/23	Hingham	8	R. Titus
5/thr	Pepperell	10	E. Stromsted
6/1	Lexington	5 m	M. Rines
6/23	Mt. Greylock	6	J. Hoye#
6/25	Merrimac	4 m	J. Berry
6/26	Barre F.D./Rutland S.P.	10	M. Lynch#
6/29	Woburn	4	M. Rines

Dickcissel

5/1	Hadley	1	P. Yeskie
6/3-7	Sunderland	1	D. Case

Bobolink

5/thr	Pepperell	50	E. Stromsted
5/3, 6/18	Lancaster	1, 12	R. Lockwood
5/3	Amherst	2	H. Allen
5/7	Newbypt	12	BBC (S. Grinley)
5/9	DWWS	10+	D. Furbish
5/14	Mattapan	10+	BBC (L.Ferraresso)
5/19	Hampden Cnty	119	Allen Club
6/2	Worcester	17	M. Lynch#
6/18	Lancaster	44	R. Lockwood
6/20	P.I.	40+	R. Heil
6/22	W. Newbury	30+	R. Heil
6/30	Sutton	13	M. Lynch#

Eastern Meadowlark

5/3, 6/18	Lancaster	6, 8	R. Lockwood
5/9	DWWS	2	D. Furbish
5/19	Hampden Cnty	5	Allen Club
5/23	Ipswich	3	J. Berry
6/2	Worcester	6	M. Lynch#
6/9	Concord	3	P. + F. Vale
6/16	P.I.	4	M. Lynch#

Yellow-headed Blackbird

5/17-18	Chatham	1	P. Bailey

Rusty Blackbird

5/4	Northampton	10	E. Labato
5/5	P'town	4	B. Nikula
5/11	Stow	1	R. Lockwood#
5/13	Stoughton	1	R. Titus

Brown-headed Cowbird

6/23	Plymouth (MSSF)	124	SSBC survey

Orchard Oriole

5/3	E. Middleboro	4	K. Anderson
5/5	Boston (F. Pk)	5	J. Young
5/5	Rowley	4	J. Berry
5/6	Hadley	4	R. Packard
5/19	Hingham (W.E.)	10	D. Peacock#
5/21	Vineyard Haven	6	L. Shelton#
6/13-30	Winchester	2 pr n	R. LaFontaine#

Baltimore Oriole

5/6	Hadley	12	B. Packard
5/10	Blackstone	49	M. Lynch#
5/17	Stow	27	R. Lockwood#
5/19	ONWR	33	R. Lockwood
5/19	Hampden Cnty	191	Allen Club
5/28-31	GMNWR	36	R. Lockwood#

Purple Finch

5/4	Ipswich	10	J. Berry
5/5	P'town	10+	B. Nikula
5/5	P.I.	21	R. Heil
5/12	Northampton	6	B. Packard#
5/16	Ashfield	6	S. Sauter
6/21	Monroe	5	M. Lynch#
6/22	Mt. Graylock	8	G. d'Entremont#
6/22	Essex	4	J. Berry#
6/23	Plymouth (MSSF)	3	SSBC survey
6/23	Lee	4	G. d'Entremont#

Red Crossbill

5/22	Salisbury	4	I. Lynch
6/12-14	Newton	2 f	J. Bloom

White-winged Crossbill

5/18	Monroe	2	M. Lynch#

Pine Siskin

5/thr	E. Middleboro	5+	K. Anderson
5/2	Pittsfield	3	T. Collins
5/5	P'town	2	B. Nikula
5/5-29	P.I.	9 migr	R. Heil
5/9	Boston (F.Pk)	8	J. Young
5/11	N. Truro	4	B. Nikula
5/16	Ashfield	4	S. Sauter
5/19	Pittsfield	6	G. Shampang

American Goldfinch

5/10	P.I.	522 migr	R. Heil

Evening Grosbeak

5/6, 10	P'town	2, 1	B. Nikula
5/8, 6/30	Westminster	2, 2	C. Caron
5/9	Danvers	2	J. Gordon
5/11	Quabbin	6	T. Gagnon
5/13	Gardner	2	C. Caron
5/14	Becket	2	R. Laubach
5/14	Templeton	2	C. Caron
5/19	Westwood	2	C. O'Neill
5/22	New Salem	3	G. d'Entremont#
5/29	Wendell	3	M. Williams
6/21	Monroe	3	M. Lynch#

HOW TO CONTRIBUTE BIRD SIGHTINGS TO BIRD OBSERVER

Bird Observer prints compilations of birds reported in Massachusetts and offshore waters. Our compilers select and summarize for publication reports that provide a snapshot of bird life during the reporting period.

Sightings for any given month must be reported in writing by the eighth of the following month, and may be submitted by postal mail or e-mail. Send written reports to Bird Sightings, Robert H. Stymeist, 94 Grove Street, Watertown, MA 02172. Include name and phone number of observer, common name of species, date of sighting, location, number of birds, other observer(s), and information on age, sex, and morph (where relevant). For instructions on e-mail submission, visit: <http://massbird.org/birdobserver/sightings/>.

LIST OF ABBREVIATIONS

	adult
alt	alternate
b	banded
br	breeding
dk	dark (phase)
f	female
fl	fledged
imm	immature
ind	individuals
juv	juvenile
loc	location
lt	light (phase)
m	male
max	maximum
migr	migrating
n	nesting
ph	photographed
pl	plumage
pr	pair
S	summer (1S = first summer)
thr	throughout
vid	videotaped
v.o.	various observers
W	winter (2W = second winter)
w/	with
yg	young
#	additional observers
A.A.	Arnold Arboretum, Boston
A.P.	Andrews Point, Rockport
A.Pd	Allens Pond, S. Dartmouth
Arl.	Arlington
B.	Beach
B.I.	Belle Isle, E. Boston
B.R.	Bass Rocks, Gloucester
Cambr.	Cambridge
C.B.	Crane Beach, Ipswich
Corp. B.	Corporation Beach, Dennis
C.P.	Crooked Pond, Boxford
Cumb. Farms	Cumberland Farms, Middleboro-Halifax
E.P.	Eastern Point, Gloucester
F.E.	First Encounter Beach, Eastham
F.H.	Fort Hill, Eastham
F.M.	Fowl Meadow, Milton
F.P.	Fresh Pond, Cambridge
F.Pk	Franklin Park, Boston
G40	Gate 40, Quabbin
G45	Gate 45, Quabbin
H.P.	Halibut Point, Rockport
H.	Harbor
I.	Island
L.	Ledge
M.V.	Martha's Vineyard
Mt.A.	Mount Auburn Cemetery, Cambridge
Nant.	Nantucket
Newbypt	Newburyport
P.I.	Plum Island
Pd	Pond
Pont.	Pontoosuc Lake, Lanesboro
P'town	Provincetown
Quab.	Quabbin Reservoir
Res.	Reservoir
R.P.	Race Point, Provincetown
S.B.	South Beach, Chatham
S. Dart.	South Dartmouth
S.N.	Sandy Neck, Barnstable
Stellw.	Stellwagen Bank
Worc.	Worcester
Barre F.D.	Barre Falls Dam, Barre, Rutland, Oakham
ABC	Allen Bird Club
BBC	Brookline Bird Club
BMB	Broad Meadow Brook, Worcester
CCBC	Cape Cod Bird Club
DFWS	Drumlin Farm Wildlife Sanctuary
DWMA	Delaney Wildlife Management Area Stowe, Bolton, Harvard
DWWS	Daniel Webster Wildlife Sanctuary
EMHW	Eastern Massachusetts Hawk Watch
GMNWR	Great Meadows National Wildlife Refuge
HRWMA	High Ridge Wildlife Management Area, Gardner-Westminster
IRWS	Ipswich River Wildlife Sanctuary
LBS	Local Bird Survey
LCES	Lloyd Center for Environmental Studies
MARC	Massachusetts Avian Records Committee
MAS	Massachusetts Audubon Society
MBO	Manomet Observatory
MBWMA	Martin Burns Wildlife Management Area, Newbury
MDFW	MA Division of Fisheries and Wildlife
MNWS	Marblehead Neck Wildlife Sanctuary
MSSF	Myles Standish State Forest
NAC	Nine Acre Corner, Concord
NBC	Needham Bird Club
NEHW	New England Hawk Watch
ONWR	Oxbow National Wildlife Refuge
SRV	Sudbury River Valley
SSBC	South Shore Bird Club
TASL	Take A Second Look Harbor Census
USFWS	US Fish and Wildlife Service
WBWS	Wellfleet Bay Wildlife Sanctuary
WMWS	Wachusett Meadow Wildlife Sanctuary

Species on the Review List of the Massachusetts Avian Records Committee (indicated by an asterisk [*] in the Bird Reports), as well as species unusual as to place, time, or known nesting status in Massachusetts, should be reported promptly to the Massachusetts Avian Records Committee, c/o Marjorie Rines, Massachusetts Audubon Society, South Great Road, Lincoln, MA 01773, or by e-mail to <marj@mrines.com>.

ABOUT THE COVER

Northern Fulmar

The Northern Fulmar (*Fulmarus glacialis*) is an elegant "tube-nosed" petrel that is much hoped for on pelagic birding trips. The Northern Fulmar is a stocky, short-tailed bird with short rounded wings and a stubby yellow bill. The tube-nosed designation results from the tube on the upper surface of the bill through which highly saline solutions exuded by their nasal salt glands are ejected: an adaptation, common to many seabirds, that allows them to drink salt water. Fulmars vary in color from white to gray-brown, but all have light patches in their primaries and dark patches around their eyes. The surface of the upper wings in light-phased fulmars varies from nearly white to solid gray. Their flight is distinctive, with stiff, shallow wing beats interspersed with gliding on nearly horizontal wings. The sexes are similar in plumage.

Three subspecies are generally recognized: the Pacific *F. g. rodgersii* that shows more extreme color variation than the two Atlantic subspecies, *F. g. audubonii* that is a low Arctic breeder, and *F. g. glacialis* that is a high Arctic breeder. Some taxonomists lump the two Atlantic forms into a single subspecies. Pacific birds have dark gray tails; Atlantic birds, light gray. Northern Fulmars are Holarctic breeders, with colonies mostly on islands off Alaska and Canada, including Baffin Island and southern Newfoundland. In the east they winter south to Georges Bank in large numbers and occasionally some wander south to North Carolina. The largest concentrations of fulmars are found from December to March, when daily records are in the thousands, but they can occur in smaller numbers in near-shore waters from May to June and September to October. In Massachusetts they can be seen during any month of the year, but are considered a common to abundant offshore winter resident, and during storms can sometimes be seen from shore. They are usually not considered true migrants, but rather birds with a pelagic postbreeding dispersal.

The Northern Fulmar is a species with a low reproductive rate but long reproductive life. They defer their first reproductive effort for 8-10 years, and then usually produce but a single young each year. They may, however, breed for more than 40 years, and have an average life expectancy of greater than 30 years. They are monogamous and mate for life, although divorce and re-pairing often occur after reproductive failure. They are colonial breeders, preferring the ledges of precipitous sea cliffs on islands, with some colonies exceeding a quarter-million pairs. Vocalizations at nest include a limited repertoire of squawks and cackling variously described as *AARK, aaw, aak, AAARK-aaww,* or *cock-cock-cock-aawww*. They establish permanent nest sites and defend about three feet of air space. The nests are about 3-6 feet apart, and territorial squabbles may involve pecking at an opponent's eyes or making retching noises followed by spitting oil. Fights on the ocean surface may reach the extreme of one bird holding another under water and drowning it. Nuptial displays including cackling and head shaking. Typically, a mass exodus from the colony occurs before egg-laying as birds take a 1-3 week foraging trip prior to nesting. Pairing and mating has occurred before the exodus, and the females store the

deposited sperm until their return to nest, delaying fertilization until they are back home. The nest is a slight scrape or depression on pebbles, soil, or rock ledge. The clutch is a single white egg that is incubated by both parents, and both develop brood patches. During the seven-week incubation period, parents take turns spending 4-5 days at sea foraging. Chicks gain in weight, until by five weeks of age they may be fifty percent above adult weight. The parents stop feeding the chick several weeks before fledging, which occurs at 7-8 weeks. At fledging the young move to the edge of the cliff, practice flapping their wings, and eventually glide off on their maiden flight.

Northern Fulmars prefer to forage near the continental shelf break, where they take a broad spectrum of fish, squid, and other invertebrates, particularly copepods and amphipods, from the surface. Their foraging behavior includes dipping, surface-seizing, plunging, and pursuit diving where they may reach depths of ten feet and be submerged for six seconds. They forage at night and use their well-developed sense of smell to locate prey. They are also kleptoparasitic, chasing other birds to steal their food. In historic times they have become offal scavengers at commercial fishing fleets. They will also scavenge carrion, including seals and whales. Fulmars prefer fatty foods and produce stomach oils as a normal dietary residue.

The Northern Fulmar is a scientifically well-studied species, with studies initiated in the 1950s, particularly in Europe, still in progress. Some of the published papers are classics that demonstrate the importance of long-term studies on marked populations of birds. Over the past two or three centuries, the Atlantic Northern Fulmars populations, particularly in Iceland and the British Isles, have increased substantially, with offal from fishing vessels suspected as a primary cause. They were heavily hunted until outbreaks of ornithosis proved fatal to some of the hunters. They tend to avoid oil spills and thus tend to be spared a major source of mortality for other seabirds. Their natural predators include ravens, falcons, and Arctic foxes, but spitting oil at predators is often a successful defense – oil-contaminated birds frequently die. In the 1950s in Massachusetts, Northern Fulmars were considered rare vagrants. By the 1970s they were recorded breeding in Newfoundland, and since then have been recorded in increasing numbers wintering in New England waters. With Northern Fulmar populations continuing to expand, we may reasonably expect to see increasing numbers of these elegant petrels on future pelagic birding trips.

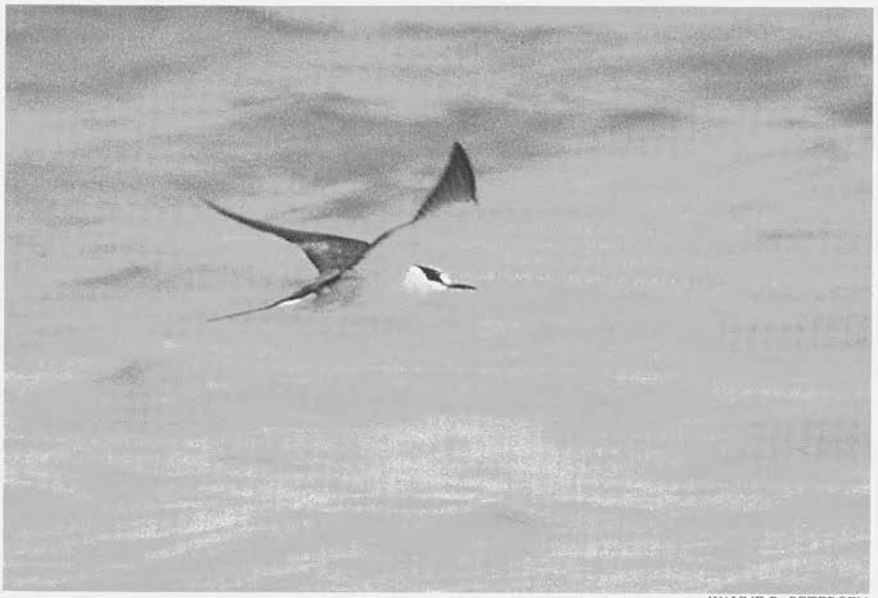
William E. Davis, Jr.

About the Cover Artist

Tad Lawrence, a resident of Roslindale, MA, is a lifelong birdwatcher who grew up birding Mt. Auburn Cemetery. He received his Ph.D. in behavioral ecology in 1985 and began doing pen-and-ink illustrations of insects and their host plants for his thesis. Currently Tad teaches science and is the Dean of Faculty of the Cambridge School of Weston. The fulmars on the cover were drawn from a photograph taken on Skellig Michael, off the west coast of Ireland where Tad spends his summers. While in Ireland he paints watercolor landscapes and has exhibited his work in galleries in Ireland and the United States.

AT A GLANCE

August 2002



WAYNE R. PETERSEN

Ah, yet another seabird! As the hurricane season is upon us, it seems only appropriate to focus on a bird species that frequently accompanies such tropical storms, or else falls victim to them. Indeed, among the species most regularly transported northward by severe tropical weather systems are terns and Black Skimmers. With this in mind, a quick look at the mystery bird's slender, pointed bill should at once suggest that the bird is a tern of some sort. Since the bird is obviously very dark above, a jaeger might also seem like a possibility. A jaeger, however, would possess a thicker, slightly hooked bill, show more dusky coloration on the underparts (e.g., a collar across the chest), exhibit dark or mottled underwings (not pure white), and would undoubtedly show a flash of white near the base of the primaries.

The fact that the tern in the picture displays snowy-white wing linings is an easy way to eliminate Black Tern as an identification candidate, despite the dark appearance of the upperwings. Not only do Black Terns have gray underwings in all plumages, they also display a dark spot on the neck just in front of the wing when they are in complete nonbreeding plumage. Nonbreeding plumage is the only plumage in which a Black Tern would be more or less pure white on the underparts.

Armed with the knowledge that the mystery bird is neither a jaeger nor a Black Tern, the field is narrowed considerably. Since most tern species are gray or white above, the only remaining identification possibilities are the dark-backed Sooty Tern

and Bridled Tern, both of which possess striking white wing linings. A careful examination of the underwing pattern of the pictured tern reveals completely dark primaries, in stark contrast with the white wing linings. Furthermore, the white forehead of the bird in the photograph appears to barely reach the eye. Taken together, these features indicate that the bird is an adult Sooty Tern (*Sterna fuscata*). The quite similar Bridled Tern would display more extensive white on the underside of the primaries, not a sharp contrast between the primaries and wing linings, and the white on the forehead would penetrate much further back onto the forehead, extending well behind the eye. Although the presence of a pale collar (a characteristic of the Bridled Tern) is suggested by the photograph, it is the angle of the picture that gives this effect. The underwing features, facial pattern, and the extremely long, black bill serve to conclusively identify the bird as a Sooty Tern.

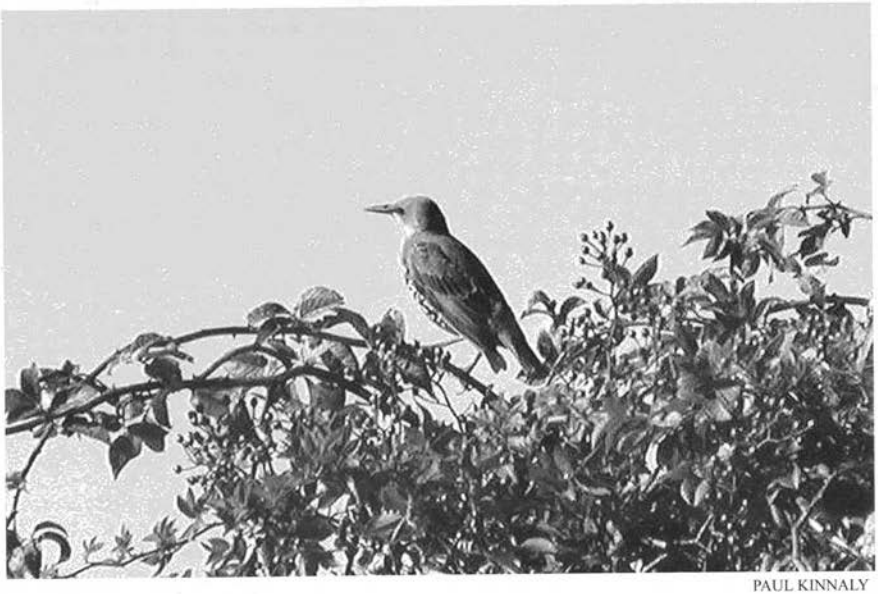
Sooty Terns are most often found in Massachusetts on Cape Cod and the Islands following hurricanes in late summer and fall. There are also a number of inland occurrences, particularly when the eye of a tropical storm passes over land. The author photographed the pictured Sooty Tern in the Dry Tortugas in Florida.

Wayne R. Petersen

News from MassWildlife

Preliminary Tern and Piping Plover nesting results – MassWildlife has compiled preliminary figures for nesting terns and Piping Plovers with data gathered through the cooperation of nearly seventy biologists and beach managers from state and federal agencies, private conservation groups, and local municipalities. Common Tern numbers were down 5% to 13,608 pairs, with poor productivity at key sites due to mass starvation of chicks and predation on adults, chicks, or eggs by Great Horned Owls, Black-Crowned Night Herons and Canada Geese. Roseate Terns dropped 14% to 1460 pairs, likely due to disruption and nest abandonment caused by Great Horned Owls. Least Terns decreased by 18% to 2789 pairs. The largest colony, located at Kalmus Beach in Barnstable, was devastated by gull and fox predation with only 4 pairs of Least Terns nesting in contrast to 599 pairs there in 2001. A trace number of Arctic Terns continue to nest in Massachusetts with 5 pairs documented. Piping Plovers fared somewhat better than terns, increasing by 7% over 2001 totals at an estimated 530 breeding pairs. Plovers nested at 106 beaches in the Commonwealth and produced an average of 1.1 chicks per pair, a rate considered too low to sustain the population. As with terns, predators took many plover eggs and chicks while additional nests were lost to storm-driven high tides in May and June. Beach management practices to safeguard beach-nesting birds from human related disturbance, mortality and habitat degradation caused by off-road vehicles remain effective conservation tools. Piping Plovers are classified as "threatened" on both the federal and state endangered species lists.

AT A GLANCE



PAUL KINNALY

Can you identify this bird?
Identification will be discussed in next issue's AT A GLANCE.

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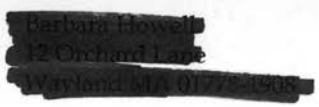

Dec 03

CONTENTS