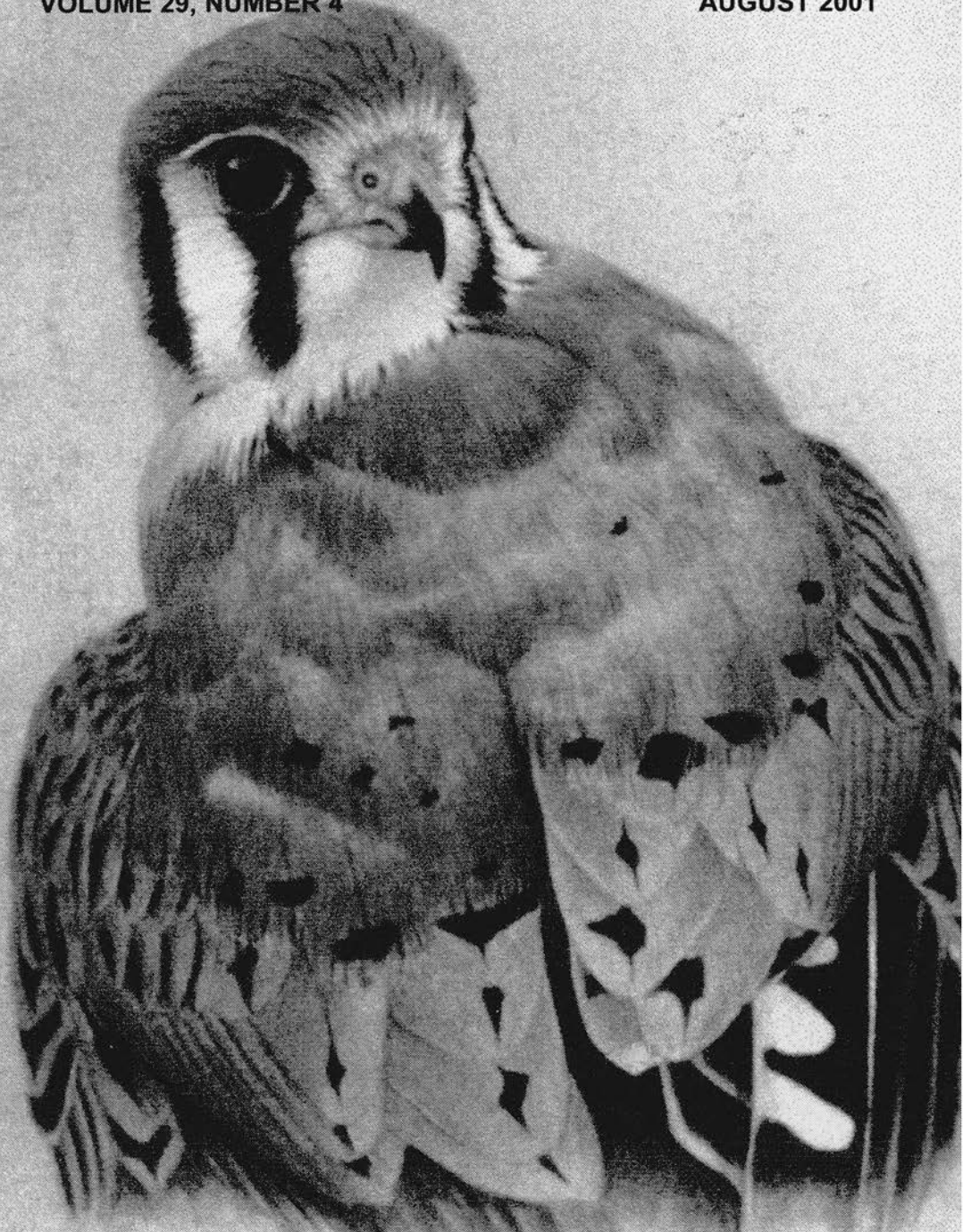


Bird Observer

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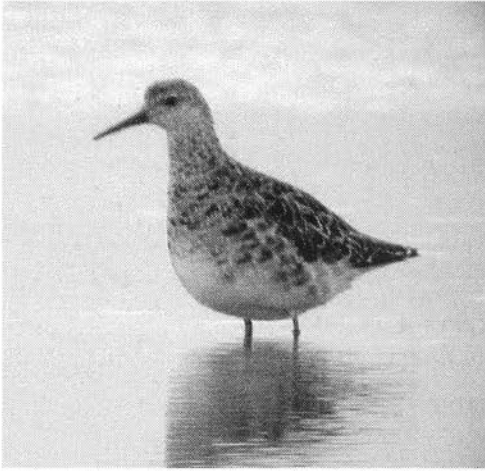
AUGUST 2001



DONAHUE

Raptors

HOT BIRDS



This **Reeve** (female Ruff) delighted viewers at the Salt Pannes at Parker River National Wildlife Refuge (Plum Island) during the Massachusetts Audubon Society Birdathon on May 19th, and was photographically captured by Phil Brown using a digital camera and telescope on the 22nd. **Hot Birds** is all Plum Island in this issue, with the following sightings.

This **Lark Sparrow**, photographed by David Larson on May 10 on the dike at Hellcat Swamp, was very cooperative, and was present for a few days.



Finally, Phil Brown managed this great photo (camera plus telescope) of the alternate-plumaged **Curlew Sandpiper** at the Salt Pannes on May 11. Another cooperative subject, this individual was seen for several days.

*Editor's note: Please consider submitting your photographs of rare birds, unseasonable birds, or just interesting birds for publication in **HOT BIRDS**. We encourage you to get in touch with David Larson (<davlars@bu.edu> or 1921 Central Street, Stoughton, MA 02072) if you have a photograph for us to consider.*

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Answers to the Alternate Image Quiz on page 228 of the June issue (from top to bottom): Whimbrel, Short-billed Dowitcher, Black Turnstone, Black-bellied Plover, and Western Sandpiper. Alaska would be a great location to see all of these birds in high breeding plumage!



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A bimonthly journal — to enhance understanding, observation, and enjoyment of birds
VOL. 29, NO. 4 AUGUST 2001

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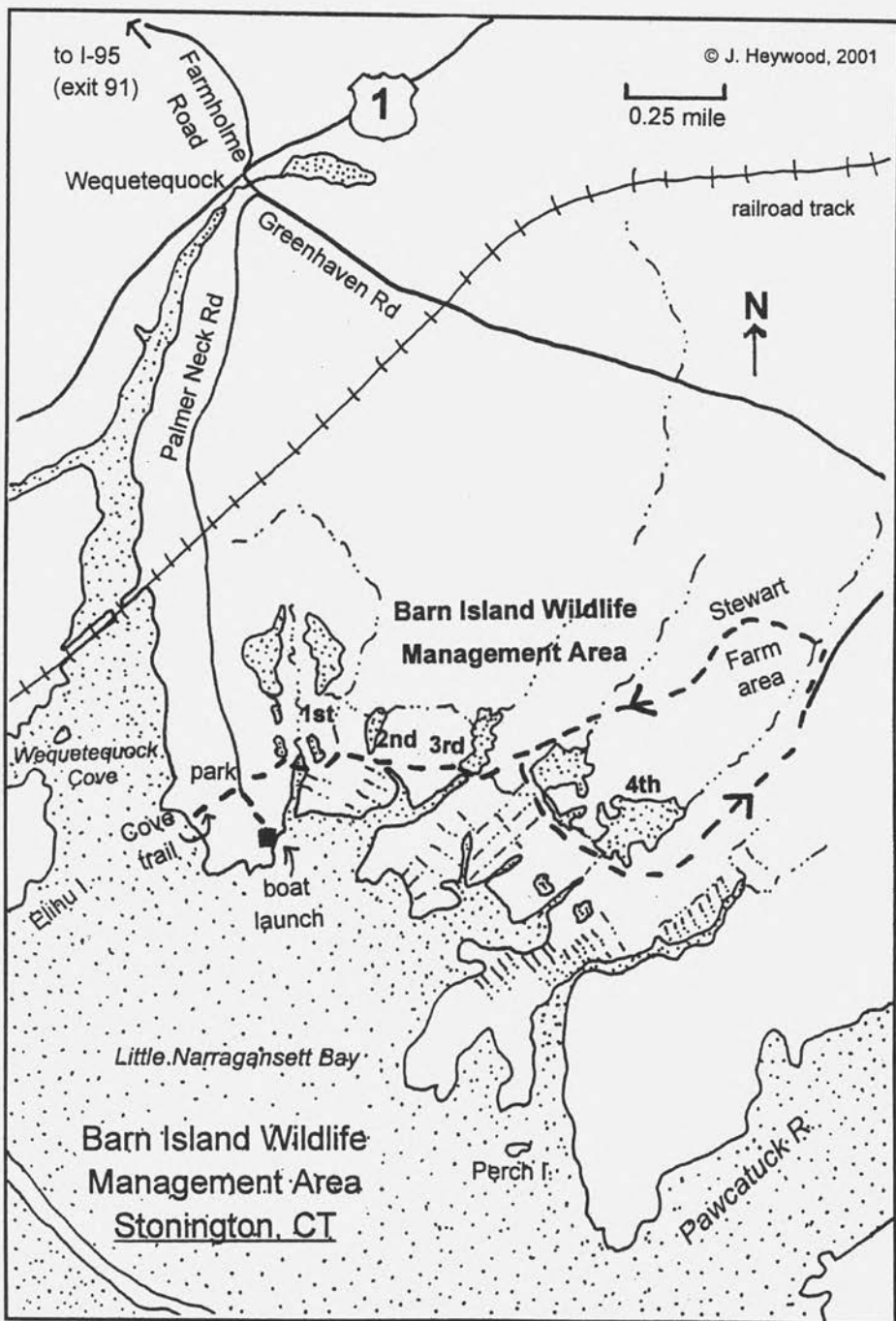
Editor's note

It was September and my friend Carol kept insisting that I drive out to Mount Wachusett and join the fall hawkwatch. So I took a way-long lunch break mid-week and headed west. On the road up the mountain I noticed a half-dozen Broadwings circling slowly just above the slope and below the summit. I glanced at them and thought "there'll be plenty more at the top" and drove on. Counting those birds, my total for that day plus at least two additional hawkwatches came to fifteen (recognizable) raptors. At Lighthouse Point I was leaving the Port-o-Potty as my colleagues pointed in my direction shouting unintelligible urgent commands. I learned later that the most magnificent Peregrine of the day had flown directly over my head. Eventually, I did see thousands of Broadwings rise from the valley floor, form kettles, and peel off southwards; it was a thrilling experience. Never one to scoff at a warm day spent in a beach chair in collegial surroundings with a scope nearby, I have come to appreciate the special skills involved in sorting out those fast-moving dark dots at the horizon line — the 'wings and 'tails, sharpies and coops, and occasional grey-ghost adult gos, among others. In anticipation of their autumnal appearance in our skies, we welcome Paul Roberts as guest editor of this issue of *Bird Observer*, with its timely focus on raptors, particularly on where, how, and under what conditions to see them in migration.

Brooke Stevens



Original pen and ink by Julie Anne Collier



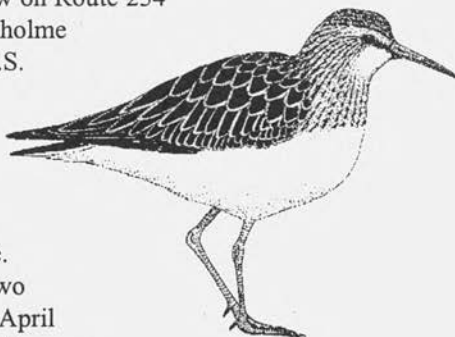
Birding Barn Island Wildlife Management Area, Stonington, Connecticut

Bob Dewire

The State of Connecticut's Barn Island State Wildlife Management Area in Stonington is one of the better birding sites to visit in southeastern Connecticut. This area of close to 800 acres is a mix of freshwater and saltwater impoundments (mostly salt), with extensive salt marshes and channels that overlook Little Narragansett Bay. Between the impoundments are stands of upland oak forest with thicket edges. To the north of the impoundment system is an extensive area of woodland, both upland and red maple swamp. The mix of habitats provides a lot of opportunity for exploration.

To reach Barn Island, take Exit 91 off Interstate 95. If you are traveling southbound, turn left at the end of the exit ramp and then left at the traffic light. If you are traveling northbound, go straight through the traffic light intersection at the end of the ramp. In both cases you are now on Route 234 (Pequot Trail). Take your third right (Farmholme Road). Go two miles to where it ends at U.S. Route 1. Turn right, and there is immediately a traffic light. At the light turn left on Greenhaven Road. Only 500 feet down the road take a right on Palmer Neck Road; there is usually a sign for the Barn Island State Boat Launch here. Less than a mile from here you will pass two large fields on the right. If you are here in April or early May and it has been a wet spring, there are usually flooded areas in these fields, and they are worth a check. In recent years, several rarities including White-faced Ibis, White-fronted Goose, and American Avocet have shown up here. In addition, such birds as Blue-winged Teal, Pectoral Sandpiper, Common Snipe, and Cattle Egret are often found here. In April 2001 a flock of 57 Glossy Ibis was present. Continue to the end of the road, where you will arrive at the boat launch.

From here you can look out over Little Narragansett Bay. If it is a busy boating day, there won't be much to see. Look along the edges of the marsh for such species as Willet and American Oystercatcher. Brant will remain to the end of May, and Red-breasted Mergansers are often found all summer. Least and Common terns feed along here from spring to late summer and are occasionally joined by a Forster's Tern in late summer. Black Skimmers have been recorded a number of times. In September 1966 the parking lot hosted a Northern Wheatear for two days.



Once you have finished looking here, drive back up the road, and park on either side at the small parking areas where barricaded dirt roads go off in both directions. The main one to walk is the dirt road to the east, or on your right as you drive back up the road from the boat launch. At the parking area itself there is usually a White-eyed Vireo singing from late April into July. Also present here are Carolina Wren, Blue-winged Warbler, and American Redstart. The walk will take you down to the marshes of the first impoundment. The woodlands here and between the other impoundments are very good for migrant songbirds both in spring (mid-May is best) and in late summer (late August through September).

The first impoundment is an extensive area of salt grass on the right and a mix of salt grass and mud flat on the left. A sizable channel runs through the whole system. At low tide there is quite a bit of mud in the channel itself. There are usually plenty of waders here including both egrets and Glossy Ibis. In spring Barn Island almost always has one or two Tricolored Herons. They may be anywhere in the marsh system, but are often seen here. Little Blue Herons are also regular here. Shorebirds in spring include both yellowlegs, Least, Semipalmated, and Pectoral sandpipers, and Willets. In May 2001 a breeding-plumaged Ruff spent several days here feeding with the other shorebirds. On the inside of the impoundment along the edge of the channel there are nesting Seaside Sparrows. At least one singing male is usually perched in view in the salt marsh elder well into the summer. Saltmarsh Sharp-tailed Sparrows are also present, but more common in the marshes on the right side of the impoundment. Common and Least terns both use the channel for feeding, and Spotted Sandpipers are summer residents here.



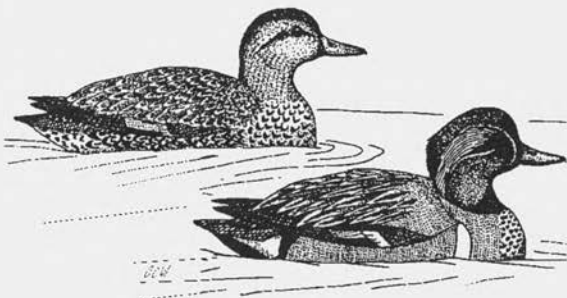
You then enter a wooded area and follow the trail bearing to the right where there is a split. The woodlands here have breeding Great Crested Flycatchers, Baltimore Orioles, and Eastern Towhees. This trail will take you down to the second impoundment, a much smaller area of marsh grass that is usually the least productive of the impoundments. The small channel that passes under the impoundment often has a Green Heron that will flush as you pass by. Continue across, and go through a larger woodland where migrant warblers are often found, and breeding Wood Thrushes, Veerys, Yellow Warblers, and Common Yellowthroats are present.

You will now come out to the large third impoundment. On the right is a wide channel with a lot of exposed mud at low tide. Tidal pools and patches of mud flat are scattered throughout the area on both sides. Shorebirds found here in migration include Least, Semipalmated, Pectoral, and White-rumped sandpipers, Short-billed Dowitcher, both yellowlegs, and Willet. The latter breed in the marshes here and are present from April through August. For rarities, King Rail, Curlew Sandpiper, and Wilson's Phalarope have been recorded here. In April 1986 a male Boat-tailed Grackle spent several days calling from the edge of the patch of woodlands at the

bend in the impoundment, and in 1993 a Scissor-tailed Flycatcher was at the same location. An Osprey pole with Ospreys present from April through August is on the right. The marshes in the vicinity of the Osprey pole have large numbers of shorebirds in the spring that use the area as a resting site during high tide. Flocks of Black-bellied Plovers (and an occasional American Golden), Ruddy Turnstones, Semipalmated Plovers, Red Knots, Short-billed Dowitchers, and Dunlins are usually present. American Avocets have been recorded in these marshes more than one spring.

The walk now bends 90 degrees around the third impoundment with marsh on both sides all the way. In late summer and early fall, large numbers of swallows are present; often some Cliff Swallows are there along with the more common species. You will now enter another woodland; follow the trail until you come to a right turn. Take this trail to walk along the fourth impoundment. The inside of this impoundment has large stands of phragmites when you first start into it, as well as small patches of cattails. Marsh Wrens and Swamp Sparrows are found here, and in the past few years Clapper Rails have possibly nested in this area. Both Soras and Virginia Rails have been recorded here in late summer and fall.

The right side of the impoundment continues to be an extensive salt marsh. Both Seaside and Saltmarsh Sharp-tailed sparrows are often seen sitting in view along this stretch. In the fall this is a good area for American Bitterns. A Sandhill Crane was here in spring 1992. As you walk down this long impoundment, the area on the left becomes more grassy and shrubby. Here you can find



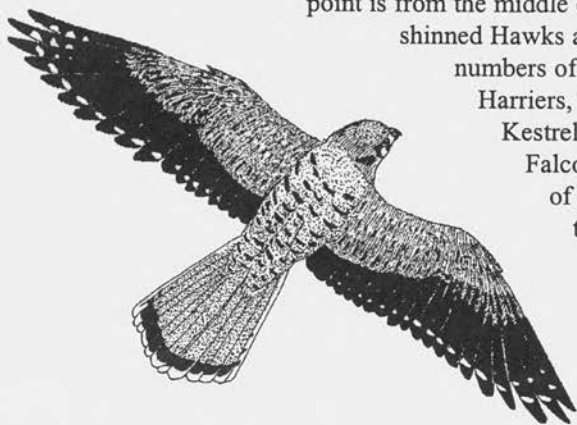
breeding Willow Flycatchers. Where the shrubs also begin to appear on the right side of the road, there have been nesting Purple Finches for several years—an unlikely-looking location. Also in this area are breeding Orchard Orioles.

There is one last open area of water on the left side of the road. Ducks usually congregate here, and in early spring include Blue-winged and Green-winged teal and Gadwall. Wood Ducks are uncommon but regular here. This area will have a large mud flat at low tide, and shorebirds can be numerous in August and September. White-rumped, Baird's, and Western sandpipers, and Wilson's Phalaropes have all been recorded here in the fall. The area is best viewed in the afternoon since the angle of the sun in the morning is bad. Three White Ibis spent several days here in 1970. A colony of Fish Crows nests on the island south of this area of the marsh (the "real" Barn Island) and they are often seen or heard between April and October.

From here the trail again enters the woods. Just before the woodland there is one last patch of salt marsh to look at on the right. Another Osprey pole is located here. You will now walk another quarter-mile through an area of woods and thickets before reaching a paved road. A short way up the road you can take a trail to the left that will loop around behind the fourth impoundment through the Stewart Farm, an area of second-growth fields, red maple swamp, and upland oak forest. This trail will come out at the junction between the third and fourth impoundments, although you can't see the impoundments from it. You have the option of doing this, or returning along the fourth impoundment the way you came. Total walking distance if you loop around the fourth impoundment is about 4.5 miles. If you return the way you came over the fourth impoundment without going past it, it is about 3 miles.

Walking behind the fourth impoundment increases the land-bird list considerably with such species as Wild Turkey, Black-billed Cuckoo, Eastern Wood-Pewee, Black and White, Blue-winged, Chestnut-sided, and Hooded warblers, Ovenbird, Scarlet Tanager, and numerous other summer residents, plus the always unknown migrant possibilities. The state releases Ring-necked Pheasants annually, and a few survivors are occasionally found. On late-spring and early-summer evenings, Whip-poor-wills will be calling, and Great Horned is the commonly found owl. American Woodcocks conduct their mating flights from the fourth impoundment.

There is a reasonably good flight of hawks in the fall on those days when the wind is from the north or northwest. The best vantage point is from the middle of the first impoundment. Sharp-shinned Hawks are most common, but good numbers of Cooper's Hawks, Northern Harriers, Ospreys, Merlins, and American Kestrels are present, and Peregrine Falcons are regularly sighted. Flocks of Snow Geese often pass over on these north-wind days, especially in early October.




Shorebird migration in fall is not exceptional because there are not large areas of open mud in the grassy marshes, except for the fourth

impoundment. Whimbrels are fairly reliable in August, especially along the sandy beach that can be viewed from the wildlife platform at the boat-launch parking lot. Marbled Godwits have occurred in the same area in August and September. Small mixed flocks of songbirds in the woodlands produce a good variety of warblers. Golden-winged is found most years in the late-August/early-September time frame.

From the parking areas where the trails begin, you can take a short trail on the west side of the road that leads to the mouth of Wequetequock Cove. Here a salt marsh stretches north, and you can walk along the edge of this marsh. This is a good

area for Saltmarsh Sharp-tailed Sparrows and nesting Willets. Egrets and herons, including Tricolored Heron, can be found here. The cove itself often has lingering waterfowl with May and early-June sightings of such species as Brant, Bufflehead, Surf Scoter, and Long-tailed Duck. During spring and fall migration, some shorebirds will be along the small strip of sandy beach, including Semipalmated Plover, both yellowlegs, and Semipalmated and Least sandpipers. The rocks to the south of the marsh may have American Oystercatchers and Spotted Sandpipers.

Some comments on Barn Island. This is a State of Connecticut hunting area, and from mid-October to mid-February it is very popular, even on weekdays, with hunters. No hunting is allowed on Sundays, so the area can be safely visited then. I have found that once the impoundments (and many years even Little Narragansett Bay) freeze, there is not much to be found until about mid-April, though in good flight years winter raptors such as Rough-legged Hawk and Short-eared Owl are recorded here sporadically. In mid-summer the combination of mosquitos, deer flies, and greenheads requires a lot of insect repellent. There are ticks, especially along the more grassy fourth impoundment.

Historically, much of the inside of the Barn Island impoundments was cattail marshes. In the 1960s and early 1970s such species as Least Bittern, King Rail, and Common Moorhen were regular nesters. Over time, phragmites came to dominate the area, and these birds disappeared. Then the state put larger pipes under the impoundments to increase the tidal flow. Now the phragmites have died back considerably, leaving the area in salt-marsh grasses. At the north end of the first impoundment, which is fed by fresh water, a substantial stand of cattail marsh still remains. Access to this area is by canoe or kayak, paddling up the main channel. One can put in at the boat launch and go up the first channel to the left of the launch. It is an easy portage over the walking road and then a wonderful paddle that winds its way far up the marsh and eventually to the cattail area. The ride is usually very birdy, especially early in the morning, with waders, shorebirds, and marsh sparrows all along the way. Late May and June would be the ideal time to attempt this and possibly locate one of those historical cattail nesters. 

Bob Dewire has lived most of his life in southeastern Connecticut and has been birding there since 1958. He first visited Barn Island in 1960, finding his life Least Bittern on that trip. He has been compiler of the New London Christmas Bird Count since 1963 and is an active bird bander. Currently he lives less than a mile from Barn Island, one of his favorite birding sites.



Fall Hawkwatching: When & Where.

A Guide to the Best Times and Sites in Our Region

Paul M. Roberts

For several hundred years, relatively few migrant hawks were reported in Massachusetts, an area that for the past century has been one of the most heavily birded areas in the country. That is because, while small numbers of hawks might be found almost anywhere and at any time during migration, to see large numbers of hawks you generally have to be actively looking for them at the right time and place and invest some focused effort.

You are more likely to see good numbers of hawks if you specifically hawkwatch, rather than look for them in the course of other birding. On September 13, 1978, as more than 10,000 Broad-winged Hawks (*Buteo platypterus*) streamed over Wachusett Mountain in a three-hour period, a visitor to the summit of that mountain looked up and asked what we were looking at. I handed him a pair of binoculars and only then did he notice the largest "river of hawks" ever reported in Massachusetts until that time. In fact, four observers with binoculars, looking specifically for hawks, did not notice that flight until hundreds or more birds had already passed directly overhead. In general, to see large numbers of hawks, you must be looking for them.

The best time to look for most hawks is during the fall migration (Fig. 1). That is when thousands of birds that breed to our north and northeast, and their young of the year, move through Massachusetts in significant concentrations. This migration starts in August with relatively small numbers of migrating hawks, particularly Broad-winged Hawk, American Kestrel (*Falco sparverius*), and Bald Eagle (*Haliaeetus*

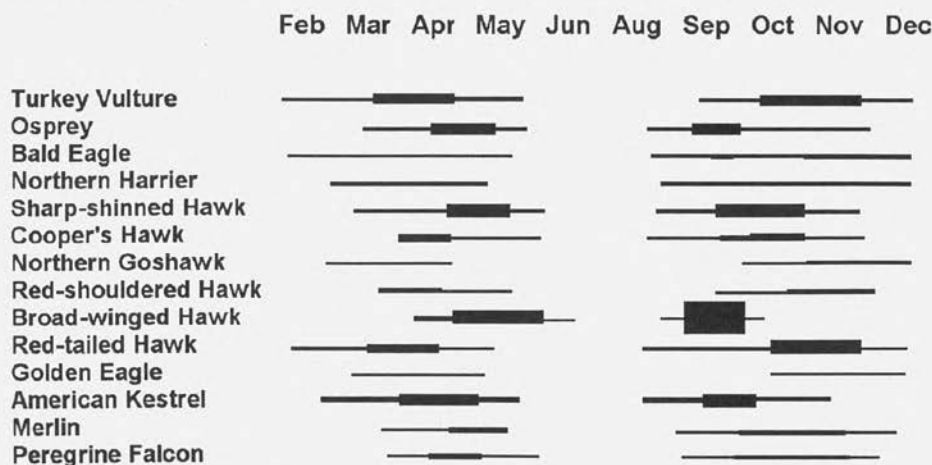
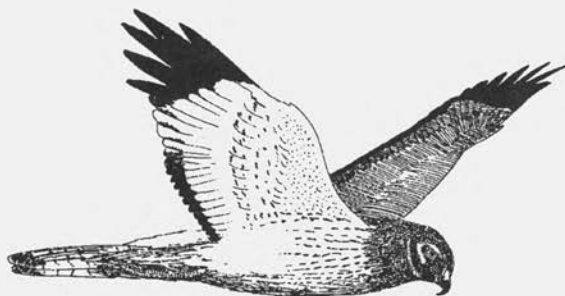


Figure 1: Size and timing of raptor migration through Massachusetts — the thickness of the lines indicates the relative size of the flights.

leucocephalus). The most hawks, in terms of absolute numbers, can be seen in September before the summer is technically over. Most numerous is the Broad-winged Hawk. At some locations, several days each fall, hundreds, occasionally thousands, of Broadwings may be seen at a single site in one day, primarily between September 10 and 24. The next most commonly seen September migrants are the Sharp-shinned Hawk (*Accipiter striatus*), American Kestrel, Osprey (*Pandion haliaetus*), Turkey Vulture (*Cathartes aura*), and Northern Harrier (*Circus cyaneus*). Bald Eagle counts peak in September, although their numbers are relatively small compared with those of the others.

The total number of migrant hawks ebbs, but the variety improves in late September and early October, when you are likely to see more of the larger, less common raptors. These include Cooper's Hawk (*Accipiter cooperii*), Peregrine Falcon



(*Falco peregrinus*), and Merlin (*Falco columbarius*), and small numbers of the migrants that tend to peak later in October or early November. Red-tailed Hawks (*Buteo jamaicensis*) are likely to be the most abundant migrant then. During this period you are also likely to have your best chances to see Northern Goshawk (*Accipiter gentilis*), Red-shouldered Hawk (*Buteo lineatus*), and Golden Eagle (*Aquila chrysaetos*), along with the occasional Rough-legged Hawk (*Buteo lagopus*) or adult male Northern Harrier and, once in a lifetime, a Gyrfalcon (*Falco rusticolus*). These late migrants are often found wintering in Massachusetts. By mid-to-late November few concentrations of migrating hawks will be seen, although southbound movement continues in small numbers into the new year.

RULES FOR SUCCESS

There are two rules for successful hawkwatching. First, hawkwatch as often as possible. The more often you get out, especially during September and October, the more likely you are to see lots of hawks and become familiar with their field marks. The second rule is to hawkwatch under the conditions most favorable to hawk migration at your watch site.

Weather Considerations

In the fall, the best migration conditions can occur the day of, and up to two days after, the arrival of a high-pressure system or cold front. The cold, clear air riding over the warm earth on a cool, sunny day facilitates the formation of thermals, or columns of warm air that rise high above the ground. Broad-winged Hawks, with a migration of 3000-5000 miles or more, heavily rely on thermals to help them migrate. A number of hawks can use the same thermal, leading to concentrations hawkwatchers call "kettles." With scarcely a wing beat, a few hawks – or hundreds – might soar, or

kettle, together in a thermal, soaring up hundreds, perhaps thousands, of feet to a point where the thermal is dissipating (often marked by puffy cumulus clouds). These kettles often seem to boil to the limits of vision. The hawks then use the altitude gained in this leisurely manner to glide silently yet quickly toward their destination. When they peel off from the top of a high thermal, their gradual descent can cover miles before the birds seek another thermal to ride aloft. Though Broadwings are heavily dependent on thermals for migration, any other species of hawk can use the same thermal. In fact, concentrations of Broadwings are good markers for other hawks migrating in the area, identifying an easy way for other hawks to continue their migration on the cheap.

Moderate to weak winds, generally under twenty mph, blowing anywhere out of the north, from northwest to northeast, and clear skies are best for good thermal and hawk activity inland. In eastern Massachusetts, many of the biggest fall flights have been seen on northeast winds, typically the result of a backdoor cold front. (We generally think of a cold front as producing northwest winds, which it usually does as it moves in from the west or southwest. The winds that occur on a cold front actually depend on where the cold front comes from in relationship to your location. A backdoor cold front is one which has passed north of you and then suddenly drops south, so that you are at four or five o'clock on the high, and the winds are out of the northeast rather than the northwest.) A backdoor cold front in September is ideal for hawk migration, producing the best soaring conditions and a tailwind in the direction

the birds are moving. That is when you are most likely to have real thermal streets, ideal conditions for monster flights.



If the winds are quite strong out of the north quadrant, inland observers might find more birds flying relatively low along ridges rather than soaring over the summits of isolated hills or monadnocks. Most hawk species are not as dependent as Broadwings on thermals, and they frequently use winds deflected off ridges to give them lift. The best fall coastal flights tend to be seen on the day of or day after strong northwest winds.

Don't assume hawks migrate only when the winds are from the northwest to northeast. I believe Broadwings try to migrate at least a little every day if the weather permits, whatever the wind direction.

"Keep moving" is the rule. If the winds are adverse,

or thermals weak or nonexistent, Broadwings will still continue to move, one by one. They just won't go very far. Without thermals or other good lift there is nothing to bring Broadwings together in large numbers for the benefit of hawkwatchers.

When rain or strongly adverse winds, such as hurricanes or an early northeaster in Maine have held up migrants, they will fly under far less than ideal conditions. I don't think Broadwings typically fly in rain, but on one rainy day in New Hampshire in the last third of September, after several days of bad weather, thousands of Broadwings were seen streaming between rain showers. In 1980 the biggest flights of the year were seen on southeast winds.

It is important also to examine the weather north/northeast of you. For example, if a cold front, particularly a backdoor cold front, has cleared out of Maine and much of New Hampshire, hawks there can be moving in big numbers after several days of rain. If the front ran out of gas, there could be a stationary front over southern New Hampshire or northern Massachusetts, giving us a low cloud cover and stagnant air. Broadwings moving on the cold front, however, will be anxious to move as far as possible while weather permits. What this means is that even if Massachusetts does not have strongly favorable migratory conditions, hawks may continue to pedal uphill for a while, flying southwest although the flight conditions are deteriorating. Under such conditions, hawkwatchers can have large flights low, often beneath the summits of montane sites. Some of the most spectacular flights have occurred under such conditions, with hundreds or thousands of birds giving up the day's flight and settling into the surrounding woods for the night. If you wait for ideal weather, you could miss some spectacular flights. (Of course, you could also spend considerable time looking at apparently vacant skies!)

Just such a situation occurred on one of our 20,000 hawk days. As I started driving to Wachusett Mountain, the skies were leaden. I debated turning around at Concord and going to work, but it was the fifth anniversary of our first big flight at Wachusett. I persevered, in honor of that event. When I got to the mountain, I discovered most hawkwatchers had looked at the skies and pressed snooze alarm or reported to work. Between 11 a.m. and noon, EST, 2600 hawks exploded over the summit. Between noon and 1 p.m. the impression of those birds was obliterated by a storm tide of 16,000 hawks sweeping low across the mountain, the most spectacular hawk flight I have ever witnessed (*Fall 1983 Eastern Massachusetts Hawkwatch [EMHW] Report*). Always remember that hawks don't listen to forecasts. They go with what is, and sometimes they press the envelope.

Time of Day

What time of day should you hawkwatch? It depends. On good days small numbers of hawks may be seen moving at sunrise, if not earlier. This is especially true at coastal sites, such as Lighthouse Point in Connecticut. Many coastal sites appear to have the bulk of their birds between 7 a.m. and 2 p.m. EST, with a small flurry again at the end of the day. Inland, you tend to see not so many birds in the early hours, but they might be very low and afford excellent views. You are likely to see more hawks as thermals develop. Prime time inland is essentially 9 a.m. to 3 p.m. EST, but decent flights can occur anytime until around 5 p.m. EST, when you may see birds settling into the woods for the night.

Be careful about rushing to judgment and leaving early. One mid-September day when weather conditions at Wachusett Mountain seemed ideal, we saw only several hundred hawks for the first 4.5 hours of coverage. Many disappointed observers left around noon. I was ready to return to the office for a half day of work myself, but I dawdled, slowly changing my shirt and putting on a tie. I was in the midst of changing from gym shoes to wingtips, wearing one shoe of each persuasion, when someone shouted “kettle out over the Uncanoonucs,” signaling the arrival of a flood surge of hawks unlike anything I had seen before – 20,000 birds. (Those treasured wingtips saved my life! Suicidal urges can be powerful when one misses a great flight.) The hawks had just been blocked farther north than we had thought. On more than one occasion, most hawkwatchers have left by around 3 p.m. daylight time, only to have the few remaining observers (one of whom is often Eliot Taylor) tally flights of several thousand, often coming in low and slow. When you see hawks depends on where they were the day before

Locations

Where should you go hawkwatching? Massachusetts birders are fortunate in having many excellent sites from which to chose (Fig. 2). Three of the state’s premier hawkwatching sites are discussed in some detail below. Go to any of these three locations in September, on a weekend in October and early November, or on a weekday with a nice cold front, and you are likely to find another hawkwatcher or two. Additional pairs of eyes are quite valuable, and their experience may be helpful in identification. Wachusett Mountain averaged over 12,000 hawks a season over 24



Figure 2: Southern New England hawkwatch locations cited in the text

years, and that total represents primarily September counts, since later coverage is sporadic. With better coverage in October and early November, the average would likely be much higher. Mount Watatic has averaged 7700 hawks a season over fourteen years and 11,400 over the past five years. (Watatic numbers basically reflect more extensive coverage in the second half of the season.) Mount Tom averages around 2500 hawks with only several days' coverage a year, primarily during Broadwing season. No doubt many more hawks would be seen at either site with additional coverage.

You need not go to a major site to see a good flight, however, especially in September. Massachusetts has many excellent but lesser-known and infrequently covered hawkwatch sites, some of which are briefly described below. There are also excellent sites in Maine, New Hampshire, and Connecticut, only several of which are listed here.

Be Prepared

When you go hawkwatching, take clothing more than adequate to keep you warm. It can turn quite cold on windy, exposed hawkwatch sites. Also take adequate food and drink. If the hawks are flying, you won't want to leave the site in pursuit of physical sustenance. It's also advisable to take binoculars, a spotting scope, a compass, a notebook, and one or more friends with you. The more eyes the better. The compass will help you find the site and evaluate the view as well as determine flight directions. The notebook is for recording the numbers you count, the time you see each bird or kettle, and what you observe about the hawks, including questions you have about the birds you can't identify. Using your binoculars and scope, you should regularly scan the sky in all directions, including directly overhead and behind you. It's amazing how many hawks can pass by unnoticed, only to be seen flying away from you! Finally, you should take several field guides with you, so you can look up those questionable birds.

With time, patience, good judgment, and a bit of luck, you can discover the unique rewards of hawkwatching.

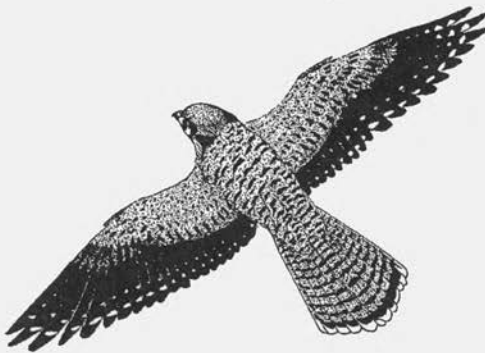
MASSACHUSETTS HAWKWATCH SITES

Wachusett Mountain State Park, Princeton, MA

The best-known site in Massachusetts is Wachusett Mountain (2004 feet), a monadnock offering excellent views in all directions. The primary advantages of Wachusett are its proximity to many eastern Massachusetts birders — it is only an hour west of Boston — and that you can drive to the summit (the road opens at 9 a.m. Memorial Day through the last Sunday in October). The summit also accommodates people more comfortably than can Mount Tom, which can be both an asset and a liability on weekends when foliage is at peak. If you prefer to hike, there are a number of beautiful trails to the summit. When the road is closed, the Pine Hill Trail is the shortest, quickest, and of course steepest route to the summit, requiring about twenty minutes.

In fall, the best observation site is from the northeast edge of the summit parking lot, scanning the sky from Gardner in the northwest to Boston in the east and Worcester to the south/southeast. A second lookout only several dozen yards away, just to the right of the fire tower, provides a good view to the west and northwest.

Another good site is the Oxbow, located just a relatively short walk (quarter mile) from the Visitor Center on the "down road" only a few hundred feet from its merger with the "up road." When winds are strong, thermals are often blown apart,



encouraging hawks to tend to rely more on orographic lift, created by wind deflecting off surfaces like mountain slopes or ridges. Also, some species, such as sharpshins, tend to be ridge fliers, using orographic lift to help them migrate and often to hunt in the process. Even under prime thermal conditions in September, with Broad-winged Hawks kettling by hundreds or thousands, a number of sharpshins, kestrels, and other hawks may skirt the summit. (Hawkwatching from Little

Wachusett, to the south of Wachusett, long ago revealed that at times a number of hawks don't go over the summit, or past the Oxbow.) Late in the season, when you're looking for birds such as Red-tailed and Red-shouldered hawks that don't migrate as far as Broad-winged Hawks, the Oxbow may offer excellent views of hawks that might not be seen from the summit.

Directions: Take Route 2 to Route 140 (south) in Westminster. Take Route 140 south several miles to Wachusett Lake, where you turn right onto Mile Hill Road, following the signs to the Wachusett Mountain Ski Area. Drive past the ski area to the reservation entrance partially up the mountain on your right. Restrooms and water are available in the Visitor Center to your left. Immediately inside the reservation, turn right again onto the all-weather road to the summit. Don't have an extra large coffee on your way to the hawkwatch. There are no facilities on the summit. The drive to the restrooms is about three miles roundtrip. You can pretty well guarantee that when you drive to the restrooms, the flight or the bird of the day will occur.

Mount Watatic, Ashburnham, MA

Mount Watatic (1832 ft) has emerged as one of New England's top hawkwatching sites, due to the efforts of Tom McCullough and, more recently, Petti Staub. The bad news is that a moderately long, steep hike is required to reach the site. The good news is that means there is no auto congestion and relatively few people at the watch on any one day. Fall hawkwatching is best done from East Watatic, the bare knob to the southeast of the summit. Watatic, the southern terminus of the twenty-mile-long Wapack range or ridge, is an excellent site for observing thermal and ridge fliers.

Directions: From Boston, take Route 2 west to Route 31, then 31 north to Route 12. Follow Route 12 to Ashburnham, turn right onto Route 101, and take it to Route 119. Turn left onto Route 119. After 0.7 mile you will see the first trail on your right, at the power lines. This is the shortest but steepest and most rugged way to the summit. The half-mile hike takes thirty minutes. I recommend continuing 0.8 mile west on 119 to an off-road parking area and an old logging road on your right. Two easier trails to the summit begin here. The beautiful Blueberry Ledge trail is 1.1 miles long and takes about forty-five minutes. The Nutting Hill trail is 1.9 miles and takes an hour. (Recent, controversial construction has affected the summit.) East Watatic is quite exposed to strong winds; pack adequate clothing and beverage. Water and restrooms are not available on the mountain.

Mount Tom State Reservation, Easthampton, MA

The first major hawkwatch site identified in New England (1936), Mount Tom, at 1202 feet, offers beautiful views of the Connecticut River Valley. In the fall, Goat's Peak Tower is the best observation point. It is essential to use the tower, and that is one of the drawbacks to Mount Tom. On weekends, when a good flight is anticipated, the tower can be crowded. On such occasions some hawkwatchers will migrate to Skinner State Park, across the Connecticut River from Mount Tom, to hawkwatch.

Directions: Take Interstate 91 north from Interstate 90. Take Exit 17W onto Route 141, continuing 1.7 miles to the reservation entrance, Christopher Clark Road, to the east. Take Clark Road 2.9 miles. Not far beyond the park headquarters, you'll see a large parking lot to your right. Park here, and walk up the surfaced road that climbs the hill at the rear of the lot. A fairly steep ten-minute hike will take you to Goat's Peak Tower. Restrooms are available at the park headquarters.

OTHER MASSACHUSETTS SITES

Barre Falls Dam, Barre Falls

Recently discovered by Bart Kamp, Barre Falls has the potential to be a very good site. From the east, take Route 2 west to Route 68 south in Gardner. Follow Route 68 through the center of Hubbardston to Route 62 west. Follow Route 62 west about 3 miles to the entrance to Barre Falls Dam on the left. About a half mile down on the left is an unpaved parking lot, which is the hawkwatch site. Restrooms can be found further down the road, next to the picnic area.

Bolton Flats, Lancaster

Many hawks tend to fly along the Interstate 495 ridge and cut southwest across the flats. This is one of the most promising sites in Massachusetts. From Interstate 495 in Bolton, take Route 117 west. Cross Route 110, and turn right into the Bolton Flats Wildlife Management Area parking lot. Scout along Route 117 for good views to the north and east. *In October this is a hunting area, so hawkwatch only on Sundays in the late fall.*

Downtown, Newburyport

Downtown Newburyport between Cashman Park and the public parking lot east of the Route 1 bridge offers excellent opportunities. Some observers, like Jim Barton, have had good numbers of Osprey coming from coastal New Hampshire and turning westward up the Merrimack here. On October 3, 1998, Rick Heil observed a flight of 250 hawks, including an amazing 71 Ospreys, 57 Northern Harriers, 5 Merlins, and 13 Peregrine Falcons (*Fall 1998 EMHW Report*). The assumption is that hawks migrating close to the coast follow the southwest-oriented curve of the New Hampshire coast and continue southwest through Newburyport rather than swing southeast toward Plum Island.

Page School, Route 113, West Newbury

The Page School appears to be most productive on the day of or following strong northwest winds. As many as 5000 hawks have been seen here in a single day. Take Route 113 west from Interstate 95 in West Newbury. Cross the Artichoke Reservoir (Garden Street on left). In about .8 mile after Garden Street, the entrance to the Page School will be on your right. Drive left around to the back of the school building. On weekdays, when school is in session, please stop at the school office to request permission to hawkwatch.

NEW HAMPSHIRE

Little Round Top, Bristol

Little Round Top, the most historic site in New Hampshire, is covered primarily during the Broadwing season. Best conditions at Little Round Top are winds from the east or southeast, the opposite of what is desired at most New England sites. Take Exit 23 off Interstate 93, heading west toward Bristol. In the center of the village take Route 3A south for a very short way, looking for the Rescue Squad building ahead. Take High Street, just to the right of that building (3A goes to the left). Continue uphill on High Street to the crest of the hill, and turn right onto New Chester Mountain Road, marked by a sign for Slim Baker Lodge, and usually with a sign saying "hawkwatch." New Chester Mountain Road dead ends in a parking area. Walk up the trail through the woods to a small fire road that ends on the summit near a big wooden cross and an outdoor chapel. The watch site is on the promontory just below the cross. The walking time is five to fifteen minutes, depending on your condition. The trail has some short but moderately steep sections.

South Pack Monadnock, Miller State Park, Temple

South Pack has a road to the summit, which offers a spectacular view of New Hampshire and a beautiful ridge trail to North Pack. The site is covered only sporadically, primarily on weekends in Broadwing season. South Pack is located in Miller State Park, three miles east of Peterborough on Route 101 or about ten miles west of Milford. The entrance to the park is on the north side, just west of the Temple Mountain ski area. Drive to the top of the mountain. A fee is charged (about \$2.50 per person). You can hawkwatch from the northeast corner of the picnic area at the

parking lot or follow the Wapack trail markers north for several hundred yards for views to the northwest. Restrooms, water, picnic tables, and grills are available.

Blue Job, Strafford/Farmington

Blue Job (pronounced the same as the Biblical Job), an isolated monadnock in the middle of the coastal plain, offers an excellent vantage point for potential big flights. Take Exit 13 off the Spaulding Turnpike (Route 16) onto Route 202 west. At the first blinking light turn right onto Estes Road. At end of Estes Road go left (west) onto Route 202A. At about one mile the road bears sharply left and another road goes straight ahead. Take this road (Crown Point Road) straight ahead for about 4.5 miles. It has several uphill sections. Look for the Blue Job parking lot on the right, opposite a red house. From the parking lot, take the recently upgraded fire road/trail at the locked gate. (Do not take trails on the right side of the parking lot.) When this road/trail climbs steeply right, take the narrow trail that veers off to the left. There one should follow a well-worn trail and cairns to the granite north summit. The Fire Tower can be seen on the south summit to the right. This moderate 20 to 30 minute walk rewards the visitor with nearly 360 degree spectacular views: Mount Washington to the north and the Atlantic Ocean to the southeast. Alternatively, from Route 4 east of Concord, turn left onto Route 202 in Northwood. Continue through Barrington, and after the Barrington/Rochester town line, look for a left turn onto Estes Road, just beyond Dry Hill Road. Proceed as above from Estes Road.



MAINE

Mount Agamenticus, York

Agamenticus, on the coast of Maine and easily visible from Plum Island, is typically best on the day of or following strong northwest winds. The site is particularly good for accipiters and falcons, and occasionally Broadwings. Drive north on Interstate 95 to Exit 1, the last exit before the York tollbooth. At the end of the exit ramp, turn left, crossing back over the interstate. Shortly after crossing over Interstate 95, turn right onto Chase's Pond Road, heading north and paralleling the interstate. After 3.8 miles, Chase's Pond Road joins Mountain Road and curves to the west. In 2.7 miles, just before Mountain Road turns to dirt, there is a short, paved road on the right that leads steeply up to the summit. Park in the gravel parking lot and look for hawks from the grassy hilltop area.

CONNECTICUT

Lighthouse Point Park, East Haven

Lighthouse is the best fall site in New England to see accipiters and falcons well. Generally best on any winds from the north, from northwest to northeast, it is *the* best

spot to observe Cooper's Hawks in good numbers and to make comparisons with Sharp-shinned Hawks. To reach the park, head north on Interstate 95 from New Haven, and take Exit 50 (Woodward Avenue, Lighthouse Point). Turn right onto Townshend Avenue, and proceed about 2.1 miles to Lighthouse Road. Turn right onto Lighthouse Road, which leads into the park, and keep to your left, going toward the bathhouse. Hawkwatching is generally done in the large field between the parking lot and the bathhouse. If heading south on Interstate 95 toward New Haven, take Exit 51 (U.S. 1, Frontage Road, Lighthouse Point), which merges with Frontage Road, and runs parallel to Interstate 95 for about a mile. Turn left at the light onto Townshend Avenue, and continue as described above. Restrooms are available. Fast-food outlets are nearby. You might want to bring a lawn chair or chaise lounge for comfort.


DISCOVER A NEW SITE

To see as many hawks as possible, it is important to hawkwatch as often as possible. That is easier to do if you have a hawkwatch site close to your home. If one of the sites described above is not close to your home, or you are reluctant to drive far, explore for hawkwatching sites near you. The abundant Broad-winged Hawk, perhaps the raptor easiest to see in migration, tends to move on a broad front, so that during September flights might be discovered almost anywhere in the state except the southeast corner, the Cape, and the islands. Linda Nachtrab often hawkwatches from her home in Maynard (*Bird Observer* 28 (6): 386), while Tom Piro hawkwatches on lunch hour in Groton. Dave Brown and Craig Jackson began a very productive hawkwatch close to home in the Middlesex Fells in the heart of greater Boston (Malden).

In the fall, look for a site, preferably a mountain, hill, ridge, or open area with a view to the north stretching from the northwest to the northeast. Explore under favorable weather conditions in peak season to give the site a fair test. Scan the sky regularly with good binoculars. Don't be disappointed if your site isn't productive the first day or two. Hawk flight paths are determined by a combination of weather, topography, and timing over thousand of miles, so they are irregular. Check your count for the day against reports on MassBird or the Mass Audubon Hotline of counts elsewhere that date.

REPORTING YOUR OBSERVATIONS

Hawkwatching can be great fun, especially when you see good numbers of hawks. However, your counts can also help everyone understand the nature and magnitude of hawk migration. Keep a complete record of what you see in a notebook, recording every hour the direction and estimated speed of the wind, visibility, and percent of cloud cover. Note each hawk seen by species if possible, but don't hesitate to record "unidentified raptor" when you aren't sure of the identity. (I record hawks by the minute, including other birds seen at the same time, in a notebook and transfer summaries to the report form at night.) Complete and submit an official report form on your hawkwatching. Official daily report forms can be obtained from <<http://www.hmana.org>> (click on forms) or by writing Paul Roberts at 254 Arlington

Street, Medford, MA 02155 or calling 781-483-4263. Submit your report forms to the same address or via email to phawk@world.std.com. Your data will then be included in reports developed for each season by the Eastern Massachusetts Hawkwatch, the NorthEast Hawkwatch (NEHW), and the Hawk Migration Association of North America (HMANA). These three organizations publish seasonal reports on hawk migration in their progressively larger regions, and your data will also be entered into a hemispheric database of hawk migration counts. You can have a lot of fun and contribute to our understanding and conservation of birds of prey. 

***Acknowledgements:** Thank you to everyone who has contributed reports to the Eastern Massachusetts Hawkwatch or NorthEast Hawkwatch. Without your efforts, this article could not have been possible, and our understanding of the status of birds of prey in the northeast would be considerably diminished. All data cited, unless otherwise noted, are taken from the Fall 1999 EMHW Report and the 1999 NorthEast Hawkwatch Report. Special thanks to Scott Cronenweth, Sue Fogleman, Bart Kamp, Tom McCullough, and Steve Mirick for specific help with directions.*

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Upstream Along an Eastern Tributary (Far From the Funneled Floods of Vera Cruz)

Susan Fogleman

Introduction

In 1972 former New Hampshire Audubon Society President the late Robert Smart wrote, "It will take a number of years of systematic watching to determine the patterns of the New Hampshire Broadwing flights." Serious efforts at systematic watching have now shed light on those patterns, and have also led to a clearer understanding of the migration patterns of the other raptors passing through the state, especially during the fall migration.

The New Hampshire Story

In the years that followed the establishment of Hawk Mountain Sanctuary, efforts were launched in other states to look for major hawk flights. The first New Hampshire effort was made near New Ipswich in the 1950s (Tudor Richards in an interview with Cole 1972). Peaked Hill in Bristol was discovered by the late Vera Hebert (pers. comm.) to be an excellent site not long after that. By 1960 Hebert and Smart had begun monitoring hawk flights there every fall, although not on a daily basis. An item in the fall 1960 bird reports section of *NH Audubon Quarterly* (Smart 1961) suggests that the importance of hawk migration monitoring was becoming more and more apparent to them and to New Hampshire Audubon members: "An excellent hawk migration occurred.... Unfortunately, it has been reported that gunners had a 'field day' on Cranmore Mountain shooting hawks. It will behoove members to cover as many mountains as possible, particularly in the September 13-25 period, to alert Conservation Officers when violations of the law occur, and to continually inform the public tactfully of the benefits of hawks and owls as well as the laws protecting them."

By 1969 Smart had become President of NH Audubon. That September he organized a field trip to the Peaked Hill site to show NH Audubon members the wonders of hawk migration. Over 50 people showed up, and saw over 360 hawks of 9 species (Smart 1969a). The following day he counted over 2500 Broadwings and 30 Ospreys (Smart 1969b). That is the same year that he discovered another hill in Bristol to be even better than Peaked Hill for the observation of the autumn flights. One day in early September he took a short hike to the summit of Little Round Top. On reaching his destination, Smart is reported to have looked skyward and seen a Bald Eagle and several dozen Broad-winged Hawks soaring overhead (V. Wright, pers. comm.). And that was the beginning of possibly the longest-term migration study in northern New England. (Because of its excellent exposure to the south and southwest, Peaked Hill is now used only for monitoring spring migration). All central NH fall reports from 1970 on (Smart 1971) come from Little Round Top, although the site received only scant coverage during the mid-1980s. Little Round Top has become

a teaching site as well as a monitoring and research observatory. School groups, college classes, and bird clubs visit throughout September and are given on-location lessons in migration ecology, hawk biology, and identification.

As awareness of and interest in hawkwatching grew, the search for other lookouts in New Hampshire and elsewhere in New England was on. Several other sites in New Hampshire have received occasional attention over the last two decades, their popularity largely dependent upon their proximity to the address of the site leader and the numbers of hawks (usually Broadwings) seen. Only three of the ten sites monitored in New Hampshire during the autumn of 2000 received coverage for more than a few days: Prospect Mountain at Weeks State Park in Whitefield, Little Round Top, and Blue Job Mountain in Strafford/Farmington. Little Round Top had the highest numbers of total hawks, as well as the highest numbers of Broad-winged Hawks, consistent with its history.

Patterns in New England

Geography and topography are major factors in shaping migration dynamics — particularly in the eastern part of North America. The NE-SW direction of the coast influences those birds breeding in eastern Canada and New England to fly southwestward toward their wintering grounds and return northeastward to their breeding areas in the spring. So do the predominant mountain ranges. And Broad-winged Hawks must maintain such headings to avoid the Gulf of Mexico. The Atlantic Ocean, Long Island Sound, Delaware Bay, and Chesapeake Bay all present barriers to most hawks (Fogleman 1993).

Broad-winged Hawks travel the longest distance of all New England's raptors. With South America their winter destination, these *buteos* especially must utilize rising air in order to save energy for that long journey and avoid depleting stored resources. They must find updrafts (air rising at a rate faster than the bird is sinking) in order to gain altitude. Once such air is found, then the bird can maintain and even increase altitude without flapping (Fogleman 1993).

There are two types of rising air currents: obstruction currents (updrafts caused by the prevailing wind striking and rising over objects such as hills) and thermals. The latter result from uneven heating of air near the surface and form after solar energy is absorbed by the surface.

Broadwing migration begins in August in northern New England. Bald Eagles, too, begin heading south during that month. But September, of course, is the month when these birds really get serious about leaving the region. (The raptors tallied at most Maine and New Hampshire sites probably include not only breeding season residents of those states but of the Maritime Provinces.)

What conditions should would-be hawkwatchers look for in order to catch the big flights? The search for the answer to that question has kept me on the watch sites for over twenty-five years, and I think I can now report with some confidence.

Studies of flights occurring at Little Round Top and Mount Agamenticus in York, ME, from 1978 through 1991 (Fogleman 1993, Figure 1) and data collected subsequently have contributed to an understanding of the relationship between synoptic weather patterns and hawk migration in northern New England.

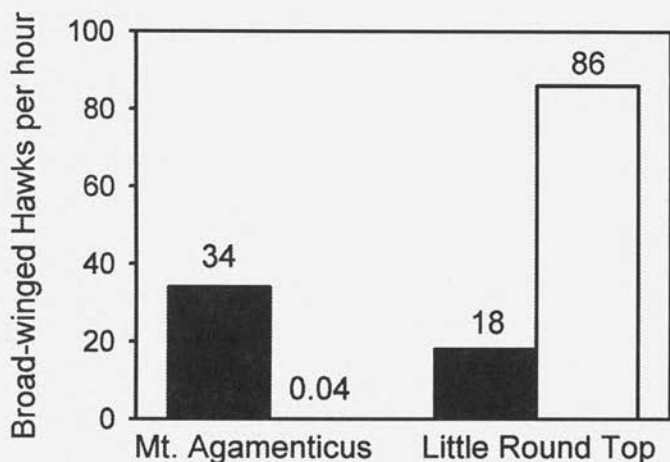


Figure 1. Average numbers of Broad-winged Hawks per hour counted at Little Round Top and Mt. Agamenticus (1978-1991) under winds with opposing directional components (adapted from Fogleman 1993): filled bars = westerly vectors, open bars = easterly vectors

The old textbooks on fall migration told us that northwest winds following the southern push of a cold front would bring hawks (Haugh 1972, Heintzelman 1976). But things are not as clearcut as that might indicate — especially in New England — and here is where it gets interesting, where the old textbook only applies to certain specific situations. Kerlinger (1989, p. 97) wrote, “Birds utilizing updrafts are extremely subject to drift.... The direction taken in the glide when the bird leaves the ... updraft varies with the wind direction....”

In order to explain the influences of wind on hawk migration in northern New England, I have developed what I call the “basin effect hypothesis.” Any westerly direction to winds accompanying the movement of a cold front across New England will tend to drift the birds migrating over broad valleys and the coastal plain eastward. An easterly component will do the opposite, shifting birds toward the foothills of the White Mountains in the New England coastal plain, or toward the western side of broad valleys.

Think of a toy sailboat floating in a basin. If you blow across the surface of the basin, the boat obviously moves toward the opposite side. If you blow hard enough, your little boat may actually lift against the side of the basin. Winds deflected upward against the slopes of hills provide hawks with such lift. Along the coast, Broadwings in particular are reluctant to allow themselves to be drifted far out over the water

where there are neither thermals nor obstruction current lift. There they tend to fly at a lower altitude when westerly or northwesterly winds prevail, and are often forced to flap more in order to keep from being blown off course.

Advice to the Would-be Watcher

If the winds have an easterly component, go to sites in the eastern foothills of the White Mountains to see good autumn flights of Broadwings. What produces those ideal easterly-vectored winds? A high-pressure system moving into the Gulf of Maine along with a low-pressure system situated over the Ohio Valley is one of the best scenarios.

Really big flights can occur when a high-pressure system is sitting right over the region. These will be high and difficult to see in blue cloudless skies. It is then that hawks use strong thermal activity, especially over broad valley floors and the coastal plain. Monadnocks, isolated mountains sitting in midbasin such as Blue Job Mountain does in the middle of the coastal plain, offer the best vantage in such a situation. In fact, atop Blue Job, and other monadnocks or isolated ridges, hawkwatchers can fare well in almost any of the conditions.

Coastal sites are favored when a cold front has moved through the area. Northwest winds following the passage of a cold front can produce excellent flights of Sharp-shinned Hawks and the three falcons along the coast, especially into October.

The September flights of 1999 (Figure 2) provide an example of the effects described above. Westerly-vectored winds predominated over the region on September 11, 12, 17, 20, 23, and 25; easterlies on September 13, 14, 15, 16, 24, 26, and 27. (Most of the Broadwing flight had passed through by those latter three dates.) Westerlies on September 18 gave way to quieter air by mid-to-late afternoon as a high-pressure system moved into the area. Some inland sites saw late afternoon and early evening flights as birds came in looking for roosting spots. With the high right over central New England the next day, Blue Job observers witnessed an excellent flight. Downstream Pack Monadnock, Wachusett, and Watatic fared quite well also.

Hawkwatch Sites		
	<u>Maine</u>	<u>New Hampshire</u>
Inland	Rumford	Prospect Mountain Little Round Top Deering Pack Monadnock
Coastal	Cadillac Mountain S. Harpswell Mt. Agamenticus	Odiorne Point
Midbasin		Blue Job

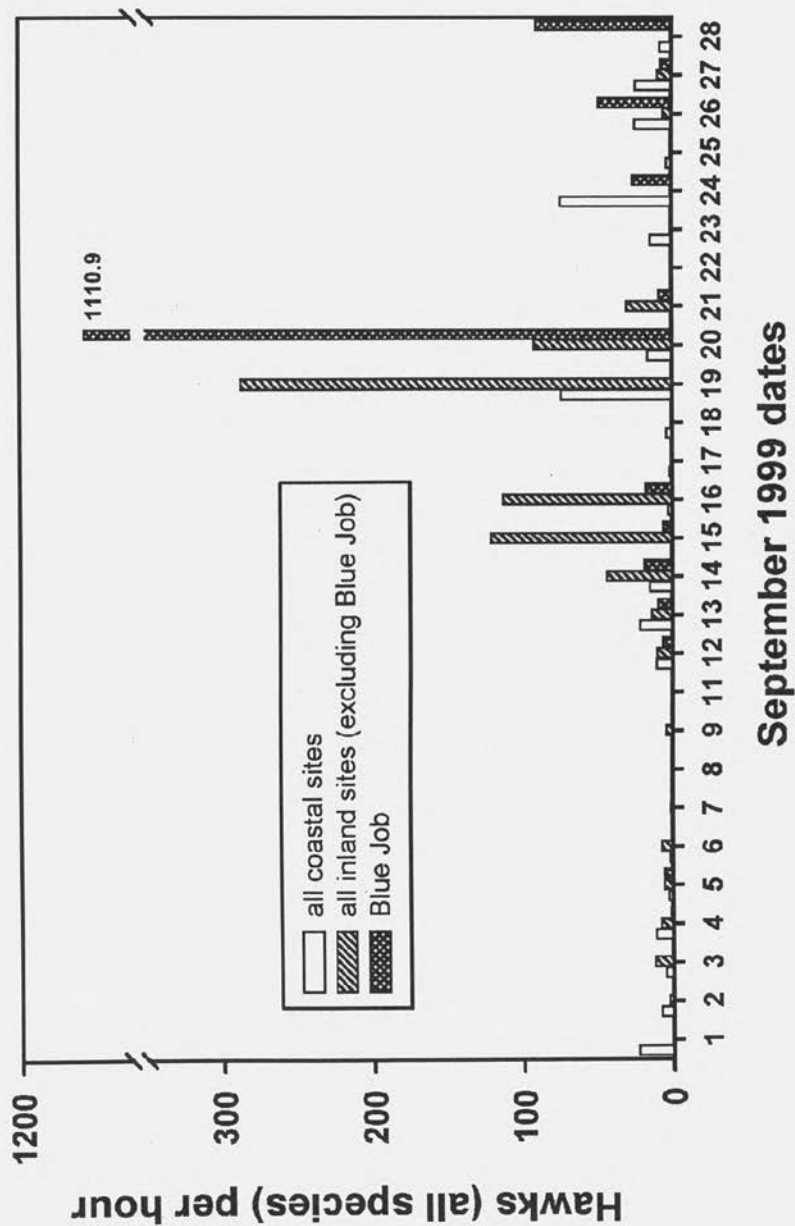



Figure 2: Flight comparisons for all New Hampshire and Maine sites in 1999

How does this relate to Massachusetts? It is likely that birds passing by Little Round Top continue on a heading that would take them past Mount Tom. Observers on Watatic or Wachusett are likely to see the birds when the flight is shifted eastward, or when Blue Job is the beneficiary as on September 19, 1999.

But because all the Maine sites and most of the New Hampshire ones are to the east or south of the White Mountains, pieces of the migration puzzle remain missing. New Hampshire's northernmost and newest site on Prospect Mountain is pioneering the quest for insight into the movement of birds west of the Whites. The establishment of other regularly attended sites along the western foothills to its south would help us better understand the eastern tributaries of the wonderful raptor river. To update Bob Smart's challenge will take additional years of systematic watching at strategically chosen sites to have a clearer picture of the patterns of New England hawk flights. 

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Chronicling Spring Hawk Migration on Cape Cod

Melissa J. Lowe and Donald Manchester, Jr.

For many of us the word "hawkwatch" conjures up images of sitting atop a mountain in September watching a kettle of hundreds of Broadwings soar lazily overhead. But here on Cape Cod we lack mountainous peaks and a strong fall migration of hawks. Instead, the spring season offers us the best and most numerous looks at birds of prey as they make their way north, and it is the furious flight of Sharpshins and kestrels that occupies most of our attention.

One of the best places to observe the spring migration of hawks on the Cape is at Pilgrim Heights in North Truro, located within the boundaries of the Cape Cod National Seashore. It is here, on a bluff with views of the Atlantic Ocean, where you can find staff and volunteers from Massachusetts Audubon's Wellfleet Bay Wildlife Sanctuary, at least five days a week during the months of April and May, observing and recording the hawks that go by (or whales when the hawks are slow!).

Organized by the Wellfleet Bay Wildlife Sanctuary, with support from Eastern Massachusetts Hawk Watch and permission from the Cape Cod National Seashore, the Pilgrim Heights Hawk Watch has just completed its fourth season. While up at Pilgrim Heights, staff and volunteers are responsible for spotting and identifying hawks, keeping records of each individual bird seen — recording its species, the time, direction of travel, and age and sex. Weather observations, including wind direction, wind speed, and temperature, are recorded on an hourly basis. During our first year in 1998 we spent 24 days totaling 112 observation hours at the site, and we recorded 577 hawks. We increased our coverage in 2001 to 59 days equaling 315 observation hours and saw 2462 hawks.



We didn't choose Pilgrim Heights as our location to study spring migration just because of its fantastic views, although that certainly helps! This narrow strip of land, situated on top of a bluff overlooking dunes, marsh, and heathland, provides an almost 360-degree panorama. Hawks often fly right overhead or at eye-level, especially when the winds are strong, offering excellent views of the birds. As documented at other coastal sites, hawks migrating in the spring in the northeast tend to

follow leading edges — the coast or large bodies of water like the Great Lakes — and the prevailing winds encourage the birds to move along the coast. Peninsulas like Cape Cod and Sandy Hook, New Jersey, act as a sort of funnel. Many birds following the coast end up on the Outer Cape and pass by Pilgrim Heights. Other good locations

for spring hawkwatching on the Cape include Fort Hill in Eastham, Marconi Site in Wellfleet, and Highland Light in Truro. Like Pilgrim Heights, these spots are located on the east side of Cape Cod's "forearm," overlooking the Atlantic Ocean.

Past records from Pilgrim Heights also indicate it is a good spot. Our hawkwatch is certainly not the first time the spring migration of hawks has been documented here. There is a long history of hawkwatching here, including the efforts of Ginger Carpenter in the 1980s. Other individuals like Tom Carrolan and Blair Nikula also have long ties with this spot and have spent (and continue to spend) considerable time documenting the movement of hawks in the spring on the Outer Cape.

The Wellfleet Bay Wildlife Sanctuary has invested time in this hawkwatch for several reasons. One of the goals is to collect local data on the migration and natural history of hawks. Little is known about the spring migration of hawks in general, and our data could help to complete a piece of that picture. It also provides a contribution to the knowledge of the population status and migration habits of raptors on an international level through submission of our reports to the Hawk Migration Association of North America.

More importantly, and the main reason the count was started, is the educational value of the hawkwatch. Our count is conducted at a public spot, and anyone can stop by to learn more about our efforts. We have purposefully advertised the hawkwatch to promote public involvement, and on a nice weekend day we can have as many as twenty-five people stop by. We also post our results on the internet, including weekly postings to MassBird. Through these educational efforts, the hawkwatch can serve a valuable role in raising an appreciation for the conservation of birds of prey and the importance of protecting flyways, as well as increasing the public's awareness of the Wellfleet Bay Wildlife Sanctuary.

Our education extends beyond the visiting public to include the many volunteers who donate their time to the hawkwatch. Over the course of the four years, we have had over fifty people become actively involved in this form of wildlife research, and many are new to the identification and natural history of hawks. Not all have remained to help us out—the low counts and bitter winds in the beginning of the season result in a high attrition rate; however, many of the twelve dedicated volunteers who are with us this season have taken part in the hawkwatch since its inception in 1998. We are extremely fortunate to have these volunteers, especially coauthor Don Manchester, who donates hundreds of hours each season as the primary observer.

As with other hawkwatches, the Pilgrim Heights Hawk Watch is not without its rewards and challenges. One of the more exciting aspects of watching hawks on the Outer Cape is the opportunity to see rare species like Mississippi and Swallow-tailed kites. These birds are most often seen on Cape Cod during the months of May and June, during periods of warm weather and southwest winds. Over the years these vagrants have been seen with increasing regularity, and every year at least one of the species of kites makes its way to the Cape and is often seen at Pilgrim Heights. During our 2001 season we recorded 6 Mississippi kites (5 subadults and 1 adult).

Perhaps our increased coverage and the sustained warm temperatures and southwest winds we experienced in May accounted for this high number. Other vagrants recorded at Pilgrim Heights include Swainson's Hawk and Black Vultures. Both species were represented during the 2001 season as well.

One of the greatest challenges we have at Pilgrim Heights is differentiating migrant birds from resident birds. Some of the more troublesome species include Turkey Vultures, American Kestrels, and Northern Harriers. While Turkey Vultures represent one of the largest total number of species at this hawkwatch, with 647 recorded in 2001, their numbers should be viewed with a fair amount of caution. Are we counting individual birds twice (or more) as they make wide, lazy circles around the Outer Cape? How long do they remain on the Cape before finally moving on to other destinations?

American Kestrels pose similar challenges. The month of April is when we see the majority of kestrels. We assume most of these are migrants because the nesting kestrel population on Cape Cod has declined sharply over the years. Many of these migrating small falcons are seen hanging out on the dunes, hunting for up to several hours at a time. One female was observed for an hour. She progressed steadily north, stopping to hover-hunt every few seconds, then flew south along the dunes to start all over again. With not enough observers to watch each individual bird, the question is raised: are we recounting individuals as they hunt the dunes? In attempts to tackle this problem, in the 2001 season, we did our best to scan the dunes every thirty minutes and record the maximum number of Kestrels per scan.

Northern Harriers are thrilling to watch up at Pilgrim Heights as they float and twist over the marsh. However, they can cause a level of frustration when we try to determine who is a migrant or who is a resident. A resident male and at least two females make the marsh their home each year. These birds can be seen daily, coursing over the dunes and marsh, and in early April, exhibiting courtship displays. (We assume these are the same male and females each day anyway!) Accordingly, an adult male harrier and up to two females observed in this type of flight pattern and display are considered residents and are not recorded (male harriers have been documented to support more than one mate). Any harrier seen flying at a considerable altitude and making its way steadily to north, however, is considered a migrant. Also, any time more than one male is seen at a time, one of those males is considered a migrant. Not a perfect science, but consistency is key!

Another challenge at this location is keeping track of southbound birds. While you would think of spring migration as a cut-and-dry movement north, this is not necessarily so on the Outer Cape. Some species and individual birds, upon reaching the tip of Cape Cod and seeing the expanse of Cape Cod Bay and the Atlantic Ocean before them, turn around and head south and west, following the coastline back off Cape. This is especially the case on days with strong winds over 15 mph, when a large percentage of the total number of birds seen are observed traveling in a southerly direction.

But what happens on those days when we don't see many south-bound birds? As with all hawkwatch migration, wind direction, wind speed, and temperature have a profound influence on the movements of the birds. On days featuring southwest winds and warm temperatures that create considerable lift, we often see large numbers of Sharp-shinned Hawks and American Kestrels moving north toward Provincetown. But very few of these birds, if any, are observed returning and heading south. Are these birds using the weather conditions to gain lift and, seeing the mainland to the north and west, crossing the water? Or have they reached such altitudes that we don't see them if they turn around? Interestingly, the majority of the birds we see are immature birds. How does their inexperience affect their movements when encountering the Cape's water barriers?

Wind not only affects what direction the hawks take, but we believe it also affects the numbers of hawks seen on any given day. Without having thoroughly analyzed our data, our general impression is that southwest winds produce the greatest number of birds at Pilgrim Heights. However, this is variable. For example, in 1999 the days with light northeast winds constituted our highest counts. Contributing to this may be the fact that there were very few days of southwest winds during that year. Out of the 32 observation days, only 7 days had winds from a southerly direction. Conversely, in the 2001 season, 21 of the 59 observation days featured winds from a southerly direction, and the majority of the highest daily totals of hawks were recorded on those days. We are curious to see if this general pattern holds for next season.

Because our consecutive-day coverage at Pilgrim Heights is still in its infancy, we have not yet acquired a substantial amount of data, so we have far more questions than conclusions. And perhaps, given the nature of nature, we may never arrive at any answers. We do have goals, however. These include continuing the regular coverage at Pilgrim Heights (as long as the surrounding, growing vegetation will allow us to see and record from this spot), adding a second site to the west or north of Pilgrim Heights to better document southbound movement of birds, promoting more involvement by experienced hawkwatchers to meet the first two goals, and soliciting the help of more experienced researchers to help interpret our data. Most importantly, however, is the goal to continue having fun and sharing our experiences with other people. 🦅

Melissa Lowe is an Education Coordinator for Massachusetts Audubon Society's Wellfleet Bay Wildlife Sanctuary, and she coordinates the Pilgrim Heights Hawk Watch. Melissa's interest in birds of prey was nurtured at the Blue Hills Trailside Museum in Milton where she worked as a naturalist using live, injured animals (owls and falcons) in educational programs. Melissa has also worked for Manomet Center for Conservation Sciences in Manomet, Massachusetts and HawkWatch International in Salt Lake City, Utah. She resides in North Eastham with her husband, Ed Cestaro, and two dogs, Murphy and Jed. Donald Manchester, Jr. of Sandwich, Mass., is the primary observer at the Pilgrim Heights Hawk Watch. Retired from his profession of surveying, Don now volunteers his time to count hawks for Wellfleet Bay in the spring. Don also employs his hawk identification skills for the United States Fish & Wildlife Service's Monomoy National Wildlife Refuge, conducting a fall count of migrating hawks for them on Morris Island in Chatham. His passion for birding and hawks began early while growing up on Cape Cod in Osterville, Massachusetts.

Possible Play Behavior of a Peregrine Falcon

William Moskoff


This article describes an observation that I have interpreted to be play behavior on the part of an immature Peregrine Falcon (*Falco peregrinus*), where the object of play was a member of another species, a phenomenon not previously reported in the literature for Falconiformes. On September 24, 2000, at about ten o'clock in the morning at the Lake Chataqua National Wildlife Refuge in central Illinois, I observed an immature Peregrine Falcon (age evident from brown upper and heavy streaking below) dive at and strike a Blue-winged Teal (*Anas discors*). Teal are a highly favored prey of peregrines because they are easy to kill and carry away (Dekker 1995). However, this teal was not immediately killed, but was wounded. Unable to fly, it began to swim slowly toward the shoreline and the cover of the vegetation near the shore. The peregrine returned and momentarily hovered above the teal, bringing both its legs and its talons forward. But it did not snatch the teal from the water as it easily could have, and instead it flew away. It repeated this action perhaps a dozen times within a ten-minute period, alternately hovering over the helpless teal, at times less than a meter above the bird, and then flying away. The episode ended when the teal reached the shore and the safety of the shrubbery.

Play behavior is known to occur among many avian species (Ficken 1977, Smith 1983). Play is defined as "all motor activity performed postnatally that appears to be purposeless, in which motor patterns from other contexts may often be used in modified forms and temporal sequencing" (Bekoff and Byers 1981). Play is a behavior in which there is no "immediate biological function," no action that will at the given moment enhance a bird's ability to survive or achieve reproductive success (Ficken 1977). Typically, although not exclusively, play is engaged in by young birds (Ortega and Bekoff 1987). Several categories of play behavior can be identified, including: social play, in which the play behavior involves one or more other individuals, either conspecifics or members of other species; object play, in which the bird plays with an inanimate object; and locomotory play, in which the bird engages repeatedly in a locomotory act with no obvious goal in mind (Ortega and Bekoff 1987). Play is a means by which birds can practice basic locomotory and social skills (Gill 1990).

Mew Gull (*Larus canus*) adults have been observed diving into shallow water to bring leaves to the surface, then shaking their heads, repeatedly tossing the leaves and retrieving them, or diving after more leaves (Morris 1993). Black Vultures (*Coragyps atratus*) perform diving maneuvers, usually in formation (Thurber 1981). Bearded Vultures (*Gypaetus barbatus*) have been observed taking turns chasing each other while producing a high-pitched whistle and never making physical contact (Blumstein 1990). Several woodpecker species engage in a variety of play behaviors, including dodging around a tree trunk to avoid imaginary enemies, that have been observed in Downy (*Picoides pubescens*) and Hairy (*Picoides villosus*) woodpeckers in the wild and among Yellow-bellied Sapsuckers (*Sphyrapicus ruber*) and Pileated Woodpeckers (*Dryocopus pileatus*) in captivity (Kilham 1974).

Play behavior has also been documented as occurring among raptors. Paired Swainson's Hawk (*Buteo swainsoni*) adults will drop and then catch a prey item over and over again in the air (England et al. 1997). Prairie Falcons (*Falco mexicanus*) have been seen flying with dried cow manure in their talons, repeatedly tossing it up and ahead of themselves and attempting to catch it before it hits the ground (Munro 1954). Red-tailed Hawks (*Buteo jamaicensis*) also engage in play with an object in midair, first dropping and then catching it (Lowe 1978). Among Harris's Hawks (*Parabuteo unicinctus*), older nestlings and immatures chase insects and jump on sticks in ways that suggest play (Bednarz 1995). Bald Eagle (*Haliaeetus leucocephalus*) nestlings commonly pick up and manipulate objects such as plastic bottles (Buehler 2000).

The Peregrine Falcon's interaction with the teal seems understandable in light of an explanation that it was engaged in play behavior. Peregrines have been reported to feign attacks as many as 10-12 times as often as they actually succeed at a kill, and some of these stoops may only be efforts at play (Brown and Amadon 1968). It has also been suggested that play in raptors may be practice for behaviors that have serious biological consequences, including courting, aggression, and foraging (Blumstein 1990, Buehler 2000). The peregrine may simply have been practicing its hunting techniques rather than seeking a meal.

There are three alternative interpretations of the peregrine's behavior. One possible explanation is that Peregrine Falcons are reluctant to take birds out of the water. In fact, peregrines have been observed in Alaska grabbing birds out of the water when the bird had been knocked down or forced into the water by the falcon (Cade 1960). A closely related explanation is that peregrines will only take prey on the wing. While it is true that the vast majority of peregrine prey is captured on the wing, they will still consume prey killed in other ways. Moreover, if capturing prey on the wing was a requirement, then the peregrine would not have continued to return to where the teal was struggling; it would have abandoned its failed effort to capture the teal soon after the duck went into the water. A third explanation is that the bird's behavior reflected the inept foraging skills of an immature animal. This is a compelling suggestion. Age-related differences in foraging success have been reported in a number of avian species, including Little Blue Herons (*Egretta caerulea*), Brown Pelicans (*Pelecanus occidentalis*), Neotropical Cormorants (*Phalacrocorax brasilianus*), Great Frigatebirds (*Fregata minor*), Ruddy Turnstones (*Arenaria melanocephala*), and Ospreys (*Pandion haliaetus*) (Recher and Recher 1969, Groves 1978, Morrison et al. 1978, Szaro 1978, Schnell et al. 1983, Gilardi 1994). However, the sheer repetitive nature of the peregrine's actions suggests that this was play rather than inexperience in hunting. None of the alternative explanations appears to explain the peregrine's behavior as well as the explanation that this was play, likely being used to exercise its hunting skills. Play may therefore have an important role in the life history of Peregrine Falcons. 

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THE WIRED BIRDER

Radar Ornithology

David M. Larson

So, you have settled into your morning routine of checking the weather radar online to see if you are going to blow off work today and go birding. The radar shows rings, veritable donuts in the sky (Figure 1, arrows). How do you interpret donuts in the sky — tornados, hurricanes, donuts?

Relax, the donuts in Figure 1 are roost rings, seen in an image from the Tallahassee, FL, weather radar site on July 2, 2001. Post-breeding Purple Martins assemble in large (thousands

of birds) communal roosts at night. When they leave to feed in the morning, they fan out from the roost and reach altitudes where they are detectable by weather radar units. Hence, donuts in the sky. If you were to follow the image loop of this phenomenon, you would see small rings that grow in size and then dissipate, as the density of birds falls to below detection level. The diagonal spike to the right of this image is called a sun strobe. It is caused when the radar points directly at the sun.

Alternatively, suppose that you are in south Florida in March, checking on the weather radar in the evening. Beach day tomorrow or not — that is the question. You see this blob of stuff heading your way from Cuba (Figure 2). But it's not a storm, it's birds, lots of birds. Noel Wamer collected this series of images from the Key West, FL, radar on March 14, 2001, indicating clouds of migrants heading north during the course of the evening. Both the roost rings, and the migration across the Straits of Florida, are examples of the wonders of radar ornithology.

In this issue, the Wired Birder looks at the use of radar to study bird migration, movements, and behavior. The detection of birds by radar is not new: the earliest radar units, used in England during the Second World War, picked up incoming flocks of birds in addition to military targets. The establishment of the National Weather Service's NEXRAD (NEXT generation RADar) system coverage of the U.S. (including Puerto Rico and the U.S. Virgin Islands) in the 1990s provided a vastly

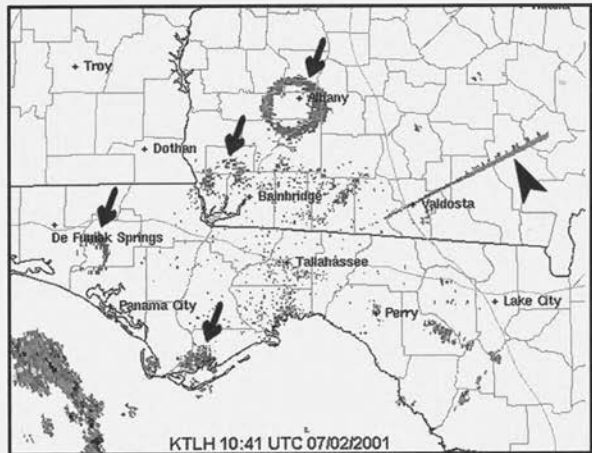


Figure 1: Roost rings — base reflectivity image from the WSR-88D in Tallahassee, FL showing four roost rings (arrows) and a sun strobe (arrowhead). Image downloaded from the NOAA web site and processed by the author.

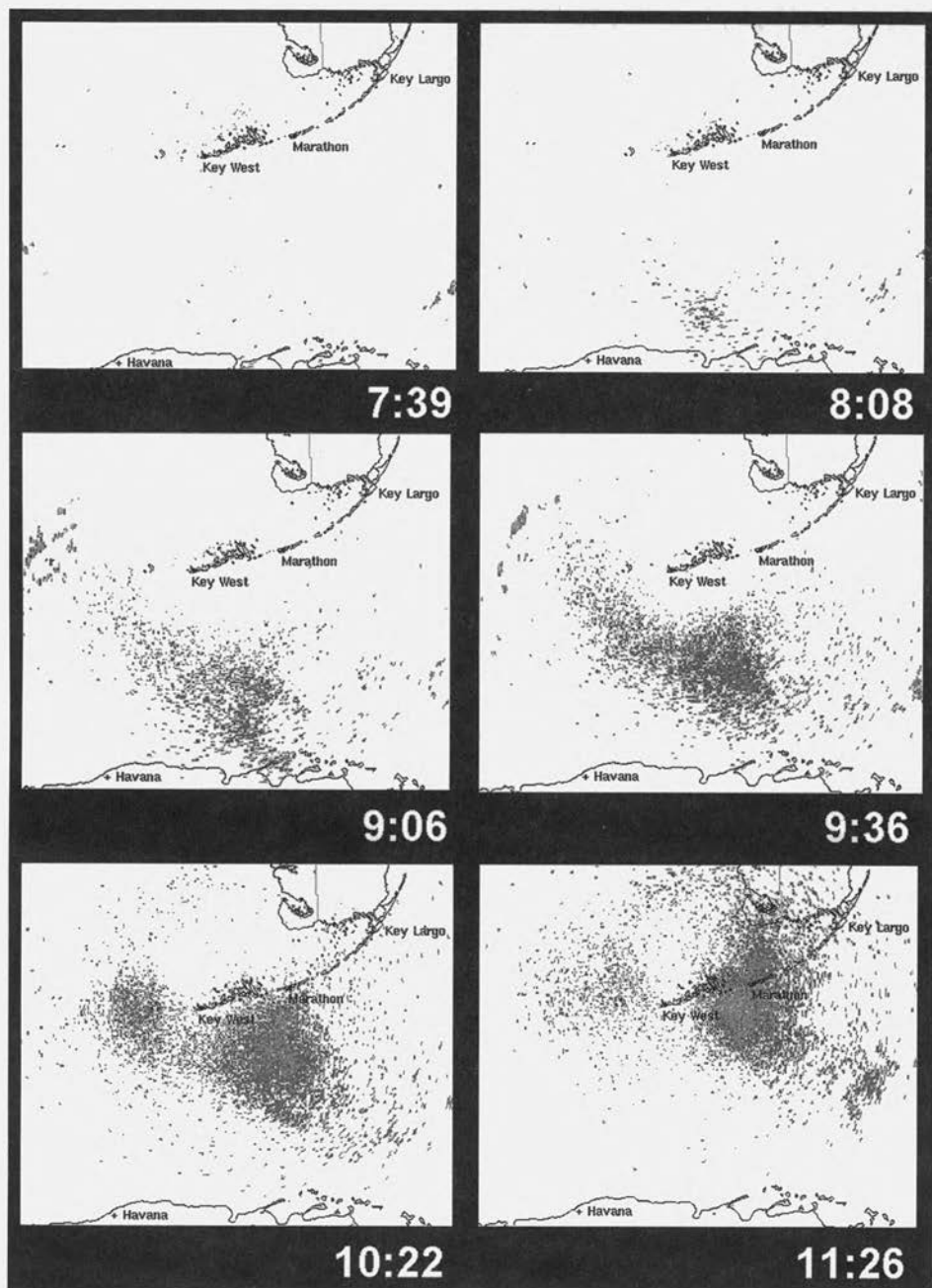


Figure 2: Spring migration of birds over the Straits of Florida on the evening of March 14, 2001, as detected by the Key West WSR-88D, downloaded and processed by Noel Wamer <www.badbirdz.com/ktby031401.htm> – and used with permission

improved tool for radar ornithologists. The NEXRAD system gives nearly total coverage of the country with sophisticated WSR-88D doppler radar units.

RADAR (Radio Detection And Ranging) systems consist of a transmitter and a receiver. They transmit microwave (radio) signals, and listen for returning signals that have bounced off objects (airplanes, rain drops, birds, dust, etc.). Returning signals mean that an object has been detected, and the range (distance) to the object can be calculated from the time between transmission and reception (since microwaves travel at a known velocity). The amount of energy detected in the returning signal is converted to a reflectivity measure, which can be used to estimate the number or density of the objects. Of course, the operation is just a wee bit more complicated than this explanation.

WSR-88D transmitter/receiver units are 28-foot diameter parabolic dish antennas, housed in fiberglass domes, and elevated on towers (Figure 3). In operation, the antennas usually rotate at three revolutions per minute. Transmissions are very short (a few microseconds) and the pulse rate is around 1300 per second. Hence the radar spends most of its time listening. In fact, the radar is only transmitting for a total of seven seconds per hour. The width of the radar beam is approximately one degree. While the range of the WSR-88D is 124 nautical miles, the effective range for bird detection is approximately 60 nautical miles (111 km). The WSR-88D normally cycles from sweeps at 0.5 degrees elevation, to sweeps at 1.5, 2.5, 3.5, and 4.5 degrees. Note that these radars cannot detect anything directly overhead, and often returns within twenty nautical miles are contaminated by ground clutter. The basic displayed result is the Base Reflectivity (reported in decibels of reflectivity or dBZ); Figures 1 and 2 are base reflectivity images.

The radar operates in two modes: Precipitation and Clear-Air. Precipitation Mode is triggered whenever storms are detected, since it results in faster generation of data (more data sets per hour). Clear-Air Mode is more sensitive, slower, and results in more detailed data sets. Base reflectivity usually ranges from 5 to 75 dBZ in the Precipitation Mode and from -64 to +64 in the Clear-Air Mode.

Doppler radar relies on the Doppler effect to generate estimates of target velocity. The classic example of the Doppler effect is the sound of a train whistle as the train approaches the listener and then recedes. The frequency (pitch) of the whistle appears to increase as the train approaches (due to compression of the wave form) and decrease as the train moves away (expansion). The faster the train is moving, the faster the change in pitch. These changes in frequency can be measured and provide



Figure 3: The Boston (BOX) WSR-88D radar in Taunton, MA — photograph by the author

information on the velocity of the target. Perhaps the best known example of Doppler radar is the speed gun used in traffic enforcement (or the similar unit used for determining the speed of a pitch in baseball).

In the case of the WSR-88D radar, it is important to note that it can only measure radial velocity, that is, speed parallel to the beam.

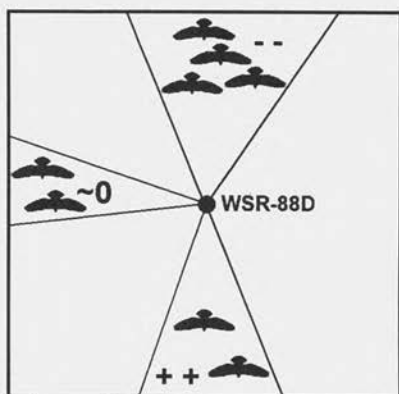


Figure 4: Doppler radar detection of radial velocity: Objects approaching have negative velocities, objects going away have positive velocities, objects moving perpendicular to the radial beams are not well detected.

Hence, objects moving directly at or away from the radar are well detected, objects moving perpendicular to the beam are not (Figure 4). When viewing NEXRAD velocity scans, remember that negative numbers indicate objects moving directly toward the radar; positive numbers mean objects moving directly away. Objects moving perpendicular to the beam have near zero radial velocity (no matter how fast they may be moving relative to the ground). Background velocity information indicates wind speed (as detected by general returns from dust and other passive sources). Radial velocity images are reported in knots (kts). Objects traveling faster than the wind, or across or upwind, tend to be biological (birds, insects, bats, etc.).

Birds on Radar

Like any airborne object, birds reflect microwaves and can be detected by radar, often using both the reflectivity and velocity scans. Of course, if the number of birds in a volume of airspace is low, then the likelihood of detection decreases. If the birds are flying very low (under the beam) or directly above the radar, they cannot be detected. Birds migrating at night are commonly most dense at around 1500 feet above ground, though some fly much higher. Diurnal migrators, such as raptors, commonly travel at up to 5000 feet. Based on the one-degree beam width, the 0.5-degree elevation of the beam gives optimal bird detection within the effective range of the beam, and often results in a donut-shaped pattern of detectable birds around the radar installation (none too close, none too far away). For a more detailed description of this phenomenon, visit the Clemson University Radar Ornithology Laboratory (CUROL) web site <<http://virtual.clemson.edu/groups/birdrad/>>, which has an excellent tutorial on radar.

Raptor Migration and Radar

One of the more celebrated discoveries of weather radar ornithology is the mapping and display of raptor migration, particularly near choke points that tend to concentrate birds. For instance, the annual migration of Broad-winged Hawks between North America and Central and South America tends to funnel birds along the western coast of the Gulf of Mexico, since soaring birds do not like to cross water.

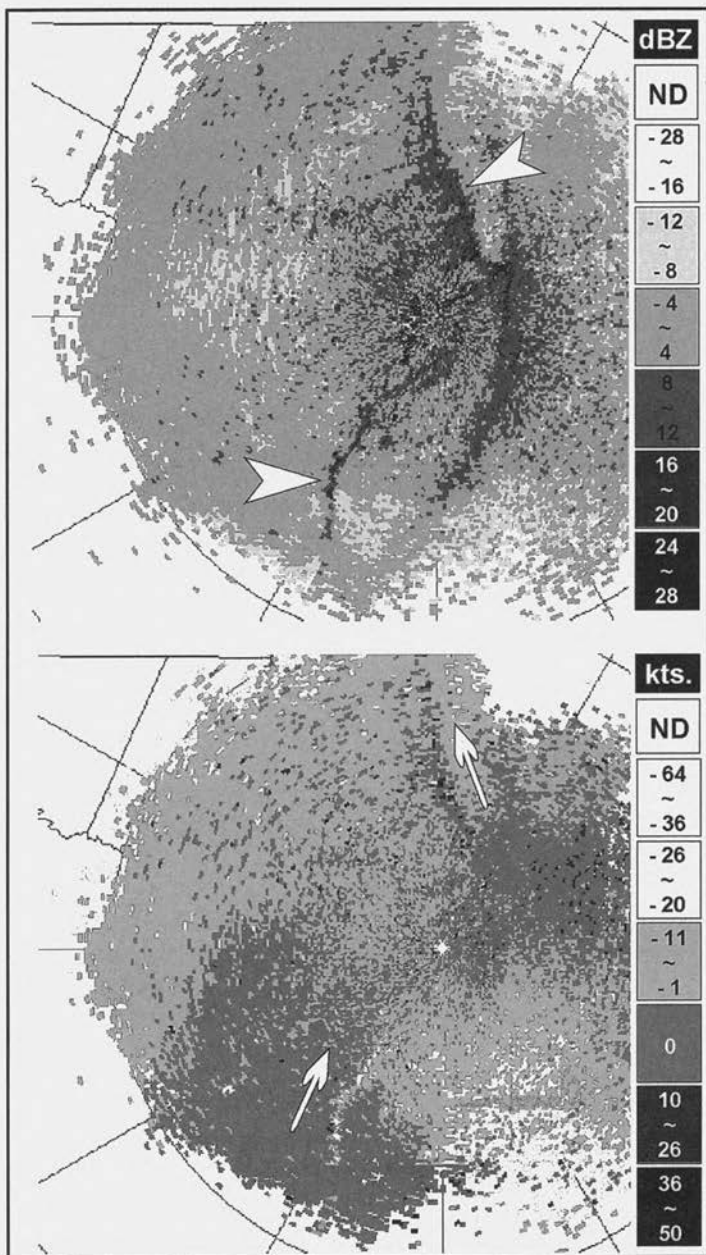


Figure 5: Heavy streaming of raptors over Galveston, TX, in the spring of 2000 — (Upper) Base Reflectivity in dBZ, (Lower) Radial Velocity in knots. These images were obtained from, and are used with the permission of, the Clemson University Radar Ornithology Laboratory, Director, Dr. Sidney A. Gauthreaux. See text for details.

Hence, the weather radars in Houston, Corpus Christi, and Brownsville are occasionally the focus of attention as long skeins of migrating raptors show up. In the early 1990s, this NEXRAD phenomenon was noticed and publicized by Frank S. Peace <web.we.net/~fspeace/>.

An example from the CUROL web site is shown in Figure 5 (these images were modified so that they could be printed in black-and-white). They show the Base Reflectivity and Velocity images from Brownsville, TX, on April 23, 2000, at 19:17 UTC (1:17 p.m. CST). Note the long skeins (arrowheads) of high dBZ returns to the north and south of the radar in the base reflectivity image (top). In the velocity image (bottom), you can see that the objects detected are actually moving rapidly from the south toward the radar, and away to the north (arrows) under light northwesterly winds. We know that these are probably mostly Broad-winged Hawks, Swainson's Hawks, and Turkey Vultures, because of the date and the flight pattern. Raptors and other soaring birds ride thermals, columns of rising air, until they run out of lift, and then they stream off at relatively high speed until they hit the next thermal. These images show birds streaming. Years of work by the CUROL researchers, lead by Dr. Sidney Gauthreaux, many researchers from other institutions, and volunteers, using hawkwatches, moonwatches, and other techniques, have verified (ground-truthed) the interpretation of these and other radar-detected phenomena.

Finally, estimates of the numbers and density of birds can be made on the basis of these radar observations. A high for the BirdCast (see below) program in the spring of 2000 was about 2000 birds per cubic kilometer. A tutorial on the acquisition, interpretation, and display of migration patterns of raptors using weather radar has recently been published by Dr. Gauthreaux (Gauthreaux, S.A., Jr., C.G. Belser, and A. Farnworth. 2001. How to use Doppler Weather Surveillance Radar to Study Hawk Migration. In *Hawkwatching in the Americas*, K.L. Bildstein and D. Klem, Jr., Eds., North Wales, PA: Hawk Migration Association of North America, pp. 149-160).

BirdCast

In the spring of 2000, a unique partnership between the National Audubon Society, the Cornell Laboratory of Ornithology, CUROL, and Philadelphia's Academy of Natural Sciences, with the financial backing of the U.S. EPA, culminated in the pilot radar ornithology project called BirdCast. During that spring, unfiltered and filtered NEXRAD images from the Philadelphia, Baltimore, and Washington, D.C. areas, and commentary and predictions from CUROL, were posted at <www.birdcast.org>. Part of the rationale for this project was to provide a mechanism for ground-truthing the radar data. For instance, if the radar suggested a major fall-out at a location, did ground observers actually see the birds there? Volunteers checked locations regularly for bird activity. All of these observations were compared online with the predictions based on the radar images. While not all of the data have been analyzed from that first year, the calculations and algorithms have proven fairly accurate. You can see some of the results at the web site <www.birdcast.org>. This site had over 3.2 million hits during the fall 2000 migration period.


The BirdCast project ran again this last spring (April 1 to May 31, 2001) and hopefully will be up and running for this fall migration season (funding was uncertain at press time). Check the BirdSource web site <www.birdsource.org> for updates on the status of BirdCast or any potential successors.

Do-it-yourself radar ornithology

WSR-88D data are available on the internet from a few sources. The most complete source is a subscription to WeatherTAP.com (at press time: \$5.95/month or \$63/year), which includes real-time data from all 150 of the WSR-88D sites (base reflectivity, radial velocity, and many other images), as well as downloadable loops of images. WSI Intellicast <www.intellicast.com> is free, and a fine source of WSR-88D base reflectivity images and loops. Unfortunately, Intellicast does not show radial velocity; the storm relative mean radial velocity that they do show is not useful for bird movements. You can also obtain base reflectivity images and loops directly from NOAA at <weather.noaa.gov/radar/national.html>. All of these images and loops are in GIF format, and the loops can be dissected into individual images (see Figure 4) using various computer software packages (I use Paint Shop Pro and Animation Shop by Jasc Software, Inc.).

Various projects/studies using radar

Weather radars have been used to study bird migration, distribution, and behavior in many other contexts. Weather radar has detected the fall-out of migrants on the Texas, Louisiana, and Alabama coasts and inland migration pathways. Portable radar units of different types have been used to count Marbled Murrelets in the Pacific Northwest. Some tracking radar units are capable of determining flap frequency, and therefore suggesting species of migrants. For these and other avian uses of radar, see the links at the end of this article.

Radar ornithology can have many practical applications for the birder. Certainly, the BirdCast information is useful for birders in the covered area, as well as generally interesting for all. Moreover, as described above, analysis and interpretation of WSR-88D data, while complicated, can be accomplished by anyone with Internet access and persistence. So, go explore the following web sites and see how you can have the National Weather Service help you find out about birds, instead of just weather. 

Weather Radar and Radar Ornithology Web Sites:

Clemson University Radar Ornithology	virtual.clemson.edu/groups/birdrad/
BirdCast	www.birdcast.org
BirdCast NEXRAD interpretation	www.birdcast.org/interpret-nexrad.html
Radar Biota by Frank S. Peace (very slow to load but very interesting)	web.we.net/~fspace/
NOAA Radar Information	www.srh.noaa.gov/radar/radinfo/radinfo.html
NEXRAD Radar Operations Center	www.roc.noaa.gov/
Accuweather Doppler Radar FAQs	personal.accuweather.com/iwxpage/paws/dopplerfaq.htm
Birds of the Upper Texas Coast	texasbirding.simplenet.com/nexrad/

Israeli Bird Radar Pictures www.birds.org.il/IsraeliBirdRadarPics.asp
 Wind Profilers, Weather Radar and Birds www.msc-smc.ec.gc.ca/armp/king/radar/profbird.html
 McGill U. (J.S. Marshall Radar Observ.) grappa.meteo.mcgill.ca/bird_migration.html
 Weather Radar and its Application to Ornithology (meeting agenda and abstracts)
www.physics.brocku.ca/faculty/black/Galveston/agenda.html
 Noel Wamer has posted a couple of interesting radar loops (including the original for Fig. 4)
www.badbirdz.com/ktby031401.htm
www.badbirdz.com/tlh062801.htm

Get your own images:

WeatherTAP www.weathertap.com
 Intellicast Base Reflectivity images
www.intellicast.com/LocalWeather/World/UnitedStates/BaseReflectivity/
 NOAA weather radar weather.noaa.gov/radar/national.html

Image Software:

Jasc Software (Paint Shop Pro, Animation Shop) www.jasc.com

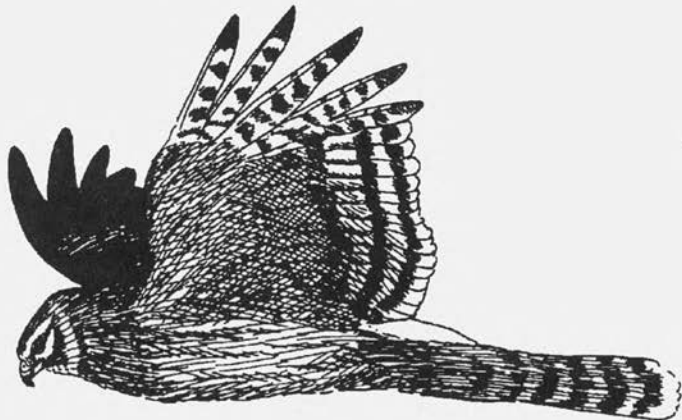
Other types of radar, other types of bird studies:

Radar Studies of Marbled Murrelets www.fs.fed.us/pnw/olympia/wet/1999/radar.htm
www.nmnh.si.edu/BIRDNET/PacBirds/mamusurvey/mamuprotocol.html (see Appendix G)
 Wing beat frequency (commercial) www.picotech.com/applications/signature.html
 Center for Conservation Research and Technology www.ccr.org/home.html

If you get tired of birds:

Radar Entomology Web Site www.ph.adfa.edu.au/a-drake/trews/srcl.usda.gov/srcl/imms/radar/radar-insect-detection.htm
 Entomological Radar Studies
 Dragonfly Migration Project Web Site members.bellatlantic.net/~dbarber/migrant/mig.html
 Bats by radar www.batcon.org/batsmag/v14n3-3.html
virtual.clemson.edu/groups/birdrad/comment.htm

David M. Larson is the Production Editor of Bird Observer.



Cooper's Hawks: A Population Study with a Brief Discussion of Sharp-shinned Hawks

Lawrence B. Fischer

In 1978 I began an independent survey of nesting raptors in western Connecticut. The survey has been continuous and is presently ongoing. Of special interest have been Cooper's Hawk (*Accipiter cooperii*) and Sharp-shinned Hawk (*Accipiter striatus*).

The study area is located principally in northern Fairfield County but also includes the southern part of Litchfield County and the western part of New Haven County. The population density is about 390 people per square mile. However, human development tends to be concentrated around town centers, and the region is still fairly rural. Unfortunately for raptors, escalating land values have caused a rapid sell-off of large tracts of land for housing developments over the last decade.

The study area covers about 150 square miles within the Transition Life Zone with traces of Carolinian Life Zone (Forbush, E. H. 1927. *Birds of Massachusetts and Other New England States, Vol. II*, p. xix). It intersects the Shepaug, the Housatonic, the Aspetuck, and the Saugatuck river valleys. Because the sides of the river valleys are steep and because the Aspetuck and Saugatuck are drinking-water watersheds, the valleys themselves remain for the most part undeveloped, even wild in parts.

Woodland in the region is about ninety percent deciduous trees, principally oaks, maples, tulips, and birches, with scattered hickories and small stands of beech trees. The only natural conifer growth consists of scattered stands of hemlocks (*Tsuga canadensis*). In the southern third of the study area, which includes a lot of watershed property, there are numerous white pine (*Pinus strobus*) and some Norway spruce (*Picea abies*) plantings.

Cooper's Hawks in western CT nest in two very distinct woodland habitats. One might be described as a small tract of young hemlocks (varying ages with few trees over 40 feet) mixed in among maturing deciduous trees, surrounded by maturing deciduous forest. Quite often this habitat occurs where a mature stand of hemlocks is dispersing outward into mature deciduous forest.

In this type of habitat the hawks are most apt to nest in a mature deciduous tree in among the young hemlocks or occasionally just outside the hemlocks in pure deciduous forest. Even when Cooper's Hawks occupy mature hemlock stands, they tend to nest around the edges of the stand or near openings within the stand, utilizing smaller hemlock trees for nest sites. A nest in a mature hemlock is a rarity.

When a hemlock is chosen as a nest tree, it is almost always young and typically very full, the nest being placed 20 to 40 feet from the ground (two-thirds to three-quarters of the way up the tree). When a deciduous tree is chosen, it is a mature tree,

black birch (*Betula* sp.) clearly preferred, with the nest being placed 45 to 60 feet above the ground in the main crotch or sometimes in a secondary crotch higher up.

The other woodland nest habitat is a pure stand of mature or maturing white pines. Some of these stands can be quite small (a few dozen trees). The stands are always part of a larger tract of mature deciduous forest. However, they are often on the edge of the larger tract of woodland and are often bounded on one or two sides by roads, fields, or rural wooded yards. Some nests have been quite close to houses. Sometimes large tracts of white pines are occupied by Cooper's Hawks, but these larger tracts are also attractive to Great Horned Owls (*Bubo virginianus*), which prey on adult, nestling, and fledgling Cooper's Hawks.

Cooper's Hawks nesting in pine woods habitat have always chosen a mature pine for a nest site. Usually, the tree is near the edge of the stand or opening in the stand. Sometimes a lone pine outside of the stand, but still surrounded by deciduous woods, is chosen. The height from the ground for a nest in a pine typically ranges from 50 to 75 feet (occasionally higher, rarely lower). Typically the nest is well hidden in the live crown of tree.

Rarely are mature stands of Norway spruce occupied by Cooper's Hawks. When this does occur, the hawk's nesting behavior is identical to that in pine woods habitat.

During the nesting season, the male Cooper's Hawk provides most, if not all, of the food until well after the young fledge from the nest. The preferred hunting habitat is broken, open woodland with many small to moderate size openings (one to several acres). These openings include clearcuts, pastures, uncultivated fields, and brushy fields. Large tracts of cultivated farmland are suitable hunting habitat if divided by brush and tree lines. Simply put, the Cooper's Hawk needs a diverse collection of habitats within a relatively small area. Nesting season hunting ranges average 0.5 mile wide by 2.5 miles long for a large territory and 0.25 mile wide by one mile long for a small territory, distinctly linear in shape. The Cooper's Hawk, often called a quintessential forest raptor, is actually a fragmented forest specialist.

Food/Survey Methods

In western CT, Cooper's Hawks show very little tendency to establish a plucking post in the nest woods. Feathers from prey are noticeably absent from the nest and nest woods for most breeding pairs. Until the young are about three and one-half weeks old, prey brought back to the nest woods is mostly plucked. After this time, prey is much less plucked and feathers from prey begin to show up in the nest woods. Young recently fledged sometimes establish a plucking post in the nest woods. Food studies have involved the collection of feathers in the nest woods, random observations of prey brought back to the nest woods, and direct observation of kills made by adults. Also, some analysis of pellets cast off by the young and collected from nests has been done. Many species of birds and mammals have been recorded, but no attempt has been made to determine percentage of diet for any species. A preponderance of the evidence shows that Blue Jays (*Cyanocitta cristata*) and Mourning Doves (*Zenaidura macroura*) make up most of the avian prey throughout

the year; gray squirrels (*Sciurus carolinensis*) and chipmunks (*Tamias striatus*) make up most of the mammalian prey during the breeding season; and finally, neotropical migrants make up only a small portion of the diet during the breeding season.

Survey techniques have included road surveys throughout the year, winter searches of woodlands on foot for old nests, and, since what might be considered typical nest woods habitat for Cooper's Hawks is very restricted in the study area, most or all typical nest woods are walked one to three times during the breeding season. Winter road surveys can accomplish two things. First, this is the easiest time of year to locate potential breeding habitat, and second, in March, males reclaim nest woods and can sometimes be seen perched on the edge sunning themselves. Another useful technique for locating Cooper's Hawk nests is to watch for males carrying prey. This is best accomplished in late June or early July when the young are large and the adult male is bringing quantities of prey back to the nest woods. Useful methods for locating males carrying prey are road surveys of potential hunting areas (previously discussed) and, if topography permits, making observations from a knoll or large open area that overlooks areas of potential breeding habitat.

In 1982 the first evidence of breeding by Cooper's Hawks in the study area was detected. While I was doing a road survey in early June, I observed an adult Cooper's Hawk catching a Chipping Sparrow (*Spizella passerina*) on the edge of a small field along a paved road. The hawk then flew out of the field down the road a short distance and into some mixed woods (oaks, birches, hemlocks). I found the nest approximately 0.25 mile from where the prey was caught, 60 yards in from the road and about 75 feet from a house. Except for lawn mowing, very little human activity was observed within sight of the nest. The nest was located approximately 18 feet from the ground (three-fourths of the way up the tree) in a thick young hemlock located in the middle of a small forest opening about 35 feet in diameter. Over the years this has proved to be a very atypical nest site.

From 1982 up to and including 1988, the average number of breeding pairs found was 2, with a maximum of 3 and a minimum of 1. From 1989 to 1993 a noticeable increase occurred with an average of 6 breeding pairs per year within the study area. By 1996 the breeding population was recorded as 10 pairs, and in 1997, 11 nests were confirmed, with two more territories occupied with breeding probable. It should be noted that most of the increase in the breeding population occurred in woodlands that were regularly being surveyed. In 1997 only one nest and one territory involved woodlands not previously included in surveys.

The longest continuous occupation of a nest woods by Cooper's Hawks has been 12 years. Several have been occupied continuously for 5 to 7 years. Most territories, however, are short-lived. In fact, breeding-bird atlasing may over-record the presence of Cooper's hawks, since most of the breeding birds recorded will not occupy the same territory a few years later. (When a state uses "occurrences of" in determining endangered, threatened, or special concern, the information is outdated before it is compiled!). Most nest woods are occupied for a very short period of time (1 to 3 years). Some nest woods are periodically unoccupied for a year or two and then

reoccupied. Only one nest woods has been reoccupied after a long (5 years) absence of hawks. Great Horned Owls appear to play a big role in the periodic gaps in breeding by Cooper's Hawks in what appear to be some of the better nesting territories.

In 1998 and 1999, survey time was limited, but I noticed a steep decline in the breeding population of Cooper's Hawks. The rapidity of the decline seemed to be so dramatic that in the year 2000 extra time and effort was put into surveys of nesting Cooper's Hawks.

Cooper's Hawks were found breeding at 5 of 17 sites surveyed. Two of the sites where breeding was confirmed were new confirmations, although one of these two sites has been surveyed in the past because breeding was suspected. Of 15 sites where breeding had been confirmed for two or more years in the past, 3 were active, and 12 were inactive. Of these 12 inactive sites, 5 of them have had breeding Cooper's Hawks for 5 or more years. Of the 5 active sites, 2 have had breeding confirmed for 5 or more years. Obvious problems for Cooper's Hawks are loss of habitat to home construction and invasion of territories by Great Horned Owls. However, this accounts for perhaps four territories being unoccupied. Clearly, after an initial population boom in the early 1990s, the Cooper's Hawk population has declined, but hopefully has stabilized.

Sharp-shinned Hawks

Sharp-shinned Hawks in western CT have clearly preferred the more heavily wooded regions within my survey area. Nesting has always occurred within pure stands of conifers with all of the trees in the stand being of the same age and height. Dense stands have been preferred, but nesting has also occurred in more open conifer stands used by Cooper's Hawks. Nest height from the ground is determined by the height of the conifer stand and has ranged from 25 feet to 75 feet. The nest is usually placed near the top of the tree, and the higher nests are often not visible from the ground.

By mid-June a conifer stand with nesting Sharp-shinned Hawks is well marked by feathers from prey. Prey is brought to the female by the male. It is exchanged in a specific food exchange area where plucking started by the male before entering the nest woods is finished by the female. Molted feathers from the hawks can also be found here.


Examination of feather remains indicates a high degree of dependency on neotropical migrants for food. The composition of prey species depends on the composition of the surrounding habitat. Once what was probably a young meadow vole (*Microtus* sp.) was observed as prey.

Sharp-shinned Hawks have never been a common breeder in western CT. The first nest was discovered in 1991 in a grove of Norway spruce that had been regularly surveyed since 1985. At least one nest per year was found from 1991 through 1996. A total of three nests were found in 1993. Since 1996 only one nest has been found in the study area. A hemlock grove occupied by Sharp-shinned Hawks in 1993 contained

three old Sharpshin nests. A grove of Norway spruce occupied by Sharp-shinned Hawks in 1993 for the first time had nesting Sharpshins through 1996. In 1994 the male of the pair was in immature plumage. This nest woods had also been regularly surveyed since 1985.

I believe that the size of the survey area is large enough to adequately sample a regional population, and that the duration of the survey to date (22 years) is long enough to record population trends.

Although the numbers for Sharp-shinned Hawk nests are low and a trend may be difficult to see, it would appear that a rapid rise and then decline in the breeding population closely follows that of the Cooper's Hawk. Furthermore, population studies for the Northern Goshawk (*Accipiter gentilis*) in the study area show the same cycle: 2 pairs in the study area in the mid 1980s, rising to a maximum of 6 pairs in the early 1990s, the disappearance of all pairs, then a reestablishment of 2 pairs in the original sites. The cause of this cycle is unknown, but clearly the rise of one species does not cause the decline of another. The rise and fall of the populations for all three species of *Accipiter* appear to coincide. While there is some overlap of nest woods preference and prey, for the most part Cooper's Hawks and Sharp-shinned Hawks (also Goshawks) show different nest woods preference and rely on different segments of the avian population for the bulk of their food.

Finally, one further observation of a very curious nature. In the initial part of the population study Cooper's Hawks typically laid their eggs in late April. While a particular female began laying her eggs on or about the same day every year, as new females and new pairs become established in the study area, the egg-laying dates were getting later and later. In 2000, one pair laid eggs in late May even though they began nest building in early April as is typical. Four pairs of hawks didn't lay eggs until early June. 

Lawrence B. Fischer, a self-employed state-licensed remodeling contractor specializing in custom woodwork and cabinetry, is also a Federally-licensed raptor bander who has been banding birds since 1980. He has assisted with raptor and passerine bird banding throughout Connecticut, including a recent three-year MAPS (Monitoring Avian Productivity & Survivorship) Project at Devil's Den Preserve in Weston. In 1991, at the request of the MDC, he built a platform in the top of a white pine on Barkhamstead Reservoir, which was ultimately used by the "Barkhamstead Eagles" as a nest platform. He has received a certificate of appreciation from the Army Corps of Engineers for assisting in bird atlasing on the Hop Brook Flood Control Project; he helped locate and climbed to confirm the first Sharp-shinned Hawk nest in CT in the post-DDT years; with Gerald Mersereau he found the first ravens nest (1987) in CT at Barkhamstead Reservoir; and he has located nests of Long-Eared and Northern Saw-whet owls, two of the rarest nesting raptors in CT. Several times a year he speaks to bird clubs and conservation organizations about raptor biology and conservation (most recently for the Linnaean Society at the American Museum of Natural History.) He is currently on the Board of Directors of the Northeast Hawk Watch and has served as Chairman, Conference Chairman, and Conference Program Chairman. He has also been a member of the CT Bald Eagle Study Group since 1979.

FIELD NOTES

Visiting Baby Vultures

Marjorie Rines

Working for Massachusetts Audubon Society's Help Line, I have received telephone calls that are routine, amusing, baffling, and downright mystifying. On July 28, 1999, I received a call about nesting Griffin Vultures. I explained that this species has never been seen in North America, so it seemed unlikely that a pair was setting up housekeeping in Bristol County. The caller had seen them clearly, at close range, however; the two birds featured the distinctive bald head of a vulture, but with white plumage, and after reviewing a number of references, Griffin Vulture was the closest match.

A couple of days later, I received another telephone call from the man. Somewhat sheepishly, he conceded a mistaken identity. They were Turkey Vultures, but these were nestlings showing plumage that he had been unable to find in any reference book. When I looked at the enormous library available in the office, I sympathized. I could not find any reference to the plumage of nestling Turkey Vultures, either.

Turkey Vultures are relatively new breeders to Massachusetts, with the first recorded breeding in 1954 (Veit, R. R. and W. R. Petersen. 1993. *Birds of Massachusetts*, Lincoln, MA: Massachusetts Audubon Society). Since then, Turkey Vultures are commonly seen during the summer and are undoubtedly breeding regularly, but nests are rarely




Photograph by the author

found (*Ibid*). I was dying to see the nest, so I asked if he would be willing to share the location, and he gave me detailed directions to the nest site. On my next day off, I went to look for the nest. Following his directions, I parked near a large reservoir, and followed the path beside the water. I located the nest site without too much difficulty, and was surprised that it was only a short distance from the water (perhaps 100 yards), and visible (with difficulty) from the well-used path.

The nest had evidently been built in the crevice of an outcropping of red rocks. When I first approached, two young birds were perched on top of one of these rocks. As I neared, one of the young jumped down, and disappeared into a crevice, quite

possibly the actual nest. The other remained where it was. I was not willing to investigate where the first bird had gone, partly because I did not want to distress it unnecessarily, but also for — well — hygienic reasons (baby vultures, when disturbed, are known to use regurgitation as a defense).

The remaining young bird tolerated an extremely close approach without showing any signs of distress. It was the size of an adult bird, with well-developed wing and back feathers. The naked pinkish-gray head was a startling contrast to a rather Edwardian ruff of white down around its neck, on its breast and belly, and surrounding the top of its legs.

Although the nestling showed no evidence of distress, appearances can be deceiving, and I also did not want to prevent the parents from taking care of the young, so I left rather quickly, but not without taking photos. 

Bushwacking Hawks

David Larson and Susan Carlson


In the winter we watch and census our backyard birds for Project Feederwatch (Cornell Laboratory of Ornithology). Other, perhaps more avid watchers of our backyard include the local accipiters. Every winter we have at least one Cooper's Hawk and one Sharp-shinned Hawk visiting regularly. Normally, these accipiters stage slashing aerial attacks on flying or perched prey. However, on two separate occasions (some years apart and involving different birds), we have observed Sharpies engaged in an interesting alternative hunting behavior.

One side of our yard is a tangle of multiflora rose, and its protection and proximity to feeders make it a favorite gathering spot for the local flock of House Sparrows. On both occasions, Sharpies have flown into the yard, perched lightly on the multiflora, and then proceeded to clamber down into the bushes in a teetering walk, disappearing entirely under the snow-covered branches. We have assumed that this was a hunting maneuver; the bushes are thick and large enough so that the hawks were obscured quickly. On neither occasion did we see the birds reappear, although they could have left unobserved from the far side of the tangle. This behavior seems like a poor, clumsy, and slow way to hunt small and agile prey. Nevertheless, this strategy must work sometimes, else why would two different birds have used it?



Looking for lunch in the authors' yard

In fact, hunting on foot may be more widespread in accipiters than we thought. A description of foraging strategies in Cooper's Hawk suggests that they "... may even pursue prey into dense underbrush on foot" (from the Cornell Birdsource website: <http://birdsource.cornell.edu/pfw/Abundance_maps_pfw/coohaw/mappage.html>). Recently we observed just such a behavior when an immature Coop landed on the lawn, five feet from that multiflora tangle, paused briefly to look around, and then ran rapidly into the brush. After about twenty seconds, the Coop popped up to the top of the brush, perched briefly, and flew off, unfortunately without a sparrow reward. We have frequently seen buteos and harriers on the ground, and they seem clumsy and awkward in that mode. Perhaps the long legs of accipiters allow for more graceful foot travel, as is the case for their cousins the caracaras.

Just when you thought it was safe to hide in the bushes 



American Kestrel nestlings — photograph by Joey Mason

ABOUT BOOKS

The Lessons of Living on Osprey Time

Mark Lynch

Return of the Osprey: A Season of Flight and Wonder. 2001.
David Gessner. Algonquin Books of Chapel Hill, North Carolina. 288 pages. \$23.95.

David Gessner is an essayist, not a nature writer. He made this point abundantly clear in an interview I conducted with him. David resists being pigeon-holed into any one narrow genre of writing. It is because of this outsider attitude toward his subject matter, that he has written one of the most unique, interesting, and thoughtful books on New England birds and the nature of Cape Cod.

Leaving Colorado with his wife, Nina, and returning to live in his family home on Sesuit Neck on Cape Cod, David's life is in a period of transition. He is in remission from testicular cancer and in the midst of the inevitable reevaluation of his life. His father has recently passed away and memories continue to haunt him. All of their friends are left behind on the Front Range of Colorado. He has returned to his family's home both for a change of scenery and for the practical reason that it offers a cheap place to live. David and Nina have the house to themselves except during the summer, when the extended family returns. While walking out on a jetty in spring, David surprises an Osprey at a nest and immediately becomes intrigued. He is fascinated by the simple dramatic presence of such a large raptor. He also sees in the Osprey a symbol of hope and the ability to come back from the precipice of extinction.

But more than lessons I simply want to be close. If these birds were once so common, why does it feel like a miracle that they have come back now? Perhaps it's because even the plain facts of the coming Spring are miraculous. Almost gone from these parts forever, the Osprey has rejoined life's circle. They will be arriving any day now and I feel poised, ready. Excited by sights I'll soon see, I let the coming season infect me. I share the world's anticipation. Eager to begin [p.14].

David sets himself the task of observing for one complete season several pairs of Osprey that have returned to nest in the marshes between Dennis and Brewster. He starts by reading everything he can find on Ospreys and soon becomes a self-taught Ospreyphile. His plan is to plant himself in a chair on the edge of a salt marsh every morning and keep a diary of what he sees as the Ospreys attend their nests. He has never done anything like this before and initially finds the task of these daily observations daunting because for hours at a time nothing seems to happen at the nest. He is also humbled by the sheer complexity of everything else that is going on in the marshes.



Spending time in nature produces, among other results, a general feeling of stupidity, constantly reminding you of the thousands of obvious facts you don't know [p.16].


David gets to know ornithologist Alan Poole, one of the world's authorities on the Osprey. Alan tells David that he must change his expectations of what he wants to observe. David has to adjust the pace of his life to the pace of his subjects.

I've forced myself to do many things before, though these things have usually been of the active variety. Now I will stay still. Despite myself, I will live on Osprey time [p.102].

The book then chronicles one season of David's careful and very personal observations of his local nesting Ospreys. As David learns the art of watching nature, every minute detail of Osprey life holds some interest. An entire chapter details the building of an Osprey nest, many of which are huge and complicated messy structures. He lists the contents of his Ospreys' nests, one of which contains a Barbie doll. At one point he wonders if indeed it is a Barbie doll and not a Spice Girls doll. He longs to actually watch the exact moment when an Osprey dives in the water to catch a fish. We get to know each nesting pair intimately as David gets to know them, following them through egg laying, feeding of the young birds, fledging, and eventual migration.

Through all of this, we are privy to David's inner evolution as he tries to make sense of what he is seeing and attempts to integrate this information into his life. This is not as clearcut or facile as it appears in most so-called nature books because David has no idea where this is all leading. He is not even very clear as to why he is doing all this. Every chapter glistens with an honest and humble sense of excited discovery. A pivotal moment occurs as he watches one nestling viciously kill the runt of the nest. In a moment of enlightenment, David questions all the previous anthropomorphic ideas he has had about the Ospreys. Although he believes the death of the nestling originated in an instinctual yearning for life, in the end he realizes that he can gain no human meaning at all from the event. Nature can only be understood on its own terms.

Return of the Osprey is one of the most original books I have read about how humans look at the natural world, give these observations meaning, and then integrate these feelings into their day-to-day life. This book contains an enormous amount of information about the life of the Osprey and much of it will be new to the reader. Equally important, it is also about the mind of the observer. Through the eyes and writings of David Gessner, we can begin to learn what it means to see the natural world on its own terms.

To see, to look for long moments without preconception, to watch without judgment, that may be the beginning of deeper understanding. If we can quiet thought and see, then, our minds refreshed, better thought will come to us, and this must hold true for both the scientist and artist [p.147]. 

Mark Lynch, the Book Review Editor of Bird Observer, is an instructor, trip leader, and ecological monitor for the Massachusetts Audubon Society's Broad Meadow Brook Sanctuary. He is also a teacher and a docent at the Worcester Art Museum, and hosts an interview show on the arts and sciences (Inquiry) on WICN 90.5 FM.

Books and Other Resources on Hawk Identification, Hawkwatching, and Migration

Paul M. Roberts

Hawks can present unusual problems for field identification. How often have you tried to identify a silent, backlit warbler half-a-mile away? Let's compromise. How often have you tried to identify a sparrow when it's a thousand feet away from you and flying south? How many thrushes have you seen perched or flying across the highway while you're driving down Interstates 95 or 495 at more than seventy-plus miles an hour? How many of them have you tried to identify? People regularly try this with hawks.

Which is, in part, why most people find the standard birding guides of little help when trying to identify hawks. These basic guides really help you only if you see the bird close enough to appreciate color. However, most hawk sightings in the field and especially in migration entail seeing only dark gray blobs moving quickly against a light background. If you're lucky, you may see the silhouette of a bird soaring, and possibly pick up patterns of light and dark contrast on the bird. These challenges have prompted the need for special hawk identification field guides.

Hawk Identification

To the best of my knowledge, the first real silhouette guide to hawks was done by Roger Tory Peterson in his first field guide (1947), which was limited to North America. Peterson used black-and-white drawings of hawks almost as they would be seen when flying overhead. This was a major innovation, although the birds were not depicted as they would appear if soaring, so the silhouettes could be misleading. Peterson also showed major dark or light field marks of what people were most likely to see.

The next major step came with the development of *A Field Guide for Hawks Seen in the North East* (1972), now published by Hawk Mountain Sanctuary. The first popular inexpensive silhouette guide, it describes the flight identification of sixteen species seen in the northeast, with side-on as well as ventral views of the birds in flight. The drawings convey more field marks than Peterson's, but again are not realistic images of the birds in powered flight or soaring.

The first and only broad-based field guide to hawks is appropriately named *Field Guide to Hawks*, by William S. Clark and Brian K. Wheeler (1987). The text, by Bill Clark, is comprehensive in terms of identifying specific field marks. The species

account for Golden Eagle reveals the basic format, divided into sections on Description, Immature, Subadult, Adult, Similar Species, Flight, Behavior, Status and Distribution, Fine Points, Unusual Plumages, Subspecies, Etymology, and Measurements. The book covers 39 species, including Alaskan accidentals, and offers a special page of flight silhouettes of flying dark raptors. The finely detailed color plates by Brian Wheeler depict birds *perched and in flight* by age set and gender where appropriate, and by race where possible. The plates are gathered in the center of the book for easy comparison; a plate faces a page of text highlighting the key field marks of each bird in the plate. For example, the Golden Eagle images are on three pages next to illustrations of Bald Eagle in similar postures. These show a complete, perched immature bird, the tail of a subadult, and the tail of an adult, followed by two pages of immatures and adults in flight as seen from below and above.

The book closes with 42 pages of black-and-white photographs of hawks perched and in flight, using callouts to highlight special characters. The photo section was a great idea, but is not very helpful because the photographs are too small: six photographs to an approximately 4 x 7-inch page. There is also a superb list of references, which are somewhat dated almost fifteen years later.

Clark and Wheeler is a true milestone in raptor publications. The second edition of this book is expected to be in print by the time this review is published. Some new field marks will be identified (check out Bald and Golden eagle), and I expect a significantly improved photo section. Buy the original guide as a classic, and then, sight unseen, I'd recommend buying the new edition and comparing the two. You'll learn more quickly.

Hawks in Flight, by Pete Dunne, David Sibley, and Clay Sutton (1988), is a whole different kettle of fish. This classic employs Pete Dunne's evocative prose to conjure up vivid mental images of hawks as you usually see them in flight in the field, as dark objects in motion. It is of virtually no help in identifying hawks perched along the highway or near your feeders. Dunne talks about "jizz," or impressions of what you can see, something that Clark generally eschews. *Hawks in Flight* covers twenty-three species, basically those seen east of the Rockies. Excellent line drawings by David Sibley of each species (and age or gender as appropriate) from above and below are complemented by short summaries of key field marks. The book concludes with seventy-six pages of black-and-white photographs, most of which are apparently Sutton's. These photos are much larger than those in the Clark and Wheeler guide, better reproduced, and much more helpful. A second edition of this book is also in preparation. Look for it to expand its scope and add even more little nuances that help identify backlit blobs at a quarter mile.

Clark and Wheeler show you what the birds look like, in fine detail, when you see the birds well. The authors focus on often subtle field marks to help age the bird, such as the shape or color of the secondaries on an eagle. Dunne, Sibley, and Sutton show you what you are likely to actually see when hawks are in flight. Dunne helps you to make a reasonable guess as to what the hawk is when you don't see it well. If you could buy only one book, Clark and Wheeler should be it, but anyone really interested in hawk identification really needs both.

Did I say both? I meant to say all three. In 1995 Brian Wheeler and Bill Clark published *A Photographic Guide to North American Raptors*. This spectacular book contains several hundred gorgeous full-color photographs of 43 species of North American hawks, including various plumages of each species. There are 46 photographs of Red-tailed Hawk alone! The relatively brief text complements the earlier guide, introducing more advanced identification guidelines for a number of species, including Red-tailed Hawk and Golden Eagle. The book closes with a special photo section on 14 raptor identification problems, such as Pale Primary Panels on Back-lighted Underwings of Flying Buteos. One could buy this book for the photography alone.

Each species account includes one half to one page of summary text on field marks, and comparisons with similar species. (The assumption is that you've already read the *Field Guide to Hawks*) There are one to four gorgeous full-color photos per 6.5 x 9.75-inch page.

Quite simply, anyone interested in hawks should have all three guides. Each established a new standard for American guides when it was introduced, and each has an updated edition in the pipeline.

The most recently published field guide to hawks, *The Raptors of Europe and the Middle East: A Handbook of Field Identification*, by Dick Forsman (1999), sets a new, higher standard for all field guides. The book covers forty-three species of raptors, including at least eleven that have been reported in North America. Fourteen pages are devoted to the Golden Eagle alone. Each species section begins with a one-page overview on subspecies, distribution, habitat, population, movements, and hunting and prey. The identification portion starts with a summary, followed by in flight (distant), in flight (closer), perched, bare parts, variation, and confusing species. That is followed by a major section on molt, and three pages on ageing and sexing. The species account concludes with twenty-one outstanding color photographs, no more than four to an essentially 6 x 9-inch page. Captions focus on the distinctive field marks evident.

Published by Poyser, one of the truly great publishers of ornithological literature, this guide is a work of art, from concept, to design, to photography, to printing. I am not sufficiently well acquainted with European raptors to note possible subtle errors in text, but Forsman's book has established, in my mind, a new paradigm for any field identification guide. This book merits inclusion in the library of any serious hawkwatcher. Last November, when one or more Gyrfalcons (*Falco rusticolus*) was reported from Plum Island over several weeks, this book was a constant reference with its twelve-page species account and eighteen spectacular photographs of Gyrfalcons.

There are two other basic types of sources that can be of help in the field identification of hawks. There are a number of hawk videos on the market, incorporating some spectacular photography. The best for field identification purposes is *Hawk Watch: A Video Guide to Eastern Raptors*, by Dick Walton and Greg Dodge (1998). This 45-minute video includes field footage of nineteen species of hawks

likely to be seen from Eastern hawkwatches, with narration by Dick Walton. The images are the typical dark blobs, seen at some distance, so the field characters cited are based on many of the principles of hawk identification espoused in *Hawks in Flight*. The video comes with a brief booklet, and a humbling video quiz on flying hawks at the end of the tape. It provides excellent training for real-world identification.

The third basic source of information is the Internet. Surfing can lead to a number of interesting sites, but one of special merit is TheVirtualBirder.com, edited by Don Crockett. Taking a page from Wheeler and Clark, Crockett offers two superb photo galleries of hawks in flight, with nineteen images by Arthur Morris and twenty-five by Brian Wheeler, two of the best hawk photographers in the world. Then you can visit the OnLocation Directory to take the Virtual HawkWatch Tour, challenging you with thirty photos of fifteen species seen at Hawk Mountain and Cape May.

Hawkwatching and Migration

The best basic introduction to hawkwatching and migration is *Hawk Watch: A Guide for Beginners*, by Pete Dunne, Debbie Keller, and Rene Kochenberger (1984). *Hawk Watch* is an outstanding guide for beginners, with chapters on hawkwatching, diurnal raptors, equipment, how to observe hawks, interpreting data, and submitting reports on your observations. Sixteen species are covered, with excellent flight silhouettes by David Sibley and clear text describing the key field marks of each species. The book is not widely available commercially, but can be obtained at some Audubon shops or ordered directly from Cape May Bird Observatory and online booksellers. This book was the precursor to *Hawks in Flight*, and was developed to teach high school students. Get this downright cheap masterpiece before it goes out of print.

Raptor Migration Watch-site Manual, edited by Keith Bildstein and J. I. Zalles (1995), is almost an extension of *Hawk Watch*. This all-prose guide to establishing a hawkwatch site was developed to help biologists and hawk enthusiasts, particularly outside the United States, to study hawk migration. The guide includes chapters on raptor migration and conservation biology, monitoring the abundance and distribution of migrating raptors, managing data, establishing membership programs, and managing volunteer resources.

Raptor Watch: A Global Directory of Raptor Migration Sites (Zalles and Bildstein 2000) is the first guide to the major documented hawk migration observation sites around the world. The book provides overviews of what is known about hawk migration, country by country, for six continents, even where no regular watches are maintained. Three hundred eighty-eight known migration sites around the world are then presented in terms of biogeography, description, land tenure, and protected status, with information on the migration periods, raptor species seen (with peak counts and dates), and other migrants seen. Ten sites are described in detail for Massachusetts. Our own Wachusett Mountain is one of only 106 sites described worldwide – only three in New England – that average in excess of 10,000 hawks

annually. Information is included on the migratory status of all hawks and the threats they face.

In essence, *Raptor Watch* is a detailed description of what is known about hawk migration sites that is vital to understanding what is happening to raptor populations worldwide. This book is not directed to the beginning hawkwatcher, but to those who regularly hawkwatch, individuals who would like to hawkwatch in other states or foreign lands, or who have an interest in bird migration and conservation.

The most recent book on hawkwatching is *Hawkwatching in the Americas*, edited by Keith Bildstein and Daniel Klem Jr. (2001). This book consists of peer-reviewed papers presented at the twenty-fifth anniversary meeting of the Hawk Migration Association North America (HMANA) in June 2000. Intended primarily for the experienced hawkwatcher, anyone with an interest in bird migration per se will find important papers on full-season hawkwatches in coastal Texas, raptor migration through Meso-america (Veracruz), ageing eagles at hawk watches, and using Doppler weather radar to study hawk migration, along with many more narrowly defined papers.

Raptor Migration in Israel and the Middle East, by H. Shirihai, R. Yosef, D. Alon, G.M. Kiwan, and R. Spaar (2000), documents what can be learned from hawk migration counts. This ground-breaking, well-produced book includes a history of the raptor counting efforts in the Middle East, with chapters on migration routes and numbers, monitoring palearctic raptor populations, conservation, flight behavior of migrating raptors in Israel, and more. The core of the book is species accounts of forty-three species of palearctic raptors. Since only five Golden Eagles have been recorded as migrants in the Middle East, that species account is only a page-and-a-half long, with data on the European population. Seven pages are devoted to the much more abundant Steppe Eagle (*Aquila nipalensis*), which include peak seasonal counts and locations for autumn and spring, migration phenology at Eilat, and population trends. This book, which includes fifty-one excellent color photographs, will be of interest primarily to serious students of hawk migration and conservation, or those thinking of traveling to Israel, one of the premier birding spots in the world during migration. The book demonstrates clearly the value of long-term hawk migration counts.

Two books focus on hawk flight in migration. Bill Welch's *Hawks at My Wingtip* (1987) is a nontechnical description of innovative work that Welch performed with the New England Hawk Watch, using powered gliders to study hawk migration. The book is loaded with small pearls of information on such topics as the distance at which one can see hawks, the altitude at which hawks migrate throughout New England, and the general speed and direction of their flight. This inexpensive, unpretentious book is still available through some online booksellers, and may be available in select stores.

For a more thorough, technical analysis of hawk flight in migration, it is essential to turn to *Flight Strategies of Migrating Hawks* by Paul Kerlinger (1989). Not written for the beginning hawkwatcher, *Flight Strategies* is an advanced analysis of specific aspects of migration, supported with formulas, statistics, and graphs. Topics include


ecology and geography of hawk migration; methods of studying migrating hawks; structure of the atmosphere; flight mechanics: theory; flight mechanics: empirical research; flight direction; altitude and visibility of migrants; selection of flight speed; and daily flight distance. It is a motherlode of information. I have read this book more times than any other book I've ever owned, and am still gaining new insights from it year after year. Technically out of print, this classic is still available. I would put it in the mandatory category for anyone seriously interested in the migration of hawks or any other birds. (I should advise you that I reviewed this manuscript at different stages of development.) At times the book is very dense reading, leaving one to yearn for a *Cliff's Notes* version for the beginning hawkwatcher, but it is more than worth the effort that at times is required of the reader. It is an intellectual artichoke for the hawkwatcher, to be peeled piece by piece and carefully savored.

Natural Histories

There are an increasing number of books on individual species of raptors, one of which, *Return of the Osprey: A Season of Flight and Wonder*, is reviewed elsewhere in this issue. Two broad-based works are worthy of special note. *Birds of Prey*, edited by Ian Newton and Penny Olsen (1990), is an impressive introduction to birds of prey, excluding owls. It includes chapters on What is a Raptor, Kinds of Raptors, How Raptors are Studied, Habitats and Populations, Feeding Habits, Social Behavior, Reproduction, Mortality, and an excellent overview of migration and movement by Bill Clark. The book closes with three essays on hawks' relations with humans. Each chapter and numerous fascinating sidebars are written in very readable prose by top experts. Laid out like a coffee-table book, it is filled with spectacular color photographs and is easy to read. In my opinion, no other book does a better job of conveying a better understanding or appreciation of hawks.

A much more detailed natural history of hawks is available in *Handbook of North American Birds, Volumes 4 & 5, Diurnal Raptors, Parts 1 & 2*, edited by Ralph Palmer (1988). If you want to learn more about the life history of a particular species, this is the place to start. These encyclopedic volumes, which include only a few black-and-white illustrations, provide the best, most complete, and most recent natural histories or species accounts of North America's hawks generally available.

The final major source of information on our hawks is *The Birds of North America* (ongoing). This series of individual life history accounts for all North American avian species is not yet complete. Excellent accounts of Broad-winged Hawk, Red-shouldered Hawk, Red-tailed Hawk, Northern Harrier, Cooper's Hawk, and Merlin are currently available, along with some primarily western species. Written to a standard format, the accounts cover distinguishing characteristics, distribution, systematics, migration, habitat, food habits, sounds, behavior, breeding, demography and populations, conservation and management, appearance, and measurements. These individual species accounts can be ordered through Buteo Books (see <<http://www.buteobooks.com>>). Many raptor species accounts are still in development.

With the aid of at least several of these resources, you should be able to add considerable knowledge and enjoyment to your hawkwatching, as well as to your regular birding. 

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Note: All materials referenced are currently available for purchase. Classic works no longer generally available are not cited. Anyone seeking information on books that are out of print is invited to contact the author directly.

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BIRD SIGHTINGS

MARCH/APRIL 2001

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

March came in like a lion, a very cold one, with the temperatures plummeting into the single digits in western Massachusetts, while in Boston the temperature was 11 degrees below the norm. The lion became downright fierce, bringing a severe northeaster into the area on March 5-6 and a major snowstorm on March 9-10. The lion continued to dominate, with a powerful northeaster bringing flooding rains and damaging winds March 21-23, and then instead of leaving like a lamb, the lion roared again with another northeaster on March 30! Only seven days had above-normal temperatures in Boston all month. The month's high was just 51 degrees on March 16 and 24, which was the lowest March maximum at Boston in 130 years. Rainfall was 8.16 inches in Boston, 4.47 inches above normal. According to climatologist Robert Lautzenheiser, the actual total was nearly triple the normal rainfall. The most in any 24-hour period was 2.85 inches on March 21-22. Flooding was especially damaging along rivers throughout the state. There was no letup in snowfall during the month, with 19.4 inches recorded in Boston, 11.4 inches more than average. The northeaster on March 5-6 dumped 9.8 inches in Boston and much greater amounts in the suburbs; a few areas exceeded 25 inches. A second major storm hit just two days later bringing an additional 5.3 inches to Logan Airport and again far greater amounts in northern and western suburbs. The ground was snow-covered most of the month, and many areas had been continuously covered since December 20. The peak gust was 56 mph on March 30, although the sustained winds during the northeaster on March 5-6, combined with heavy snow, caused major damage throughout the area. Blue Hill Observatory estimated a gust at 60 mph NE on March 6.

March cold continued into the first week of April with temperatures averaging 5 degrees below normal. The month of April on the whole was mild, sunny, and dry. The high was 85 degrees on April 22, and the high of 84 degrees on April 24 in Boston topped the previous record of 82 degrees set in 1885. Many communities west of Boston actually hit the 90-degree mark. The period from April 20-25 saw the mercury as much as 20 degrees above normal and sent spring suddenly into summer. The trees leafed out and made the returning birds a bit harder to locate. The official total rainfall for the month at just 0.88 inch in Boston made it the second-driest April in 131 years.

R.H.S.

LOONS THROUGH ALCIDS

Good counts of migrating Red-throated Loons were had in late March and early April, the typical period for peaks of this species, including 350+ off Edgartown March 31, and 500 at Provincetown April 8. A coastal tour from Magnolia to Nahant March 16 revealed 293 Horned and 128 Red-necked Grebes, but was more a reflection of effort, and not unusual totals for staging flocks in March along this stretch of coast. A single flock of 130 Red-necked Grebes at Eastham April 9 was noteworthy. The **Eared Grebe** continued at Gloucester at least through March 22.

A series of strong northeasters in March deflected large numbers and a broad diversity of seabirds inshore, both at Cape Ann and Cape Cod. Northern Fulmars were a major feature of the Cape Ann flights, recorded on four out of five seawatches at Andrew's Point during these storms, beginning with 126 on March 5, and culminating with 273, including seven dark

morphs, on March 22. Both of these systems produced east-northeast winds 20-40+ mph for an extended period, and it is just these sorts of long-duration storms that have consistently produced fulmars here between mid-February and late March, perhaps representing northbound migrants deflected to the coast from areas far offshore. A very early **Leach's Storm-Petrel**, a first for March, was observed passing First Encounter Beach in Eastham March 7, at the tail end of the first storm when winds had shifted north-northwest. Pelagic studies conducted by the Manomet Center for Conservation Sciences in the late 1970s and early 1980s determined that these storm-petrels, a few pairs of which apparently still breed at the southernmost outpost of their range at Penikese Island in Buzzards Bay, normally arrive in New England waters between late April and early May. Northern Gannets, virtually all adults and apparently in pursuit of herring, appeared in the hundreds in North Shore bays and harbors in early April.

Hérons began arriving at the Kettle Island, Manchester rookery by the first week in April and by April 10 numbered 46 Great Egrets, 102 Snowy Egrets, and 8 Little Blue Herons, evidenced by the evening flight to roost there prior to nest-building activities. These birds forage in area salt marshes as far away as coastal New Hampshire by day, but return to the colony each evening. Glossy Ibis were late to appear in any numbers in the state, but a Tricolored Heron was early on March 29, lingered, and was joined by a second bird in early April. Cattle Egrets manage to just barely hang on in Essex County, with three of the Beverly birds returning by April 21.

A total of eleven Black Vultures seen at five sites, all but one in the extreme western part of the state, would have been unthinkable just ten years ago. Greater White-fronted Geese made brief appearances at three inland sites, plus the two birds from February remained at Fairhaven to March 12. At least several modest-sized flocks of northbound Snow Geese, numbering 150 to 300 each, passed through the Connecticut River Valley between late March and mid-April. As usual in spring, few migrant Snows were noted at the coast, and the successful Newburyport wintering flock departed sometime in late March. Inland at West Bridgewater a Brant was a good find on the ground April 1, where a single Tundra Swan also put down for two weeks in April. Wood Ducks, like Hooded Mergansers, may be benefiting from new wetlands created by beavers. Congregations of 200 Wood Ducks in Northfield and 150 in Northampton may be among the highest spring counts ever made in the Commonwealth. Recently split from Green-winged Teal by the British Ornithologists' Union, five drake **Eurasian Teal** were located during the period, including one that remained at West Bridgewater for more than a week, where an apparent hybrid **Eurasian x Green-winged Teal** was also identified on March 29. Two **Tufted Ducks** were reported: a drake appeared at the usual Wachusett Reservoir location in early April, and a hen was a nice find March 18, among Ring-necked Ducks and Lesser Scaup at Richmond Pond in Acoaxet. Impressive concentrations of sea ducks were estimated in the waters around Martha's Vineyard in late March and April, including counts of 45+ Harlequin Ducks, 2500+ Surf Scoters, 10,000+ White-winged Scoters, 1000+ Black Scoters, and 5000+ Long-tailed Ducks.

On Nantucket, a **Swallow-tailed Kite** delighted one lucky observer April 15. The best count of migrant Broad-winged Hawks this spring was of 333 passing over Barre April 23. Closing out one of the best winter seasons for Rough-legged Hawks in many years, excellent numbers were still being seen throughout March, with about thirty birds reported statewide for the period, including six in the Berkshires at Ashfield on March 16 (compare March-April totals for the previous 10 years, 1991-2000: 10, 6, 18, 18, 8, 11, 4, 3, 6, 23). Strong west-northwest winds April 22, following the passage of a cold front, pushed migrating falcons to the coast at Plum Island, where superb one-day counts of 441 American Kestrels and 42 Merlins were made at the hawkwatch. Although a persistent sea breeze kept many migrant raptors slightly inland this spring, a total of 1101 kestrels at Plum Island was only about 15

percent below the record flight in 1999. Thirty-one Peregrines recorded on the Plum Island hawkwatch this spring was the highest count yet, and double last years' total.

A King/Clapper Rail uttering what were judged as indeterminate calls was heard throughout the latter half of April in Harwich. The Fairhaven **Sandhill Crane**, which at times could be seen in the same field of view with the Greater White-fronted Geese, remained on hand until March 12. Another Sandhill Crane was noted in Groton April 4, while yet a third was observed high over Morris Island in Chatham, slowly kettling northward with a flock of nonplussed Turkey Vultures April 20.

Rare spring migrants in the Bay State, two American Golden-Plovers were seen, both largely basic-plumaged birds, at Duxbury on the very early date of March 16, and at Plum Island in mid-April, a more typical date for the species. Three American Oystercatchers winging north over Marblehead Neck April 27 hinted of this species' continued range expansion up the coast. Other early shorebirds included a Lesser Yellowlegs in Newbury March 19, a Least Sandpiper in Ipswich April 15, and an especially hasty Pectoral Sandpiper in Harwich March 17, followed by another in Newbury on March 25. Unfortunately, any anticipated flight of Pectorals never developed, and the high count this spring was a paltry twelve, at Bolton Flats, April 15. A handful of early Short-billed Dowitchers appeared, with a total of ten birds found at six locations from April 18 to the end of the month, which was more than usual. Three times the normal precipitation during March created seemingly ideal conditions for Common Snipe in local meadows, yet only a very modest flight ensued, in fact the poorest of the last five years (400, 327, 515, 798, 323; sums of the top five counts from the last five Aprils, 1997-2001). The March 7 storm tally from First Encounter also noted nine unidentified **phalaropes**, constituting the earliest record for *any* phalarope species in the state by nearly three weeks. One would presume that these birds were likely Red Phalaropes, which are an earlier spring migrant than Red-necked, usually far offshore along the shelf edge.

Three Little Gulls and six Black-headed Gulls were reported. The bulk of the Bonaparte's Gull migration apparently bypassed Massachusetts this spring. The largest flock was just over 500 at the traditional Lynn-Nahant staging area, and most unusual, Bonies were scarce at Newburyport throughout the period. As usual each April, a few Bonapartes appeared at inland sites. Among flocks of migrant Larids inland, up to three Lesser Black-backed Gulls were found in the Connecticut River Valley, and another was at Wachusett Reservoir, all in April. Several Glaucous and Iceland Gulls were also present at these same sites, including a single Iceland Gull at Wachusett as late as April 20. A nice show of 2450 Black-legged Kittiwakes paraded past First Encounter Beach in Eastham the morning of March 7, including one adult that must have been a startling sight, entirely smoky-colored but with the usual black wing tips. Melanism in gulls is an extraordinarily rare occurrence, and few have been sufficiently documented. A single very early northbound Roseate Tern was described as it passed by an observer at Salisbury Beach on April 22. Two adult Forster's Terns together in Newburyport Harbor on April 29 were likely the newly arrived Plum Island salt-marsh breeding pair.

Sightings of Dovekies in March always raise eyebrows. This year five individuals were reported, including one at Revere Beach, hardly an alcid hot spot, March 9. The previously mentioned three-day storm at the beginning of March also produced a remarkable count of **485** Thick-billed Murres, noted in continuous loose flocks parading closely past observers at Andrew's Point for much of the day on March 7. This count is nearly without precedent. The only larger numbers ever noted in the state occurred during the major irruption beginning in December 1976, when several thousand were estimated in these same Cape Ann waters (see the account in *Birds of Massachusetts* by Veit and Petersen). The current flight, coming as it did at the end of a long-duration storm, and consisting of birds apparently exiting Ipswich Bay and

heading back to the open sea, demonstrates this species' more pelagic distribution in comparison to the more coastally oriented Razorbill. Speaking of Razorbill, large numbers were present at both Cape Ann and Cape Cod, particularly in late March. At Race Point, 2200+ were tallied March 24, while just down the shore at Truro, 4200 "large alcid species" the same day, undoubtedly pertained overwhelmingly to this alcid. An Atlantic Puffin remained close to shore for two days, March 3-4, at Bass Rocks, Gloucester, and was well photographed. R.S.H.

Red-throated Loon			4/3	Jeffrey's Ledge	30 ad	S. Mirick#	
3/9	Charlestown	3	B. Miller	4/5	Mashpee	45	C. Buelow
3/24, 4/14	N. Truro	90, 40	B. Nikula	4/7	Nahant	218 ad	M. Rines
3/30	Rockport (A.P.)	14	R. Heil	4/15, 29	N. Truro	200, 200	B. Nikula
3/31	off Edgartown	350+	V. Laux	4/18	Eastham	600+	M. Faherty
4/4, 18	Eastham	70, 80	M. Faherty	Great Cormorant			
4/8	P'town (R.P.)	500	R. Lockwood#	3/2, 20	Cape Ann	190, 95	J. Berry#
4/9	Cambr. (F.P.)	1	S. Simpson	3/4	N. Scituate	135	SSBC (R. Titus)
4/10	Chatham (S.B.)	70	M. Faherty	3/10	P'town	88	G. d'Entremont#
4/19	Plymouth	28	J. Hoye#	3/11	Bourne	101	G. d'Entremont#
4/22	Nantucket	182	E. Ray	3/18	Westport	50	M. Lynch#
Common Loon			4/3	Magnolia	87	R. Heil	
3/2, 20	Cape Ann	17, 15	J. Berry#	4/22	Duxbury B.	3	D. Furbish
3/7	Plymouth	32	D. Furbish	4/27	Dartmouth	2	R. Couse
3/16	Magnolia-Nahant	89	R. Heil	Double-crested Cormorant			
3/16	Duxbury B.	16	D. Furbish	3/15	Wareham	1	M. LaBossiere
3/24	Truro	30	R. Titus#	3/16	Nahant	1 ad	R. Heil
3/31	P.I.	27	P. + F. Vale	3/16	Cambridge	2	E. Nelson-Melby
4/8	Ipswich	41	J. Berry	4/3	Magnolia	104 migr	R. Heil
4/8	P'town (R.P.)	50	R. Lockwood#	4/4	Plymouth	35	D. Furbish
4/10	Chatham (S.B.)	13	M. Faherty	4/7	Hadley	3	C. Gentes
4/20	Boylston	11	M. Lynch#	4/10	Gill	4	R. Packard
4/22	Holyoke	3	J. LaPointe#	4/21	Manchester	41	M. Lynch#
4/26	Gardner	2	T. Pirro	4/22	Oxford	130	P. Meleski#
Pied-billed Grebe				American Bittern			
3/16	Plymouth	2	R. Titus#	4/7	Melrose	1	P. + F. Vale
3/18	Belmont	2	M. Rines	4/10	P.I.	1	K. Anderson#
4/8	Waltham	2	M. Rines	4/15	S. Egremont	1	J. Johnson
4/10	Gill	2	R. Packard	4/25	Pittsfield	1	D. St. James
4/13	Wakefield	2	P. + F. Vale	4/27	Dartmouth	2	R. Couse
4/22	Braintree	2	S. Carey	4/28	Pepperell	pr n	P. Duke
Horned Grebe				Great Blue Heron			
3/4	Falmouth	2	R. Farrell	3/9	Littleton	2 pr n	M. Richards
3/4	Quincy-N. Scituate	23	SSBC (R. Titus)	3/25	W. Boxford	32+	J. Berry
3/4	Newbypt-P.I.	3	BBC (L. Pivacek)	3/31	Lynnfield	8 nests	D. + I. Jewell
3/7	Plymouth	30	D. Furbish	4/3	Magnolia	11 migr	R. Heil
3/15	Rockport	27	J. Soucy#	4/8	Westboro	6 nests	M. Lynch#
3/16	Magnolia-Nahant	293	R. Heil	4/14	Boxboro	28+	J. Michaels
3/31	Hingham	10	S. Carey	4/17	Wakefield	9	D. Wilkinson
4/8	Gill	2	E. Labato	4/28	W. Townsend	19+	M. Ryder
4/8	Squantum	10	G. d'Entremont	4/28	Barre F.D./Rutland	S.P. 4 nests	M. Lynch#
4/11	Mblehead-Swamps	156	R. Heil	Great Egret			
4/20	Boylston	1	M. Lynch#	3/17	Duxbury	1	E. Labato#
Red-necked Grebe				3/18	Westport	1	E. Giles
3/7	Rockport (A.P.)	19	R. Heil	4/3, 10	Manchester	9, 46	R. Heil
3/7	Plymouth	10	D. Furbish	4/8	Essex	13	S. Moore#
3/16	Magnolia-Nahant	128	R. Heil	4/9	Acoaxet	11	M. Lynch#
3/16	N. Scituate	49	R. Titus#	4/11	Hadley	1	S. Smolen-Morton
4/9	Eastham	130	M. Faherty	4/20	P.I.	12	D. Blain
4/10	Gill	1	R. Packard	Snowy Egret			
4/11	Mblehead-Swamps	37	R. Heil	3/25	Hingham	1	C. Nims
Eared Grebe				3/29	Salem	1	K. Haley
3/3-21	Gloucester (E.P.)	1	J. Souci + v.o.	4/3, 10	Manchester	7, 102	R. Heil
Northern Fulmar				4/5	Wollaston	2	K. Anderson
3/5, 7	Rockport (A.P.)	126, 1	R. Heil	4/7	E. Boston (B.I.)	2	L. de la Flor#
3/7, 23	Eastham (F.E.)	1, 1	B. Nikula	4/8	Essex	12	S. Moore#
3/13, 22	Rockport (A.P.)	1, 273	R. Heil	4/13	Hingham H.	16	D. Peacock
Leach's Storm-Petrel				Little Blue Heron			
3/7	Eastham (F.E.)	1	B. Nikula	3/17	Westport	1 ad	J. Hoye#
Northern Gannet				4/3, 10	Manchester	1, 8	R. Heil
3/5, 22	Rockport (A.P.)	76 ad, 214 ad	R. Heil	4/4	Essex	1	D. Brown
3/17	P'town	200	B. Nikula#	4/8	W. Gloucester	1	J. Soucy
3/23	Eastham	275	W. Petersen	4/22	Squantum	1	G. d'Entremont
3/24	P'town, N. Truro	150, 200	B. Nikula	4/27	Nantucket	1	J. Papale
3/31	Hingham H.	1	S. Carey	4/29	Magnolia	14	P. + F. Vale
3/31	N. Truro	400+	B. Nikula	Tricolored Heron			
4/3	Magnolia	125 ad	R. Heil	3/29-4/31	P.I.	1-2	L. Cooper + v.o.

Tricolored Heron (continued)							
4/26	Manchester	1	S. Hedman#	4/7	Winthrop	725	L. de la Flor#
4/28	Hingham	1	C. Nims	4/8	Squantum	350	G. d'Entremont
Cattle Egret				4/15	Plymouth	110	R. Finch
4/21	Beverly	3	M. Lynch#	4/20	Newbypt.	350	R. Heil
Green Heron				4/22	Duxbury B.	78	D. Furbish
4/21	Salem	1	I. Lynch	4/27	Ipswich (C.B.)	65	C. Beulow
4/21	Stow	1	R. Lockwood	Tundra Swan			
4/22	IRWS	1	W. Taitrow	4/7-22	W. Bridgewater	1	W. Petersen + v.o.
4/22	Northampton	1	T. Gagnon	Whooper Swan			
4/22	Winchester	1	R. LaFontaine	3/15	Ipswich	2	J. Soucy#
4/23-30	Mt.A.	2	v.o.	4/21	P.I.	2	M. Lynch#
4/30	MNWS	1	K. Haley	Wood Duck			
Black-crowned Night-Heron				3/17	Northbridge	23	M. Lynch#
3/9	Cambridge	1	E. Nelson-Melby	3/20	Medfield	14	E. Morrier
3/11	Nantucket	1	E. Andrews	3/20	Arlington	19	H. Pearce
3/16	Orleans	1	D. Furbish	3/31	Hadley	14	S. Surner
3/19	Marblehead	1 ad	K. Haley	4/1	Northfield	200	M. Taylor
3/28	S. Peabody	1 ad	R. Heil	4/3	Groton	80	E. Stromsted
4/1	Harwich	17	J. Hoye#	4/3	W. Brookfield	30	C. Beulow
4/13	Hingham H.	36	D. Peacock	4/3	Pepperell	30	E. Stromsted
4/16	Winchester	6	R. LaFontaine	4/6	Northampton	150	T. Gagnon
4/24	Gloucester	5	S. Hedman	4/19	Bolton Flats	73	M. Lynch#
Glossy Ibis				Gadwall			
3/16-18	Fairhaven	1	G. Hirth#, v.o.	3/4	Gloucester	20	J. Berry#
3/21	Ipswich	1	BBC (I. Giriunas)	3/10	Salem	12	K. Haley
4/4	Dighton	1	J. Garber	3/11	Barnstable	12	G. d'Entremont#
4/12	Concord	1	S. Perkins#	3/11	Marston Mill's	10	G. d'Entremont#
4/14	Ipswich	6	P. + F. Vale	3/16	Plymouth	10	R. Titus#
4/22	W. Bridgewater	38	R. Titus#	3/16	Marshfield	6	R. Titus#
4/26	P.I.	38	R. Heil	3/17	W. Harwich	6	B. Nikula
4/29	Newbury	74	E. Salmela	3/27-31	Longmeadow	2	S. Kellogg
4/29	Magnolia	12	P. + F. Vale	4/10	Gill	3	R. Packard
Black Vulture				4/14	DWWS	23	D. Furbish
3/3	Sheffield	2	T. Collins	4/21	P.I.	38	M. Lynch#
3/7	Gr Barrington	2	C. Barrett	Eurasian Wigeon			
3/19	Adams	1	R. Rancatti	4/14	Boylston	1 m	M. Lynch#
4/5	Pittsfield	5	S. Cook	American Wigeon			
4/15	N. Truro	1	EMHW (M. Lowe)	3/11	Barnstable	17	G. d'Entremont#
Turkey Vulture				3/16	Carver	14	R. Titus#
3/17	Millbury	16	M. Lynch#	3/18	Arlington	12	M. Rines
3/19	Essex/Ipswich	22	R. Heil	3/19	Newbypt.	20	R. Heil
3/20	Westport	25	R. Heil	3/24	Newbury	14	R. Heil
3/24	Millbury	13	M. Lynch#	3/25	W. Bridgewater	20	G. Keresztes
3/24	Pittsfield	25	B. Garver	3/31	Cumb. Farms	86	K. Anderson
3/28	Woburn	12	M. Daley	4/3	Northampton	10	B. Bieda
4/10	Paxton	34	EMHW (J. Estis)	4/5	Agawam	15	S. Kellogg
4/14-24	N. Truro	130	EMHW (M. Lowe)	4/29	Boston	1	BBC (R. Stymeist)
4/25	Adams	25	R. Rancatti	American Black Duck			
4/29	Hingham	10	D. Larson#	3/18	Westport	253	M. Lynch#
Greater White-fronted Goose				3/18	Acoaxet	364	M. Lynch#
3/1-12	Fairhaven	2	R. Titus + v.o.	3/20	Cumb. Farms	800+	R. Heil
3/15-31	W. Bridgewater	1 ad	M. Faherty + v.o.	3/25	Bolton Flats	192	M. Lynch#
4/2	Concord (NAC)	1 ad	S. Perkins	4/1	W. Bridgewater	253	G. d'Entremont
4/3-4	Hadley	1 ad	C. Holzapfel	Blue-winged Teal			
Snow Goose				3/7	Marshfield	1 f	D. Furbish
3/16	Plymouth	3	D. Furbish	3/17	W. Harwich	1	B. Nikula
3/19	P.I.	96 (1 blue)	R. Heil	3/19	Rowley	2 m	R. Heil
3/25	Southwick	40	S. Kellogg	3/31	W. Bridgewater	3	W. Petersen
3/31	Deerfield	200	S. Surner	4/14	DWWS	4	D. Furbish
4/1	Amherst	150	H. Allen	4/15	W. Newbury	3	R. Heil
4/5	Northfield	300	M. Taylor	4/16	Groton	3	T. Pirro
4/6	Ashfield	300	B. Ranney	4/19	Bolton Flats	21	M. Lynch#
4/6	Hadley	300	R. Ranney	4/20	P.I.	4	D. Blain
4/7	Hatfield	150	B. Bieda	Northern Shoveler			
4/13	Northampton	135	T. Gagnon	3/17	Shrewsbury	1 m	M. Lynch#
4/15	Essex	12	J. Soucy#	3/18	Quincy	2 m, 1 f	W. Nelson
4/20	Lexington	1	M. Rines	3/24	Boston	2 m	B. Mayer
4/21	Ipswich	3	M. Lynch#	4/4	Longmeadow	1	K. + M. Conway
4/22	Topsfield	1	P. + F. Vale	4/5	Medfield	1 m	E. Morrier
Brant				4/7	E. Boston (B.I.)	4 m, 2 f	L. de la Flor#
3/4	Bourne	65	R. Farrell	4/9	P.I.	1 m	M. Taylor
3/16	Duxbury B.	400	D. Furbish	4/16	Turner's Falls	1	I. Dukovski
3/16	Marblehead	168	R. Heil	4/18	Charlestown	1 m	B. Miller
3/16	Nahant	337	R. Heil	Northern Pintail			
3/17	Brewster	100+	D. Silverstein	3/4	Rowley	11	J. Berry#
3/24	Westport	300	SSBC (D. Larson)	3/19	P.I.	45	R. Heil
4/1	W. Bridgewater	1	N. Samson#	3/20	Westport	45	R. Heil
				3/20	Cumb. Farms	90	R. Heil

Northern Pintail (continued)							
3/24	Newbury	56	R. Heil	4/21	Newbypt.	11	M. Lynch#
3/27	Longmeadow	23	S. Kellogg	Lesser Scaup			
4/2	Concord (NAC)	10	D. Diggins	3/10	Somerset	50	L. de la Flor#
4/3	Northampton	30	B. Bieda	3/16	Nahant Bay	42	R. Heil
4/6	Hadley	11	T. Gagnon	3/17	Lakeville	60	J. Hoye#
4/8	Bolton Flats	14	M. Lynch#	3/18, 4/9	Acoaxet	72, 29	M. Lynch#
4/14	W. Bridgewater	35	C. Beulow	3/19	Ipswich	175	R. Heil
Green-winged Teal				3/19	Lakeville	60	J. Hoye#
3/11	Winthrop	3	F. Vale	3/20	Westport	47	R. Heil
3/15	W. Bridgewater	18	M. Faherty	4/11	Swampscott	26	R. Heil
3/17, 4/14	W. Harwich	32, 70	B. Nikula	4/20	W. Newbury (C.H.)	2	R. Heil
3/20	Cumb. Farms	300	R. Heil	4/24	Gloucester	2	S. Hedman
4/3	Northampton	100	B. Bieda	King Eider			
4/5	Ipswich	133	R. Heil	3/19	Gloucester	1 m	J. Offermann
4/5	W. Bridgewater	200	W. Petersen	3/25	Scusset B.	1 m imm	D. Furbish
4/5	Longmeadow	107	S. Kellogg	3/30	Rockport (A.P.)	1 m 1W	R. Heil
4/8	Bolton Flats	116	M. Lynch#	4/28	Chilmark	1 m	P. Trimble#
4/14	DWWS	90+	D. Furbish	Common Eider			
4/16	Pepperell	60	E. Stromsted	3/4	Bourne	890	R. Farrell
4/28	P.I.	86	P. + F. Vale	3/7	Plymouth	400	D. Furbish
4/29	Boston	45	BBC (R. Stymeist)	3/11	Sandwich	450	G. d'Entremont#
Eurasian Green-winged Teal				3/16	Magnolia-Nahant	2930	R. Heil
3/8	Scituate	1	D. Furbish	3/16	Duxbury B.	650	D. Furbish
3/11	Eastham	1	M. Faherty#	3/24	Nahant	820	L. Pivacek
3/23-4/3	W. Bridgewater	1	R. Finch + v.o.	4/8	Ipswich	500	J. Berry
4/1	Harwich	1	J. Hoye#	4/13	P.I.	500	P. + F. Vale
4/7	Grafton	1	M. Lynch#	Harlequin Duck			
Eurasian x Green-winged Teal				3/2, 20	Rockport	60, 51	J. Berry#
3/29	W. Bridgewater	1	J. Johnstone#	3/3	Eastham	7	G. Hirth
Canvasback				3/10	Orleans	12	G. d'Entremont#
3/9	Turner's Falls	1	B. Lafley	3/11	Nantucket	30	J. Carlson
3/14	Nahant	1 m	D. Saffarewich	3/16	N. Scituate	11	R. Titus#
3/17	Westport	32	J. Hoye#	3/29	Chilmark	45+	A. Keith
3/18	Acoaxet	71	M. Lynch#	4/12	Rockport (A.P.)	13	R. Heil
3/24	Westport	8	SSBC (D. Larson)	4/15	E. Orleans	6	J. Sones#
3/28	Arlington Res.	4	M. Rines	4/29	Hingham	1 m	S. Shapiro#
3/30	Somerset	6	R. Couse	Surf Scoter			
Redhead				3/7	Plymouth	250	D. Furbish
3/1-13	Arlington	2 m	R. LaFontaine + v.o.	3/16	Duxbury B.	16	D. Furbish
3/10	Truro	1	G. Page	3/16	Magnolia-Nahant	311	R. Heil
3/11	Nantucket	12	E. Andrews	3/20	Fairhaven	4500	R. Heil
3/14	Avon	1 m	R. Titus	4/thr	Squibnocket	2500+	fide A. Keith
3/16	Lakeville	7	A. Hankin	4/8	Ipswich	5+	J. Berry
3/19-4/5	W. Bridgewater	2	R. Finch + v.o.	4/9	Fairhaven	1700	M. Lynch#
4/22	Braintree	pr	S. Carey	4/22	Duxbury B.	1 f	D. Furbish
Ring-necked Duck				White-winged Scoter			
3/9, 4/10	Turner's Falls	5, 116	B. Lafley	3/7	Plymouth	60	D. Furbish
3/16, 4/3	Concord (NAC)	38, 240	S. Perkins	3/16	Magnolia-Nahant	745	R. Heil
3/16	Duxbury	220	D. Clapp	3/20	Fairhaven	400	R. Heil
3/19	Carver	60	G. d'Entremont	4/thr	Squibnocket	10,000+	fide A. Keith
3/24	Uxbridge	96	M. Lynch#	4/8	Ipswich	700	J. Berry
4/1	W. Bridgewater	344	G. d'Entremont	4/13	P.I.	450	P. + F. Vale
4/1	Wakefield	71	P. + F. Vale	Black Scoter			
4/3	W. Brookfield	75	C. Beulow	3/3	Newbypt-P.I.	35	BBC (S. Grinley)
4/3	Hadley	244	H. Allen	3/7	Plymouth	40	D. Furbish
4/4	Newbypt	50	J. Berry#	3/10	Orleans	30	G. d'Entremont#
4/7	Gill	220	S. Kellogg	3/20	Fairhaven	300	R. Heil
4/9	Groveland	82	R. Heil	3/30, 4/18	Rockport (A.P.)	44, 32	R. Heil
4/14	Sutton	73	M. Lynch#	4/thr	Squibnocket	1000+	fide A. Keith
4/15	Bolton Flats	70	M. Lynch#	4/4	Eastham	15	M. Faherty
4/20	Boylston	136	M. Lynch#	4/8	Ipswich	5+	J. Berry
4/22	N. Truro	3	B. Nikula#	4/9	Fairhaven	36	M. Lynch#
4/22	IRWS	8	BBC (P. + F. Vale)	Long-tailed Duck			
4/24	Gloucester	9	S. Hedman	3/7	Plymouth	250	D. Furbish
Tufted Duck				3/20	Fairhaven	750	R. Heil
3/18	Acoaxet	1 f	M. Lynch#	3/31	off Edgartown	5000+	V. Laux
4/8-10	Clinton	1 m	F. McMenemy + v.o.	4/16	Sharon	1	R. Titus
Greater Scaup				4/18	Rockport (A.P.)	357	R. Heil
3/4	Hadley	7	C. Gentes	4/21	Newbypt.	1430	M. Lynch#
3/20	Fairhaven	150+	R. Heil	Bufflehead			
3/24	Westport	44	SSBC (D. Larson)	3/4	Squantum	85	SSBC (R. Titus)
3/28	Falmouth	44	R. Farrell	3/4	N. Scituate	95	SSBC (R. Titus)
4/1	P.I.	100+	M. Resch#	3/16	Magnolia-Nahant	1160	R. Heil
4/7	Wakefield	25	P. + F. Vale	3/20	Westport	380	R. Heil
4/11	Turner's Falls	2	H. Allen	3/21	Swampscott	150+	K. Haley
4/17	Gill	2	B. Lafley	4/5	Mashpee	50	C. Beulow
				4/7	Wakefield	56	P. + F. Vale
				4/9	Acoaxet	212	M. Lynch#

Bufflehead (continued)			4/13	Bolton Flats	5	M. Lynch#
4/15	Newbypt.	180		DWWS	4	D. Furbish
4/29	Boston	8		Hyannis	2	C. Beulow
Common Goldeneye			4/15	Carlisle	5	T. Brownrigg
3/3	S. Deerfield	30		Pepperell	pr n	E. Stromsted
3/4	Quincy Bay	196		P.I.	6	T. Carrolan
3/4	Falmouth	85		4/25	Salem	pr
3/4	Cape Ann	76		Swallow-tailed Kite		I. Lynch
3/16	Holyoke	35		4/15	Nantucket	1
3/17	Newbypt.	70		Bald Eagle		E. Ray
3/18	Westport	56		3/2	Ashley Falls	1 ad
4/1	W. Bridgewater	20		3/2, 17	Arlington	1 ad 1 sub ad R.
4/20	Newbypt.	50 f		3/4	Northampton	1
Barrow's Goldeneye				3/10	N. Hadley	1 ad
3/2	Gloucester	1 m		3/11	Newbypt.	5 sub ad
3/3	Newbypt.	2		3/17	Lakeville	1 imm
3/11-21	Ipswich	1-2		3/20	Duxbury	1
3/24	Westport	1 m		3/28	S. Peabody	1 imm.
3/31	Newbypt.	2		4/2	Gill	1 imm
4/11	Wasque	1 f		4/9	Gill	pr n
Hooded Merganser				4/10	Leominster	1
3/4	W. Falmouth	4		4/13	Barre	1 EMHW (B. Kamp)
3/10	N. Hadley	4		4/14	Florence	1 ad
3/10	Salem	3		4/19	N. Truro	1 EMHW (M. Lowe)
3/15	Norfolk	5		4/19	Cheshire Res.	1 ad
3/16	Chicopee Falls	6		4/20	Quabbin (G35)	2
3/16	Concord (NAC)	12		4/22	Westport	1
3/17	Shrewsbury	18		4/23	Barre	1 EMHW (B. Kamp)
3/26	Pepperell	30		4/25	Nantucket	1
3/28	Turners Falls	32		4/26	Chilmark	1
4/7	Gill	75		Northern Harrier		A. Keith
Red-breasted Merganser				3/3	Newbypt./P.I.	4
3/18	Acoaxet	330		3/4	DWWS	4
3/20	Cape Ann	90		3/12	Fairhaven	2
3/24	N. Truro	250		3/15	W. Bridgewater	3
3/24	P'town (R.P.)	2200		4/3	W. Brookfield	2
3/25	Duxbury B.	200		4/5, 9	P.I.	22, 18
3/29	Gill	3		4/6	DWWS	3
4/4	Cheshire	2		4/8	Bolton Flats	2
4/5	Mashpee	50		4/10	Groton	2
4/9	Westport	156		4/14, 15	P.I.	31, 20
4/9	Rowley	60		4/15	N. Truro	14 EMHW (M. Lowe)
4/13	Hingham H.	230		4/19, 20	P.I.	17, 13
4/19	Pittsfield (Pont.)	1		4/22	IRWS	2
Common Merganser				Sharp-shinned Hawk		BBC (P. + F. Vale)
3/1	Belmont	40		3/thr	Reports of indiv. from 23 locations	
3/24	Uxbridge	111		3/15	P.I.	4
3/24	Medford	198		3/20	Groton	3
3/25	Worcester	88		4/10, 14	Paxton	6, 18
3/26	Pepperell	220		4/13, 15	Barre	11, 43
3/28	Lynn	70		4/14	Paxton	18
3/28	Turners Falls	111		4/19, 22	P.I.	19, 16
4/1	Northbridge	88		4/23, 24	P.I.	22, 16
4/3	Pepperell	120		4/23, 24	N. Truro	11, 23
4/13	W. Newbury	45		4/30	P.I.	24
4/19	Pittsfield	56		Cooper's Hawk		T. Carrolan
4/20	Boylston	38		3/19	Amherst	pr
Ruddy Duck				4/13, 15	Barre	3, 2
3/8	Gloucester	7		4/17, 20	N. Truro	6, 7
3/20	Brookline	19+		4/19	Hyannis	2
3/28	Lynn	7		4/19	Cheshire Res.	2
4/1	Jamaica Plain	20		4/21	Lynnfield	2
4/7	Gill	5		4/22	Carlisle	2
4/16	Winchester	3		4/23	N. Truro	3
4/21	Melrose	16		thr	Reports of indiv. from 27 locations	
4/22	Arlington Res.	6		Northern Goshawk		
4/26	Waltham	15		3/3	Westminster	1
4/29	Boston	3		3/6	Lynnfield	1
Osprey				3/6-18	Groveland	1
3/25, 31	Wareham	1, 4		3/18	Windsor	1
4/7	Falmouth	5		3/20, 4/11	Groton	1
4/8	Westboro	pr n		3/28-4/31	E. Middleboro	pr n
4/9	P.I./Rowley	6		4/4	Washington	1
4/9	Westport	27		4/9	N. Truro	1
4/9	Acoaxet	30		4/9	Maynard	1 ad
4/9, 10	Groton	2, 5		4/14	Carlisle	1
4/10, 14	Paxton	18, 27		4/16	Northfield	1
4/13-15	Barre	86		4/16	Gill	1 imm

Northern Goshawk (continued)							
4/22	New Salem	1	B. Lafley	3/26	Oak Bluffs	1	S. Amaral
4/22	Hingham	1	ad G. d'Entremont#	3/26-4/16	Amherst	pr	v.o.
4/24	Orange	1	B. Lafley	3/27	Chilmark	1	A. Keith
Red-shouldered Hawk				4/9	WBWS	1	D. Silverstein#
3/10	Easton	pr	K. Ryan	4/9, 15, 19	P.I.	1, 2, 1	T. Carrolan
3/11	Dartmouth	2	A. Hankin	4/10	Chatham (S.B.)	1	M. Faherty
3/15	Norfolk	pr	B. Lawless	4/16	DWWS	1	ad D. Larson
3/20	Groton	3	T. Pirro	4/20	Boxford (C.P.)	1	S. Leonard
3/20	Hawley	2	R. Rancatti	4/22	Cumb. Farms	1	R. Titus#
4/thr	E. Middleboro	pr n	K. Anderson#	Ruffed Grouse			
4/1	Lincoln	pr	R. Stymeist#	3/1	Ashfield	1	S. Sauter
4/13	Hingham	2	D. Peacock	3/9	Scituate	2	E. Clapp
4/15	Stoughton	2	R. Titus	3/31	Sudbury	1	E. Salmela
4/23	Northfield	2	M. Taylor	4/1	Randolph	1	G. d'Entremont
4/28	Carlisle	2	T. + D. Brownrigg	4/1	Belchertown	1	S. Surner
4/29	Oxford	3	P. Meleski	4/8	Templeton	2	T. Pirro
Broad-winged Hawk				4/8	Boxford	1	J. Hoye#
4/13, 14	Barre	23, 40	EMHW (B. Kamp)	4/11	Northfield	1	M. Taylor
4/14	Paxton	80	EMHW (J. Estis)	4/14	Hyannis	2	C. Beulow
4/15	Barre	69	EMHW (B. Kamp)	4/16	Hingham	1	D. Larson
4/16	Groton	29	T. Pirro	4/21	Stow	2	R. Lockwood
4/16	Uxbridge	4	M. Lynch#	4/29	Maynard	3	R. Lockwood
4/17	N. Truro	3	EMHW (M. Lowe)	4/30	Worc. (BMB)	1	J. Liller#
4/21	Ashfield	6	S. Surner	4/30	Lancaster	3	R. Lockwood
4/23	Northfield	10+	M. Taylor	Wild Turkey			
4/23	P.I.	14	T. Carrolan	3/1	Quabbin Park	6	C. Beulow
4/23	Barre	333	EMHW (B. Kamp)	3/4	Erving	14	V. Yurkunas#
4/24	N. Truro	5	EMHW (M. Lowe)	3/6	Easton	12	K. Ryan
4/29	Mt. Wachusett	3	EMHW (P. Roberts)	3/15	DWWS	8	D. Furbish
Red-tailed Hawk				3/18	Westport	24	M. Lynch#
3/15	P.I.	8	T. Carrolan	3/18	Beverly	4	J. Berry#
3/16	Marshfield	8	R. Titus#	4/8	Ipswich	17	P. + F. Vale
3/20	Groton	8	T. Pirro	4/21	Essex	6 f	D. + S. Larson
3/25	Bolton Flats	7	M. Lynch#	4/22	Dudley	4	P. Meleski#
4/4	Groton	8	T. Pirro	4/27	Cambridge	6	Cambridge Chronicle
Rough-legged Hawk				4/30	Lancaster	3	R. Lockwood
3/11	GMNWR	2	R. Westerberg#	thr	Reports of 1-3 indiv. from 15 locations		
3/12	Fairhaven	1	C. Beulow	Northern Bobwhite			
3/15	W. Bridgewater	2 lt	M. Faherty	3/18	Acoaxet	1	M. Lynch#
3/15	P.I.	2 lt +4 dk	T. Carrolan	4/5	Mashpee	7	C. Beulow
3/16	Ashfield	6	S. Sauter	4/21	WBWS	1	S. Hedman
3/17	Fairhaven	1	D. Lounsbury	Virginia Rail			
3/18, 25	Lincoln	1 dk, 3 lt	M. Rines	3/17	Northbridge	1	M. Lynch#
3/20	Cumb. Farms	3 lt	R. Heil	4/15	Bolton Flats	1	M. Lynch#
3/20	Medfield	1 lt	E. Morrier	4/16	W. Newbury	1	J. Hoye#
3/21	W. Bridgewater	1 lt	M. Faherty	4/24	Concord	2	S. Perkins
3/27	Rowley	1 imm lt	J. Berry	4/28	Wakefield	1	P. + F. Vale
3/28	Newbury	3 lt	R. Heil	4/28	GKNWR	1	C. Caron
4/5	P.I.	1	T. Carrolan	4/28	Bolton Flats	5	J. Hoye#
Golden Eagle				4/29	Boston	2	BBC (R. Stymeist)
3/10	Quabbin	1	J. Hoye#	Sora			
American Kestrel				4/28	Bolton Flats	1	J. Hoye#
4/5-10	P.I.	67	T. Carrolan	4/29	Amherst	1	D. Chapman
4/10	Paxton	20	EMHW (J. Estis)	American Coot			
4/14-15	Barre	19	EMHW (B. Kamp)	3/28	Lynn	3	K. Haley
4/14	DWWS	21	D. Furbish	3/30	Arlington	21	D. Saffarewich
4/14-21	N. Truro	64	EMHW (M. Lowe)	4/7	Grafton	1	M. Lynch#
4/14	Paxton	15	EMHW (J. Estis)	4/12	Hadley	1	H. Allen#
4/14-20	P.I.	322	T. Carrolan	4/29	Boston	1	BBC (R. Stymeist)
4/20	Lancaster	18	R. Lockwood	Sandhill Crane			
4/22	P.I.	441	T. Carrolan	3/1-12	Fairhaven	1	J. Nelson + v.o.
4/23-24	N. Truro	56	EMHW (M. Lowe)	4/4	Groton	1	L. Chaput
4/23-30	P.I.	154	T. Carrolan	4/20	Chatham	1	P. Bailey
Merlin				Black-bellied Plover			
4/5-19	P.I.	42	T. Carrolan	3/11	Nantucket	3	E. Ray
4/13-21	N. Truro	19	EMHW (M. Lowe)	3/18, 25	Duxbury B.	1, 5	D. Furbish
4/22-24	P.I.	49	T. Carrolan	4/10	Chatham (S.B.)	46	M. Faherty
4/30	P.I.	2	T. Carrolan	4/11	P.I.	3	MAS (N. Soulette)
Peregrine Falcon				4/11	Winthrop	5	J. Berry#
3/11	Springfield	1	T. Gagnon	4/21	Nauset	20	S. Hedman
3/11	Braintree	1	J. Young	4/27	N. Monomoy	95	B. Nikula
3/12	Boston (Logan)	2	N. Smith	American Golden-Plover			
3/15	P.I.	4	T. Carrolan	3/16	Duxbury B.	1	D. Furbish
3/16	Carver	2	R. Titus#	4/15-27	P.I.	1	basic R. Heil + v.o.
3/16	Maynard	1	L. Nachtrab	Piping Plover			
3/19	Fall River	1	J. Hoye#	3/16, 4/22	Duxbury B.	1, 3	D. Clapp
3/20	Westport	1 ad.	R. Heil	3/20	Westport	1	J. Hoye#
				3/21	Edgartown	1	D. Swanson

Piping Plover (continued)							
3/24	P'town (R.P.)	1	R. Titus#	3/5	Dennis	300	D. Silverstein
3/25	Plymouth B.	2	M. Faherty#	3/11	Sanwich	30	G. d'Entremont#
3/27	Gloucester	4	J. Soucy#	3/17	Brewster	50	D. Silverstein
4/1	DWWS	2	R. Min#	3/17	Westport	30	J. Hoye#
4/5	Mashpee	6	C. Beulow	3/18	Acoaxet	30	M. Lynch#
4/10	Chatham (S.B.)	13	M. Faherty	3/25	Scusset B.	20	D. Furbish
4/11	Ipswich (C.B.)	28	C. Beulow	3/25	P.I.	70	P. + F. Vale
4/13	P.I.	2	P. + F. Vale	3/25	Plymouth B.	220	M. Faherty#
4/21	Nauset	3	S. Hedman	3/31	Duxbury B.	3	L. Cleveland
4/27	Dartmouth	2 pr	R. Couse	4/1	P.I.	8	M. Resch#
Killdeer				4/5	Mashpee	30	C. Beulow
3/9	S. Peabody	3	R. Heil	4/6	Nahant	425+	R. Heil
3/11	Hadley	3	S. Leonard	4/7	P.I./ Newbypt	50	BBC (S. Grinley)
3/12	Fairhaven	26	P. Brown	4/10	Chatham (S.B.)	60	M. Faherty
3/25	Westboro	12	M. Lynch#	4/11	Lynn B.	450	J. Berry#
3/26	Newbury	15	R. Heil	4/13	Ipswich (C.B.)	180	C. Beulow
3/27	Woburn	24	M. Rines	4/22	Duxbury B.	42	D. Furbish
4/3	Hadley	50	C. Holzapfel	4/27	N. Monomoy	125	B. Nikula
4/4	Bolton Flats	14	R. Lockwood	Least Sandpiper			
4/4	Groton	30	T. Pirro	4/15	Ipswich	1	R. Heil
4/5	Ipswich	26	R. Heil	4/25	P.I.	3	D. Chickering
4/13	Pepperell	10	E. Stromsted	Pectoral Sandpiper			
American Oystercatcher				3/17	W. Harwich	1	B. Nikula
3/11	Nantucket	3	E. Ray	3/25	Newbury	1	P. + F. Vale
3/14	Oak Bluffs	2	M. Pelikan	4/5	Rowley	1	R. Heil
3/14	Edgartown	1	P. Schultz	4/8	W. Bridgewater	4	D. Larson
3/29	Marion	2	J. Watson	4/12	Amherst	2	H. Allen
3/31	E. Boston	2	N. Smith	4/15	Bolton Flats	12	M. Lynch#
4/7	Quincy	6	D. + S. Larson	4/20	Easthampton	7	E. Labato
4/8	Squantum	8	G. d'Entremont	4/22	Northampton	7	T. Gagnon
4/10	Chatham (S.B.)	6	M. Faherty	4/23	P.I.	3	R. Heil
4/27	MNWS	3	S. Hedman	4/28	Newbypt.	7	D. Larson#
4/27	N. Monomoy	20	B. Nikula	Purple Sandpiper			
Greater Yellowlegs				3/4	Quincy	30	SSBC (R. Titus)
3/17	W. Harwich	7	B. Nikula	3/4	Cohasset	150	SSBC (R. Titus)
3/17	Westport	1	J. Hoye#	3/5	Dennis	2	D. Silverstein
3/19	Newbury	2	R. Heil	3/7	Rockport (A.P.)	75+	R. Heil
3/25	DWWS	3	M. Faherty#	3/17	Scituate	145	P. Kyle#
4/5	Rowley	4	R. Heil	3/31	Magnolia	30+	S. Hedman
4/8	Amherst	4	B. Bieda	4/24	Lynn	130	R. Heil
4/14	W. Bridgewater	16	G. d'Entremont#	4/24	Marblehead	150	R. Heil
4/14	W. Harwich	14	B. Nikula	Dunlin			
4/15, 20	Newbypt.	53, 80	R. Heil	3/5	Dennis	24	D. Silverstein
4/18	Eastham	53	M. Faherty	3/9	Scituate	25	D. Clapp
4/22	Rowley	26	J. Berry	3/10	Eastham (F.E.)	50	G. d'Entremont#
4/27	P.I.	34	P. + F. Vale	3/16	Duxbury B.	50	D. Furbish
4/29	Sheffield	2	D. St. James	3/17	Brewster	24	D. Silverstein
Lesser Yellowlegs				3/18	Westport	60	M. Lynch#
3/19	Newbury	1	R. Heil	3/25	P.I.	35	P. + F. Vale
3/24	Rowley	1	R. Heil	3/25	Plymouth B.	90	M. Faherty#
4/9	Topsfield	1	R. Heil	4/11	Winthrop	30	J. Berry#
4/12	Amherst	4	H. Allen	4/11	Lynn B.	30	J. Berry#
4/20	Newbypt.	6	R. Heil	4/13	Ipswich (C.B.)	250	C. Beulow
4/22	W. Bridgewater	2	R. Titus#	4/27	N. Monomoy	1000	B. Nikula
4/22	Nantucket	2	E. Ray	4/27	Dartmouth	35	R. Couse
4/28	Newbypt.	17	D. Chickering	Short-billed Dowitcher			
Solitary Sandpiper				4/18	Eastham	1	M. Faherty
4/15	Newbury	1	R. Heil	4/20	Newbypt.	1	R. Heil
4/22	Washington	1	E. Neumuth	4/22	Nantucket	2	E. Ray
4/28	P.I.	1	P. Gills	4/24	Edgartown	4	V. Laux
Willet				4/27	N. Monomoy	1	B. Nikula
4/19	Edgartown	2	A. Keith	4/29	P.I.	1	D. Chickering#
Spotted Sandpiper				Common Snipe			
4/24	P.I.	1	T. Murray	3/19	Worc. (BMB)	1	J. Liller
4/28	Newbypt.	1	D. Larson#	3/21	W. Bridgewater	1	M. Faherty
4/29	Boston	1	BBC (R. Stymeist)	3/25, 4/8	Newbury	1, 43	P. + F. Vale
4/30	Sheffield	1	K. + M. Conway	3/31	Boston	3	A. Joslin
Upland Sandpiper				4/5	Longmeadow	3	S. Kellogg
4/28	Ipswich	1	D. Larson#	4/5	Cumb. Farms	20	K. Anderson#
Ruddy Turnstone				4/9	Groton	34	T. Pirro
3/17	Scituate	28+	P. Kyle#	4/11	Deerfield	12	H. Allen
3/20	Fairhaven	15	R. Heil	4/12	Hadley	27	S. Smolen-Morton
4/7	Winthrop	8+	P. + F. Vale	4/12	Concord	40	M. Rines
4/14	Beverly	34	G. Leet	4/14	Agawam	23	S. Kellogg#
Red Knot				4/14	DWWS	25	D. Furbish
3/1	Edgartown	1	A. Keith	4/15	Bolton Flats	97	M. Lynch#
				4/15	Topsfield	30	R. Heil

Common Snipe (continued)			4/9	WBWS	2 3W	D. Silverstein#
4/22	W. Bridgewater	109	R. Titus#	4/10	1	E. Nelson-Melby
American Woodcock				4/11	1 3W	V. Laux
3/9	Mt.A	1	R. Stymeist	4/14	1 ad	M. Faherty#
3/17	Lexington	3	G. d'Entremont#	4/20	1	M. Lynch#
3/18	Cambridge	4	M. Rines	4/29	2	V. Laux
3/19	Burlington	10	M. Rines	Glaucous Gull		
3/20	Gloucester (E.P.)	8	S. Hedman	3/8-10	1-2	M. Faherty#
3/24	Lenox	6	T. Collins	3/10	2	E. Labato
3/25	Salem	8	M. Burns	3/22	1	A. Well
3/25	Magnolia	5	BBC (D. Peloquin)	4/1	1 3W	I. Dukovski
3/29	Marblehead	6	K. Haley	4/7	1	I. Dukovski
3/31	Watertown	5	R. Stymeist	4/11	2	J. + V. Kousky
4/3	N. Reading	10	D. Williams	4/16	1	J. Paluzzi
4/15	Bolton Flats	7	M. Lynch#	4/29	1 yr	M. Faherty
4/26	Wellfleet	6	M. Faherty	Black-legged Kittiwake		
Wilson's Phalarope				3/5	91	R. Heil
4/24	P.I.	1 f	T. Murray	3/7	2450	B. Nikula
phalarope species				3/22	248	R. Heil
3/7	Eastham (F.E.)	9	B. Nikula	3/23	190	B. Nikula
Laughing Gull				Caspian Tern		
4/4	Eastham	13	M. Faherty	4/15	1	R. Finch
4/7	Plymouth	13	D. + S. Larson	4/22-23	1	W. Taitrow
4/7	Wellfleet	20	M. Faherty	Roseate Tern		
4/10	Chatham (S.B.)	190+	M. Faherty	4/22	1	M. Resch
4/10	Harwich	49	M. Faherty	Common Tern		
4/18	Rockport (A.P.)	1 ad	R. Heil	4/17	6	J. Berry
4/22	P'town (R.P.)	25	E. Morrier	4/29	50+	A. Keith#
Little Gull				4/30	10-12	L. Pivacek
3/22	Rockport (A.P.)	1 ad	R. Heil	Forster's Tern		
4/16	Newbypt.	1 1W	R. Heil	4/29	2	J. Soucy#
4/27	Lynn	1	J. Quigley	Least Tern		
Black-headed Gull				4/29	1	A. Keith#
3/3	Plymouth	2	S. Moore	Dovekie		
3/3	Gloucester (E.P.)	1	S. Hedman#	3/2, 20	1, 1	J. Berry#
3/5	Winthrop B.	1	M. Faherty	3/9	1	M. Boyer
3/16	Nahant	1	L. Pivacek	3/11	2	H. Ferguson
3/25	Plymouth B.	2 ad	M. Faherty#	Common Murre		
3/28	Newbypt.	1	MAS (B. Stevens)	3/5, 7, 22	3, 1, 3	R. Heil
4/5-20	Newbypt.	1 1W	R. Heil	3/11	1	B. Nikula#
4/6-11	Nahant	1 1W	R. Heil	3/18	1	P. + F. Vale
4/11	Lynn B.	1 imm	J. Berry#	3/22	1	B. Perkins
Bonaparte's Gull				Thick-billed Murre		
4/6	Lynn/Nahant	515 ad	R. Heil	3/4	1	D. Furbish#
4/12	S. Hadley	4	R. Zurawski	3/7, 22	485, 14	R. Heil
4/13	Bolton Flats	4	M. Lynch#	3/8	2	M. LaBossiere
4/13	Newbypt.	25	D. Chickering	3/9	3	D. Clapp
4/20	Wachusett Res.	1 1S	M. Lynch#	3/11	12	T. Pirro
4/27	Lynn	500+	J. Quigley	3/11	9	M. Faherty#
Iceland Gull				3/11-31	10 max	fide B. Nikula
3/2	Gloucester	1 ad	J. Berry#	3/15	1	J. Soucy#
3/3	N. Truro	7+	B. Nikula	3/16	1	D. Chickering#
3/4	Hull	1 ad	SSBC (R. Titus)	3/16	1	D. Chickering#
3/4	Hadley	1	C. Gentes	3/16	2	R. Heil
3/7	Rockport (A.P.)	3ads	R. Heil	3/17	2	T. Raymond
3/10	Truro	20	G. d'Entremont#	3/26	3	J. Berry#
3/11, 4/22	Nantucket	33, 1	E. Ray	4/3	1	R. Heil
3/19, 4/5	Newbypt.	3, 4	R. Heil	4/12	3	R. Heil
3/22	M.V.	4	M. Pelikan#	Razorbill		
3/22	Edgartown	4	M. Pelikan#	3/3	20	G. Hirth
3/23	Eastham	2	W. Petersen	3/7	4	D. Furbish
4/5	Mashpee	1 2W	C. Buelow	3/8	2	M. LaBossiere
4/8	P'town (R.P.)	11	R. Lockwood#	3/10	600	G. d'Entremont#
4/10	Chatham (S.B.)	1	M. Faherty	3/11	200	B. Nikula
4/13	Salisbury	1	D. Chickering	3/12	2	P. Zenema
4/13	Ipswich (C.B.)	1	C. Buelow	3/22, 30	1210, 536	R. Heil
4/20	Wachusett Res.	1	M. Lynch#	3/23	9	W. Petersen
Lesser Black-backed Gull				3/24	3	L. Pivacek
3/9	S. Peabody	1 2W	R. Heil	3/24	2200+	R. Titus#
3/11	Nantucket	7	E. Ray	3/31	50+	V. Laux
3/16, 31	Edgartown	1	V. Laux	4/3	6	R. Heil
3/18	Chatham	1 ad.	B. Nikula	4/3	2	S. Mirick#
3/23	Eastham (CGB)	1	W. Petersen	4/8	100	R. Lockwood#
3/25	Plymouth	1 2W	M. Faherty#	4/12	114	R. Heil
4/1	Hadley	1	T. Gagnon	Black Guillemot		
4/3	Amherst	1	H. Allen	3/4	4	D. Furbish#
4/5	Newbypt.	1 ad, 1 2W	R. Heil	3/7, 22	22, 12	R. Heil
4/7	Gill	1	Allen Club	3/8	1	M. LaBossiere

Black Guillemot (continued)				Atlantic Puffin			
3/16	Marblehead	44	R. Heil	3/3-4	Gloucester (B.R.)	1	S. Hedman#
3/16	Magnolia	10	R. Heil	large alcid species			
3/16	Nahant	3	R. Heil	3/11, 24	P'town	300, 1000	B. Nikula
3/18	Gloucester	35+	P. + F. Vale	3/22	Rockport (A.P.)	890+	R. Heil
3/24	P'town (R.P.)	2	R. Titus#	3/24, 31	N.Truro	4200, 1150	B. Nikula
4/12	Rockport (A.P.)	1	R. Heil	4/14	P'town	19	B. Nikula
4/21	Manchester	1 br pl	M. Lynch#				

PARAKEETS THROUGH GROSBEAKS

Monk Parakeets were noted in three southeastern Massachusetts communities. This species was recently accepted by the Massachusetts Avian Records Committee (MARC) as a bona fide species for the state. Among the owls, several pairs of nesting Great Horned were recorded, and Snowy Owls continued in our area through at least April 6 with a maximum of seven individuals found at Logan Airport on March 12. Whip-poor-wills were back on territory in force by the end of April and a single Chuck-wills-widow was noted from Edgartown.

Birding really heats up in April, and this year the weather heated up as well – a little too much for this observer. The hot spell that sent the temperatures into the eighties and nineties brought a significant push of migrants and unfortunately a bursting of foliage to hide them. Many communities, especially in western sections, experienced some frost which had an effect on some trees. Significant movements of birds were noted on April 6, 14-16, 24-27, and 30. Southwest winds, those most favorable for migration, were recorded only one day during the month of April, on the fourth. It is interesting that, during the April heat wave, the winds were from the west, east, and northwest!

Several species arrived early and generally in larger numbers than in a typical April. Seth Kellogg notes the earliest ever arrival in western Massachusetts for Great-crested Flycatcher, Blue-headed Vireo, Philadelphia Vireo, and Blue-winged Warbler. There seemed to be exceptionally good April numbers of Blue-headed and Warbling vireos, Hermit Thrushes, and Yellow-rumped, Pine, Palm, and Black-and-white warblers. All five species of vireos and 22 species of warblers were noted during the month! Perhaps the most unusual early migrant was a Yellow-billed Cuckoo found on April 6 in Ashfield, where there were still 31 inches of snow on the ground! There have been several records of this species in April, but most often after coastal storms, so this inland report is noteworthy; the second earliest report comes from nearby Gill on April 9, 1991. A Lincoln's Sparrow in Longmeadow in March may have overwintered; there is another record of Lincoln's Sparrow from Deerfield in March of 1989. Another early arrival was the first egg of an Eastern Bluebird found in a nest in Freetown on April 16.

Among the more unusual reports, Red-headed Woodpeckers were noted from Westborough and Deerfield, a **Varied Thrush** was noted from Worthington, six **Bohemian Waxwings** on Nantucket, a **Yellow-throated Warbler** on the Vineyard, two reports of **Summer Tanagers**, a **Harris's Sparrow**, a **Bullock's Oriole** and finally a very cooperative **Painted Bunting** found in Malden.

Several observers noted a winter feeder frenzy in March, especially in western parts of the state. Pine Siskins, Purple Finches, and Evening Grosbeaks competed with returning blackbirds, and a significant increase of American Goldfinches was also noted. Reports of White-winged Crossbills continued, with the highest number of individuals and locations ever observed in western Massachusetts for this period, while Evening Grosbeak numbers were on the low side for the third straight year. Single reports of Red Crossbill and Common Redpoll completed the winter finch array.

R.H.S.

Monk Parakeet				4/28	Duxbury	1	W. + E. Lackey
3/11	Wareham	1	M. Faherty	4/29	Westfield	1	J. Hutchison
3/24	Somerset	5	SSBC (D. Larson)	Belted Kingfisher			
4/27	Dartmouth	4	W. + E. Lackey	3/11	Marstons Mills	2	G. d'Entremont#
Yellow-billed Cuckoo				4/4	W. Harwich	3	D. Silverstein#
4/6	Ashfield	1	S. Sauter	4/9	Waltham	2	M. Rines
Eastern Screech-Owl				4/10	Groton	2	T. Pirro
thr	Reports of indiv. from 15 locations						
4/16				4/16	Uxbridge	2	M. Lynch#
Great Horned Owl				4/20	Lancaster	2	R. Lockwood
3/17	Westboro	1 on nest	M. Lynch#	4/21	Wakefield	2	P. + F. Vale
3/25	Rutland	4	C. Buelow	4/22	IRWS	2	BBC (P. + F. Vale)
3/30	Carlisle	2	G. Stalker	Red-headed Woodpecker			
4/14	Boxboro	ad + 2 yg	J. Michaels	3/31, 4/4	Westboro	1	S. Arena
4/15	Bolton Flats	2	M. Lynch#	4/9	Deerfield	1	S. Smolen-Morton
4/25	Lexington	ad + 1 yg	M. Rines	Red-bellied Woodpecker			
4/thr	Edgartown	pr n	T. Benoit + v.o.	3/31	Pepperell	3	E. Stromsted
thr	Reports of indiv. from 13 locations						
3/3	P.I.	1	M. Faherty#	3/31	Sudbury	3	E. Salmela
3/4-4/6	Duxbury B.	1	D. Furbish#	4/11	Medford	4	M. Rines
3/12, 4/6	Boston (Logan)	7, 3	N. Smith	4/16	Wayland	4	G. Long
4/5-6	P.I.	1	T. Carrolan	4/21	Hadley	2	S. Sumner
				4/30	Lancaster	2	R. Lockwood
Barred Owl				Yellow-bellied Sapsucker			
3/3	Quabbin (G 43)	1	J. Hoye#	thr	Gloucester	1 f	D. Sandee
3/16	Hardwick	2	C. Buelow	3/9-4/27	Mt.A.	1 f	E. Nelson-Melby
3/24	Lenox	1	T. Collins	4/6	Waltham	1	A. Smith#
3/27	Carlisle	1	G. Stalker	4/6	Ashfield	1	S. Sauter
4/1	Boxford	2	J. Berry#	4/6-19	Maynard	2	L. Nachtrab
4/2, 16	Ipswich	1, 1	J. Berry	4/7	Hardwick	1	C. Buelow
4/5	Boxboro	1	J. Michaels	4/7	Amherst	2	I. Dukovski
4/15	Bolton Flats	1	M. Lynch#	4/7	Medford	1	D. + I. Jewell
4/21-2	Northfield	2	M. Taylor	4/7	Truro	2	J. Young
4/22	IRWS	1	W. Taitrow	4/10	Sharon	2	D. Larson
4/23	DWWS	1	D. Furbish	4/11-16	M.V.	10+	v.o.
Long-eared Owl				4/15	Salisbury	3	J. Hoye#
3/thr	DWWS	2	D. Furbish + v.o.	4/22	P'town	6	S. Hedman
3/8	Essex	5-6	J. Berry#	4/25	Boston	5	C. Floyd
4/29	W. Tisbury	1	A. Keith	4/27	Westminster	3	C. Caron
Short-eared Owl				Hairy Woodpecker			
3/thr	DWWS	4	D. Furbish#	3/thr	Maynard	3	L. Nachtrab
3/3	Lynn	2	S. Moore	3/31	Pepperell	3	E. Stromsted
3/16	Duxbury B.	2	D. Furbish	4/1	Boxford	5	J. Berry#
3/17	Hyannis	1	K. Blackshaw	4/23	Lancaster	3	R. Lockwood
3/20	Salisbury	1	C. Buelow	Northern Flicker			
3/21-4/3	P.I.	1	I. Giirunas#	4/21	P.I.	40	M. Lynch#
3/25	Ipswich	1	C. Caron	Pileated Woodpecker			
3/29	E. Boston (B.I.)	1	J. Young	3/thr	Pepperell	2	E. Stromsted
4/6	Boston (Logan)	1	N. Smith	3/2	Tyngsboro	2	M. Amrich
4/9	Westport	1	M. Lynch#	3/2	Westford	2	D. + S. Selesky
Northern Saw-whet Owl				3/25	Magnolia	2	BBC (D. Pelouquin)
3/3	Quabbin (G 43)	1	J. Hoye#	4/16	Wayland	2	G. Long
3/7-3/8	Erving	1	V. Yurkunas#	4/21	Mt. Wachusett	2	EMHW (P. Roberts)
3/9-14	Ashfield	1	S. Sauter	4/30	Lancaster	3	R. Lockwood
3/19	Adams	1	R. Rancatti	thr	Reports of indiv. from 17 locations		
4/4	Sheffield	1	D. St. James	Least Flycatcher			
4/5	Washington	1	E. Neumuth	4/29	Gardner	1	T. Pirro
4/13	Northampton	1	R. Packard	Eastern Phoebe			
Chuck-will's-widow				3/18	Cambridge	1	D. + I. Jewell
4/29	Edgartown	1	A. Keith	3/19	E. Middleboro	1	A. Bricsette
Whip-poor-will				3/21, 4/7	Hardwick	1, 7	C. Buelow
4/21	Pepperell	1	M. Torpey#	3/31	Wayland	2	R. Veit#
4/24	Boston	1	D. Wilkinson	4/5	Mt. Tom St. Res.	5	T. Gagnon
4/27	Southwick	1	S. Kellogg	4/7	Worc. (BMB)	5	J. Liller#
4/28	Lancaster	4	R. Lockwood	4/7	Mt.A.	5	R. Stymeist
4/29	Edgartown	10	A. Keith	4/8	Gardner	7	T. Pirro
4/30	S. Peabody	1	R. Heil	4/8	Northampton	6	R. Packard
4/30	Wellfleet	15	M. Faherty	4/9	Essex Co.	24	R. Heil
Chimney Swift				4/13	P.I.	17	P. + F. Vale
4/23	Waltham	2	J. Michaels	4/14	P'town	6	M. Faherty#
4/23	Groton	1	T. Pirro	4/21	MNWS	6	P. + F. Vale
4/24	Worcester	2	W. Miller	4/21	Stow	16	R. Lockwood
4/24	Arlington Res.	3	M. Rines	Great Crested Flycatcher			
4/25	Stoughton	15	D. Larson	4/23	Westfield	1	J. Hutchison
4/30	Melrose	3	D. + I. Jewell	4/26	N. Medfield	1	E. Morrier
Ruby-throated Hummingbird				4/30	Worc. (BMB)	1	J. Liller#
4/14	M.V.	1	R. Cavanagh	4/30	Southwick	1	S. Kellogg
4/24	P.I.	1	T. Carrolan	Eastern Kingbird			
4/28	Middleboro	1	J. Mason	4/22	W. Tisbury	1	A. Keith
				4/23	N. Weymouth	1	R. Titus

Eastern Kingbird (continued)

4/24	HRWMA	1
4/25	Stoughton	1
4/26	Mt.A.	1
4/27	Boston (F.Pk)	1
4/29	Nantucket	1
4/30	Gill	1

Northern Shrike

3/2	Sheffield	2
3/2	Ashley Falls	2
3/3	Salisbury	1
3/4-4/4	P.I.	1-2
3/4	Beckett	1
3/1-2	Adams	1
3/16	Marshfield	1
3/19	New Salem	1
3/20	Marstons Mills	1
3/24	P'town	1 imm
3/25	DWWS	1 ad
3/26	Pittsfield	1
3/29	Gay Head	1
3/31	Sudbury	1
4/1	GMNWR	1
4/14	E. Orleans	1
4/16	Windsor	1

White-eyed Vireo

4/29	W. Tisbury	1
4/29	Oak Bluffs	1

Blue-headed Vireo

4/13	P.I.	1
4/13	Nahant	3
4/14	Hingham	1
4/16	Uxbridge	1
4/16	Agawam	1
4/20	Winchester	1
4/20	Quabbin (G35)	1
4/21-30	Mt.A.	13 max 4/27
4/24	MNWS	6
4/27	Wakefield	7
4/28	Medford	5
4/28	Barre F.D./Rutland S.P.	23
4/29	Maynard	3
4/30	Lancaster	5

Yellow-throated Vireo

4/23	Woburn	1
4/24	Nantucket	1

Warbling Vireo

4/23	Woburn	2
4/25	Amherst	1
4/28	Bolton Flats	2
4/29	Wakefield	2
4/29	Boston	1

Philadelphia Vireo

4/30	Pittsfield	1
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American Crow

3/18	Framingham	2000+
3/20	Brookline	2000
4/21	Framingham	2000+

Fish Crow

3/4	Northampton	1
3/10	Arlington	5
3/10, 4/7	Mt.A.	53, 5
3/13	Stoughton	1
3/20	Brookline	80
3/21	Amherst	2
3/23	Sandwich	1
3/25	Grafton	1
3/27	Easthampton	2
3/27	Longmeadow	1
3/27	Woburn	12
4/9	WBWS	2
4/14	Douglas SF	1
4/15	S. Weymouth	2
4/19	P.I.	1
4/21	Agawam	1
4/24	Medford	2
4/29	DWWS	5

Common Raven

3/1	Ashfield	1
3/3	Pepperell	2
3/4	Lee	1
3/4	Sunderland	1
3/10	Quabbin	8
3/24	Dedham	1
3/26	Southbridge	1
3/28	Turners Falls	2
4/9	Amherst	1
4/15	Barre F.D./Rutland S.P.	pr + 4 yg
4/18	Westminster	1
4/19	Ashburnham	1
4/22	Oxford	1

Horned Lark

3/4	Salisbury	60
3/10	Eastham (F.E.)	35
3/12	Boston (Logan)	200
3/15	Ipswich	40
3/18	Brewster	8
3/20	Halifax	40
3/25	Lincoln	11
3/31	P.I.	50
3/31	Deerfield	200
4/1	Concord	40
4/4	Bolton Flats	70
4/8	Sunderland	125
4/10	Chatham (S.B.)	10
4/21	Orleans	8
4/28	Northampton	4

Purple Martin

4/8, 29	DWWS	1, 8
4/13	Bolton Flats	1
4/14	P'town	1
4/17	P.I.	1 m
4/26	P.I.	10

Tree Swallow

3/15	P.I.	1
3/16	Turner's Falls	5
3/16	Concord (NAC)	2
3/18	W. Bridgewater	3
3/26	N. Medfield	35
3/31	S. Hanson	200
4/3	W. Brookfield	250
4/7	Stoughton	100
4/9, 15	P.I.	86, 250 migr
4/10	Turner's Falls	100
4/10	Gill	75
4/11	Sheffield	300
4/13	Wakefield	475+
4/13	Groton	200
4/14	IRWS	320+
4/14	Pepperell	100

Northern Rough-winged Swallow

4/6	Gill	1
4/6	Wakefield	3
4/7	Uxbridge	2
4/10	Turners Falls	2
4/10	Hyannis	1
4/10	Lakeville	2
4/10	Clinton	2
4/13	Wakefield	16
4/14	Braintree	5
4/15	P.I.	4
4/17	W. Groton	4
4/18	Groton	7
4/19	Boston	4
4/19	Cheshire Res.	8
4/22	Oxford	6
4/25	Stoughton	17
4/28	GMNWR	4

Bank Swallow

4/24	Avon	3
4/25	Bedford	5
4/27	Southwick	2

Barn Swallow

3/23	Chilmark	1
4/7	Falmouth	1

S. Sauter
M. Resch
M. Lynch#
M. Williams
J. Hoye#
D. Sibley
D. Blain
B. Lafley
I. Dukovski
M. Lynch#
C. Caron
C. Caron
P. Meleski#

BBC (L. Pivacek)
G. d'Entremont#
N. Smith
J. Soucy#
S. Finnegan
R. Heil
M. Rines
G. d'Entremont
S. Surner
S. Perkins#
R. Lockwood
S. Surner
M. Faherty
S. Hedman
T. Gagnon

D. Furbish
M. Lynch#
v.o.
J. Berry
R. Heil

T. Carrolan
M. Fairbrother
S. Perkins
E. Giles
E. Morrier
W. Petersen
C. Beulow
D. + S. Larson
R. Heil
R. Packard
R. Packard
D. St. James
P. + F. Vale
E. Stromsted
P. + F. Vale
E. Stromsted

Barn Swallow (continued)			Golden-crowned Kinglet					
4/7	Berlin	1	T. Pirro	3/16	Plymouth	4	R. Titus#	
4/9	Belchertown	2	S. Surner	3/16	Holyoke	8	J. Gawienowski	
4/9, 30	P.I.	3, 14	R. Heil	3/28	Quabbin (G43)	6	C. Buelow	
4/10	Chatham (S.B.)	2	M. Faherty	4/1	Randolph	5	G. d'Entremont	
4/11	Ipswich (C.B.)	10	C. Beulow	4/1, 15	Boxford	5, 5	J. Berry#	
4/16	Dennisport	6	D. Silverstein#	4/6	Gloucester	8	S. Hedman	
4/25	Stoughton	10	D. Larson	4/7	Boston	5	A. Joslin#	
Cliff Swallow								
4/12	Turners Falls	1	S. Smolen-Morton	4/7	Boxboro	12	J. Michaels	
4/13	Wakefield	2	P. + F. Vale	4/7	Hardwick	37	C. Beulow	
4/29	Lenox	4	D. St. James	4/7	Uxbridge	9	M. Lynch#	
Red-breasted Nuthatch								
3/1	Ashburnham	2	C. Caron	4/8	Mt.A.	8	R. Stymeist	
3/24	Nahant	2	L. Pivacek	4/8	Bolton Flats	15+	M. Lynch#	
4/1	Boxford	2	J. Berry#	4/9	Hingham	10	G. d'Entremont	
4/14	Ipswich	2	J. Berry	4/13	Acoaxet	8	M. Lynch#	
4/14	Lexington	2	M. Rines	4/21	P.I.	12	C. Beulow	
4/14	Holyoke	3	T. Gagnon	4/21	MNWS	15	R. Heil	
4/15	Barre F.D./Rutland S.P.	18	M. Lynch#	Ruby-crowned Kinglet				
4/29	Boston	2	BBC (R. Stymeist)	3/3	Worcester (BMB)	1	H. Shainheit	
Brown Creeper								
3/19	Hardwick	5	C. Buelow	3/16	Marblehead	3	R. Heil	
3/19	Manchester	4	S. Hedman	3/18	Wakefield	1	D. + I. Jewell	
4/1	Boxford	4	J. Berry#	4/7	Truro	1	J. Young	
4/13	E. Middleboro	5	A. Brissette	4/14	Watertown	4	S. Moore#	
4/14	Holyoke	3	T. Gagnon	4/15, 23	P.I.	7, 20	R. Heil	
4/14	Boxford (C.P.)	3	D. + S. Larson	4/20	Worcester	14	M. Lynch#	
4/16	Medford	4	M. Rines	4/21	Mt.A.	25+	B. Harrison	
4/21	ONWR	3	R. Lockwood	4/21	MNWS	30+	R. Heil	
4/22	Oxford	6	P. Meleski#	4/22	Arlington	8	K. Hartel#	
4/24	Sudbury	4	R. Lockwood	4/22	IRWS	20+ BBC (P. + F. Vale)		
4/26	Gardner	3	T. Pirro	4/22	W. Newbury	22	P. + F. Vale	
4/28	Barre F.D./Rutland S.P.	11	M. Lynch#	4/22	Northfield	8	M. Taylor	
4/30	Wakefield	2	F. Vale	4/22, 23	P'town	14, 20	B. Nikula	
Carolina Wren								
thr	Berkshire County	4	v.o.	4/23	Woburn	16	M. Rines	
thr	Hamden County	2	v.o.	4/28	ONWR	13	R. Lockwood	
thr	Hampshire County	2	v.o.	4/30	Lancaster	13	R. Lockwood	
3/18	Acoaxet	17	M. Lynch#	Eastern Bluebird				
3/18	Gloucester	3	R. Stymeist	3/3	Concord, Carlisle	5, 4	R. Stymeist	
3/24	Dedham	3	A. Joslin	3/7	DFWS	25	D. Hart	
4/thr	MNWS	8+	R. Heil	3/11	Boxboro	4	J. Michaels#	
4/7	Nahant	4	M. Rines	3/14	Pepperell	12	E. Stromsted	
4/7	Mt.A.	3	R. Stymeist	3/19	Worc. (BMB)	5	J. Liller	
House Wren								
4/22	Agawam	1	R. Stone	4/3	Hamilton	4	R. Heil	
4/23	Woburn	1	M. Rines	4/6	DWWS	4	D. Furbish	
4/23	E. Middleboro	1	K. Anderson	4/7	Worc. (BMB)	4	J. Liller#	
4/24	Medford	5	M. Rines	4/9	P.I.	4	T. Carrolan	
4/29	Oxford	6	P. Meleski	4/16	Turners Falls	4	I. Dukovski	
4/29	Boston	3	BBC (R. Stymeist)	4/20	HRWMA	6	T. Pirro	
Winter Wren								
3/16	Marblehead	3	R. Heil	4/22	Carlisle	2 pr	D. + T. Brownrigg	
4/7	Hardwick	2	C. Beulow	4/22	IRWS	4	BBC (P. + F. Vale)	
4/14	Douglas SF	2	M. Lynch#	Hermit Thrush				
4/15	Boxford	5	J. Berry	4/7	MNWS	6	L. de la Flor#	
4/16	Wayland	2	G. Long	4/8	P.I.	6	D. Chickering	
4/20	MNWS	4 max	R. Heil	4/9-30	Mt.A.	32 max	4/26 v.o.	
4/28	Hingham	5	C. Dalton	4/11	Northfield	5	M. Taylor	
4/28	Carlisle	4	T. + D. Brownrigg#	4/13	Salisbury	12	D. Chickering#	
Marsh Wren								
3/28	DWWS	1	D. Furbish#	4/13	Hingham	6	D. Peacock	
4/16	P.I.	2	J. Hoye#	4/14	Douglas SF	11	M. Lynch#	
4/29	Boston	2	BBC (R. Stymeist)	4/14	Boxford (C.P.)	6	D. + S. Larson	
Blue-gray Gnatcatcher								
4/14	Northfield	1	M. Taylor	4/15	P.I.	24	R. Heil	
4/17	Winchester	1	M. Rines	4/15	Boston	10	J. Dekker	
4/20, 30	Lancaster	1, 3	R. Lockwood	4/20	MNWS	27	R. Heil	
4/20	Quabbin	2	K. Allie	4/22	Squantum	8	G. d'Entremont	
4/21	P.I.	5	M. Lynch#	4/22	Newbypt	5	BBC (S. Grinley)	
4/22	GMNWR	5	BBC (J. Center)	4/29	Maynard	6	R. Lockwood	
4/24	MNWS	3	R. Heil	Wood Thrush				
4/27	Uxbridge	3	M. Lynch#	4/14	DWWS	1	D. Furbish	
4/28	Boxford (C.P.)	3	D. Larson#	4/16	Concord	1	M. Schwope	
4/28	P'town	4	B. Nikula	4/20	Lincoln	1	M. Maloney	
4/28	W. Newbury	5	J. Hoye#	4/23	Northfield	1	M. Taylor	
4/29	Hingham	6	D. Larson#	4/24	Plainfield	1	T. Collins	
			American Robin					
			3/10			Orleans	100	G. d'Entremont#
			3/17			Mt.A.	150+	R. Stymeist
			4/6			Hadley	5000	H. Allen
			4/6			Groton	500+	T. Pirro
			4/7			Mt.A.	230+	R. Stymeist
			4/8			Newbury	500+	P. + F. Vale

American Robin (continued)				4/28	Bolton Flats	1	J. Hoye#
4/8	Rowley	250+	P. + F. Vale	4/29	Maynard	1	R. Lockwood
4/8	Bolton Flats	314	M. Lynch#	4/29	Hingham	1	D. Larson#
4/8	Ipswich	300	J. Berry	4/30	New Salem	1	B. Lafley
4/9	Westport	103	M. Lynch#	4/30	MNWS	1	K. Haley
4/15	Bolton Flats	110+	M. Lynch#	Northern Parula			
4/26	Waltham	1	J. Forbes	4/23-25	P'town	1	S. + C. Thompson
Varied Thrush				4/24	Medford	2	M. Rines
3/10	Worthington	1 m	D. McLain	4/24	Chatham	1	S. + C. Thompson
Gray Catbird				4/24	Mt.A.	1	D. Larson
3/3	P.I.	1	M. Faherty#	4/26	Worcester	3	M. Lynch#
3/11	Falmouth	1	G. d'Entremont#	4/27	Groton	1	T. Pirro
3/17	S. Dartmouth	1	J. Hoye#	4/29	Westfield	1	J. Hutchison
3/27	Woburn	1	M. Rines	4/29	Boston	2	BBC (R. Stymeist)
4/thr	MNWS	1	R. Heil	4/30	MNWS	1	K. Haley
4/9	Acoaxet	3	M. Lynch#	4/30	Lancaster	1	R. Lockwood
4/9	P.I.	2	R. Heil	Yellow Warbler			
4/24	Medford	3	M. Rines	4/22	Northampton	1	T. Gagnon
4/28	Southwick	1	S. Kellogg	4/23	Milton	1	C. Dalton
Brown Thrasher				4/24	Canton	3	D. Larson
3/12	Boxford	1	J. MacGougall	4/24	MNWS	2	R. Heil
3/17	MNWS	1	S. Hedman	4/24	Westboro	5	E. Morrier
3/31	Melrose	1	D. + I. Jewell	4/24	Longmeadow	1	J. LaPointe
4/15	DWWS	1	S. Carey	4/26	Manchester	3	S. Hedman#
4/19	Nantucket	1	P. Brown	4/27	P.I.	4	P. + F. Vale
4/21	Mt.A.	1	A. Burns	4/28	Worc. (BMB)	3	J. Liller#
4/21	Amherst	1	S. Surner	4/28	Wayland	3	SSBC (B. Howell)
4/22	Oxford	2	P. Meleski#	4/28	Bolton Flats	5	J. Hoye#
4/24, 28	Medford	1, 6	M. Rines	4/29	Boston	5	BBC (R. Stymeist)
4/24	Sudbury	1	R. Lockwood	Chestnut-sided Warbler			
4/24	Westboro	1	E. Morrier	4/26	Nantucket	1	J. Van Voorst
4/25	Wakefield	1	F. Vale	Black-throated Blue Warbler			
4/27	P.I.	4	P. + F. Vale	3/31	Brewster	1 f.	J. Robb
4/27	Agawam	2	J. LaPointe	4/29	Amherst	1	D. Norton
4/28	Worc. (BMB)	2	J. Liller#	4/30	Mt.A.	2	J. Dekker
American Pipit				Yellow-rumped Warbler			
3/25	P.I.	1	S. Haydock	3/4	Squantum	4	SSBC (R. Titus)
3/27	Ipswich	1	J. Berry	3/12	Sheffield	5	C. Barrett
4/1	Grafton	1	M. Lynch#	3/18	Quincy	10	W. Nelson
4/25	Hyannis	7	C. Beulow	4/7	Falmouth	40	D. Furbish
4/28	Northampton	6	T. Gagnon	4/20-30	Mt.A.	75 max 4/23	v.o.
4/28	Bolton Flats	2	J. Hoye#	4/23	Woburn	111	M. Rines
Bohemian Waxwing				4/24	Boston	50+	D. Wilkinson
4/28	Nantucket	6	D. Diete	4/24	MNWS	45	R. Heil
Cedar Waxwing				4/25	Longmeadow	1000	J. LaPointe
3/3	Ipswich	50	R. Heil	4/26	Worcester	130+	M. Lynch#
3/3	Eastham	42	B. Nikula	4/28	P'town	45+	B. Nikula
3/4	Dalton	140	D. Larson#	4/28	Medford	35	M. Rines#
3/10	Peabody	70	P. + F. Vale	4/28	ONWR	63	R. Lockwood
3/10	Quabbin	40	J. Hoye#	4/28	Wayland	35+	SSBC (B. Howell)
3/11	Barnstable	60	G. d'Entremont#	4/29	Maynard	33	R. Lockwood
3/18	Acoaxet	110	M. Lynch#	4/30	P.I.	55	R. Heil
3/21	Westminster	92	C. Caron	4/30	Lancaster	32	R. Lockwood
3/31	Wakefield	90+	D. + I. Jewell	Black-throated Green Warbler			
4/1	Grafton	36	M. Lynch#	4/14	Hingham	1	R. Finch#
4/5	Jam. Plain	60	J. Young	4/22	Medford	1	R. LaFontaine
4/9	Mt.A.	33	BBC (R. Petersen)	4/22	Boxford (C.P.)	1	S. Moore#
4/14	Southwick	80	S. Kellogg	4/22	Holyoke	2	J. LaPointe#
4/22	Stoughton	25	G. d'Entremont	4/24	MNWS	2	R. Heil
4/27	Uxbridge	33	M. Lynch#	4/24-30	Mt.A.	4 max 4/27	v.o.
Blue-winged Warbler				4/28	Barre F.D./Rutland S.P.	10	M. Lynch#
4/25	Amherst	1	I. Dukovski	4/29	Gardner	2	T. Pirro
4/25	Medford	1	D. + I. Jewell	4/29	Reading	2	D. Williams#
4/26	Mt.A.	1	BBC (P. + F. Vale)	4/29	Maynard	2	R. Lockwood
4/26	Worcester	1	M. Lynch#	4/30	Manchester	2	S. Hedman
4/30	Worc. (BMB)	2	J. Liller#	4/30	Lancaster	3	R. Lockwood
Orange-crowned Warbler				Blackburnian Warbler			
3/9	Marshfield	1	D. Clapp	4/26	Framingham	1	J. Slovin
3/26-4/14	Watertown	1	E. Nelson-Melby + v.o.	4/27	Ashfield	1	S. Sauter
3/29	E. Boston (B.I.)	1	J. Young	4/29	Amherst	1	D. Norton
4/4	Marblehead	1	K. Haley	Yellow-throated Warbler			
4/23	Woburn	1	M. Rines	4/6-10	W. Tisbury	1	D. Swanson + v.o.
4/30	Wellfleet	1	M. Faherty	Pine Warbler			
Nashville Warbler				4/1	Duxbury	1	L. Cleveland
4/24, 26	Medford	1, 2	M. Rines	4/3	Falmouth	2	D. Silverstein
4/26	Worcester	3	M. Lynch#	4/6	Mattapoisett	1	M. Sylvia
4/27	Boston (F.Pk)	1	J. Young	4/6	Lincoln	1	W. Petersen
4/28	Mt.A.	1	R. Stymeist#	4/11	Wellfleet	25+	M. Faherty

Pine Warbler (continued)				Louisiana Waterthrush			
4/14	P'town	5	M. Faherty#	4/9	Sheffield	1	D. St. James
4/16	Hingham	12	D. Larson	4/13, 20	Nahant	1, 2	L. Privacek
4/16-30	Mt.A.	6 max	4/21 v.o.	4/13	P.I.	1	P. + F. Vale
4/21	Stow	24	R. Lockwood	4/13, 20	MNWS	1, 2	R. Heil
4/21	Hamilton	5+	R. Heil	4/14	Hingham	3	R. Finch#
4/22	Douglas SF	6	M. Lynch#	4/15	P'town	1	B. Nikula
4/22	Holyoke	50+	J. LaPointe#	4/15	P.I.	2	R. Heil
4/22	Newbypt	12	BBC (S. Grinley)	4/15	Boxford	3 m	J. Berry
4/22	IRWS	10+	BBC (P. + F. Vale)	4/22	Oxford	1	P. Meleski#
4/23	Lancaster	11	R. Lockwood	4/22	Carlisle	1	D. + T. Brownrigg
4/25	Hyannis	20	C. Beulow	4/23	Groton	1	T. Pirro
4/28	Barre F.D./Rutland S.P.	39	M. Lynch#	4/23	Northfield	1	M. Taylor
4/29	Maynard	13	R. Lockwood	4/29	Hingham	2	D. Larson#
4/29	Boston	6	BBC (R. Stymeist)	Common Yellowthroat			
Prairie Warbler				4/24	Medford	1	M. Rines
4/22-26	Mt.A.	1-2	v.o.	4/28	Amherst	1	H. Allen
4/24	MNWS	1 m	R. Heil	4/29	Maynard	1	R. Lockwood
4/24	Carlisle	1	M. Torpey	4/29	Boston	3	BBC (R. Stymeist)
4/29	Oxford	1	P. Meleski	4/30	Worc. (BMB)	1	J. Liller#
Palm Warbler				Hooded Warbler			
4/7	Boston	1	A. Joslin#	4/25	Nantucket	1	A. Webb
4/7	Watertown	1	L. Berk#	4/29	WBWS	1	B. Murphy
4/8	Gardner	1	T. Pirro	Yellow-breasted Chat			
4/8	Northampton	2	R. Packard	4/29	Boston	1	BBC (R. Stymeist)
4/8	Agawam	2	R. Stone	Summer Tanager			
4/9-30	Mt.A.	13 max	4/26 v.o.	4/26-27	Orleans	1 m	R. Prescott
4/14	Wakefield	13	P. + F. Vale	4/28	Oak Bluffs	1	V. Laux#
4/16, 27	Boston (F.Pk)	12, 8	J. Young	Scarlet Tanager			
4/19	Pittsfield	13	R. Packard#	4/29	Nantucket	1	J. Papale
4/20	MNWS	15	R. Heil	Eastern Towhee			
4/22	IRWS	30+	BBC (P. + F. Vale)	3/11	Truro	1	V. Page
4/22, 29	P'town	15, 30	B. Nikula	3/17	S. Dartmouth	1	J. Hoye#
4/22	Holyoke	35	J. LaPointe#	3/18	Gr Barrington	1	G. Platz
4/25	Hyannis	12	C. Beulow	4/9	Acoaxet	3	M. Lynch#
4/27	P.I.	35	P. + F. Vale	4/21	W. Newbury	3	D. + S. Larson
4/28	Medford	34	M. Rines#	4/21	Stow	21	R. Lockwood
4/28	Wayland	22+	SSBC (B. Howell)	4/22	Oxford	4	P. Meleski#
Black-and-white Warbler				4/24	Sudbury	24	R. Lockwood
4/17	Gloucester	1	D. Sandee	4/25	Hyannis	10	C. Beulow
4/22	Northfield	2	M. Taylor	4/25	Medford	6	D. + I. Jewell
4/22	Dudley	1	P. Meleski#	4/29	Maynard	20	R. Lockwood
4/22	Northampton	1	T. Gagnon	4/29	Oxford	8	P. Meleski
4/22	Medford	1	B. Krisler	4/30	Worc. (BMB)	14	J. Liller#
4/22-30	Mt.A.	1-3+	v.o.	American Tree Sparrow			
4/24	MNWS	3	R. Heil	3/4	Sheffield	14	M. Lynch#
4/26	Winchester	2	J. Stein#	3/11	P.I.	125+	J. Trimble#
4/28	ONWR	2	R. Lockwood	3/24	Dedham	24+	A. Joslin
4/28	Woburn	3	M. Rines#	3/31	Bolton Flats	12	M. Lynch#
4/28	W. Newbury	2	P. + F. Vale	4/6	Worcester	20+	M. Lynch#
4/29	Hingham	6	D. Larson#	4/8	Westboro	10	M. Lynch#
4/29	Gardner	2	T. Pirro	4/9	Ipswich	1	J. Berry
4/30	Lancaster	6	R. Lockwood	4/19	Williamsburg	2	R. Packard
4/30	Worcester	2	M. Lynch#	Chipping Sparrow			
Worm-eating Warbler				4/7	Falmouth	1	D. Furbish
4/25	Mt.A.	1	D. Crockett# + v.o.	4/8	Gloucester	1	J. Nelson
Ovenbird				4/9	Acoaxet	1	M. Lynch#
4/13	Hingham	1	D. Peacock	4/11	Winchester	2	M. Rines
4/13	MNWS	1	R. Heil	4/13	Goshen	1	R. Packard
4/22	Cumb. Farms	1	R. Titus#	4/13	P.I.	5	D. Chickering
4/27	Mt.A.	1	BBC (P. + F. Vale)	4/13-30	Mt.A.	24 max	4/29 v.o.
4/29	Westfield	1	J. Hutchison	4/21	Stow	23	R. Lockwood
4/29	Oxford	1	P. Meleski	4/22	Douglas SF	30+	M. Lynch#
4/30	Lancaster	2	R. Lockwood	Field Sparrow			
4/30	Chilmark	1	A. Keith	3/17	S. Dartmouth	2	J. Hoye#
Northern Waterthrush				3/18	Cambridge	1	D. + I. Jewell
4/16	E. Middleboro	3 m	K. Anderson	3/24	Concord	1	B. Volkle#
4/21-25	Mattapoisett	1	M. LaBossiere	3/29	N. Medfield	1	E. Morrier
4/22	Bridgewater	1	R. Titus#	4/1	Grafton	2	M. Lynch#
4/24	MNWS	1	R. Heil	4/7	Falmouth	2	D. Furbish
4/24	Medford	1	M. Rines	4/7	Worc. (BMB)	6	J. Liller#
4/28	Worc. (BMB)	1	J. Liller#	4/9	Acoaxet	3	M. Lynch#
4/28	Amherst	1	H. Allen	4/15	Stoughton	4	D. Larson
4/28	GMNWR	1	C. Caron	4/21	P.I.	13	M. Lynch#
4/29	Gardner	2	T. Pirro	4/23	Woburn	3	M. Rines
4/29	Oxford	1	P. Meleski	4/23	Lancaster	8	R. Lockwood
4/30	Lancaster	1	R. Lockwood	4/29	Oxford	4	P. Meleski
4/30	Wayland	1	L. Nachtrab				

Vesper Sparrow			Dark-eyed Junco					
4/14-28	Hadley	4	T. Gagnon#	3/1-3/13	Erving 80+	V. Yurkunas#		
4/19	Medford	1	R. LaFontaine#	3/26	Pepperell 200	E. Stromsted		
4/20	Lancaster	3	R. Lockwood	3/31	Bolton Flats 69	M. Lynch#		
4/20	HRWMA	1	T. Pirro	4/6	Worcester 43	M. Lynch#		
4/21	Essex	1 m	M. Lynch#	4/7	Hardwick 224	C. Beulow		
4/21	Hadley	3	S. Sumner	4/8	Bolton Flats 55	M. Lynch#		
4/21	P.I.	2	M. Lynch#	4/11	Hingham 100+	D. Peacock		
4/21	Milton	1	J. Brennan	4/21	P.I.	4	D. Chickering	
4/26	N. Medfield	1	E. Morrier	4/21	Westminster	4	C. Caron	
4/29	Sheffield	1	D. St. James	4/22	Rowley	2	J. Berry	
Savannah Sparrow			"Oregon" Junco					
3/10	Eastham (F.E.)	4	G. d'Entremont#	3/23-25	Pepperell 1	M. Resch		
3/12	Salisbury	2	J. Berry#	"Oregon (pink-sided)" Junco				
3/15	W. Bridgewater	1	M. Faherty	3/4	Windsor	1	D. Larson#	
4/5	Mashpee	2	C. Beulow	3/4	Williamsburg	1	D. Larson#	
4/6,30	Melrose	1, 10+	D. + I. Jewell	Lapland Longspur				
4/10	Chatham (S.B.)	4	M. Faherty	3/3	Eastham	50	G. Hirth	
4/13	P.I.	10	P. + F. Vale	3/4	P.I.	35	S. Haydock	
4/16	W. Bridgewater	68	M. Faherty	3/10	Hadley	1	H. Allen	
4/20	Lexington	42	M. Rines	3/12	Boston (Logan)	5	N. Smith	
4/20	Lancaster	16	R. Lockwood	3/20	Halifax	15+	R. Heil	
4/20	Bolton Flats	32	C. Caron	4/8	Sunderland	1	S. Sumner	
4/21	P.I.	46	M. Lynch#	4/8	Bolton Flats	1 m	M. Lynch#	
4/22	W. Bridgewater	55	SSBC (R. Titus)	4/9	Deerfield	1	S. Smolen-Morton	
"Ipswich" Sparrow			Snow Bunting					
3/3	P.I.	1	S. Kellogg	4/22	W. Bridgewater	1	R. Titus#	
3/20	Westport	1	R. Heil	4/28	Nantucket	1	S. Langer	
3/25	Duxbury B.	1	D. Furbish	4/29	Edgartown	1	E. Potter#	
3/28	Edgartown	6	G. Daniels	Fox Sparrow				
4/13	P.I.	1	P. + F. Vale	3/1	Ashfield	20	S. Sauter	
Fox Sparrow			Lincoln's Sparrow					
3/1	Amherst	2	H. Allen	3/11	Ipwich	50	S. Hedman	
3/17	S. Dartmouth	7	J. Hoye#	3/12	Boston (Logan)	60	N. Smith	
3/17	Mt.A	5	R. Stymeist	3/12	Salisbury	40	J. Berry#	
3/18	Westport	4	M. Lynch#	3/12	Lanesboro	9	R. Rancatti	
3/24	Boston	4	B. Mayer	3/15	Gloucester	20	J. Soucy#	
3/26	Lynnfield	9	F. Vale#	3/15	W. Bridgewater	35	M. Faherty	
3/28	Woburn	9	M. Rines	3/16	P.I.	50+	D. Chickering	
3/31	Sudbury	7	E. Salmela	3/18	Hadley	30	I. Dukovski	
3/31	Lexington	14	M. Rines	3/28	Deerfield	5	B. Lafley	
4/1	Lincoln	6	M. Rines	4/1	Concord	12	S. Perkins	
4/7	Nahant	7	M. Rines	4/8	Bolton Flats	5	M. Lynch#	
4/7	Hardwick	17	C. Beulow	4/8	P'town (R.P.)	2	R. Lockwood#	
4/7	Malden	5	P. + F. Vale	Rose-breasted Grosbeak				
4/8	Templeton	5	T. Pirro	4/15	M.V.	5	fide A Keith	
4/13	Hingham	8	D. Peacock	4/24	Nantucket	1	M. Keller	
4/19	Pittsfield	1	R. Packard	4/25	Worcester	1 m	J. Liller	
Lincoln's Sparrow			Blue Grosbeak					
3/19	Longmeadow	1 A. + L. Richardson	4/25			Pittsfield	1	M. Thorne
Swamp Sparrow			Indigo Bunting					
3/17	Mt.A	1	R. Stymeist	4/26	Northboro	1	B. Volkle	
3/28	Woburn	2	M. Rines	4/29	Agawam	1	J. LaPointe	
3/31	Groton	6	E. Stromsted	4/30	Amherst	1	D. Norton	
4/15	Amherst	20	I. Dukovski	Painted Bunting				
4/20	Lancaster	5	R. Lockwood	3/7-25	Malden	1	R. + J. Wootton	
4/21	Stow	20	R. Lockwood	Dickcissel				
4/21	ONWR	17	R. Lockwood	thr	Barnstable	1	H. Ferguson	
4/22	IRWS	5	BBC (P. + F. Vale)	4/30	Wayland	2	L. Nachtrab	
4/22	Oxford	8	P. Meleski#	Red-winged Blackbird				
4/23	Wakefield	8	P. + F. Vale	3/20	Middleboro	3000+	R. Heil	
4/24	Boston	5	D. Wilkinson	3/21	W. Bridgewater	500	M. Faherty	
4/29	Maynard	11	R. Lockwood	3/31	Westboro	2300	M. Lynch#	
White-throated Sparrow			Bobolink					
3/17	Mt.A	27	R. Stymeist	4/11	Bolton Flats	4000+	M. Lynch#	
4/13	Lynnfield	20+	D. + I. Jewell	Eastern Meadowlark				
4/21	P.I.	72	M. Lynch#	3/12	Fairhaven	3	P. Brown	
4/22	P'town	80	B. Nikula	3/20	Westport	5	R. Heil	
4/24	MNWS	38	R. Heil	3/23	Concord (NAC)	2	D. Diggins	
4/24	Boston	75+	D. Wilkinson	3/25	DWWS	3	M. Faherty#	
4/30	Lancaster	24	R. Lockwood	4/1	Hadley	3	I. Dukovski	
Harris's Sparrow			Red-winged Blackbird					
3/29-4/1	Naushon I.	1 ad	S. Storer	4/2	New Braintree	6	C. Beulow	
White-crowned Sparrow			Painted Bunting					
3/23	Nantucket	1	E. Andrews	4/8	Bolton Flats	3	M. Lynch#	
4/8	Truro	1	J. Young	4/8	Newbury	3	P. + F. Vale	
4/29	Needham	1	J. Samelson	4/20	Lancaster	6	R. Lockwood	

Eastern Meadowlark (continued)			3/7	Maynard	5	L. Nachtrab
4/21 Newbypt.	6	M. Lynch#	3/14	Ashfield	6	S. Sauter
Rusty Blackbird			3/17	Carlisle	4	J. Keskulla
3/3 Newbypt	1	J. Berry#	3/18	Westport	4	M. Lynch#
3/10 Medford	1	M. Rines	4/1	Arcadia MAS	4	E. Labato
3/12 IRWS	3	J. MacGougall	4/8	Lincoln	30	M. Rines
3/27 Westminster	2	C. Caron	4/15	P.I.	21	R. Heil
3/29 Cohasset	12	K. Vespaziani	4/15	Boxford	4 m	J. Berry
3/31 Wayland	20	S. Perkins#	4/28	Barre F.D./Rutland S.P.	7	M. Lynch#
3/31 GMNWR	10	R. Veit#		Red Crossbill		
4/2 Groton	10	T. Pirro	4/15	Stoughton	1	R. Titus
4/2 Amherst	3	H. Allen		White-winged Crossbill		
4/3 W. Brookfield	15	C. Beulow	3/1, 23	Ashfield	12, 30	S. Sauter
4/7 Longmeadow	20	I. Dukovski	3/1	Ashburnham	1	C. Caron
4/9 P'town	6	D. Silverstein#	3/3	Gardner	4	T. Pirro
4/13 Washington	12	E. Neumuth	3/11	Savoy	15	T. Gagnon
4/13 Bolton Flats	20+	M. Lynch#	3/11	Windsor	12	T. Gagnon
4/19 Cheshire Res.	1	R. Packard#	3/15	Savoy	12	H. Allen
4/20 Wakefield	8	P. + F. Vale	3/28	Dalton	3	M. Wiley
4/23 W. Bridgewater	1	K. Anderson	3/28, 4/6	Becket	2, 1	R. Laubach
4/29 Oxford	1 m	P. Meleski	4/4	Washington	2	E. Neumuth
Common Grackle			4/18	Windsor	2	G. Shampang
3/11 Dartmouth	27	A. Hankin		Common Redpoll		
3/11 Wayland	30	A. McCarthy#	3/28	Hardwick	1	T. Raymond
3/24 Dedham	500+	A. Joslin		Pine Siskin		
3/31 Methuen	25,000+	J. Hogan#	3/1, 3/14	Ashfield	7, 50	S. Sauter
4/13 Bolton Flats	5000	M. Lynch#	3/3	Gardner	8	T. Pirro
4/16 Framingham	1500+	E. Taylor	3/4	Windsor	75	D. Larson#
Brown-headed Cowbird			3/9	S. Peabody	1	R. Heil
4/1 Hadley	10	I. Dukovski	3/11	Savoy	15	T. Gagnon
Orchard Oriole			3/20	Hawley	12	R. Rancatti
4/25 Amherst	1	I. Dukovski	4/10	Savoy	12	R. Rancatti
4/25 Nantucket	4	E. Andrews#	4/19	Ashburnham	1	C. Caron
4/27 Mt.A.	1	BBC (P + F. Vale)	4/22	Washington	4	E. Neumuth
4/29 Newbury	1 m	E. Salmela	4/26	Gardner	2	T. Pirro
4/30 Needham	1	J. Samelson	4/26	Orleans	1	R. Prescott
4/30 Melrose	1	D. + I. Jewell	4/28	Barre F.D./Rutland S.P.	2	M. Lynch#
Baltimore Oriole				Evening Grosbeak		
4/25 Boston	1	L. Schweikart	3/11	Savoy	5	T. Gagnon
4/25 Amherst	1	I. Dukovski	3/20	Hawley	3	R. Rancatti
4/30 Worc. (BMB)	1	J. Liller#	3/23	Ashfield	3	S. Sauter
4/30 Melrose	1	D. + I. Jewell	3/31	Turner's Falls	28	S. Sauter
Bullock's Oriole			4/3	Pepperell	1	M. Resch
3/1-4/15 S. Dartmouth	1 m ph	J. Bullard	4/6	Georgetown	pr	W. Grones
Purple Finch			4/7	Becket	5	R. Laubach
3/1 Ashburnham	4	C. Caron	4/8	Blandford	1	K. + M. Conway
3/3 Gardner	8	T. Pirro	4/10	Savoy	2	R. Rancatti
3/3 Quabbin (G 43)	12	J. Hoye#	4/19	Ashburnham	4	C. Caron
3/4 Becket	10	R. Laubach	4/20	New Salem	2	B. Lafley
3/4 Windsor	12	D. Larson#	4/26	Templeton	1	C. Caron
3/5 Erving	10	V. Yurkunas	4/28	Barre F.D./Rutland S.P.	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/submitrec.html>>.

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 email to <mrines@mediaone.net>.

LIST OF ABBREVIATIONS

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

*Indicates a species on the review list of the Massachusetts Avian Records Committee (MARC). Comment in parentheses (details submitted or no details) indicates whether written details have been submitted to the MARC, regardless of whether photographs or other documentation are available elsewhere. Because these sightings are generally published before the MARC votes, they normally have not been acted upon by the MARC.

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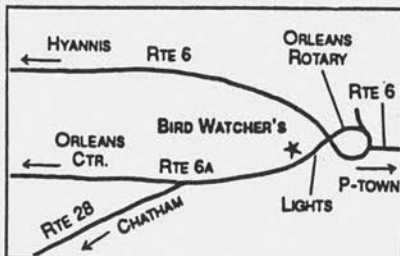
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Peregrines at the ‘Pru’

While working at the Prudential center for many years, I got to see the Peregrines do many wonderful (and not so wonderful) things. Although nesting on the Administration building, they would perch for hours at a time on other buildings. One of the birds enjoyed perching on the circular antenna on top of the building directly across Huntington Avenue from 101 Huntington (the building you first encounter when crossing from Copley place). The top of this building was conveniently at eye level outside my window.

I used to see the Peregrines catch pigeons, pass them to each other, drop them, and eat them right outside our windows on assorted ledges of the apartment buildings. You would never know where they would turn up either. Once while showing a coworker the Boreal Owl on Commonwealth Avenue, an explosion of pigeons and Peregrines came down the street.

Mark Burns, Salem, MA

Kestrels at Med State

This year [June 2001], the kestrels at Medfield State Hospital are nesting in one of the busiest areas on the campus, in one building with a lot of machinery and across a small parking lot from another active building. They don't seem bothered by the activity, however, and now have three well-advanced young who look about ready to fly.

Ed Morrier, Framingham, MA

ABOUT THE COVER

American Kestrel

The American Kestrel (*Falco sparverius*) is the smallest North American falcon, and the one with the most shallow wing beats and most buoyant flight. Its genus name is derived from a Latin word for "sickle," referring to either the shape of its bill or talons. Its species name means "relating to a sparrow," thus possibly referring to both its size and prey. American Kestrels are both sexually dimorphic — the female is about ten percent larger than the male — and dichromic, with the sexes differing substantially in plumage pattern. Males have blue-gray wings and rufous tails with a single subterminal broad black tail band. Females are entirely rufous above and have multiple narrow dark tail bands. Both have gray crowns, two vertical facial stripes, and a black spot on the nape, all of which are muted in the female. Males are buffy below with black spotting, while females have rusty streaking below. Kestrels can be separated from the slightly larger Merlins by the latter's lack of rufous, dark banded tail, and lack of pronounced facial stripes. Kestrels have proportionally the longest tails of any North American falcon.

American Kestrels are part of a super-species that includes at least a half dozen species worldwide, including the Eurasian and Australian kestrels. They are the only kestrel of the Western Hemisphere, range from northern Canada to Patagonia, and are currently divided into seventeen subspecies. *F. s. sparverius* is our dominant subspecies, ranging across most of North America. *F. s. paulus*, named and described in 1902 by Reginald Heber Howe, Jr., the first Headmaster of Belmont Hill School (Belmont, MA), and a prominent Nuttall Ornithological Club member, is found from Louisiana through Florida. *F. s. peninsularis* is largely a Mexican subspecies, but occurs in Arizona.


American Kestrels breed throughout North America as far north as the tree line, from Alaska to Newfoundland. The northern populations are migratory, and wintering kestrels are found in approximately the lower half of their North American breeding range. Some migrate farther south. Spring migrations are more diffuse than fall migrations, but both are concentrated in flight lines along the East Coast and Appalachian ridges in the eastern United States, where kestrels, like other migrating raptors, utilize mountain updrafts and thermals. In Massachusetts spring migration peaks in late April, and Fall migration peaks in mid-September. Females and juveniles tend to migrate earlier than males, and males tend to winter farther north.

American Kestrels are monogamous, and usually produce a single brood. They inhabit open areas with short ground vegetation, including meadows, agricultural fields, pastures, and grasslands, often near human habitation. For nesting they require large trees that contain suitable nest cavities. Males generally arrive before females and establish nesting territories. Agonistic displays involve raising back feathers and standing erect, often with tails spread. Fighting involves grappling with claws and dueling with bills, but usually does not produce injury. Calls, variously described as *kee kee*, *kli kli*, or *killy killy*, accompany aggressive encounters or aerial displays. Whine calls, some lasting a minute or more, and chittering are associated with

courtship. Kestrels will defend their territory against much bigger adversaries, including Red-tailed Hawks. They compete for nesting cavities, usually successfully, with flickers and squirrels.


American Kestrels nest in natural tree cavities and in woodpecker holes. They readily nest in nest boxes. Males escort females around territory to perspective nest sites, and the female selects the final cavity. No nesting material is used, although the female makes a scrape at the bottom of the cavity. They may reuse the same nest in subsequent years. The usual clutch is four to five white or cream-colored eggs, spotted and blotched brown. Both parents develop brood patches, but during the month-long incubation period the female does most of the work. The last hatched chick may not successfully compete for food and may be eaten by its siblings. Only the female broods the chicks during the approximately one month till fledging. The male is the sole provider of food for the first week, but then the female becomes the major provider. In the enclosed nest, sanitation can be a problem, but dermestid beetles routinely eliminate any leftover prey parts. The young are dependent on the adults for several weeks after fledging.

American Kestrels are largely sit-and-wait diurnal predators, which attack by pouncing from a perch, although they occasionally hover, and may take small birds and large insects in flight. They prey mostly on small mammals, birds, and invertebrates, although they have also been reported taking snakes, lizards, amphibians, and even small fish. The tooth-like bill serrations are thought to be an adaptation for slicing the spinal cord of vertebrate prey. They will cache prey in times of abundance, and cast pellets of indigestible materials.

Populations appear to be limited by nest site availability, and populations provided with nest boxes have expanded into previously unoccupied areas. Overall, their populations have increased since colonial times due to land clearance, and they are currently expanding in areas where large-scale clearing is occurring. They are declining in New England, where reforestation has occurred during the past century. They are subject to the usual nest predation from raccoons and snakes, and during the first half of the twentieth century large numbers were shot, particularly during migration bottlenecks such as Hawk Mountain. They largely escaped the ravages of the DDT era due to their reliance on herbivores as prey, thus escaping the pesticide concentration effects of taking prey higher up the food chain. They are not bothered by brood parasites such as cowbirds, but when nest sites are few they have been known to share nests with Eastern Screech-Owls, and reportedly one pair raised a brood of European Starlings! On a national level the future looks bright for the American Kestrel, and it will presumably remain our most common falcon. 

William E. Davis, Jr.

About the Cover Artist

The work of noted wildlife artist Paul Donahue has appeared many times on the cover of *Bird Observer*. Some of our readers may also have enjoyed the experience of visiting the rain forest canopy walkway at the Amazon Center for Environmental Education and Research off the Rio Napo in the Department of Loreto in northeastern Peru. This canopy walkway, the world's longest, is the creation of Paul Donahue and Teresa Wood. Paul can be reached at PO Box 554, Machias, Maine. 

AT A GLANCE

June 2001




Photograph by Roger S. Everett

June's At A Glance photo depicts a bird whose bill shape suggests that it feeds primarily on insects – it is fine and sharp-pointed. Additionally, the unambiguous presence of visible white spots on the underside of the tail suggests that the bird might be a warbler of some sort. American Pipits also possess fine-pointed bills, as well as streaked underparts and white in the outer tail feathers similar to the bird in the photograph; however, a pipit would display entirely white outer tail feathers and would lack the narrow black margins and black tips shown in the outer tail feathers of the pictured bird. Furthermore, the hind claw of a pipit perched on a wire – an unlikely event in its own right – would appear much longer than the claws on the front toes, which is certainly not the case with the bird in the photograph.

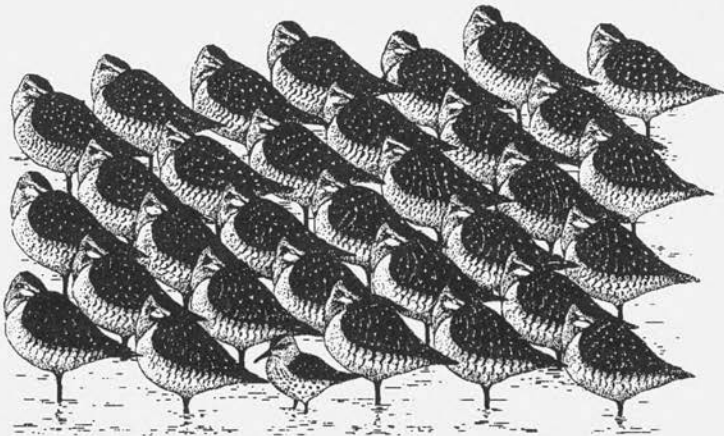
With these thoughts in mind, a careful examination of the pictured bird reveals several additional distinct features. First, it is obvious that the bird belongs in a group of warblers that possesses a combination of features including white tail spots, wing bars, and streaked underparts. This combination of features immediately eliminates a great many warbler species from consideration as identification candidates. In this category are all species in the genera *Vermivora*, *Oporornis*, and *Seiurus*, as well as American Redstart, Prothonotary Warbler, Worm-eating Warbler, Common Yellowthroat, Wilson's Warbler, Canada Warbler, and Yellow-breasted Chat. The remaining possibilities all belong to the genus *Dendroica*, the largest genus of North American warblers.

Having determined that the pictured warbler is in the genus *Dendroica*, it becomes important to concentrate on the other features that are visible in the picture. Starting at the head, the mystery species has rather prominent whitish eyelids, a dark auricular area (i.e., cheeks), a pale supercilium (i.e., eyebrow stripe) that is most noticeable behind the eye, and a pale throat that seems to extend around the side of the neck under the dark auriculars. On the basis of these features, along with others already described, warblers that need to be considered are Magnolia, Cape May, Yellow-rumped, Pine, and Palm. Magnolia Warbler can be eliminated by its distinctive tail pattern, which is white with a broad dark tip. Cape May Warbler would appear shorter-tailed, much more heavily streaked on the underparts, and would have less prominent wing bars. A Pine Warbler, while it might show a similar face pattern, would not display the streaks clearly discernable on the scapulars (i.e., shoulders) and back of the pictured bird, and would also typically have a longer and heavier bill. Finally, a Palm Warbler would never display such bold wing bars and would possess a conspicuous and more extensive supercilium and a dark line through the eye.

With this analysis completed, it turns out that the mystery warbler is none other than a Yellow-rumped Warbler (*Dendroica coronata*), one of the most abundant warbler species, both in Massachusetts and throughout North America. Returning briefly to the undertail pattern mentioned at the outset of this analysis, it should be noted that the black areas above the white tail spots are more extensive than in any other similar warbler except the Palm Warbler. In actuality, the photographed bird can practically be identified on the basis of the undertail pattern alone. This is something to think about the next time you are viewing a Yellow-rumped Warbler from below.

Roger S. Everett photographed the Yellow-rumped Warbler in first fall plumage on Cape Cod. Yellow-rumped Warblers are present in Massachusetts throughout the year, but are most numerous during spring and autumn migration, when sometimes they virtually swarm in appropriate habitats. They breed commonly in the western parts of the Bay State, and in some winters, their numbers on Cape Cod can be impressive. 

Wayne R. Petersen



AT A GLANCE

Photograph by David Larson



Can you identify this bird?

Identification will be discussed in next issue's AT A GLANCE.

Northern Harriers Nesting on Plum Island

An adult male and female Northern Harrier have been seen sporadically on the refuge all spring. Back in May Rebecca Schwer reported seeing a female carrying grasses over the Hellcat Marsh. This afternoon [6/21/01], just south of the stone marker in the field opposite the "new pines," I observed an adult male circling low over the cattail marsh carrying a mouse. Almost immediately a female popped up out of the cattails directly below and began circling with the male. After just a few minutes the male passed the prey to the female, and shortly thereafter she dropped back into the very same spot in the cattails. Almost certainly this indicates a nest with young in the marsh. Harriers, a state-listed species, have not been proven to nest on the refuge, or for that matter, in Essex County, in many decades.

Richard Heil, Parker River NWR

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