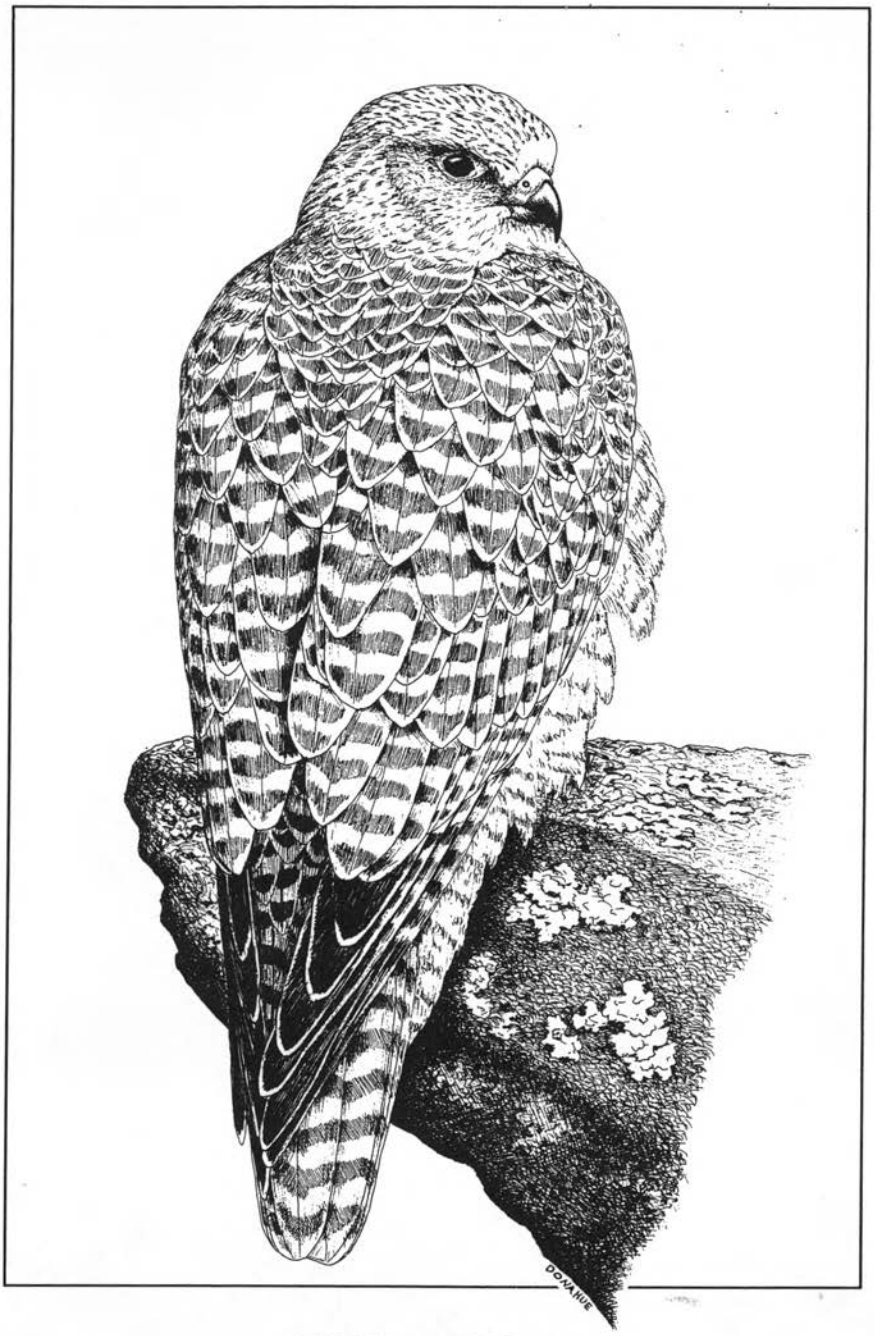
BIRD OBSERVER



VOL. 23 NO. 1
FEBRUARY 1995

BIRD OBSERVER

• a bimonthly journal •

To enhance understanding, observation, and enjoyment of birds.

VOL. 23, NO. 1 FEBRUARY 1995

BIRD OBSERVER (USPS 369-850) is published bimonthly, COPYRIGHT © 1995 by Bird Observer of Eastern Massachusetts, Inc., 462 Trapelo Road, Belmont, MA 02178, a nonprofit, tax-exempt corporation under section 501 (c)(3) of the Internal Revenue Code. Gifts to Bird Observer will be greatly appreciated and are tax deductible.

POSTMASTER: Send address changes to *BIRD OBSERVER*, 462 Trapelo Road, Belmont, MA 02178. SECOND CLASS POSTAGE PAID AT BOSTON, MA.

SUBSCRIPTIONS: $16 for 6 issues, $30 for two years in the U. S. Add $2.50 per year for Canada and foreign. Single copies $4.00. An Index to Volumes 1-11 is $3. Back issues: inquire as to price and availability.

CHANGES OF ADDRESS and subscription inquiries should be sent to
Bird Observer Subscriptions, P. O. Box 236, Arlington, MA 02174.

ADVERTISING: full page, $80; half page, $40; quarter page, $25. Send camera-ready copy to Bird Observer Advertising, P. O. Box 236, Arlington, MA 02174.

BIRD SIGHTINGS: Send reports of any given month in writing by the eighth of the next month to
Bird Sightings, Robert H. Stymeist, 94 Grove Street, Watertown, MA 02172.

MATERIAL FOR PUBLICATION: *BIRD OBSERVER* welcomes for publication contributions of original articles, photographs, art work, field notes, and field studies. Please send these or other suggestions to the editor in chief:
Martha J. Steele, P. O. Box 236, Arlington, MA 02174.
Manuscripts should be typed double-spaced on one side only of 8.5-by-11-inch paper. Manuscripts longer than 15 typed pages (about 4500 words) may be shortened when edited. Use the current A.O.U. Check-List for bird names and sequence. Type tables on separate pages. Black-and-white photographs and graphics are best. Include author's or artist's name, address, and telephone number and information from which a brief biography can be prepared. Indicate whether an IBM-compatible 5.25-inch diskette containing the article in ASCII or Microsoft Word can be supplied. Scientific and technical articles are peer reviewed. Views expressed in *BIRD OBSERVER* are those of the authors and do not necessarily reflect an official position of Bird Observer of Eastern Massachusetts, Inc.

ISSN: 0893-4630

CONTENTS

SPRING HAWK WATCH

Prime spring hawk migration time is from mid-March to mid-May, with the largest numbers of hawks seen from mid-April through early May. The Eastern Massachusetts Hawk Watch (EMHW) seeks hawk reports from anyone seeing numbers of hawks at any time, or who has hawkwatched for an hour or more, even if they don't see any hawks. To obtain complete information on the Spring Hawk Watch, including information on several free hawk watching field trips led by experienced hawk watchers in April, call Paul Roberts at 617-483-4263 or write him at 254 Arlington Street, Medford, MA 02155.

BREEDING BIRDS OF WESTON

Volunteers are needed for a study of the breeding birds of Weston, MA, with a focus on Ovenbirds. Volunteers are needed to census breeding birds and study Ovenbird nesting success and territory use patterns. Dates of assistance are from late April to mid-July 1995, but the length of service for any one volunteer is flexible. Some positions may become paid research positions pending funding. Please contact David Morimoto, Department of Biology, Regis College, 235 Wellesley Street, Weston, MA 02193. Tel. 617-893-1820, ext. 2341, or 617-734-4756. Email: dcmoto@aol.com.

Spring Workshops

Spring Warblers - A Workshop Revisited

Over thirty species of wood-warblers regularly occur in Massachusetts in spring. Bound for breeding areas in New England and eastern Canada, the warbler migration can be among the most exciting events of the avian year. Because of their great diversity, warblers offer a wonderful opportunity to examine topics in speciation, migration, foraging ecology, and bird song. Many of these topics also provide useful tools when trying to identify unfamiliar warbler species. A field trip to Mount Auburn Cemetery in Cambridge and selected spots in Essex County will help to enrich impressions gained during the indoor session. Leader: Wayne R. Petersen.

Seminar: Friday, May 5, 1995 (7:30-9:30 P.M.).
Field Trip: Saturday, May 13, 1995. Cost: $35

The Barrens and their Beasts - A Workshop on Pine Barren Ecology

Southeastern Massachusetts lies close to the northern edge of a unique association of plants and animals called the pine barrens. To the uninitiated, pine barrens appear desolate and relatively devoid of life, yet several of the state's rarest plant and invertebrate species occur there. Breeding birds in the pine barrens include species with a southern affinity, such as Whip-poor-will and Fish Crow, and more northern species, like Hermit Thrush and Nashville Warbler. Participants will be introduced to the interesting and often understated ecology of the pine barrens. The indoor session will present an overview of the environment and its bird life, and the field trip to the Myles Standish State Forest in Plymouth will offer the opportunity to observe firsthand some of the representative birds and plants. Leader: Wayne R. Petersen.

Seminar: Friday, June 2, 1995 (7:30-9:30 P.M.).
Field Trip: Sunday, June 4, 1995. Cost: $35.

Massachusetts Breeding Birds - What are They and How do They do it

Approximately 200 bird species breed in Massachusetts. These species occur in a multitude of habitats between the Cape and the Berkshires. Some are rare and local; others breed throughout the state in a wide variety of habitats. In addition to this variety in habitats, there is an equally great variety of breeding strategies, nest types, and interesting behaviors that are associated with nesting. This workshop will focus on the state's breeding birds and will specifically examine some of the important biological phenomena associated with the breeding season. A field trip to the Quabbin area will explore the rich breeding populations there and will provide an opportunity to see breeding bird activity near the height of the nesting season. Leader: Wayne R. Petersen

Seminar: Friday, June 23, 1995 (7:30-9:30 P.M.).
Field Trip: Sunday, June 25, 1995. Cost: $35.

These workshops are cosponsored by *Bird Observer* and the Needham Bird Club. Seminar sessions will be held in Needham, MA, from 7:30-9:30 P.M. Directions to the seminars will be sent to registrants. Details about the field trips will be announced at the seminars preceding them. If you have questions, please call 617-666-8934 (evenings). Workshops limited to 20 participants. Preregistration is required.

To register, send your name, address, and phone numbers with your check (payable to *Bird Observer*) to Bird Observer Workshops, c/o H. D'Entremont, 45 Montrose Street, Somerville, MA 02143.

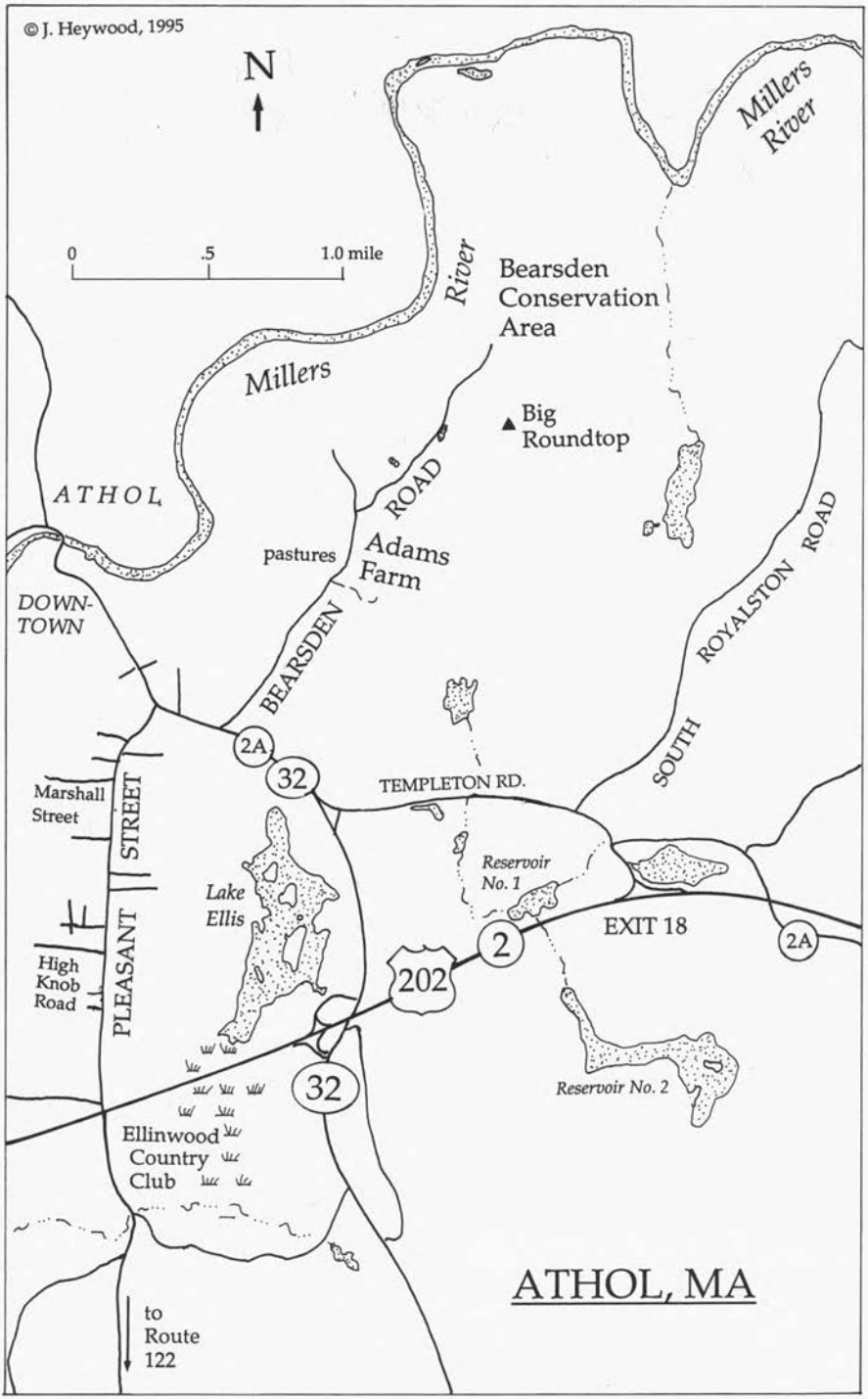
ATHOL'S WINTER SPECIALTIES

by Dave Small and Bill Fregeau

The town of Athol is known in birding circles more for exporting enthusiastic twitchers than as a birding destination. The area hosts the Athol Bird and Nature Club, which was established in 1963 as a diverse group of natural history enthusiasts. The 100-plus member club provides programming and field trips in astronomy, geology, herpetology, botany, entomology (lepidoptery), and of course birds. For more than a century bird sightings from the area have been recorded in numerous publications, from Bagg and Eliot's 1937 work, *Birds of the Connecticut Valley in Massachusetts*, to Veit and Petersen's 1993 *Birds of Massachusetts*, not to mention *Bird News of Western Massachusetts*, *Bird Observer*, and *The Chickadee*. This brings us to one of the problems of being an Athol birder: the identity crisis. Athol and Royalston are the most northern and western extremes of Worcester County. Orange and Warwick are on the northeastern fringe of Franklin County. Geographically, all these towns lie within the Connecticut River basin. But reporting species can fall to *Bird Observer* to the east, *Bird News of Western Massachusetts* to the west, and *The Chickadee* for Worcester County reports only. This minor problem does not deter us from lots of time in the field, with many club members frequently assisting traveling birders in search of Common Ravens, Bald Eagles, Wild Turkeys, winter finches, and vagrants such as Varied Thrush (two in 1994) and Sandhill Crane.

This article focuses on two areas. One is well known to the many birders who searched for Pine Grosbeaks and Bohemian Waxwings last winter. The second is the area's best bet for finding wintering Common Ravens and Wild Turkeys.

Athol is located forty-five minutes west of Route 495 off Route 2. The trip on Route 2 west from the Boston area is quite picturesque. Passing between Mount Wachusett to the south and Mount Watatic to the north, you soon find yourself climbing the hill country of northern Worcester County. Topping the hills in Templeton, you get a spectacular view to the north of Mount Monadnock in New Hampshire, framed by a valley of conifers. It is at this point that you will notice the stations on your car radio beginning to fade, and you start to drop into the Millers River basin. Route 2 narrows here to two lanes and two-way traffic, so be careful. Take Exit 18, which is the first Athol exit. At the end of the ramp, take a left onto Route 2A toward Athol. Proceed 1.5 miles, and take a sharp right turn onto Bearsden Road, which is opposite the Athol Memorial Hospital.


© J. Heywood, 1995
N
0
.5
1.0 mile
Millers River
Millers River
Bearsden Conservation Area
Big Roundtop
ATHOL
ROAD
pastures
Adams Farm
DOWN-TOWN
BEARSDEN
ROYALSTON ROAD
SOUTH
2A
32
TEMPLETON RD.
Marshall Street
STREET
Lake Ellis
Reservoir No. 1
EXIT 18
2
2A
202
High Knob Road
PLEASANT
32
Reservoir No. 2
Ellinwood Country Club
ATHOL, MA
to Route 122

Adams Farm

Proceed 0.7 mile up Bearsden Road, where the pastures of Adams Farm will appear on the left. Stop near the blue trash can, also on the left, to view the area. Raptors, such as Red-tailed Hawk, Cooper's Hawk, and Sharp-shinned Hawk, are winter residents. A Rough-legged Hawk spent several weeks here in December 1993. This is the area best known for finding Common Ravens throughout the winter. The reason for the abundance of these birds is the daily supply of remains from the operation of the slaughterhouse at the farm. The "gut pile" is usually located opposite the farmhouse in the field in front of you. Large numbers of House Sparrows, House Finches, and starlings help keep the accipiters fed. Tree Sparrows, Dark-eyed Juncos, Tufted Titmice, and Northern Cardinals are among the birds regularly at the feeders located on the right side of the road before the farmhouse. Wild Turkeys can be found in any of the pastures around this section of Bearsden Road. The best area is beyond the slaughterhouse on the right. In warmer seasons, Turkey Vultures gather in large numbers.

Continue along Bearsden Road following the signs for about three-quarters of a mile to the Bearsden Conservation Area.

Bearsden Conservation Area

The Town of Athol is fortunate to have had many farsighted individuals concerned with the protection of the rural character of this community. The Athol Conservation Commission oversees more than 1500 acres of meadow and forest land. The nearly 1000 acres of the Bearsden Conservation Area is the largest of these holdings. The area is located in the northeastern part of Athol and borders Phillipston and Royalston. The fast-moving Millers River cuts through this magnificent area, providing one of the most famous fly-fishing waters in the state and a great white-water canoe run from South Royalston to Athol. Many trails and roads crisscross the area, providing many opportunities for hiking, biking, and cross-country skiing.

As you enter the conservation area, Paige Cabin sits on the hill above the road on the left. This rustic cabin is available free for overnight use by adult-supervised groups or individuals by contacting the area manager, Elwin Bacon, at 508-249-2004. The small pond on the right yields good songbird migrants in season. Proceed to the main parking area. From here the trail system winds through oak, pine, and hemlock forests. The trail opposite the parking lot brings the traveler to Big Roundtop (site of many great hawkwatches), with spectacular views of Mount Monadnock, Mount Wachusett, and Mount Greylock, to name a few. Hiking or skiing the trails may produce raptors including Northern Goshawk, Sharp-shinned Hawk, Northern Saw-whet Owl, Barred Owl, Pileated Woodpecker, Wild Turkey, and winter finches. The river may hold Common Mergansers or Bald Eagles. The black bears of Bearsden are on the comeback.

There are very few records from 1924 through the 1980s, but reports have increased in the 1990s, with three separate reports of bear activity in the fall of 1994.

Return to Route 2A. Take a right, and proceed 0.3 miles to Pleasant Street. Turn left in front of the old fire station.

Pleasant Street and Ellinwood Golf Course

Pleasant Street has long been one of the best wintering areas for songbirds in Athol. Bird feeding is a common activity. The picturesque homes are landscaped with mature plantings of ornamental trees and shrubs providing both food and shelter to winter-weary birds. Wintering songbirds have included all the winter finches, Cedar and Bohemian waxwings, Eastern Bluebird, Brown Thrasher, and Rufous-sided Towhee. Marshall Street, 0.3 mile up on the right, has several mountain ash trees worth a look for waxwings or Evening Grosbeaks.

After exploring Marshall Street, return to Pleasant Street, and continue up the hill 0.6 mile to High Knob Road, also on your right. Turn onto High Knob Road, where the first house on the left (blue split ranch), the home of Bill and Jan Fregeau, is the area's best bet for winter finches. If Evening Grosbeaks, Pine Siskins, or Common Redpolls are reported in numbers from Athol, these feeders should be checked. Cruising the neighborhood for additional feeder birds is often productive.

Return to Pleasant Street, and continue along it for another 0.7 mile to the bridge over Route 2 (this is 1.6 miles from the Route 2A/Pleasant Street intersection). Crab apples, crab apples, crab apples—search the crabs, and you may be rewarded with flocks of Cedar Waxwings, Pine Grosbeaks, Bohemian Waxwings, Eastern Bluebirds, American Robins, and others. The bushes are located on both sides of Route 2 and even under the bridge. Park near the bridge, and just look around. The overgrown field on the right is filled with crab apples, multiflora rose, and bittersweet. This has been one of the main areas to explore. On December 6, 1994, a Bohemian Waxwing was observed, raising hopes for a repeat of the 300 Bohemians and equal number of Pine Grosbeaks a year ago. There are many more trees on the opposite side of the road behind the houses bordering the golf course. These can be scoped from the road. This area, including the country club, is private property. Respect the privacy of landowners, and do not enter these areas without permission of the residents.

Continuing on Pleasant Street beyond the Route 2 bridge, bear right just after the Ellinwood Country Club. Proceed for three or four miles until you reach Route 122. A left turn will take you east past Harvard Pond to the intersection of Route 32A. A right turn south on Route 32A will lead you toward Hardwick and the eastern gates of Quabbin. A right turn on Route 122 will lead

you west past the entrance to the Women's Federation State Forest and Route 202 and south to Quabbin's west valley.

DAVE SMALL is president of the Athol Bird and Nature Club and a member of the Massachusetts Partners in Flight State Working Group. He is a supervisor at the Metropolitan District Commission Quabbin Reservoir and has been a birder for thirty years, recently spending field time on butterflies and dragonflies.

BILL FREGEAU is on the Board of Directors of the Athol Bird and Nature Club. He is an independent businessman and has been birding for thirty years. He has recently spent field time on locating and documenting owl populations in the North Quabbin area.

Bird Watcher's General Store

Featuring: The Amazing **AVIARIUM** In-House Window Birdfeeder. One-way mirrored plexiglass allows you to watch the birds for hours but they can't see you!

Come see this exceptional birdfeeder in action.

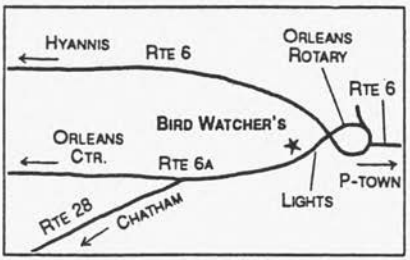
OTHER BIRD-LOVER ITEMS INCLUDE:

- Bird Mugs
- Bird Note Cards
- Bird Carvings
- Bird Field Guides
- Bird Books
- Bird Key Chains
- Bird Jewelry
- Bird Door Knockers
- Bird Telephone
- Bird Houses
- Bird Baths
- Bird Gift Wrap
- Bird T-Shirts
- Bird Photos
- Bird Prints
- Bird Calls
- Bird Recordings
- Bird Potholders
- Bird Towels
- Bird Carving Kits
- Bird Welcome Mats
- Bird Thermometers
- Bird Sun Catchers
- Bird Calendars
- Bird Pillows
- Bird Place Mats
- Bird Mobiles
- Bird Fountains
- Bird Bath Heaters
- Bird Switch Plates
- Bird Puzzles
- Bird Bookmarks

- **A complete line of Binoculars, Spotting Scopes and Tripods**
- **A children's section with birdhouse kits, beginner books,and other fun and educational items**

PLUS over 100 different types of bird feeders including Bluejay and Squirrel-proof feeders that work,GUARANTEED, plus ten different types of Bird Seed

GIFT CERTIFICATES & U.P.S. SHIPPING • OPEN YEAR ROUND



Bird Watcher's General Store

36 Route 6A • Orleans, MA 02653

(508) 255-6974

or

1-800-562-1512

TEN YEARS AND A YEAR: THE FALL WATERFOWL CENSUS AT FRESH POND, CAMBRIDGE, 1984-93, 1994

by James H. Barton

Since 1984 I have been conducting a fall census of waterfowl at Fresh Pond Reservation for the Cambridge (Massachusetts) Water Department and the Cambridge Conservation Commission. The Conservation Commission has been using the data for the administration of wetlands protection laws, which include wildlife values as a "protected interest." Both the Water Department and the Commission will use the data in making decisions about riparian habitat management and the construction and siting of a possible new water treatment plant, now under study.

Just as importantly, the database is being used to help educate the many people who visit the reservation on its significance for wildlife and to build public support for wise management of the reservation as a resource for many constituencies. For example, on seeing myself and others counting birds, people who come to walk around the pond stop to ask us what the birds are, how we tell them apart, where they come from, what they eat, how long they will stay, where they will go, how well they are faring as species, and what the results of our counts at Fresh Pond mean. And they always want to know whether we are seeing "anything special," to which I always answer "They're all special."

The following sources of data appear throughout the text of this article: Barton (1989) for 1984-1988 Fresh Pond data; Bellerose (1980) for discussion of continental and regional nesting areas and migration patterns; *Ducks Unlimited* (1994) and *Flightlines* (1994) for discussion of continental nesting areas, nesting success, population trends, and the 1994 nesting season; Terres (1980) to supplement Bellerose (1980); and U.S. Fish and Wildlife Service (1994) for continental populations of selected species.

Conduct of the Fresh Pond Waterfowl Census

The census normally begins on October 1 and ends on December 15. Data from a total of eleven years are presented in this article; sometimes, I present data for the ten-year period of 1984-1993 and then discuss the 1994 data separately.

I go to Fresh Pond as often as I can during the peak of the migration between October 16 and November 15. I covered 27 days during this 31-day period in 1994, 21 days in 1989, 19 days in 1992, and 12 to 15 days in other years. I make at least three counts per 15-day period between October 1 and 15, November 16 and 30, and December 1 and 15.

The data presented in this article reflect well over 300 daily counts, mostly conducted solo between 7:00 to 9:00 AM, except on Wednesday mornings,

when I am regularly joined by a small group on trips that I lead for the Conservation Commission. We make a complete 2.25-mile circuit of the pond at least once, and often two to three times. Using binoculars and spotting scopes, we study large, active, and confusing concentrations of birds several times from several vantage points to arrive at a reliable count number. We often count separately and then cross-check with each other.

Results of the Fresh Pond Waterfowl Census

Thirteen species have visited Fresh Pond every year of the 1984-1994 census period: Pied-billed Grebe, Canada Goose, Mallard, American Black Duck, American Wigeon, Ruddy Duck, Canvasback, Ring-necked Duck, Greater Scaup, Lesser Scaup, Bufflehead, Hooded Merganser, and American Coot. For ten of these annually occurring species, Tables 1-5 show the average of the three high counts for each two-week interval for which sufficient data exist; narrative summaries are provided for the three other species (i.e., Pied-billed Grebe, Bufflehead, and Hooded Merganser).

I provide narrative summaries for each of twenty-two additional species seen at least once during the 1984-1994 census period.

Initials appear in the text to identify observers who discovered and reported birds to me that I did not first see or subsequently see myself on the day they were found. Otherwise, I am personally responsible for all the identifications and numbers reported here.

Loons, Grebes, and Cormorants

Common Loon *(Gavia immer).* Common Loon is infrequent at Fresh Pond. Single birds were recorded December 30, 1984, and December 1, 1985. A single bird was seen on seven occasions between November 23 and December 11, 1986. A single bird was seen November 2 and 3, 1993.

Red-necked Grebe and Horned Grebe. Our only sighting of Red-necked Grebe *(Podiceps grisegna)* was October 26, 1992. Horned Grebes *(Podiceps auritis)* are irregular. Single birds were recorded on November 9, 14, and 18, 1984, from November 21-23, 1986, and on December 14, 1987. On October 14, 1992, two birds were present. In 1993, one was recorded October 28-30 and on November 3, 4, and 9.

Pied-billed Grebe *(Podylimbus podiceps).* From one to three individuals are normally present at Fresh Pond continuously from early October through the middle of December. The birds can survive the winter locally (Veit and Petersen 1993). Maximum daily counts for 1984-1993 were nine and six in 1993. The 1994 maximum was four on November 30.

Great Cormorant *(Phalocrocorax carbo).* Single Great Cormorants were recorded on November 16, 17, and 19, 1985. On November 24, 1985, two individuals were seen. Single birds were recorded October 3 and November 23,

25, and 27, 1987. On November 5, 1988, 53 birds were briefly present following a ferocious windstorm, and a single bird was recorded on five occasions thereafter, between November 6 and 23, 1988. Single individuals were recorded November 30 and December 9, 1989, and October 25, 1994.

Double-crested Cormorant *(Phalocrocorax auritus).* Double-crested Cormorant is irregular at Fresh Pond in the fall. Only one or no birds were seen in six of the eleven census years; the maximum number of individuals seen on any single count was three (October 11, 1989, and October 19, 1994).

Swans and Geese

Mute Swan *(Cygnus olor)* is rare at Fresh Pond, probably because the water is too deep for it to reach the vegetation on the bottom even with its very long neck. Sightings include one bird on December 15, 1989, one on November 1, 1992, and seven on November 11, 1992. The only sighting of **Snow Goose** *(Chen caerulescens)* occurred in 1990.

Canada Goose *(Branta canadensis)* (Table 1). Continentally, Canada Goose includes fourteen geographical races according to some authorities, twelve according to others (Bellerose 1980; *Flightlines* 1994; Todd 1979). The birds that we see every year are mostly Atlantic Canada Geese. Originating in Newfoundland and the Labrador Peninsula, migrating Atlantic Canada Geese move down the New England coast to Massachusetts during October, November, and into December. Then they continue south across Long Island to New Jersey, Maryland, and North Carolina. At Fresh Pond the migratory geese join a growing resident, nonmigratory population. The data show that their numbers have increased greatly in recent years. How do we know who's who and how many of which we're looking at? Ornithologists are looking for answers. The maximum daily count for the 1984-1993 period was 246. The high count for 1994 was 390.

Dabbling Ducks - Genus *Anas*

Mallard *(Anas platyrhyncos)* (Table 1). Groups totaling 20-40 birds are normally present throughout the fall on one or more of the shallow ponds. Numbers can vary widely from two-week interval to two-week interval and also from day to day in response to local conditions. For example, when rains leave water standing in a marsh that has been developing on part of the golf course, 100 additional birds can appear overnight, as happened November 19 and 20, 1994. The maximum daily counts of Mallards during the 1984-1993 period were 247 and 230 in 1985, when water levels in Fresh Pond were exceptionally low. The maximum count in 1994 was 121 on November 20.

American Black Duck *(Anas rubripes)* (Table 2). Birds of the pale, nonmigratory local variety nest at Fresh Pond. Occasionally we see the very dark, brick chocolate black ducks that follow the major Atlantic coast migration

Table 1. Canada Goose and Mallard

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Canada Goose											
Oct 1-15	9	6	21	1	85	6	35	133	25	--	151
Oct 16-31	2	88	22	10	135	8	159	30	103	55	247
Nov 1-15	0	90	1	12	187	0	194	33	105	197	173
Nov 16-30	0	1	5	12	127	4	170	77	53	197	167
Dec 1-15	1	22	1	39	23	0	12	33	179	198	220
Mallard											
Oct 1-15	1	33	27	18	52	6	32	158	58	--	11
Oct 16-31	5	181	32	2	57	57	40	97	29	76	50
Nov 1-15	10	169	35	24	91	66	22	98	24	27	15
Nov 16-30	8	23	7	31	12	26	18	36	23	23	90
Dec 1-15	9	2	2	32	4	23	9	27	34	36	28

Numbers represent the average of three high counts per two-week interval.
-- no observations

corridor from the Maritimes south, but they greatly prefer the salt water of Boston Harbor, where thousands can still be seen in winter despite a drastic decline in the continental numbers from 1.3 million during 1952-1954 to 300,000 in 1984-1994 (Bellerose 1980; Batt 1994). Competition with the Mallard and loss of nesting and wintering habitat have all been factors contributing to the decline of black ducks generally (*Ducks Unlimited* 1995). Numbers have been stable continentally from 1985-1994, but have continued to decline at Fresh Pond. Maximum daily counts of black ducks occurred in 1985 (fifty-seven and fifty-four), when water levels in Fresh Pond were exceptionally low. The maximum count for 1994 was eleven.

Gadwall *(Anas streptera)*. Sightings of Gadwall on Fresh Pond included one bird on October 31, 1986; three birds on October 20, 1990; two birds on October 12, 1992; and one bird on November 16, 1993.

Green-winged Teal *(Anas crecca)*. A single Green-winged Teal was recorded in 1985. The species was not seen again until 1989, but the species has been recorded every year since then, possibly reflecting the steady growth of tangled riparian vegetation around Fresh Pond and adjacent shallow ponds. From 1989-1993, up to five Green-winged Teals were recorded on one or two census dates. In 1994 the species was seen on ten census dates, with a maximum count of six birds.

American Wigeon *(Anas americana)* (Table 2). American Wigeon return to Fresh Pond early from their nesting grounds in central Canada. A small flock of ten to thirty birds is normally present throughout the fall, but numbers can vary widely from day to day as the birds move about in the Arlington, Belmont, and Cambridge areas. The species has been regular in recent years on a small, new artificial pond on the golf course. Note the high average numbers for 1994. The maximum daily count for 1984-1993 was fifty-six in 1991, and the maximum daily count for 1994 was fifty-five.

Northern Pintail, Northern Shoveler, Blue-winged Teal. Sightings of Northern Pintail *(Anas acuta)* include one bird on November 8 and 16, 1985, and one on October 18, 1992. The only sighting of Northern Shoveler *(Anas clypteata)* was of three individuals on October 6, 1989. Our only Blue-winged Teal *(Anas discors)* was seen from October 7-11, 1991.

Stiff-tailed Ducks - Genus *Oxyura*

Ruddy Duck *(Oxyura jamaicensis)* (Table 3). Ruddy Ducks have been increasing steadily at Fresh Pond during a decade when conditions on their major midwestern U.S. and Canadian prairie breeding grounds have been poor. The Fresh Pond data do not show the wide fluctuations from year to year that are typical of major midwestern migration areas (Bellerose 1980). The maximum daily counts from 1984-1993 were 213 and 190 in 1992. The maximum daily count for 1994 was 137.

Table 2. American Black Duck and American Wigeon

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
American Black Duck											
Oct 1-15	1	14	5	8	18	7	1	12	8	--	6
Oct 16-31	3	39	18	5	16	15	11	9	5	7	6
Nov 1-15	6	52	19	15	20	12	15	3	7	7	5
Nov 16-30	7	28	19	16	10	11	6	9	2	3	5
Dec 1-15	24	6	5	9	6	11	3	2	5	2	1
American Wigeon											
Oct 1-15	1	5	11	3	16	3	6	49	11	--	31
Oct 16-31	15	21	16	1	12	15	10	19	7	10	27
Nov 1-15	22	22	10	9	22	23	18	14	13	10	27
Nov 16-30	7	23	23	10	17	0	4	4	2	5	47
Dec 1-15	23	6	0	8	0	0	0	6	6	8	45

Numbers are average of three high counts per two-week interval.
-- no observations

Perching Ducks - Genus *Aix*

Single **Wood Ducks** *(Aix sponsa)* were recorded October 28-30, 1988, and October 26, 1993. In 1993 a family of five Wood Ducks was present in September, well before the formal census began. In 1994 Wood Ducks were more frequent and in greater numbers than in all previous years combined: one drake among gulls on October 12 (RP), nine individuals in flight on October 13, one female grazing on the golf course with Mallards and American Wigeon on October 18-21, and three individuals on the pond on October 27 (LL).

Diving Ducks - Genus *Aythya*

Canvasback *(Aythya valisineria)* (Table 3). Canvasback numbers at Fresh Pond rose steadily from 1984 through 1988. The average high count for the November 1-15 period was 233 in 1984, 267 in 1985, 390 in 1986, 555 in 1987, and 938 in 1988, when eleven-year maximum daily counts of 865, 1045, and 903 were recorded on November 4, 5, and 6. During this same period, the continental breeding population was falling by sixteen percent because of generally poor nesting conditions.

In 1989, Canvasback counts dropped back to 1984 and 1985 levels, where they have tended to remain through 1994. In 1994 continental nesting conditions were reported to be "the best in several decades" (*Flightlines* 1994), but Canvasback numbers at Fresh Pond showed no significant increase over numbers in recent years. Why was Fresh Pond different from the continental patterns? I am inclined to agree with a current hypothesis that "most Massachusetts Canvasback represent arriving and departing winter residents" rather than birds traveling long migratory routes (Veit and Petersen 1993). In other words, I believe that at Fresh Pond we have been observing fluctuations in small regional populations of Canvasback whose numbers are responding to breeding and wintering conditions far too local for U.S. and Canadian government agency studies of continental populations and conditions to take into account.

Redhead *(Aythya americana)*. Redhead has been an irregular, generally solitary visitor, typically a female or young male in very enigmatic plumage. As such the bird can be very difficult to identify unless you get a good look at the whole of its head, not always possible when the bird is resting among dark female Canvasback and dark young male and female scaup. The species is regular in Massachusetts but can be difficult to find because most of the population migrates directly south down the middle of the continent in fall (see Bellerose 1980 for a very illuminating map). In Massachusetts Redhead are often found at the same few selected locations like Fresh Pond that Canvasback favor.

Table 3. Ruddy Duck and Canvasback

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Ruddy Duck											
Oct 1-15	0	1	2	4	23	23	5	12	72	--	10
Oct 16-31	3	4	2	22	82	42	41	94	196	88	121
Nov 1-15	1	0	9	61	86	20	38	98	102	72	110
Nov 16-30	2	1	10	72	43	3	9	61	20	44	41
Dec 1-15	1	0	1	57	0	0	0	0	1	3	7
Canvasback											
Oct 1-15	0	0	0	5	6	8	4	0	13	--	0
Oct 16-31	57	250	175	145	265	222	75	150	259	166	113
Nov 1-15	233	267	390	555	938	182	269	181	278	301	252
Nov 16-30	193	297	572	631	381	16	232	167	167	240	319
Dec 1-15	54	250	138	521	3	0	25	66	110	109	96

Numbers are average of three high counts per two-week interval.
-- no observations

Redhead was recorded in seven of eleven census years, and in five years, one to three individuals were seen. The maximum daily count was four individuals on November 11 and 19, 1986.

Ring-necked Duck *(Aythya collaris)* (Table 4). Most of the Ring-necked Ducks in Massachusetts probably nest in northeastern Canada and in Maine and New Hampshire, areas unaffected by agricultural development and the long drought that has affected the prairies so adversely. This would help account for the fact that the local migratory population has been increasing steadily (e.g., Veit and Petersen 1993), a trend the Fresh Pond data reflect. Numbers surged in 1994. For the 1984-1993 period, the maximum daily counts were 248 and 274 in 1992. Maximum daily counts for 1994 were 386 and 479.

Greater Scaup *(Aythya marila)* and **Lesser Scaup** *(Aythya affinis)* (Table 5). The U.S. Fish and Wildlife Service does not attempt to distinguish Greater Scaup from Lesser Scaup when conducting its counts. Combined continental numbers show a decline for the 1984-1994 period. At Fresh Pond, groups of ten to twenty Greaters have typically been present through mid-November, while one to three Lessers have been present through mid-December. Most Lesser Scaup winter far to the south of Greater Scaup, with major concentrations in Louisiana, Florida, and Mexico, and take a direct route south that bypasses Massachusetts, so we see far fewer Lessers than Greaters. Maximum daily counts of Greater Scaup during 1984-1993 were thirty-four and forty-one in 1985. Maximum daily counts for Lesser Scaup during 1984-1993 were seventeen and twenty-seven, also in 1985. Maximum daily counts for 1994 were twenty-three Greater Scaup and seven Lesser Scaup.

Sea Ducks - Genus *Melanitta*, *Clangula*, and *Bucephala*

Sightings of **Black Scoter** *(Melanitta nigra)* include two females on November 27, 1987; one female on October 14-24, 1988; and one female on October 16, 1992. Sightings of **White-winged Scoter** *(Melanitta fusca)* include one female each on October 7, 1988, and October 11 and 13, 1989; one young male on October 23-25 and December 5, 1992; and one young male on October 26, 1993. Sightings of **Surf Scoter** *(Melanitta perspicillata)* include one female on November 4, 1985; two females on October 12-14 and October 17, 1988; and three females on October 19 and 20, with one remaining until October 28.

Single **Oldsquaw** *(Clangula hyemalis)* were seen November 22, 1984, November 5, 1988, and October 24 and November 10, 1989. All individuals were males.

Common Goldeneye *(Bucephala clangula)*. From one to six Common Goldeneyes were present on forty-five dates during November and December 1984, 1985, and 1986. Since then, the species has been scarce. No birds were seen from 1990 to 1994.

Table 4. Ring-necked Duck and American Coot

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Ring-necked Duck											
Oct 1-15	29	24	35	67	45	88	38	90	125	--	140
Oct 16-31	47	53	92	119	111	154	108	206	195	210	305
Nov 1-15	59	76	95	111	146	17	130	210	226	190	406
Nov 16-30	15	104	95	108	29	0	12	17	12	58	89
Dec 1-15	1	2	1	40	0	0	0	9	0	2	1
American Coot											
Oct 1-15	0	0	0	2	1	0	0	1	0	--	4
Oct 16-31	7	1	4	0	5	2	0	2	7	5	48
Nov 1-15	11	6	15	5	5	2	1	2	7	5	58
Nov 16-30	13	14	11	9	5	1	0	4	4	8	20
Dec 1-15	8	6	1	9	2	1	0	0	4	4	1

Numbers are average of three high counts per two-week interval.
-- no observations

Bufflehead *(Bucephala albeola).* Bufflehead has been present every year in small numbers. From one to six were recorded on twenty-one occasions in 1984-1987. Nine birds were seen October 31, 1985, and an eleven-year high count of thirty-seven birds was recorded on November 6, 1987.

From one to ten birds were recorded on thirty-seven dates in 1988-1994. On November 2, 1989, a flock of sixteen birds was seen.

Mergansers - Genus *Mergus, Lophodytes*

Common Merganser *(Mergus merganser).* Open water on Fresh Pond during February and March attracts up to 200 Common Mergansers, but relatively few are seen earlier, even in years when the pond does not freeze over in January. Apparently, the birds do not like to move south from the Canadian Maritimes until they have to (Bellerose 1980); however, the scarcity of records for December at Fresh Pond may be due partly to the fact that the formal fall census has generally ended December 15.

Sightings have been as follows: one bird on November 2, 1984; one bird on November 20, 24, and December 1, 1985; four birds on November 11 and 23, 1986; four birds on November 2, 1988; one bird on November 6, 16, 23, and 30, 1988; one bird on December 5, 1990; twenty-seven birds on December 23, 1992; six birds on December 17, 1993. In 1994, up to twenty-three birds were seen during the last two weeks of December.

Red-breasted Merganser *(Mergus serrator).* Large numbers of Red-breasted Merganser can be seen along our seacoasts by the middle of November, but few visit Fresh Pond on migration. The following sightings have been recorded: one bird on October 31, 1984; one bird on October 28 and two birds on October 30, 1985; three birds on November 3, 1986; one bird on November 13, 1988; one bird on October 31, 1991; five birds on December 23, 1992; two birds on December 15, 1993; and one bird on October 25, 1994.

Hooded Merganser *(Lophodytes cucullatus).* Hooded Merganser nests locally in Massachusetts and not far to the north of us in New Hampshire and Maine. However, they nest primarily in an ill-defined area around the Great Lakes on both sides of the border. The Hooded Merganser has been present every year at Fresh Pond, but only in 1984 and 1993 were more than a few birds present for any length of time. October sightings of Hooded Mergansers at Fresh Pond have occurred only four times during the eleven years of observation. Maximum daily counts of eleven and nine birds were made in 1993.

Gallinules and Coots - Genus *Gallinula, Fulica*

Common Moorhen *(Gallinula chloropus).* A Common Moorhen (MP) was discovered on the pond October 24, 1993, by one of the regular participants in our census on a day when we were not officially doing the count. The bird was subsequently recorded on the census on October 29 and 30 by MP and JHB.

Table 5. Greater Scaup and Lesser Scaup

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Greater Scaup											
Oct 1-15	3	8	8	12	7	18	15	5	9	--	8
Oct 16-31	17	35	17	27	21	6	20	9	17	15	20
Nov 1-15	14	30	17	26	11	1	13	9	2	13	16
Nov 16-30	1	7	5	1	3	1	2	1	3	1	19
Dec 1-15	7	15	4	16	1	0	4	6	1	10	8
Lesser Scaup											
Oct 1-15	0	1	8	1	1	2	1	2	3	--	0
Oct 16-31	1	7	5	0	3	0	2	1	3	1	3
Nov 1-15	3	17	8	5	4	0	1	1	3	1	4
Nov 16-30	2	9	4	3	1	0	1	2	0	2	5
Dec 1-15	6	3	1	1	0	0	2	1	0	1	1

Numbers are average of three high counts per two-week interval.
-- no observations

American Coot *(Fulica americana)* (Table 4). Like many species of ducks, American Coots nest in freshwater prairie marshlands and wetlands, habitats devastated during the 1980s by agricultural development and drought. Average high counts at Fresh Pond went from fifteen for the November 1-15 period in 1986 to one for the same period in 1990, and from fourteen for the November 16-30 period in 1985 to no birds for the same period in 1990.

In 1994 we were hoping for a Canvasback show because of the good Canvasback nesting success mentioned earlier in this article. What we got was a coot show. Four birds were seen on October 24; eleven on October 25; forty-three on October 26; forty-eight on October 27; fifty-three on October 28; and eighty on November 6. Our previous high daily counts had been seventeen in 1985 and twenty-three in 1986.

Conclusion

We have created and continue to build a database that we can use confidently to describe use patterns of Fresh Pond by waterfowl in fall, evaluate long-term population trends, compare present-day status with historical data, and use for management and educational purposes. For example, in 1989 I suggested in a report to the Cambridge Conservation Commission that Canvasback and other waterfowl are attracted to Fresh Pond not just because of aquatic plants but also because an eight-foot chain-link fence keeps people and dogs off the shore and out of the pond at locations where the birds feed and rest. In other words, the birds benefit significantly from the protection the city gives to its water supply. As a result of doing this census, I know that my suggestion was correct. On several occasions, birds have taken flight from Fresh Pond when Cambridge Water Department staff have gone out on the pond in rowboats to perform routine maintenance on structures on the bottom.

Temporary surges in populations of Mallards and American Black Ducks probably reflect episodic flooding of the golf course by heavy rains and occasional Water Department decisions to draw down the pond. The erratic long-term behavior of Mallard numbers at Fresh Pond is likely due to movements of a local population choosing among many feeding areas.

What are some differences between our time and that of William Brewster, who wrote of the birds of Fresh Pond in his *Birds of the Cambridge Region of Massachusetts* (Brewster 1906)? Brewster's largely anecdotal species accounts appear to indicate that sea ducks visited Fresh Pond more frequently and in greater numbers than they do today, while the diving ducks that today are Fresh Pond specialties appeared rarely or infrequently and in far smaller numbers. What might account for such historical differences in usage? In Brewster's day, the nearby Charles River was tidal; hence more sea ducks would have likely visited the pond. In addition, hunting pressure on fresh water ducks was severe, and federal legislation to protect migratory waterfowl, first proposed in 1904

and bitterly opposed by states' rights partisans, did not become law until 1916 and did not take effect until 1918 (*Ducks Unlimited* 1995). With migratory fresh water ducks and geese protected today by law and by fencing, visitors can enjoy many more of them at Fresh Pond.

References

Barton, J.H. 1989. Fresh Pond Bird Study. Cambridge Conservation Commission, Cambridge, Massachusetts.

Batt, B.D.J. 1994. Black Duck Dilemma, *Massachusetts Ducks Unlimited Call*, Alstead, New Hampshire.

Bellerose, F.C. 1980. *Ducks, Geese and Swans of North America* (Third Edition). Harrisburg, PA: Stackpole Books.

Brewster, W. 1906. *The Birds of the Cambridge Region of Massachusetts*. Cambridge, MA: The Nuttall Ornithological Club.

Ducks Unlimited. 1994. Volume 58: No. 4, 5, 6. Memphis, TN: Ducks Unlimited.

Ducks Unlimited. 1995. Volume 59: No. 1. Memphis, TN: Ducks Unlimited.

Flightlines. 1994. Volume 1, No. 1, Memphis, TN: Ducks Unlimited.

Terres, J.K. 1980. *The Audubon Society Encyclopedia of North American Birds*. New York: Alfred A. Knopf.

Todd, F.S. 1979. Waterfowl. San Diego, CA: Sea World Press.

U.S. Fish and Wildlife Service. 1994. *The 1994 Status of Waterfowl and Fall Flight Forecast*.

Veit, R.R., and W.R. Petersen. 1993. *Birds of Massachusetts*. Lincoln, MA: Massachusetts Audubon Society.

JAMES H. BARTON is a writer, consultant, and associate member of the Cambridge (Massachusetts) Conservation Commission. He has birded actively since 1968 at Fresh Pond and Mount Auburn Cemetery, ten minutes from his home. He leads field trips throughout the year and presents programs on bird identification for the Boston office of the Massachusetts Audubon Society. He is also a school volunteer, assisting teachers to bring students out into the field. Regular participants in the fall waterfowl census have included Joan Campbell, Louise Levy (LL), Susan Paczosa, Michele Parham (MP), Robert Peterson (RP), Frances Saunders, Mary Sprague, and Robert Weiner, now of Washington, D.C.

Thanks from all of us go to the management and staff of the Cambridge Water Department, and especially to Jean Rogers, Ranger.

TRI-STATE BLUEBIRD SOCIETY

The Tri-State Bluebird Society, dedicated to environmental and conservation concerns for cavity-nesting birds in Massachusetts, Rhode Island, and Connecticut, will have its Grand Opening from 12 to 8 PM, March 11 and 12, 1995, at the Reflections of Nature Gallery, 1460 Fall River Avenue, Seekonk, MA 02771. Educational and membership information will be available at the opening. Wildlife photographs by nationally acclaimed photographer, Terry Dickinson, will also be featured. If you are unable to attend, call 800-769-BIRD for more information on the Tri-State Bluebird Society.

WHERE DO THE LOONS GO?
A FIELD GUIDE TO DNA CLASSIFICATION OF NORTH AMERICAN BIRDS

by John C. Kricher

You probably know the order pretty much by heart, starting with Common Loon: loons first, then grebes, continuing through the waterbirds with raptors and gallinaeous birds placed between herons and shorebirds; then gulls and terns, alcids, owls, doves, continuing through woodpeckers, jays and crows, chickadees, wrens . . . well, you know. Finally you get past the vireos, wood-warblers, and blackbirds to the finches, sparrows, longspurs, and Snow Bunting—and the end of the field guide. Those of us who cut our birding teeth on the various editions of the Peterson or Pough guides soon learned the accepted taxonomic arrangement of bird families, an arrangement decided upon by the American Ornithologists' Union (AOU) based on presumed evolutionary relationships (phylogeny), as largely determined by careful study of anatomy. The AOU periodically publishes its *Check-list of North American Birds*, where avian taxonomy is updated according to the most recent studies: some species are split, others lumped, new records accepted or rejected, and any changes in taxonomic sequence incorporated. In 1983 the National Geographic Society, reflecting changes announced in the Sixth Edition of the AOU Check-list (AOU 1983), tossed birders a bit of a knuckleball, so to speak. The then new NGS field guide ended with Evening Grosbeak, not Snow Bunting, the traditional finale of other field guides. Finches and sparrows were split, each species placed into one of two big families, either the Emberizidae (wood-warblers, bananaquits, tanagers, cardinals, grosbeaks and allies, emberizine sparrows and towhees, and blackbirds and allies) or Fringillidae (fringilline and cardueline finches and Hawaiian honeycreepers). Suddenly it became just a bit more difficult to quickly locate certain species. Are Northern Cardinals and Rose-breasted Grosbeaks emberizids or fringillids? (Emberizids) What about Pine and Evening grosbeaks? (Fringillids) Blackbirds and orioles now followed towhees and sparrows but preceded crossbills and goldfinches. True, many species were not where they used to be, but at least the loons still came first and the grebes were in their accustomed place, next. The old order had been revised but not revolutionized.

Molecular Taxonomy

Today, a new, much more radical look is suggested, an arrangement based entirely on biochemistry. Unlike previous taxonomic sequences, this one does not compare feathers or bones, but molecules of DNA. Genes, the stuff of heredity, are all made of a long-coiled, information-packed molecule called

deoxyribonucleic acid (DNA), and genes make the bird. The components of DNA, called nucleotides, like letters in a sentence, are arranged in a very precise order, an order that determines the shape, size, physiology, and vast majority of other measurable attributes of everything from kiwis to kiwi fruits. Ultimately a bird, any bird, a cat, any cat, a tree, any tree, is what it is essentially because of the highly specific informational content of its DNA. DNA is the recipe—the organism is the cake. If the DNA codes for feathers, it's making a bird.

Your DNA is, of course, most similar to that of other human beings. That's why you resemble your neighbors more closely than you resemble their Labrador retriever. Outside of human comparisons, your DNA is most similar, incredibly similar, in fact, to chimpanzee DNA. To continue, your DNA is more similar to that of a dog (Lab, poodle, or otherwise) than it is to that of an iguana. And, as you might by now have guessed, it's more similar to an iguana than it is to a pine tree or mushroom. By examining similarities among DNA from various species, you are making comparisons that allow you to look indirectly into the past, into the biological archives, revealing the pattern of evolution from a common ancestor, the very essence of Darwin's evolutionary paradigm, "descent with modification." Changes in DNA with time ***are*** evolution. The pattern of DNA differences within a group should, in fact, directly reveal the evolutionary relationships among each member, revealing genealogy on its grandest scale.

DNA/DNA Hybridization

In recent years, as knowledge and techniques of molecular biology have burgeoned, it has become possible to extract DNA from its well-protected haven within the nucleus of the cell and in the laboratory hybridize DNA taken from different organisms. This is because DNA is double stranded, the famous "double helix," first described over four decades ago by Francis Crick and James Watson. The two strands of the double helix, isolated in the laboratory, can be heated and made to separate, and one strand can then be combined with that from a different species. Rest easy, nothing comes of the hybrids. You need not fear questions such as "what do you get when you cross a carrot with a sturgeon?" Perhaps caviar with a high content of beta carotene? No, no, the hybridized molecules never leave the test tube. In fact, the more dissimilar the DNA of two different organisms is, the less it is prone to hybridize. and therein lies the key. The degree of fidelity with which separate strands of DNA from different organisms reunite, hybridize in other words, is dependent on how similar they are to one another, a similarity essentially resulting from evolutionary history. If two species separated from their common ancestor eons ago, their respective complements of DNA would have traveled separate paths through time for many millions of generations—the DNA would have become quite distinct between them. Their molecules would hybridize weakly. However,

if the two species shared a very recent common ancestor, as in all likelihood have humans and chimps, then the two DNAs would hybridize tightly, being nearly identical to one another. How do we know how tightly the strands hybridize, and thus how similar they are to one another? Heat breaks the relatively weak molecular bonds that hold the double helix together. The more heat that must be used to reseparate hybrid strands, the more bonds there are between them and thus the more similar the two strands are to one another. Separation temperature can thus be calibrated with the degree of DNA similarity between the hybrid strands.

Convergent Evolution

You might at this point be tempted to ask, but why is DNA better for establishing evolutionary histories than anatomy or physiology, or any of the other numerous attributes of organisms? Biologists have long known about a phenomenon known as convergent evolution, when two distantly related organisms converge in appearance, making them look much more closely related than they really are. A classic example of convergent evolution is the anatomical similarity between placental animals and their marsupial equivalents in Australia. For example, an Australian sugar glider looks strikingly like a flying squirrel, although these two organisms are only very distantly related genetically. Convergent evolution is among the most persuasive evidence for the reality of natural selection as a driving force in evolution. Two genetically distinct organisms can evolve similar anatomies in response to similar selection pressures imposed by their respective environments. Convergent evolution occurs in plants as well as in animals. New World cacti and Old World euphorbias are remarkably similar in appearance, although not at all close genetically. The reality of convergent evolution makes anatomy somewhat problematic when used to determine evolutionary history. How does one know whether two species are similar because they share a very recent genetic history, or because they have converged (and thus may be quite genetically distinct)?

Consider that the DNA directs the making of bones, muscles, nerves, and brain. DNA makes the feathers, feathers do not make the DNA. DNA is thus the ultimate currency of evolution, quite appropriately termed the "master molecule." Now it is quite possible that two different arrays of genes can independently direct the construction of similar looking organisms, but the sets of genes themselves will remain different. Thus, by looking directly at the DNA, the possible confusion caused by convergent evolution is greatly reduced.

For example, looking at the genes through DNA/DNA hybridization indicates that there is a very tight evolutionary relationship between New World vultures and storks, a relationship so close as to justify lumping both groups in the same family, the Ciconiidae. The close superficial resemblance between our vultures and those from Africa and other parts of the Old World is a case of

convergent evolution; the two distantly related groups look very similar because they have evolved nearly the same adaptations in response to similar selection pressures imposed by their respective environments. Different sets of genes have built similar organisms, but the similarity is only skin deep. Inside the nuclei of the cells, the genes tell of different origins.

Another point, also important, has to do with sample size provided by using DNA rather than anatomy. Professors are only too familiar with plagiarism, the regrettable decision by a student to merely copy someone else's work rather than to do one's own work. How is plagiarism established? When hundreds, and usually thousands of letters are arranged in an order (as sentences and paragraphs) that essentially duplicates another already existing sequence. What is the probability that two papers of 500-1000 words read almost or exactly the same due to chance alone? Remote, to say the least. A student turning in such a paper is in all probability guilty of having plagiarized someone's work. Now consider DNA. What is the probability that two organisms will share the vast majority of millions of letters (nucleotides) arranged in nearly exactly the same order? When two DNA molecules from different organisms are hybridized, and they hybridize tightly, that is exactly what happens. Such a fidelity cannot be due merely to chance, but much more likely indicates shared evolutionary history. And bear in mind that evolutionary histories based on DNA are relying directly on many millions of bits of information. If you want to do a thorough anatomical analysis of a bird, chances are good that you might measure over a thousand characteristics, but you'll not approach a million. DNA analysis therefore represents a far greater sample size of information, thus strengthening conclusions drawn from DNA-based studies.

The SAM System

Charles Sibley, John Ahlquist, and Burt L. Monroe, Jr., took on the Herculean task of examining the roughly 9000 species of the world's birds on the basis of DNA similarities, employing as well as pioneering the technique

---

Classification Nomenclature (AOU Check-list 1983)

Blackburnian Warbler

Kingdom	Animalia
Phylum	Chordata
Class	Aves
Order	Passeriformes
Family	Emberizidae
Genus	*Dendroica*
Species	*fusca*

---

they called DNA/DNA hybridization (Sibley and Monroe 1990, 1993; Monroe and Sibley 1993). The results of their labors is a taxonomy that now bears the nickname SAM (for Sibley, Ahlquist, and Monroe). Thousands of hybrid DNA molecules were generated in their laboratory, and their's and other labs continue working today. Their results have revealed many examples of convergent evolution as well as cases where species that look quite distinct from one another are genetically very close (witness the human/chimp example). The disquieting conclusion of the SAM work is that the genes are quite often ***not*** a direct reflection of appearances. Not only that, but the degree of similarity and difference between species can be calibrated (using the fossil record) on a time scale, a kind of evolutionary clock. Doing so reveals approximately when two groups split, diverging from their common ancestor. Using SAM technology, it is possible to construct an evolutionary (phylogenetic) tree, tracing ancestry based entirely on similarities among DNA.

The New Look

Because the pattern of the genes is not always the same as the pattern suggested by bones and feathers, the classification of the world's birds changes, often dramatically, sometimes radically, when DNA similarity is the determining factor. Loons it seems, are not the most evolutionarily ancient birds on the North American list. They no longer come first. Would you believe Plain Chachalaca, followed by Chukar, then Common Pheasant (Ring-necked subspecies), then Spruce Grouse? Indeed, the new world order of DNA-based bird taxonomy makes the break-up and subsequent realignment of the Soviet Union look somewhat lame by comparison. For only those orders found in North America (including introduced species), Table 1 compares the proposed list (from Monroe and Sibley 1993) versus the current AOU Check-list (1983) order. The list shown in Table 1 is not a cladogram. It is meant only to show the sequence from most anciently evolved to most recently evolved, not to imply, for instance, that ducks gave rise to woodpeckers and that hummingbirds gave rise to barn owls. The actual tracing of lineages is a complex branching diagram, not a simple linear ordering.

Given the immensity of the Passeriformes, you might like to see a DNA-based breakdown of the revised order of passerine families. Table 2 shows the revised order compared with the current AOU Check-list (1983) order. The last bird on the North American list, as well as the world list, is Bobolink. Please keep in mind that this classification is not meant to suggest that the Bobolink is the most recently evolved of the world's bird species, but that it is a member of the most recently evolved families and that, within that family, its DNA suggests a very recent origin. Nonetheless, there are many other species of birds more recently evolved than Bobolinks but that are members of older families. Thus their DNA profile puts them in groups that appear earlier in this linear ordering of families.

Table 1

Comparison of Sequence of Orders

AOU Check-list (1983) Versus DNA/DNA Hybridization

AOU Check-list	DNA/DNA Hybridization
Gaviiformes: loons	Craciformes: chachalacas, guans, curassows
Podicipediformes: grebes	Galliformes: pheasants, turkeys, grouse, quails
Procellariiformes: albatrosses, shearwaters, petrels, storm-petrels	Anseriformes: swans, geese, and ducks
Pelecaniformes: tropicbirds, boobies, gannets, pelicans, cormorants, frigatebirds	Piciformes: woodpeckers
Ciconiiformes: bitterns, herons, ibises, storks	Trogoniformes: trogons
Phoenicopteriformes: flamingos	Coraciiformes: kingfishers
Anseriformes: whistling-ducks, swans, geese, ducks	Cuculiformes: cuckoos, anis, roadrunners
Falconiformes: New World vultures, ospreys, hawks, caracaras, falcons	Psittaciformes: parrots
Galliformes: chachalacas, grouse, quail, turkeys	Apodiformes: swifts
Gruiformes: cranes, rails	Trochiliformes: hummingbirds
Charadriiformes: plovers, oystercatchers, stilts, avocets, sandpipers, phalaropes, jaegers, skuas, gulls, terns, skimmers, auks	Strigiformes: barn owls, typical owls, nightjars

AOU Check-list	DNA/DNA Hybridization
Columbiformes: pigeons, doves	Columbiformes: pigeons and doves
Psittaciformes: parrots	Gruiformes: cranes and rails
Cuculiformes: cuckoos and anis	Ciconiiformes: shorebirds, gulls, terns, alcids, raptors, grebes, tropicbirds, sulids, anhinga, cormorants, herons, egrets, bitterns, flamingos, ibises, spoonbill, pelicans, New World vultures, storks, frigatebirds, penguins, LOONs, petrels, shearwaters, albatrosses, storm-petrels
Strigiformes: barn owls, typical owls	Passeriformes: tyrant flycatchers and all other passerines
Caprimulgiformes: goatsuckers	
Apodiformes: swifts, hummingbirds	
Trogoniformes: trogons	
Coraciiformes: kingfishers	
Piciformes: woodpeckers and allies	
Passeriformes: flycatchers, larks, swallows, jays, magpies, crows, chickadees, titmice, nuthatches, creepers, wrens, dippers, kinglets, mimic thrushes, thrushes, pipits, waxwings, shrikes, starlings, vireos, wood-warblers, tanagers, grosbeaks, buntings, towhees, sparrows, blackbirds, finches, weaver finches	

Table 2

Comparison of Sequence of Passeriformes Families

AOU Check-list (1983) Versus DNA/DNA Hybridization

AOU Check-list	DNA/DNA Hybridization
Tyrannidae: tyrant flycatchers	Tyrannidae: tyrant flycatchers
Alaudidae: larks	Laniidae: shrikes
Hirundinidae: swallows	Vireonidae: vireos
Corvidae: jays, crows	Corvidae: crows and jays
Paridae: titmice	Bombycillidae: waxwings
Aegithalidae: Bushtit	Cinclidae: dippers
Sittidae: nuthatches	Muscicapidae: thrushes
Certhiidae: tree creepers	Sturnidae: starlings, mynas, and mimic thrushes
Pycnonotidae: bulbuls	Sittidae: nuthatches
Troglodytidae: wrens	Certhiidae: tree creepers, wrens, and gnatcatchers
Cinclidae: dippers	Aegithalidae: Bushtit
Muscicapidae: kinglets, gnatcatchers, Old World flycatchers, thrushes, solitaires	Hirundinidae: martins and swallows
Mimidae: mimic thrushes	Regulidae: kinglets
Motaciliidae: pipits	Pycnonotidae: bulbuls
Bombycillidae: waxwings	Sylviidae: Old World warblers, Wrentit
Ptilogonatidae: silky-flycatchers	Alaudidae: larks
Laniidae: shrikes	Passeridae: weaver finches, pipits
Sturnidae: starlings	

AOU Check-list	DNA/DNA Hybridization
Vireonidae: vireos	Fringillidae: Olive Warbler, siskins, goldfinches, redpolls, Evening Grosbeak, Snow Bunting, sparrows, juncos, towhees, wood-warblers, tanagers, Dickcissel, other grosbeaks (i.e., Northern Cardinal, Rose-breasted), blackbirds, orioles
Emberizidae: wood-warblers, tanagers, cardinals and allies, blackbirds and allies, Emberizines (sparrows, towhees)	
Fringillidae: Cardueline finches (i.e., House Finch, crossbills, goldfinches)	
Passeridae: House Sparrow	

As I stated earlier, the revised classification of birds is meant to reflect evolutionary relationships based solely on DNA compatibilities. Anatomy, plumage, behavior, or any other characteristic does not enter into the determination. Further, the classification is meant to suggest that the most ancient groups of birds in North America are the chachalacas, the gallinaceous birds, and the waterfowl. Loons? As you see, they are lumped in a huge and diverse order, the Ciconiiformes, which worldwide includes 255 genera and 1022 species, encompassing such seemingly disparate groups as penguins, hawks, storm-petrels, and cormorants. Grebes are there too, but well separated from loons. The genes are saying that the Horned Grebe is more genetically like a Peregrine than a Red-throated Loon, even though grebes look much more like loons than raptors.

Some of the changes in classification seem unsurprising, at least to me. Yes, a Great Horned Owl looks only remotely like a Whip-poor-will. However, if you travel to other parts of the planet and have occasion to gaze upon the likes of potoos, frogmouths, or owlet-nightjars, the line between the strigids and the caprimulgids seems to blur. The DNA agrees: caprimulgids are lumped with the owls. The night birds are now placed all together in one order, the Strigiformes.

Among other surprising realignments is the inclusion of mimic thrushes in the family Sturnidae, the starlings and mynas. It is true that the chunky,

loathsome creatures that nightly roost in our cities (I mean, of course, the European Starlings) bear faint anatomical resemblance to the likes of a sleek Brown Thrasher or Northern Mockingbird. But, isn't it more than a little interesting that Old World starlings and mynas are known for their extraordinary abilities to mimic other birds? In the case of starlings and mimic thrushes the genes made the voice boxes similar and the bodies different.

In the Sixth Edition of the AOU Check-list the large family Muscicapidae includes the Old World warblers (including the ones you trek to Alaska, especially Attu, to see), the kinglets, the gnatcatchers, the Old World flycatchers (more Attu species here), all the thrushes, and accentors. The genes say otherwise. According to DNA similarities, Muscicapidae now includes only thrushes and Old World flycatchers. You just learned where the mimic thrushes have gone. The kinglets are removed from Muscicapidae, now placed in their own distinct family, Regulidae, well separated from the gnatcatchers that have been lumped in the family Certhiidae, along with wrens and tree-creepers. The Old World warblers are now within the family Sylviidae, a large group of mostly Old World species that includes such groups as the babblers and allies—and the Wrentit. Long thought to be a member of the Muscicapidae, the Wrentit is genetically closer to babblers (although still unique), and is placed in its own tribe, the Chamaeini. (A tribe is a subdivision within the level of subfamily that shares all of the characteristics of the subfamily but is nonetheless unique in some important ways. Creating tribes adds a finer degree of separation among very closely related subfamilies.)

Yet another surprise is the genetic proximity between the weaver finches, accentors, wagtails, and pipits, now lumped together in the family Passeridae, a huge grouping that includes the colorful Old World estrildine finches (many of which are common cage birds) and exotic whydahs and paradise-whydahs. It is a stretch to believe that the elegant, tail-bobbing American Pipit is a close cousin of the all too common House Sparrow, but their respective genes seem to so indicate.

Most recently, in what can only be described as an immense burst of evolutionary creativity, a cornucopia of (mostly) recently evolved species are grouped within the family Fringillidae. The split into the Emberizidae and the Fringillidae has been abolished. The two families have been lumped into a single immense family totaling 241 genera and 995 species, most of them found in the New World, mostly in the subtropics and tropics.

To try to make sense of this grouping, it is necessary to look at the level of subfamily, and even that is complex. But it begins with but a single species in a unique subfamily, the Peucedraminae. It is the Olive Warbler, which is not a true wood-warbler, at least not according to its DNA. The Olive Warbler, a curious species of the southeastern Arizona mountain pine forest, a bird that certainly looks and acts like a wood-warbler, is most closely related to, of all

things, the Chaffinch, an abundant and widely distributed species in Europe, Asia, and parts of Africa. The Chaffinch is in the major subfamily Fringillidae, including 170 species of largely Old World birds. Its nearest North American relatives are siskins and goldfinches, followed by the rosy-finches, the Carpodacus finches (Purple Finch and allies), the crossbills, and the Pine and Evening grosbeaks. And there is yet one other group in this subfamily, the Hawaiian honeycreepers (now more properly termed the Hawaiian finches [tribe Drepanidini]), a group of thirty species (of which eight are extinct) all endemic to the Hawaiian archipelago. The Hawaiian finches represent a considerably more dramatic divergence from their common ancestor (quite possibly a nomadic species such as Red Crossbill) than the thirteen species of Darwin's finches from the Galapagos Islands.

The family Emberizidae is now the subfamily Emberizinae, boasting a total of 201 genera and 824 species. Within this massive subfamily, all the longspurs (and Snow Bunting), juncos, towhees, and New World sparrows are together in the tribe Emberizini, numbering 157 species. Next is the tribe Parulini, the 115 species of wood-warblers, followed by the tribe Thraupini, the 413 species of tanagers and allies. This diverse tribe includes the (mostly subtropical and tropical) New World seedeaters, grassquits, seed-finches, and Darwin's finches. According to DNA analysis, the nearest living relative of the Darwin's finches is the St. Lucia Black Finch, although many ornithologists still believe the Blue-black Grassquit is the more likely ancestor. The Emberizinae continue with the tribe Cardinalini, forty-two species that include the Dickcissel, Rose-breasted and Black-headed grosbeaks, Northern Cardinal, Pyrrhuloxia, and the *Passerina* buntings.

The final Emberizid tribe is the Icterini, a group of ninety-seven species that encompasses all the orioles and allies, the meadowlarks, the blackbirds and grackles, the cowbirds, and the Bobolink, the last species of the 9702 included on the DNA-based world list (Monroe and Sibley 1993).

What Does It All Mean?

What, if any, conclusions can be drawn from the new ornithological classification based on DNA? First, if you are a betting person, put some money into backing a new field guide that uses this sequence rather than the previous anatomically based taxonomy. You could afford to go on more birding trips, for instance. More seriously, DNA analysis has challenged an array of standard practices and assumptions among ornithologists. Those who rely heavily on comparative anatomy, indeed a discipline that forms one of the traditional bastions of support for evolution, have to be wary of both "false positives" and "false negatives." Birds that look anatomically alike (such as Olive Warbler compared with various wood-warblers) may be only distantly related. Birds that look quite different (European Starling compared with Gray Catbird) may be

genetically close, sharing a much more recent common ancestor than their different anatomies would suggest. Of course, in many species the DNA and anatomical studies do correlate closely. Anatomists have long known that New World vultures and storks both share some compelling anatomical and behavioral similarities (such as defecating on their legs to facilitate heat loss in hot climates) that have suggested to some evolutionists that they share a close genetic kinship. DNA analysis now confirms that long held speculation. All of the *Empidonax* flycatchers are very much alike with regard to anatomy and plumage, and their DNA also suggests a very recent common ancestry.

As with any relatively new technology, DNA/DNA hybridization has its critics and skeptics. Many ornithologists are still reserving judgment regarding the accuracy of the technique. Some argue, for instance, that the assumptions underlying the "molecular clock," the rate and constancy of DNA mutation, are far from proven. Although it may be fair to characterize the latter part of the twentieth century as the "age of molecular biology," the genes do not give up their secrets easily, and there is still much to learn about the double helix. It is entirely possible that further work on DNA will necessitate additional revisions in phylogeny, as more is learned.

Nonetheless, DNA analysis has, it is fair to say, done more than merely fine tune what anatomical and other studies have already determined. It has probably raised as many interesting evolutionary and biogeographical questions as it has answered. Many ornithologists remain somewhat if not outright skeptical about some of the ordering of species as well as about the overall accuracy of DNA hybridization techniques and assumptions. Ferment now fills taxonomy, a discipline once considered about as dull as any, but one that is now at the center of both a new and challenging methodology as well as the newly emerging interest and concern for global biodiversity. Ornithologists await the publication of the Seventh Edition of the AOU Check-list, currently overdue, but soon to be published. Not all of the DNA-based changes will likely be accepted, but the new check-list will no doubt look quite different from its predecessor.

References

American Ornithologists' Union. 1983. *Check-list of North American Birds*, 6th Edition.

Monroe, B.L., Jr., and C.G. Sibley. 1993. *A World Checklist of Birds*. New Haven, CT: Yale University Press.

National Geographic Society. 1983. *Field Guide to the Birds of North America*. Washington, DC: National Geographic Society.

Sibley, C.G., and B.L. Monroe, Jr. 1990. *Distribution and Taxonomy of Birds of the World*. New Haven, CT: Yale University Press.

Sibley, C.G., and B.L. Monroe, Jr. 1993. *Supplement to Distribution and Taxonomy of Birds of the World*. New Haven, CT: Yale University Press.

JOHN C. KRICHER serves on the board and as a department head for *Bird Observer*. He is currently at work revising and enlarging his book, *A*

Neotropical Companion (Princeton University Press). His most recent book, *First Guide to Forests*, will be published by Houghton Mifflin in the spring of 1995. John is very grateful to Martha Vaughan, Ted Davis, and David Morimoto for their thoughtful comments and editorial help with the manuscript.

RED-BREASTED NUTHATCHES AND THE WINTER OF 1993-1994

by William E. Davis, Jr., and Wayne R. Petersen

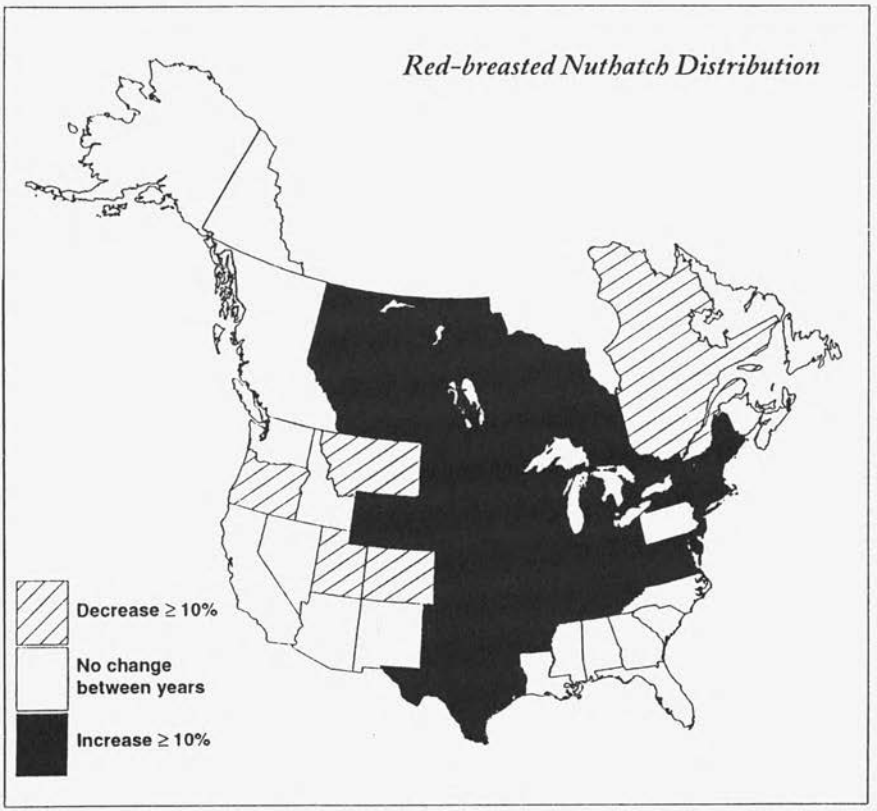
Large-scale movements of birds in fall and winter away and usually south from their normal wintering grounds are called "irruptions," or "invasions." Species characteristically involved in such movements are termed "irruptive species." More specifically, these species are said to be "eruptive" *from* their point of origin (i.e., breeding grounds) and "irruptive" *into* other areas (i.e., wintering areas). Years when irruptions occur are called "flight years" (Kricher 1988). For a more complete discussion of irruptions and irruptive species, see Forster (1990) and DeVore (1993).

There is evidence that these irruptions (i.e., invasions) are caused by major food shortages, particularly berries and seeds, over large geographical areas (Bock and Lepthien 1976). Typically, an invasion winter for a given species is preceded by one or more bumper food crop years, which often makes possible especially high breeding success during the breeding season(s) prior to the invasion. More important, however, is the fact that occasionally bumper food crop years are followed by seasons of significant failure in the seed or berry crop that only months before was superabundant. It is the relationship between these fluctuating events that sets the stage for a winter invasion.

Among passerine species exhibiting the most dramatic fluctuations in numbers from year to year are Red and White-winged crossbills, Common Redpolls, Pine Siskins, and Pine and Evening grosbeaks. While often not as conspicuously variable in their winter numbers as the species listed above, Red-breasted Nuthatches are, nonetheless, an irruptive species. Bock and Lepthien (1972), using Christmas Bird Count (CBC) data from 1950-1970, identified major southward irruptions of Red-breasted Nuthatches in the winters of 1951, 1954, 1955, 1957, 1959, 1961, 1963, 1965, 1968, and 1969. Veit and Petersen (1993) further illustrated this point for the years 1977 and 1988, and CBC data suggest that irruptions also occurred during the winters of 1989, 1990, and 1993. The winter irruption of 1993-1994 is the focus of the discussion that follows.

One of the largest invasions of Red-breasted Nuthatches to ever reach the northeastern United States occurred during the winter of 1993-1994. This event was noted by Tessaglia and Rosenberg (1994), Nikula (1994), and Petersen (1994). Apparently, the invading nuthatches reached most of the northeastern and central United States and most of southern Canada except for Quebec. The Cornell Laboratory of Ornithology's Project FeederWatch reported that Red-breasted Nuthatches began visiting feeders singly or in pairs as early as August and September 1993 (Tessaglia and Rosenberg 1994), and Kaufman (1994) highlighted the extent and magnitude of the event throughout the 1993 fall migration. Figure 1 illustrates the very large area of North America over which

Figure 1. Distribution of Red-breasted Nuthatches during the Winter of 1993-1994 compared with the Previous Winter of 1992-1993
Shading indicates changes in the percentage of feeders visited in each state or province. Reprinted with permission from the editor of *Birdscope*, Cornell Laboratory of Ornithology, Ithaca, New York.



FeederWatchers recorded at least ten percent more feeders visited by Red-breasted Nuthatches during the winter of 1993-1994 as compared with the previous winter. Nuthatch distribution remained virtually unchanged after the fall migration and throughout the winter.

Table 1 shows Red-breasted Nuthatch totals for twenty-nine Massachusetts CBCs from 1986-1994. The magnitude of the 1993-1994 invasion is clear from the numbers in the table. For example, the 1993-1994 cumulative total of Red-breasted Nuthatches reported on twenty-eight counts greatly exceeded any previous cumulative total during the time period; the 1993-1994 nuthatch totals for thirteen of the twenty-eight counts greatly exceeded previous high counts during the nine-year period; and several counts in 1993-1994 exceeded by at least a factor of four the previous count maximum for Red-breasted Nuthatch.

Table 1. Red-Breasted Nuthatch
Christmas Bird Count Data from 1986-87 to 1994-95

	86-87	87-88	88-89	89-90	90-91	91-92	92-93	93-94	94-95
AN	-	-	-	-	76	10	5	46	15
AT	16	34	11	52	106	23	34	743	31
BB	19	20	9	19	4	1	4	33	10
CA	25	4	18	22	4	8	15	47	5
CC	7	2	2	16	4	2	14	10	2
CB	7	12	8	29	26	26	15	24	48
CO	16	51	3	6	301	19	25	195	17
GB	9	1	0	25	59	9	8	40	1
GR	5	19	11	13	36	13	9	62	11
MA	1	3	0	77	2	1	4	7	0
MV	55	7	5	31	18	6	24	22	2
MC	38	1	2	27	10	1	4	18	1
MI	14	69	1	5	82	4	-	182	13
NA	25	44	26	116	32	21	10	49	2
NB	2	1	1	9	2	0	1	2	0
NP	68	21	9	25	94	22	29	54	30
NO	28	36	25	63	65	13	34	295	20
NE	3	2	2	15	5	3	6	16	1
PL	0	3	4	55	13	5	8	42	7
QU	-	-	48	227	218	82	86	1886	63
QN	4	9	0	1	6	2	10	55	0
SP	9	117	4	20	44	6	37	311	11
ST	-	0	3	3	0	9	2	1	1
TA	0	2	4	59	6	0	5	24	0
TU	1	0	0	0	1	0	0	-	0
UX	2	25	1	9	81	12	1	355	4
WM	3	10	5	18	34	2	7	60	14
WP	24	7	0	3	0	0	1	6	0
WO	5	20	5	19	115	6	19	165	3
Total	386	520	207	964	1444	306	417	4750	312
Aver.	14.8	19.3	7.4	34.4	49.8	10.6	14.9	169.6	10.8

AN = Andover; AT = Athol; BB = Buzzard's Bay; CA = Cape Ann; CC = Cape Cod; CB = C. Berkshire; CO = Concord; GB = Greater Boston; GR = Greenfield; MA = Marshfield; MV = Martha's Vineyard; MC = Mid Cape; MI = Millis; NA = Nantucket; NB = New Bedford; NP = Newburyport; NO = Northampton; NE = N. Berkshire; PL = Plymouth; QU = Quabbin: QN = Quincy; SP = Springfield; ST = Stellwagen; TA = Taunton-Middleboro; TU = Tuckernuck; UX = Uxbridge; WM = Westminster; WP = Westport; WO = Worcester; Total = Total number of birds during the CBC period; Aver. = Average number of individuals per count area per year; - = No data available.

Data from annual compilations by Robert H. Stymeist, and recently by Marjorie W. Rines and Robert H. Stymeist, published annually in *Bird Observer*. Supplemental data from published CBC data in *American Birds*. The raw data were not corrected by party hours because party hours have remained fairly consistent during the last decade in most of these counts.

Curiously, the 1993-1994 irruption of Red-breasted Nuthatches coincided with obvious irruptions of at least three other species—Bohemian Waxwing, Pine Grosbeak, and Common Redpoll. Bohemian Waxwings staged their greatest and possibly most widespread New England invasion on record (Forster 1994). Unlike Bohemian Waxwings, the more modest numbers of Pine Grosbeaks were seemingly most concentrated in north-central Massachusetts. Common Redpolls, on the other hand, were both numerous and widespread throughout much of the Northeast. The explanation for this simultaneous irruption of four species with somewhat differing food preferences remains obscure. Most likely, a coincidental failure of a variety of seed and berry crops in boreal Canada, possibly coupled with an exceptionally successful breeding season the previous summer, may be the answer. It is not, however, the intent of this note to explain these concurrent irruptions; rather, it is to highlight their occurrence.

On a finer scale, the Red-breasted Nuthatch irruption was also impressive. Davis has conducted a Winter Bird Population Study count for the past eighteen years on a 29.2 acre maple-pine-oak second-growth forest study plot in Foxboro, Norfolk County, Massachusetts (Davis 1979). The results of these counts have been published annually in *American Birds* and the *Journal of Field Ornithology: Supplement*. During the 288 census hours prior to the 1993-1994 season, only one Red-breasted Nuthatch had ever been recorded. In 1993-1994 on six of the twelve one-hour census efforts, a total of twelve Red-breasted Nuthatches was recorded. Compared to the eighteen-year average, the number of nuthatches seen per hour this year was 288 times as great!

A final point pertaining to the 1993-1994 Red-breasted Nuthatch irruption is its correlation with a local bumper crop of white pine cones. Consistently, in Massachusetts at least, the most impressive concentrations of nuthatches during the 1993-1994 irruption were in white pine stands where there were excessive numbers of cones on the tops of the trees. The affinity of foraging Red-breasted Nuthatches for white pines and white pine groves is well known and has been previously observed by both authors. Additionally white pine groves actually seem to be a requirement for breeding in certain areas, such as in southeastern Massachusetts where extensive groves of other conifer species are often lacking (Veit and Petersen 1993). Whether it is actually the pine seeds that are sought by foraging nuthatches in winter, or arthropods associated with the pines and their cones, is a point requiring further investigation. Petersen, however, has unambiguously observed Red-breasted Nuthatches feeding on pine seeds that have fallen on the ground or snow beneath white pines.

The Red-breasted Nuthatch is certainly one of the most interesting and charming of our winter birds, and its erratic and unpredictable winter forays into Massachusetts most welcome, particularly when they occur in such numbers as in the winter of 1993-1994. Because the Red-breasted Nuthatch's natural history,

especially its winter movements, is still incompletely understood, it is a species deserving of further study by local field ornithologists.

References

Bock, C.E., and L.W. Lepthien. 1972. Winter Eruptions of Red-breasted Nuthatches in North America, 1950-1970. *American Birds* 26:558-561.

Bock, C.E., and L.W. Lepthien. 1976. Synchronous Eruptions of Boreal Seed-eating Birds. *American Naturalist* 110:559-571.

Davis, W.E., Jr. 1979. Long-term Bird Population Studies—A Rewarding Experience. *Bird Observer* 7:219-223.

DeVore, S. 1993. Wild Cards. *American Birds* 47:363-369.

Forster, R.A. 1990. An Attempt to Unravel the Mystery of Winter Finch Occurrence. *Bird Observer* 18:25-31.

Forster, R.A. 1994. The Great Bohemian Waxwing Flight of 1994. *Bird Observer* 22:137-140.

Kaufman, K. 1994. The Changing Seasons: Autumn 1993. *American Birds* 48: 76-79.

Kricher, J.C. 1988. *A Field Guide to Eastern Forests: North America.* Boston: Houghton Mifflin.

Nikula, B. 1994. New England Region, *National Audubon Society Field Notes* 48:181-185.

Petersen, W.R. 1994. New England CBC Summary, *National Audubon Society Field Notes*: Ninety-fourth Christmas Bird Count 48:369-371.

Tessaglia, D.L., and K.V. Rosenberg. 1994. Project FeederWatch: Annual Report 1993-1994—A Winter of "Seeing Red" in the North, More Purple and Gold in the South. *Birdscope* 8(4):1-6.

Veit, R.R., and W.R. Petersen. 1993. *Birds of Massachusetts.* Lincoln, MA: Massachusetts Audubon Society.

WILLIAM E. DAVIS, JR., is a professor at Boston University and a frequent contributor to *Bird Observer*.

WAYNE R. PETERSEN is field ornithologist for the Massachusetts Audubon Society. Wayne prepares the "At A Glance" feature that appears in each issue of *Bird Observer*.

BOOK REVIEW: *The Beak of the Finch*

by John C. Kricher

The Beak of the Finch: A Story of Evolution in Our Time by Jonathan Weiner, illustrations by K. Thalia Grant, New York: Alfred A. Knopf. 1994. 334 pages with black-and-white illustrations throughout. $25.00 (hardcover).

When Charles Darwin first set foot on Chatham Island (the island is now named San Cristobal by the Ecuadorean government), the easternmost large island of the Galapagos Archipelago, he was not favorably impressed by his surroundings. "Nothing could be less inviting than the first appearance," he wrote in his journal, later published as *The Voyage of The Beagle*. Darwin, then a mere 26 years old, had left his native England nearly four long years earlier, on December 27, 1831, to serve as naturalist aboard the H.M.S. "Beagle," and, more importantly, to provide companionship at the appropriate social level for the ship's young aristocratic and temperamental captain, Robert FitzRoy. What Darwin learned over the course of his five-year voyage was enough to inspire thoughts that would culminate almost a quarter of a century later in *The Origin of Species*, a book that would change all of biology, to say nothing of western philosophy. But on September 17, 1835, Chatham Island looked foreboding, a remote, arid, black volcanic island where even the stark, leafless palo santo trees seemed to emit a foul odor. Little wonder that young Darwin paid scant attention to the nearly tame little brown and black birds that abounded on the island. But Darwin's insatiable curiosity soon got the better of him, and he began to notice the extraordinary uniqueness of the Galapagos flora and fauna. In describing the land birds that tenanted the islands, he discussed what he termed "a most singular group of finches, related to each other in the structure of their beaks, short tails, form of body, and plumage." These finches were intriguing. Some had very large, powerful, nutcracker-like bills, similar to those on grosbeaks. Some had more moderate seed-crushing bills, such as are found on various sparrows. One species had a thin, forcepslike bill, like that of a warbler. Yet, in spite of the differences in bill characteristics, all the finches otherwise bore compelling similarities to one another. As Darwin wrote, "Seeing this gradation and diversity of structure in one small, intimately related group of birds, one might really fancy that from an original paucity of birds in this archipelago, one species had been taken and modified for different ends." He collected study skins (as did Captain FitzRoy, who was also somewhat intrigued by the finches), and, upon returning to England, learned from the prominent British ornithologist John Gould that there are actually thirteen species of finches on the Galapagos (the thirteen species that Gould named are not precisely those identified as species today). More importantly, thanks in large part to Gould's analysis of the finches, Darwin became quickly convinced that

the thirteen species were not separately created, but instead arose from a common ancestor, what he later termed "descent with modification." These finches, which eventually came to be known as Darwin's finches, are, quite simply, the Rosetta Stone of organic evolution.

Following Darwin's epiphany, little scientific study of the finches was made until the British ornithologist David Lack's landmark work (1947) that not only formally christened the birds "Darwin's finches," but also suggested how competition among species could act as a powerful force in affecting evolutionary change, an insight responsible for much subsequent ecological research throughout the next several decades.

Today, research on Darwin's finches is more active than ever. For the past two decades teams of researchers from Princeton University, under the leadership of Peter and Rosemary Grant, have made meticulous studies of Darwin's finches, especially on the island of Daphne Major. Their studies have confirmed in the finest detail that Darwin's principal mechanism for evolution, natural selection, is real. It works, and often with frightening efficiency. If Nobel Prizes were awarded in the field of evolutionary biology, there would be little doubt that the Grants' research would make them strong candidates. *The Beak of the Finch* is a timely account of the voluminous research conducted by the Grants and their colleagues and students. The author, Jonathan Weiner, was apparently granted total access to the Grants, their field stations, and their laboratories at Princeton. Weiner skillfully describes in layman terms just what natural selection is and how the changing fortunes and misfortunes of several species of Darwin's finches have served to demonstrate both the reality as well as the power of natural selection.

The title of the book is taken from the fact that natural selection works particularly strongly on bill characteristics among the finches, because bills are so critical to food acquisition. The beaks change, sometimes increasing in size, sometimes decreasing, in direct response to changing patterns of rainfall abundance as it affects plants and the seeds they produce. Evolutionary change occurs over generations, just as Darwin hypothesized, by a process of differential reproduction: in drought years large-billed birds survive better than small-billed birds, because the larger billed individuals can crack the hard seeds that are essentially the only ones available during times of extreme water shortage. These survivors reproduce, so genes that make larger bills proportionally increase in the next generation, a result of the survival of the fittest. But in wet years, large-billed birds have no particular advantage, and may even be disadvantaged, resulting in differential survival and reproduction of smaller-billed birds. Natural selection is opportunistic, acting on the moment. The rapidity with which bill characteristics can evolve would surprise even Darwin. Natural selection is no weak force.

The Grants know all this because they know every single finch on Daphne

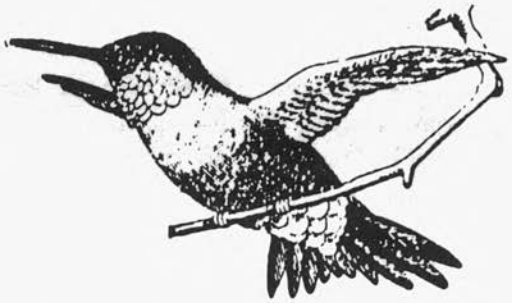
Major. Each bird has been individually marked with combinations of leg bands. Similarly, each bird's parents and grandparents and great grandparents are known because all of those were individually marked. Thus far, nearly 19,000 birds have been banded over the long course of the research, representing uninterrupted data from about two dozen generations of finches. The Grants, unlike Darwin, are not confined to talking in terms of what evolution could or might do. They talk in terms of what it is doing and has done and continues to do. Their vast computer banks of numbers have translated Darwin's Rosetta Stone into spreadsheets and graphs that abundantly confirm his theory as well as add to it.

Weiner not only explains the Grants' elaborate research but puts it in appropriate historical perspective by weaving Darwin's ideas throughout the book. In addition, Weiner makes appropriate comparisons with research being done by the Grants' contemporaries. There is a nice balance of history and modern biology juxtaposed throughout the book. The reader gets to know Darwin as well as the Grants. Birders may develop a new respect for domestic pigeons knowing that Darwin used pigeon breeds to show the power of selection (in this case artificial selection), arguing convincingly that even the most exotic looking domestic pigeon breeds each originated from a common ancestor, the Rock Dove, an example Darwin described in detail in the first chapter of *The Origin of Species*. Throughout the book, Weiner provides excellent examples of modern evolutionary research. For instance, Weiner describes the rapid evolution of pesticide resistance in a species of moth that severely damages cotton crops. The irony of the fact that this moth, the very paradigm of Darwinian natural selection, lives and wreaks its havoc in the southern "Bible Belt," an area dominated by creationists, most of whom would prefer that evolution not be taught, is not lost on Weiner. This book is one of the best introductions to evolutionary biology currently available. It ranks with Richard Dawkins' *The Blind Watchmaker*, Edward O. Wilson's *The Diversity of Life*, and the various books by Stephen Jay Gould for overall information content and clarity of writing.

No, this is not strictly a bird book. It will not even tell you how to identify the finches. But birders think a lot about what defines a species and how species form in nature, and thus they can learn much from this book. Most of it is, after all, about birds, one small group of them, that provided the kindling that started an intellectual fire that rapidly became a conflagration. Sure, you can spend your money and go to Brazil or east Africa and see many more bird species than you will on the Galapagos. But you won't see the finches — THE finches.

JOHN C. KRICHER serves Bird Observer as a member of the board and as a department head. He is currently at work on a book about the natural history of the Galapagos Islands that will be published by the Smithsonian Institution Press.

BIRD SIGHTINGS SEPTEMBER 1994 SUMMARY



by Richard A. Forster, Marjorie W. Rines and Robert H. Stymeist

September was very cloudy and cooler than normal, with frequent rain showers. The temperature averaged 64.2°, just below normal. The high mark was 87° on the 17th, and the low for the month was 50° on September 3. In Boston, rainfall totaled 4.58 inches, 1.52 inches above normal. Measurable amounts fell on 12 days, including eight consecutive days from September 22-29. The heaviest rains fell north of Boston, with some suburbs reporting over double the amounts recorded in Boston. Sunshine was seen only 53 percent of the possible time, a good 10 percent less than the past average. Winds were out of the northwest almost exclusively through midmonth. R. H. S.

LOONS TO WOODPECKERS

September is a month of great diversity among waterbirds and seabirds. As is often the case with these groups of birds, inclement weather tends to force them down to aggregate in numbers or, in the case with seabirds, to bring them close to shore for land-based observation. The only storm of note came on Labor Day weekend, and produced modest results. Early in the morning of September 5, shearwaters and storm-petrels were seen at Race Point, Provincetown, before viewing conditions deteriorated. Elsewhere on September 5, observations came from scattered locations on Cape Cod Bay, but didn't become interesting until early afternoon, when storm-petrels began appearing at First Encounter Beach, Eastham. The flight gained momentum as the afternoon progressed. By late afternoon, the birds appeared tired, some were passing over the beach, and others were flying over the flooded marsh. As observers departed the area individual birds were noted flying inland, and in early evening storm-petrels were located flying and rafted up in Town Cove, Orleans. At dawn the following morning storm-petrels were still present at First Encounter, but many were far offshore at the edge of the tidal flats. However, those that were flying over the flats afforded excellent views of the subtle field identification marks. Red-necked Phalaropes were also well reported during this storm. Jaegers, often a feature of such storms, were present, with Parasitites predominating at Sandy Neck, Barnstable, and Pomarines at First Encounter Beach.

Later in the month an extended period of weather dominated by easterly winds prevailed from the 21st to the 27th with heavy rains on the 23rd. Although this period was generally unproductive, Several shearwaters and a Northern Fulmar were seen in Rockport. Twelve Northern Fulmars at Jeffries Ledge on the 29th may have resulted from this weather pattern.

Pied-billed Grebes continued to be reported in encouraging numbers. The most unusual report among waterfowl was of a presumed migrant Common Merganser at Wachusett Reservoir on the early date of the 10th. Heron numbers decreased progressively through the month. A fair number of American Bitterns were reported. A single Least Bittern, seldom encountered during migration, also was reported. Equal numbers of both Little Blue and Tricolored herons were reported, an indication of the scarcity of Little Blue Herons this year. Most Glossy Ibis had departed before the month began.

Hawkwatchers staffed traditional watch sites in anticipation of the Broad-winged Hawk blitz. This year major movements occurred on the 14th-15th and again on the 18th. Other migrant hawk species were recorded in good numbers on those dates but their migration was more evenly distributed through the month. An early Golden Eagle was reported from Framingham, and an immature **Swainson's Hawk** spent two days in Provincetown. Merlins seemed to be very widely reported, but Peregrine Falcon numbers seemed to be low with no obvious migrant days. A Clapper Rail was seen in Eastham, the most reliable location in the state for this scarce species. A Common Moorhen in West Roxbury was an unusual location, and an American Coot appeared early at Plum Island on the 22nd.

In general, the shorebird migration was disappointing. Species with notably low numbers were Whimbrel; Hudsonian Godwit; White-rumped, Pectoral and Stilt sandpipers; and Long-billed Dowitcher.

The western contingent of shorebirds also fared poorly. Only a handful of Baird's Sandpipers were found, and Western Sandpipers were in low numbers. Buff-breasted Sandpiper fared better, but most reports were of single individuals. Conversely, Marbled Godwit appeared in good numbers but at only two locations. Two species that are rare but annual, **American Avocet** and Ruff, were reported from non-traditional shorebird hotspots.

The highlight among gulls and terns was a **Franklin's Gull** found in Provincetown on the 10th. Nearly half of all fall reports for this species occur in the first two weeks of September. Only two Little Gulls were seen, and two reports of Common Black-headed Gulls represented summering individuals. A few kittiwakes were seen during the early September storm. Caspian Terns were scarce, and a late Arctic Tern was found in Chatham. Numbers of Forster's Terns were way down from last year's exceptional flight. Although fairly numerous early in the month, Black Terns were unreported later.

Both cuckoo species were very scarce in sharp contrast to their widespread appearance during the summer months. The Common Nighthawk migration wound down early in the month. Ruby-throated Hummingbird appeared to be well reported. A ***Selasphorus*** hummingbird was carefully observed in Sandwich on the 30th. Only one migrant Red-headed Woodpecker was noted, and a few Yellow-bellied Sapsuckers had appeared by month's end.

R. A. F.

Date	Location	Number	Observers
Red-throated Loon			
18	Barnstable (S.N.)	1	T. Raymond#
Common Loon			
5	Barnstable (S.N.)	12	M. Lynch#
10	Duxbury B.	16	W. Petersen#
24	Lakeville	8	W. Petersen#
24	Wachusett Res.	24	M. Lynch#
Pied-billed Grebe			
11	Ipswich	2	J. Berry#
17, 24	Lakeville	5, 13	W. Petersen#
22	P.I.	6	W. Drew#
25	GMNWR	2	G. d'Entremont#
25	Westport	7	M. Boucher
25	Cambridge (F.P.)	6	R. Stymeist#
Horned Grebe			
24	Lakeville	4	W. Petersen#
Northern Fulmar			
23	Rockport (A.P.)	1	R. Heil
29	Jeffries Ledge	12	C. Leahy
Cory's Shearwater			
5	Provincetown	20	R. Heil
18	Barnstable (S.N.)	1	G. d'Entremont#
25	Provincetown	11	M. Lynch#
Greater Shearwater			
5	Provincetown	6	R. Heil
5	Barnstable (S.N.)	1	M. Lynch#
23	Rockport (A.P.)	2	H. Wiggin#
28	Jeffries Ledge	6	S. Carver
Sooty Shearwater			
23	Rockport (A.P.)	2	H. Wiggin#
Manx Shearwater			
3	Chatham (S.B.)	2	W. Petersen#
5	Barnstable, Eastham	1, 1	R. Forster#
Wilson's Storm-Petrel			
5	Provincetown	8+	R. Heil
5	Eastham (F.E.)	600	R. Forster#
6	Eastham (F.E.)	100+	B. Nikula#
Leach's Storm-Petrel			
3	Chatham (S.B.)	1	R. Stymeist#
5	Yarmouth	12	W. Petersen#
5	Provincetown	100+	R. Heil
5	Eastham (F.E.)	1400	R. Forster#
6	Eastham (F.E.)	100	B. Nikula#
25	Provincetown	1	M. Lynch#
26	Charlestown	1	fide S. Perkins
storm-petrel species			
5	Orleans	300+	B. Nikula#
6	Eastham (F.E.)	300+	B. Nikula#
Northern Gannet			
6	Eastham (F.E.)	35	B. Nikula#
18	Barnstable (S.N.)	25	S. Perkins#
22	WBWS	100	S. Perkins#
23	Rockport (A.P.)	350+	R. Heil
29	Jeffries Ledge	70	C. Leahy#
Great Cormorant			
3	S. Monomoy	1 imm	S. Perkins#
3	Marblehead	1	P. + F. Vale
18	Barnstable (S.N.)	1 imm	S. Perkins#
Double-crested Cormorant			
10	Wachusett Res.	88	M. Lynch#
16	S. Dart (A.Pd)	255	LCES (J. Hill)
25	Orleans	450+	M. Lynch#
26	Elizabeth I.	450+	P. Trimble
American Bittern			
3	Newburyport	1	H. D'Entremont#
17	Scituate	1	W. Petersen#
21	E. Sandwich	1	S. + E. Miller
22	P.I.	1	W. Drew#
25	Boston (Logan)	2	R. Stymeist#
25	Eastham	1	M. Lynch#
25	GMNWR	1	G. Wood
Least Bittern			
21	E. Sandwich	1	S. + E. Miller
Great Blue Heron			
7	Duxbury	5	K. Anderson#
22	P.I.	8	W. Drew#
25	Boston (Logan)	15	R. Stymeist#
25	Truro	16	M. Lynch#
Great Egret			
3, 21	Lexington	2, 1	M. Pelikan
11	Worcester	1	R. Bradbury
15	Holden	1	R. Bradbury
16, 21	S. Dart (A.Pd)	44, 41	LCES (J. Hill)
22, 30	P.I.	28, 17	W. Drew#
Snowy Egret			
thr	P.I.	155 max 9/22	W. Drew#
4	S. Dart. (A.Pd)	200	J. Berry
18	WBWS	25	G. d'Entremont#
24	Squantum	11	G. d'Entremont#
26	Cuttyhunk I.	12	P. Trimble
Little Blue Heron			
16	S. Dart (A.Pd)	1	LCES (J. Hill)
22	WBWS	1 imm	L. Jonsson
22,30	P.I.	1	W. Drew#
Tricolored Heron			
3	S. Monomoy	1	B. Nikula#
4	P.I.	1	D. Chickering
16	S. Dart (A.Pd)	1	LCES (J. Hill)

Cattle Egret
3 Essex 4 R. Forster#
7, 12 Hamilton 20, 3 T. Young
Green Heron
8 Arlington Res. 3 M. Rines
10 Wakefield 5 P. + F. Vale
15 Rochester 3 R. Turner#
24 Halifax 3 W. Petersen#
26 GMNWR 3 T. Aversa
Black-crowned Night-Heron
10 Eastham 3 J. Hoye#
18 P'town 30 BBC (R. Stymeist)
Yellow-crowned Night-Heron
6 Rowley 1 imm E. Mailin
Glossy Ibis
4 Gloucester 1 M. Lynch#
16 S. Dart (A.Pd) 1 LCES (J. Hill)
22 P.I. 1 W. Drew#
Whooper Swan (probable escapes)
thr Ipswich, P.I. 2, 1 J. Berry
Mute Swan
25 Westport 114 M. Boucher
Snow Goose
16 P.I. 1 T. Aversa
Wood Duck
18 S. Hanson 125+ W. Petersen
25 GMNWR 40 S. Perkins#
Green-winged Teal
thr P.I. 420 max 9/16 W. Drew#
3 S. Monomoy 25 B. Nikula#
16 Arlington Res. 12 M. Pelikan
18 S. Hanson 25 W. Petersen
19, 25 GMNWR 70, 80 S. Perkins#
American Black Duck
13 S. Monomoy 150 B. Nikula#
16 P.I. 250 W. Drew#
24 Squantum 160 G. d'Entremont#
25 Boston (Logan) 315 R. Stymeist#
Northern Pintail
3 S. Monomoy 20 B. Nikula#
25 GMNWR 2 G. d'Entremont#
2, 30 P.I. 2, 2 W. Drew#
Blue-winged Teal
2, 22 P.I. 22, 8 W. Drew#
3 S. Monomoy 250 B. Nikula#
8, 13 Easton 14, 8 K. Ryan
10 Eastham 18 R. Stymeist#
24 Halifax 39 W. Petersen#
25 GMNWR 14 S. Perkins#
Northern Shoveler
thr P.I. 2-4 W. Drew#
3 S. Monomoy 12 B. Nikula#
Gadwall
thr P.I. 35 max 9/2 W. Drew#
3 S. Monomoy 30 B. Nikula#
21 Arlington Res. 1 M. Pelikan
25 Westport 9 M. Boucher
American Wigeon
3 S. Monomoy 20 B. Nikula#
11 Ipswich 10 J. Berry#
16 P.I. 61 W. Drew#
19 Cambridge (F.P.) 19 M. Rines
27 Arlington Res. 45 M. Pelikan
Ring-necked Duck
3, 25 W. Newbury 3, 37 v. o.
16, 25 Camb. (F.P.) 4, 16 R. Stymeist#
17 Arlington Res. 1 M. Pelikan
24 Lakeville 200+ W. Petersen#
Greater Scaup
3 P.I. 1 G. d'Entremont#
17, 24 Lakeville 4, 15 W. Petersen#
18 Barnstable (S.N.) 2 m S. Perkins#
Lesser Scaup
3 S. Monomoy 1 B. Nikula#
24 Southboro 3 M. Lynch#
22 P.I. 3 W. Drew#
Common Eider
4 Rockport (H.P.) 90 M. Lynch#
10 Duxbury 115 W. Petersen#
Black Scoter
5 Barnstable (S.N.) 24 R. Forster#
23 Rockport (A.P.) 30 M. Argue#
Surf Scoter
17 Rockport (H.P.) 22 M. Lynch#
25 Provincetown 12 M. Lynch#
25 Nahant 40 M. Pelikan
26 P.I. 13 T. Young
White-winged Scoter
25 Nahant 300 M. Pelikan
Hooded Merganser
2 Quabbin (G45) 1 T. Aversa
2-11 Lexington 1 R. Forster
14 Cambridge (F.P.) 1 f D. Flood
19 Sudbury 1 R. Forster
26 P.I. 5 T. Young
Common Merganser
10 W. Boylston 3 E. Taylor
Red-breasted Merganser
7 Duxbury 1 K. Anderson
18 Barnstable (S.N.) 8 S. Perkins#
26 Elizabeth I. 4 P. Trimble
Ruddy Duck
25 W. Newbury 5 D. Chickering
Turkey Vulture
4 N. Dartmouth 6 M. Boucher
12 E. Middleboro 7 K. Anderson
15 Rochester 10 R. Turner#
15 Wachusett Mt. 33 EMHW
18 Wenham 7 J. Berry
18 Harvard 6 M. Lynch#
18 Topsfield 11 L. Taylor#
28 Worc. (BMB) 10 M. Lynch#
Osprey
11 Wellesley 8 R. Forster
14 Medford 3 M. Rines
15 Mt. Watatic 17 EMHW
15, 18 Wachusett Mt. 30, 24 EMHW
17 GMNWR 5 M. Pelikan
18 Harvard 8 M. Lynch#
Bald Eagle
3, 13 Mt. Wachusett 3, 3 E. Taylor
11 Bolton 1 E. Taylor
13 S. Yarmouth 1 imm S. + E. Miller
14 Westboro 1 imm E. Taylor
15 Worc. (BMB) 1 imm M. Lynch#
17, 24 Lakeville 1 ad, 2 ad W. Petersen#
30 P.I. 1 D. Chickering
Northern Harrier
thr P.I. 6 max W. Drew#
3 S. Monomoy 8 W. Petersen#
10 Easton 3 K. Ryan
11 Wellesley 2 R. Forster
12 Dover 2 E. Taylor
26 Elilzabeth I. 7 P. Trimble
Sharp-shinned Hawk
1-29 Worc. (BMB) 17 total M. Lynch#
11 Wellesley 10 R. Forster
13, 18 Bolton Flats 18, 64 EMHW
15, 18 Mt. Watatic 54, 47 EMHW
15, 18 Wachusett Mt. 30, 61 EMHW
18 Harvard 16 M. Lynch#
26 Elizabeth I. 12 P. Trimble

Cooper's Hawk
17 Lakeville 2 W. Petersen#
18 Concord (NAC) 2 R. Forster
18 Harvard 2 M. Lynch#
21 GMNWR 2-3 M. Pelikan
26 W. Boxford 2 T. Walker#
4-25 Reports of indiv. from 12 locations

Red-shouldered Hawk
thr E. Middleboro 2+ K. Anderson
3 Princeton 1 M. Pelikan
10 Scituate 1 W. Petersen#
15 Worc. (BMB) 1 M. Lynch#
18 Harvard 2 M. Lynch#
25 Marshfield 1 ad J. Center
30 W. Boxford 2 T. Walker#

Broad-winged Hawk
11, 12, 18 Wellesley 101, 59, 25 R. Forster
15 Worc. (BMB) 26 M. Lynch#
13 Woburn 28 M. Rines
14 Mt.A. 31 R. Stymeist
14, 15 Wachusett Mt. 2471, 3056 EMHW
15, 18 Mt. Watatic 9094, 507 EMHW
18 Wachusett Mt. 3124 EMHW
18 Bolton Flats 1039 EMHW
18 Sudbury 53 R. Forster
18 Harvard 256 M. Lynch#
20 Lexington 56 M. Rines
20 Wayland 165 S. Arena

Swainson's Hawk
8-9 Provincetown 1 ph P. Champlain

Red-tailed Hawk
18 Harvard 6 M. Lynch#

Golden Eagle
11 Framingham 1 imm K. Hamilton

American Kestrel
9 Holliston 6 R. Forster#
12 S. Dartmouth 5 M. Boucher
13 Everett 5 J. Berry
15 Mt. Watatic 47 EMHW
15, 18 Wachusett Mt. 30, 24 EMHW
18 Bolton Flats 71 EMHW
18 Easton 7 S. Arena

Merlin
18 Cuttyhunk I. 4-5 S. Perkins#
thr Reports of indiv. from 17 locations

Peregrine Falcon
7 Duxbury B. 1 K. Anderson#
14 Bolton 1 R. Bradbury
16 S. Dart. (A.P.) 1 LCES (J. Hill)
17 Lakeville 1 K. Holmes#
20, 30 P.I. 1, 1 W. Drew#
21 S.B./N. Monomoy 4 S. Perkins#
25 Westport 1 M. Boucher
26 Cuttyhunk I. 2 P. Trimble
30 ONWR 1 M. Pelikan

Ruffed Grouse
2 Quabbin (G45) 12 T. Aversa
19 Newbury 1 D. Chickering
19 E. Middleboro 1 K. Anderson
25 Topsfield 1 J. Brown#
25 Milton 1 G. d'Entremont
30 Harvard 2 M. Pelikan

Wild Turkey
thr Sherborn 23 E. Taylor
24 Easton 2 K. Ryan
30 ONWR 9 M. Pelikan

Northern Bobwhite
thr Yarmouthport 14 E. Miller
10 Eastham 10 J. Hoye#

Clapper Rail
25 Eastham 1 M. Lynch#

Virginia Rail
3 P.I. 1 G. d'Entremont#
3 S. Monomoy 1 W. Petersen#
10 Eastham 1 J. Hoye#
17 Sandwich 1 P. Trimble

Sora
17 DWWS 1 W. Petersen#
25 Boston (F.Pk) 1 T. Aversa
26 GMNWR 3 J. Young
30 Sandwich 1 T. Aversa

Common Moorhen
thr P.I. 1 imm v. o.
27 W. Roxbury 1 imm T. Aversa

American Coot
22 P.I. 1 D. Chickering

Black-bellied Plover
3, 10 Newburyport 300, 200 M. Lynch#
7 Duxbury B. 724 K. Anderson#
8 Chatham (S.B.) 1800 B. Nikula

American Golden-Plover
1 Newbury 7 J. Hoye#
2 P.I. 2 G. Wood
3, 4 Nantucket 7 + 2 S. Perkins, J. Smith
3 S. Monomoy 7 ad W. Petersen#
10 Duxbury B. 1 juv W. Petersen#
18-21 Arlington Res. 3 K. Hartel#
22 Bourne 1 S. + E. Miller
25 Boston (Logan) 23 R. Stymeist#

Semipalmated Plover
5 Nahant 150 J. Brown#
8 Chatham (S.B.) 400 B. Nikula
7 Duxbury 85 K. Anderson#
10 Newburyport 300+ M. Lynch#

Piping Plover
3 S. Monomoy 5 B. Nikula#
5 Eastham 4 W. Petersen#
15 Chatham (S.B.) 5 H. Coolidge#

Killdeer
3 Newbury 60 J. Brown#
24 Concord (NAC) 74 J. Hoye#
24 W. Bridgewater 63 W. Petersen#
24 Westboro 38 M. Lynch#

American Oystercatcher
3-5 Nantucket 14 S. Perkins
13 Monomoy 82 B. Nikula#
18 S. Dartmouthy 4 S. Sweet#
26 Cuttyhunk I. 2 P. Trimble

American Avocet
26 Barnstable 2 B. Henchey

Greater Yellowlegs
thr P.I. 69 max 9/20 W. Drew#
8 N. Monomoy 350 B. Nikula
17 Scituate 80 W. Petersen#
25 E. Boston (B.I.) 108 S. Zendeh

Lesser Yellowlegs
thr P.I. 108 max 9/20 W. Drew#
19-25 GMNWR 15 S. Perkins#

Solitary Sandpiper
3 Belmont 4 L. Taylor
13 Northbridge 3 R. Bradbury
19-25 GMNWR 8 S. Perkins#
26 W. Boxford 2 T. Walker#
1-25 Reports of 1-2 indiv. from 7 locations

Willet
14 N. Monomoy 50 B. Nikula#

Spotted Sandpiper
4 P.I. 2 D. Chickering
18 Wenham 3 J. Berry
24 ONWR 2 J. Hoye#
26 Cuttyhunk I. 1 P. Trimble

Upland Sandpiper
3 Newburyport 1 K. Ryan#
14 Barnstable 4 H. Coolidge#
Whimbrel
5 P.I. 3 K. Ryan#
7 Duxbury B. 1 M. Kasprzyk#
12 S. Dartmouth 5 M. Boucher
17 Truro 3 J. Young
Hudsonian Godwit
3 Newburyport 9 R. Forster#
14 N. Monomoy 5 B. Nikula
24 P.I. 1 D. Chickering
Marbled Godwit
thr N. Monomoy 10 max J. Sones#
10 Duxbury B. 6 W. Petersen#
Ruddy Turnstone
3 P.I. 20+ M. Lynch#
7 Duxbury B. 25 M. Kasprzyk#
Red Knot
5 P.I. 15 K. Ryan#
7 Duxbury B. 144 M. Kasprzyk#
8 Chatham (S.B.) 300 B. Nikula
Sanderling
4 Duxbury B. 404 M. Kasprzyk#
5 Nahant 350 J. Brown#
8 Chatham (S.B.) 1400 B. Nikula
Semipalmated Sandpiper
5 Nahant 750 J. Brown#
7 Duxbury B. 128 M. Kasprzyk#
8 N. Monomoy 100 B. Nikula
10 Newburyport 800+ M. Lynch#
Western Sandpiper
5 Nahant 3 J. Brown#
7 Chatham (S.B.) 1 S. Perkins#
7 P.I. 2 G.Wood
16 Revere 4 R. Stymeist
Least Sandpiper
1-26 P.I. 60 max v. o.
4 Cumb. Farms 3 K. Anderson
7 Chatham (S.B.) 15 S. Perkins#
7 Duxbury B. 38 M. Kasprzyk#
13 Northbridge 3 R. Bradbury
19-25 GMNWR 60 S. Perkins#
White-rumped Sandpiper
1-26 P.I. 20 max v. o.
5 Nahant 5 J. Brown#
7 Duxbury B. 4 M. Kasprzyk#
24 W. Bridgewater 1 W. Petersen#
Baird's Sandpiper
2 P.I. 2 W. Drew#
10 S. Monomoy 1 J. Sones#
18 Scituate 1 D. Morimoto
Pectoral Sandpiper
7 Duxbury B. 2 M. Kasprzyk#
9 P.I. 6 T. Aversa
15 Holden 1 R. Bradbury
18 S. Dart (A.Pd) 6 S. Perkins#
19-25 GMNWR 20+ S. Perkins#
20 Scituate 3 T. Aversa
Dunlin
16-30 P.I. 235 max W. Drew#
21 Chatham (S.B.) 800 S. Perkins#
25 Eastham 80+ M. Lynch#
Stilt Sandpiper
3 P.I. 1 G. d'Entremont#
7 Chatham (S.B.) 2 S. Perkins#
9 Lexington 1 juv C. Floyd
16 Easton 1 K. Ryan
Buff-breasted Sandpiper
1 Katama 1 A. Brown
2-22 P.I. 1 v. o.
3 S. Monomoy 1 S. Arena#
4, 5 Nantucket 3 + 1 S. Perkins, J. Smith
5 Nahant 1 J. Brown#
19-25 GMNWR 1 S. Perkins#
7 Duxbury B. 1 M. Kasprzyk#
Ruff
17 GMNWR 1 E. Nielsen#
Short-billed Dowitcher
10, 17 Scituate 45, 34 W. Petersen#
16 P.I. 107 W. Drew#
21 Chatham (S.B.) 8 S. Perkins#
Long-billed Dowitcher
2, 20 P.I. 15, 4 W. Drew#
Common Snipe
3 P.I. 1 M. Lynch#
American Woodcock
24 Middleboro 6 W. Petersen#
Wilson's Phalarope
3 Chatham (S.B.) 1 R. Stymeist#
Red-necked Phalarope
5 Rockport 225 C. Leahy
5 Eastham (F.E.) 75 R. Heil#
5 Barnstable (S.N.) 200 W. Petersen#
5 Yarmouth 50 W. Petersen#
phalarope species
5 Dennis (C.B.) 20+ B. Nikula#
5 Orleans 4 B. Nikula#
Pomarine Jaeger
5 Nantucket 1 J. Smith
5 Eastham (F.E.) 4 R. Forster#
6 Eastham (F.E.) 10 B. Nikula#
29 Jeffries Ledge 1 L. Jonsson#
Parasitic Jaeger
5 Dennis (C.B.) 1 B. Nikula#
5 Barnstable (S.N.) 8 W. Petersen#
7, 13 Chatham (S.B.) 3, 2 S. Perkins
18 Barnstable (S.N.) 4 T. Raymond
jaeger species
5 Dennis (C.B.) 4 B. Nikula#
6 Eastham (F.E.) 30+ B. Nikula#
18 Barnstable (S.N.) 1 G. d'Entremont
Laughing Gull
3 Marblehead 15 R. Forster
18 Cuttyhunk I. 125 S. Perkins#
20 Lynn 40 J. Quigley
21 Chatham (S.B.) 200 S. Perkins#
25 Winthrop 60 M. Pelikan
Franklin's Gull
11 Provincetown 1 P. Champlain
Little Gull
3 Newburyport 1 juv M. Lynch#
25 Winthrop 1 ad M. Pelikan
Common Black-headed Gull
3 N. Monomoy 1 ad W. Petersen#
17 N. Monomoy 1 2W B. Nikula#
25 WBWS 1 J. Sones
Bonaparte's Gull
3, 10 Newburyport 150, 60 M. Lynch#
13 Essex R. 200+ T. Young
18 Lynn 20 J. Quigley
Lesser Black-backed Gull
3 S. Monomoy 1 ad B. Nikula#
10 Duxbury B. 1 3W W. Petersen#
13 N. Monomoy 1 ad B. Nikula#
23 Gloucester 1 imm R. Heil
27 Dennis 1 ad K. Hamilton
Black-legged Kittiwake
5 Nantucket 7 J. Smith
5 Dennis (C.B.) 1 imm B. Nikula#
5 Eastham (F.E.) 2 imm R. Heil#
18 Barnstable (S.N.) 5 G. d'Entremont#

Caspian Tern
21 Manomet 2 M. Kasprzyk
24 P.I. 1 ad R. Forster#
Roseate Tern
4, 5 Nant. 300 + 200 S. Perkins, J.Smith
7-23 Chatham (S.B.) 800 S. Perkins
Common Tern
4 S. Dart (A.Pd) 50 J. Berry#
10 Eastham (F.H.) 50 J. Hoye#
21 Chatham (S.B.) 1500 S. Perkins#
Arctic Tern
13 Chatham (S.B.) 1 ad S. Perkins#
Forster's Tern
3 P.I. 1 R. Forster
4 S. Dart (A.Pd) 15 J. Berry#
9 Quincy 1 K. Ryan
10 S. Monomoy 20+ J. Sones#
10 Duxbury B. 2 W. Petersen#
18 Barnstable (S.N.) 5 S. Perkins#
25 Truro 4+ M. Lynch#
Least Tern
4 S. Dart (A.Pd) 4 J. Berry#
5 Nantucket 15 J. Smith
21 Chatham (S.B.) 1 juv S. Perkins#
Black Tern
3 S. Monomoy 15 W. Petersen#
4, 5 Nant. 40 + 8 S. Perkins, J. Smith
8 N. Monomoy 4 B. Nikula
Mourning Dove
18 S. Hanson 500+ W. Petersen
Black-billed Cuckoo
1 Worc. (BMB) 1 M. Lynch#
9 P.I. 1 T. Aversa
Yellow-billed Cuckoo
7 P.I. 1 L. Nachtrab#
17 Chatham 1 S. + E. Miller
Barn Owl
19 Middleboro 2 K. Holmes
Eastern Screech-Owl
18 S. Dartmouth 4 T. Raymond#
thr Reports of 1-2 indiv. from 9 locations
Great Horned Owl
thr Yarmouthport 2 E. Miller
3 S. Monomoy 2 W. Petersen#
9 E. Middleboro 2 K. Anderson
18 Wayland 2 J. Hoye#
20-30 Ipswich 2 juv J. Berry
Barred Owl
17 ONWR 1 M. Pelikan
19 Lexington 1 M. Pelikan
24 Middleboro 1 W. Petersen#
Short-eared Owl
30 Nantucket 2 S. Perkins#
Northern Saw-whet Owl
24 Middleboro 1 W. Petersen#
Common Nighthawk
9, 17 Worcester 49, 13 M. Lynch#
12 Dover 15 E. Taylor
13 Dedham 50+ T. Raymond
14, 28 Wellesley 42, 1 R. Forster
1-18 Reports of 1-9 indiv. from 11 locations
Whip-poor-will
13 Arlington 1 K. Hartel
Chimney Swift
12 Dover 50 E. Taylor
13 Dedham 400+ T. Raymond
13, 20 W. Newton 405, 575 T. Kuklinski
28 Wellesley 1 R. Forster
28 Wayland 11 S. Arena
29 Attleboro 5 K. Ryan
29 Worc. (BMB) 3 M. Lynch#
Ruby-throated Hummingbird
1 Easton 2 K. Ryan
1-8 E. Boxford 1-2 J. Brown#
1-10 Mattapoisett 6 F. Smith
11 Harwich 3 W. Drew#
13 Wellesley 2 R. Forster
23 Framingham 2 K. Hamilton
1-25 Reports of indiv. from 8 locations
Humingbird, *Selasphorus* species
30 Sandwich 1 T. Aversa
Belted Kingfisher
24 Wachusett Res. 3 M. Lynch#
24 Squantum 3 G. d'Entremont#
26 Cuttyhunk I. 3 P. Trimble
Red-headed Woodpecker
1-15 Sherborn 2 ad + 2-3 imm E. Taylor
18 Cuttyhunk I. 1 T. Raymond
Red-bellied Woodpecker
4 W. Medford 1 P. + F. Vale
10 Scituate 1 W. Petersen#
18 S. Dartmouth 1 S. Perkins#
Yellow-bellied Sapsucker
15 Mt.A. 1 D. Cooper
27 P.I. 1 D. Chickering
29 Waltham 1 M. Rines
Northern Flicker
2 Wayland 12 J. Hoye#
15 Worc. (BMB) 24 M. Lynch#
18 Wenham 20 J. Berry
24 Rockport (H.P.) 12 J. Hoye#
26 Cuttyhunk I. 12 P. Trimble
Pileated Woodpecker
2 Quabbin (G45) 4 T. Aversa
6 Bolton 1 G. Nachtrab
8 Topsfield 2 J. Brown#
13 Hamilton 1 N. Nash

FLYCATCHERS THROUGH FINCHES

There was a good flight of Yellow-bellied Flycatchers, with at least 10 individuals reported from a wide area compared to only three individuals last September. A single Western Kingbird was noted from Cape Ann, and Olive-sided Flycatchers were noted from four locations. Reports of Red-breasted Nuthatches were few and far between in sharp contrast to last year's major invasion (see article elsewhere in this issue). Carolina Wren totals were also way down from last fall.

Northern Wheatears, repeating last year's invasion, were found in five locations, including two inland areas of Fitchburg and Milford. Typically wheatears appear for a day and then disappear, but the individuals at Fitchburg and Crane Beach in Ipswich were present for four days.

Weather conditions were optimal for migrating thrushes and warblers on the night of September 4. With winds out of the northeast at 10 mph, a low cloud cover, and light drizzle, 123 Swainson's Thrushes and 27 unidentified warblers were tallied in a one-hour time span in Lincoln. Reports of Philadelphia Vireos were

overwhelming, and 30 species of warblers were tallied, including 7 Golden-winged, 2 Worm-eating, **24** Connecticut (compared with 9 last year), and 16 Mourning warblers and 15 Yellow-breasted Chats.

Among the seedeaters, 5 Blue Grosbeaks, 8 Dickcissels, 9 Clay-colored, 4 Lark, and 25 Lincoln's sparrows were tallied, as well as an immature **Yellow-headed Blackbird** in Bedford. R. H. S.

Olive-sided Flycatcher
- 3 Chatham 1 R. Stymeist#
- 7 Worc. (BMB) 2 M. Lynch#
- 11 ONWR 1 A. Hirschkop#
- 14 Medford 1 M. Rines

Eastern Wood-Pewee
- 1, 15 Worc. (BMB) 7, 2 M. Lynch#
- 2 Quabbin (G45) 12 T. Aversa
- 30 ONWR 1 M. Pelikan

Yellow-bellied Flycatcher
- 3 S. Monomoy 1 W. Petersen#
- 3 MNWS 1 R. Forster
- 3 P.I. 1 R. Forster
- 4 Boston (F.Pk) 1 T. Aversa
- 10 Milton 1 G. d'Entremont#
- 13 ONWR 2 T. Aversa
- 13 Medford 1 M. Rines
- 14 Worc. (BMB) 1 K. Mills
- 24 Rockport (H.P.) 1 J. Hoye#

Alder Flycatcher
- 16 Chatham 1 R. Forster

"Traill's" Flycatcher
- 25 GMNWR 1 S. Perkins#

Least Flycatcher
- 7 Worc. (BMB) 1 M. Lynch#
- 9 P.I. 1 T. Aversa
- 13 ONWR 1 T. Aversa
- 16 Truro 1 H. Coolidge#

Eastern Phoebe
- 13 ONWR 25 T. Aversa
- 18 Ipswich 18+ L. Taylor#
- 29 Worc. (BMB) 12 M. Lynch#

Great Crested Flycatcher
- 3 Chatham 1 R. Stymeist#
- 3 P.I. 1 D. Chickering
- 3, 10 MNWR 2, 1 R. Forster
- 13 ONWR 1 T. Aversa

Western Kingbird
- 5 E. Gloucester 1 C. Leahy

Eastern Kingbird
- 10 Eastham 17 BBC (R. Stymeist)
- 17 Barnstable 2 G. d'Entremont#
- 18 Chatham 3 G. d'Entremont#
- 19 Truro 4 R. Stymeist

Purple Martin
- 3 Nantucket 1 S. Perkins

Tree Swallow
- 11 P.I. 10,000+ J. Berry#
- 16 S. Dart (A.Pd) 5000 LCES (J. Hill)
- 22 P'town/Truro 10,000+ S. Perkins#
- 25 Westport 10,000 M. Boucher
- 26 Elizabeth I. 300,000+ P. Trimble

N. Rough-winged Swallow
- 1-11 Wellesley 2 R. Forster

Bank Swallow
- 3 Truro 1 W. Petersen#
- 11 Ipswich 2 G. d'Entremont#
- 17 Barnstable 1 G. d'Entremont#
- 20 Scituate 2 T. Aversa

Cliff Swallow
- 7, 13 Chatham (S.B.) 20, 2 S. Perkins
- 9 P.I. 6 T. Aversa
- 10 Scituate 1 W. Petersen#
- 11 Falmouth 1 P. Trimble

Barn Swallow
- 11 P.I. 50 M. Pelikan
- 25 Eastham 1 M. Lynch#

Fish Crow
- 29 Hanson 1 W. Petersen

Common Raven
- 3 Barre 2 M. Pelikan
- 15 Mt. Wachusett 2 E. Taylor

Red-breasted Nuthatch
- 2-13 E. Middleboro 1-2 K. Anderson
- 3 MNWS 1 R. Forster#
- 10 Truro 1 H. Coolidge#
- 17 Sandwich 2 G. d'Entremont#

White-breasted Nuthatch
- 2 Quabbin (G45) 27 T. Aversa

Brown Creeper
- 17 Yarmouth 1 G. d'Entremont#
- 28 Mattapoisett 1 F. Smith

Carolina Wren
- thr Worc. (BMB) 1 M. Lynch#
- 3 Chatham 3 R. Stymeist#
- 6 Rockport 11 M. Rines
- 10 Eastham 5 R. Stymeist#
- 17 ONWR 1 M. Pelikan

House Wren
- thr Worc. (BMB) 10 max M. Lynch#
- 24 P.I. 3 R. Forster
- 25 Topsfield 5 J. Brown#

Winter Wren
- 3 P.I. 1 D. Chickering
- 11 Chatham 1 P. Trimble
- 20 N. Scituate 1 T. Aversa
- 29 Boston 2 T. Aversa

Marsh Wren
- 19 Yarmouthport 1 S. + E. Miller
- 19-25 GMNWR 4 S. Perkins#
- 20 N. Scituate 1 T. Aversa
- 21 Boston (F.Pk) 1 T. Aversa
- 26-29 P.I. 1 G. Wood

Golden-crowned Kinglet
- 20 N. Scituate 1 T. Aversa

Ruby-crowned Kinglet
- 10 Milton 2 G. d'Entremont
- 13, 29 Worc. (BMB) 1, 7 M. Lynch#
- 28 P.I. 3 T. Young

Blue-gray Gnatcatcher
- 3 P.I. 1 G. d'Entremont#
- 4 W. Medford 1 P. + F. Vale
- 11 Chatham 4 P. Trimble
- 11 Wellesley 1 R. Forster
- 17 Scituate 1 W. Petersen
- 17 Rockport (H.P.) 1 M. Lynch#

Northern Wheatear
- 5-8 Fitchburg 1 T. Mongeon#
- 7-10 Ipswich 1 R. Hopping + v.o.
- 8 M.V. (Gay Head) 1 G. Daniels
- 13 Nantucket 1 D. Sutherland#
- 17-18 Milford 1 R. Hildreth#

Eastern Bluebird
- thr Worc. (BMB) 12 max M. Lynch#
- 4 DWWS 15 G. d'Entremont
- 11 E. Middleboro 3 K. Anderson
- 15-20 Mattapoisett 3 F. Smith

Veery
- 10 Waltham 2 L. Taylor
- 13 Chatham 8+ B. Nikula#

Veery (continued)

13	Mt.A.	3	R. Stymeist

Gray-cheeked Thrush

25	Billerica	1	R. Stymeist#
28	Worc. (BMB)	1	M. Lynch#

Swainson's Thrush

4	Lincoln	123	S. Perkins#
13	Chatham	6+	B. Nikula#
15	Boston (F.Pk)	2	T. Aversa
20	N. Scituate	1	T. Aversa
28	Worc. (BMB)	5	M. Lynch#

Hermit Thrush

13	Worc. (BMB)	1	M. Lynch#
18	Matapoisett	1	F. Smith
24	Lakeville	1	W. Petersen#

Wood Thrush

2	Quabbin (G45)	2	T. Aversa
8	W. Gloucester	2	T. Young
11	Chatham	2	P. Trimble
15	Worc. (BMB)	2	M. Lynch#

American Robin

20	Worc. (BMB)	270	M. Lynch#

Gray Catbird

thr	Worc. (BMB)	60 max	M. Lynch#
10	P.I.	40	M. Lynch#
24	Rockport (H.P.O	20	J. Hoye#

Northern Mockingbird

3	P.I.	20	M. Lynch#

Brown Thrasher

24	Rockport (H.P.)	2	J. Hoye#
27	P.I.	3	D. Chickering
28	Worc. (BMB)	3	M. Lynch#
thr	Reports of indiv. from 7 locations		

American Pipit

15	Scituate	1	J. Norton
17	Cohasset	3	B. Flaherty
19-25	GMNWR	8	S. Perkins#
25	Boston (Logan)	1	R. Stymeist#

Cedar Waxwing

10	Nahant	20	R. Forster
21	Worc. (BMB)	128	K.Mills

White-eyed Vireo

3	Chatham	1	C. Floyd#
18	S. Dartmouth	1	S. Perkins#

Solitary Vireo

2	Quabbin (G45)	5	T. Aversa
20	Worc. (BMB)	2	M. Lynch#
21	Boston (F.Pk)	3	T. Aversa
26	P.I.	3	T. Young

Yellow-throated Vireo

2	Quabbin (G45)	5	T. Aversa
7	Boston (F.Pk)	1	T. Aversa
8	Topsfield	1	J. Brown#
11	Chatham	1	J. Trimble#
16	P.I.	1	T. Aversa
17	ONWR	1	M. Pelikan

Warbling Vireo

5	Medford	5	M. Rines
17	ONWR	4	M. Pelikan
12	Wellesley	2	R. Forster
19	Chatham	2	S. + E. Miller
21	Boston (F.Pk)	1	T. Aversa

Philadelphia Vireo

3	MNWS	2	R. Forster
4	Mt.A.	2	R. Stymeist#
10	Eastham	2	R. Stymeist
11	Chatham	3	P. Trimble
16	P.I.	4	T. Aversa
26	Cuttyhunk I.	3	P. Trimble
thr	Reports of indiv. from 10 locations		

Red-eyed Vireo

2	Quabbin (G45)	42	T. Aversa
10	Eastham	9	R. Stymeist
10	Nahant	4	R. Forster
11	Chatham	6	P. Trimble
13, 28	Worc. (BMB)	12, 7	M. Lynch#
24	P.I.	4	R. Forster
25	Boston (F.Pk)	5	T. Aversa

Blue-winged Warbler

3	Chatham	3	R. Stymeist#
10	MNWS	1	R. Forster
19	Boston (F.Pk)	1	T. Aversa
21	Lexington	1	M. Pelikan

Golden-winged Warbler

7	Medford	1 f	M. Rines
8	MNWS	1	G. Wood
11	Chatham	1	B. Nikula#
15	ONWR	1	E. Salmela
18	N. Scituate	1	D. Morimoto
23	Truro	1 m	T. Aversa
25	Wellfleet	1	M. Lynch#

"Brewster's" Warbler

13	ONWR	1	T. Aversa

"Lawrence's" Warbler

15	Yarmouthport	1	S. + E. Miller

Tennessee Warbler

2	Quabbin (G45)	1	T. Aversa
3	Ipswich	1	J. Berry
3	ONWR	4	R. Bradbury
15	P.I.	1	J. Hoye#
15, 28	Worc. (BMB)	1, 1	M. Lynch#
25	Newton	1	R. Forster
27	Wellelsey	1	R. Forster

Orange-crowned Warbler

3	DWWS	1	J. Hoye#
4	P.I.	1	T. Young
14	Worc. (BMB)	1	K. Mills

Nashville Warbler

11	Chatham	3	P. Trimble
13	ONWR	15	T. Aversa
25	Newton	2	R. Forster
26	Cuttyhunk I.	3	P. Trimble
29	Worc. (BMB)	7	M. Lynch#
30	Belmont	2	M. Rines

Northern Parula

3	MNWS	2	R. Forster
5	Medford	3	M. Rines
10	Waltham	3	L. Taylor
12	Mt.A.	3	R. Stymeist#
13	ONWR	25	T. Aversa
28, 29	Worc. (BMB)	22, 33	M. Lynch#

Yellow Warbler

24	Squantum	1	G. d'Entremont#
24	W. Bridgewater	1	W. Petersen#
26	Cuttyhunk I.	1	P. Trimble
26	P.I.	2	G. Wood
26	ONWR	1	T. Aversa
29	Worc. (BMB)	2	M. Lynch#
30	Sandwich	1	T. Aversa

Chestnut-sided Warbler

5	Medford	5	M. Rines
13	ONWR	6	T. Aversa
24	Middleboro	1	T. Aversa
26	Cuttyhunk I.	2	P. Trimble
29	Worc. (BMB)	2	M. Lynch#

Magnolia Warbler

13	ONWR	40	T. Aversa
13, 29	Worc. (BMB)	17, 8	M. Lynch#
14	Medford	8	M. Rines
28	P.I.	2	T. Young
30	ONWR	4	M. Pelikan

Cape May Warbler
3 Nantucket 5 S. Perkins
3 S. Monomoy 5 W. Petersen#
10 Nahant 3 R. Forster#
11 Chatham 2 P. Trimble
14 Yarmouthport 3 S. + E. Miller
16 P.I. 5 T. Aversa
26 Cuttyhunk I. 3 P. Trimble

Black-throated Blue Warbler
3 DWWS 1 J. Hoye#
3 MNWS 4 R. Forster#
6 Medford 1 M. Rines
10 Mt. Watchusett 1 m J. Berry
11 Chatham 3 P. Trimble
17 ONWR 7 M. Pelikan
26 Cuttyhunk I. 1 P. Trimble
28 Worc. (BMB) 1 M. Lynch#

Yellow-rumped Warbler
17, 30 ONWR 1, 25+ M. Pelikan
20 Worc. (BMB) 1 M. Lynch#
20 Wellesley 1 R. Forster
24 P.I. 13 R. Forster

Black-throated Green Warbler
1, 15 P.I. 4, 4 J. Hoye#
13 ONWR 21 T. Aversa
26 Cuttyhunk I. 6 P. Trimble
28 Worc. (BMB) 16 M. Lynch#

Blackburnian Warbler
2 Quabbin (G45) 5 T. Aversa
11 Chatham 1 P. Trimble
12 W. Barnstable 1 S. + E. Miller
13 ONWR 1 T. Aversa
20 Worc. (BMB) 1 M. Lynch#
26 Cuttyhunk I. 1 P. Trimble

Pine Warbler
12-20 Mattapoiset 14 F. Smith
17 Yarmouth 5 G. d'Entremont#
24 Wachusett Res. 10+ M. Lynch#

Prairie Warbler
18 ONWR 2 J. Hoye#
18 Truro 1 G. d'Entremont#
24 Middleboro 2 W. Petersen#
26 P.I. 1 G. Wood
29 Worc. (BMB) 1 M. Lynch#
30 Woods Hole 3 T. Aversa

Palm Warbler
3 DWWS 2 J. Hoye#
9 P.I. 2 T. Aversa
10 W. Boxford 5 T. Walker#
17, 30 ONWR 2, 30+ M. Pelikan
19 Concord (NAC) 2 R. Forster
22, 29 Worc. (BMB) 2, 18 M. Lynch#
26 Cuttyhunk I. 4 P. Trimble

Bay-breasted Warbler
1 P.I. 1 J. Hoye#
2 Quabbin (G45) 4 T. Aversa
13 Chatham 6+ B. Nikula#
13 ONWR 3 T. Aversa
14 Worc. (BMB) 1 K. Mills
26 Cuttyhunk I. 2 P. Trimble

Blackpoll Warbler
1, 29 Worc. (BMB) 3, 68 M. Lynch#
3 ONWR 2 R. Bradbury
11 Chatham 2 P. Trimble
28 Wellesley 8 R. Forster

Black-and-white Warbler
13 Chatham 10 B. Nikula#
13 ONWR 17 T. Aversa
13, 29 Worc. (BMB) 12, 6 M. Lynch#
21 Boston (F.Pk) 8 T. Aversa

American Redstart
3, 10 MNWS 8, 3 R. Forster
3, 10 Nahant 4, 8 R. Forster
10 Milton 12 G. d'Entremont
12 Mt.A. 18 R. Stymeist
13 ONWR 22 T. Aversa
13 Woburn 16 M. Rines
13, 29 Worc. (BMB) 23, 11 M. Lynch#

Worm-eating Warbler
3 MNWS 1 R. Forster
3 Chatham 1 W. Bailey

Ovenbird
3, 10 MNWS 3, 1 R. Forster
12 Medford 2 M. Rines
13 ONWR 4 T. Aversa
20 N. Scituate 2 T. Aversa
24 Rockport (H.P.) 1 J. Hoye#
25 Nahant 1 M. Pelikan
28 Worc. (BMB) 1 M. Lynch#

Northern Waterthrush
5 Medford 3 M. Rines
10 Nahant 2 R. Forster
13 ONWR 11 T. Aversa
23 Harwich 1 T. Aversa
26-30 Wellesley 4 total R. Forster

Connecticut Warbler
7-28 Worc. (BMB) 4 total M. Lynch#
10, 17 Grafton 2 b, 1 b M. Blazis
13 ONWR 4 T. Aversa
thr Reports of indiv. from 13 locations

Mourning Warbler
20 N. Scituate 2 T. Aversa
thr Reports of indiv. from 14 locations

Common Yellowthroat
12 Mt.A. 11 R. Stymeist#
13 Woburn 25 M. Rines
14 Medford 17 M. Rines
29 Worc. (BMB) 48 M. Lynch#

Wilson's Warbler
5 Medford 6 M. Rines
8 MNWS 3 G. Wood
7, 28 Worc. (BMB) 2, 1 M. Lynch#
13 ONWR 6 T. Aversa
23 Truro 1 T. Aversa
24 P.I. 2 R. Forster#
25 Westport 1 M. Boucher

Canada Warbler
2 Quabbin (G45) 7 T. Aversa

Yellow-breasted Chat
thr Reports of indiv. from 15 locations

Scarlet Tanager
29 Worc. (BMB) 5 M. Lynch#
29 Mt.A. 5 R. Stymeist

Rose-breasted Grosbeak
10 Waltham 5+ L. Taylor
21 Wellesley 3 R. Forster
28 Worc. (BMB) 10 M. Lynch#
29 Mt.A. 7 R. Stymeist

Blue Grosbeak
17 DWWS 1 W. Petersen#
18 Cuttyhunk I. 1 T. Raymond
24 P.I. 1 R. Forster#
25-26 Wellesley 1 R. Forster
29 Truro 1 S. + E. Miller

Indigo Bunting
8 Arlington Res. 2 M. Rines
17 Bridgewater 18 W. Petersen#
25 Topsfield 2 J. Brown#

Dickcissel
3 S. Monomoy 1 W. Petersen#
10 Milton 1 G. d'Entremont
13 N. Truro 1 J. Sones#

Dickcissel (continued)

16	Eastham	1	H. Coolidge#
17	Bridgewater	1	W. Petersen#
25	GMNWR	1	G. d'Entremont#
25	Newton	1	R. Forster
28	Belmont	1	M. Rines

Rufous-sided Towhee

18	Cuttyhunk I.	30+	E. Nielsen#
25	Truro	36	M. Lynch#
29	Worc. (BMB)	26	M. Lynch#

Chipping Sparrow

24	Middleboro	65	W. Petersen#

Clay-colored Sparrow

7	Duxbury B.	1	K. Anderson#
10, 16, 24	P.I.	1, 1, 1	v. o.
18	Chatham	1	R. Forster#
19	Truro	1	R. Stymeist#
24-26	Mt.A.	1	R. Stymeist#
29	Boston	1	T. Aversa
29	Belmont	1	L. Taylor

Field Sparrow

14	S. Dartmouth	18	M. Boucher
24	P.I.	5	K. Hamilton#
25	Milton	3	G. d'Entremont
28	Worc. (BMB)	7	M. Lynch#

Vesper Sparrow

16	Eastham	1	H. Coolidge#
30	Sandwich	1	T. Aversa

Lark Sparrow

3	S. Monomoy	1	J. Sones#
4	Chatham	1	B. Nikula#
15	WBWS	1	R. Prescott
26	Wayland	1	K. Hamilton

Savannah Sparrow

25	GMNWR	30	S. Perkins#

Sharp-tailed Sparrow

3	Newbury	12	R. Forster#
3	P.I.	20+	M. Lynch#
4	S. Dart (A.Pd)	15+	J. Berry#
17	Scituate	50+	W. Petersen#
17	Barnstable	10	G. d'Entremont#
24	Middleboro	1	W. Petersen
26	GMNWR	2	T. Aversa

Seaside Sparrow

3	P.I.	1 ad feeding 1 yg	M. Lynch#
4	S. Dart (A.Pd)	3	J. Berry

Song Sparrow

26	Cuttyhunk I.	26	P. Trimble
28	Worc. (BMBO	34	M. Lynch#

Lincoln's Sparrow

9	Holliston	1	R. Forster#
15	N. Reading	3	J. Young
18	Bolton	2	J. Hoye#
19	Concord (NAC)	2	R. Forster
24	Middleboro	4	W. Petersen#
24	W. Bridewater	3	W. Petersen#
25	Newton	3	K. Hamilton#
28	Worc. (BMB)	7	M. Lynch#

Swamp Sparrow

25	GMNWR	45	S. Perkins#
28	Worc. (BMB)	17	M. Lynch#

White-throated Sparrow

10	Nahant	1	R. Forster
18	Ipswich	2	L. Taylor#
20	Worc. (BMB)	5	M. Lynch#

White-crowned Sparrow

20	Truro	1	S. + E. Miller
21	W. Barnstable	1	S. + E. Miller
24	P.I.	4	K. Hamilton#

Dark-eyed Junco

28	Worc. (BMB)	1	M. Lynch#

Bobolink

2	Wayland	3	J. Hoye#
13	Woburn	6	M. Rines
18	Cuttyhunk I.	4	S. Perkins#
24	Middleboro	86	W. Petersen#
25	GMNWR	50	G. d'Entremont#

Yellow-headed Blackbird

29	Bedford	1 imm	J. Duggan

Rusty Blackbird

20	Provincetown	1	S. + E. Miller
24	W. Bridgewater	2	W. Petersen#
25	Wellesley	1	R. Forster
26	ONWR	2	T. Aversa

Common Grackle

10	Framingham	800	E. Taylor
24	Wayland	250	E. Taylor

Brown-headed Cowbird

11	Rowley	300	G. d'Entremont#
26	Cuttyhunk I.	30	P. Trimble
27	Wellesley	50	R. Forster

Northern Oriole

3	Chatham	8	R. Stymeist#
15	Mattapoiset	1	F. Smith
26	Cuttyhunk I.	3	P. Trimble
27	P.I.	2	D. Chickering

Purple Finch

11	E. Middleboro	pr	K. Anderson
15	Worc. (BMB)	1	M. Lynch#
25	P.I.	2	D. Chickering

ADDITION TO MAY 1994 (Vol. 22, No. 5)

Swallow-tailed Kite

2	Nantucket	1	G. Soucy, L. Jodrey

CORRECTION TO JUNE 1994 (Vol. 22, No. 5, page 275)

Bank Swallow

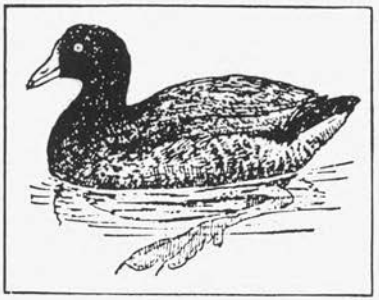
read:

19	Grape I. (Boston H.)	44 n	J. Brown#

should read:

19	Grape I. (Ipswich)	44 n	J. Brown#

BIRD SIGHTINGS
OCTOBER 1994
SUMMARY



by Richard A. Forster, Marjorie W. Rines, and Robert H. Stymeist

October's "bright blue weather" held true this year. The weather was crisp, sunny and dry, resulting in great fall foliage. The temperature averaged 55.5°, just a bit above normal. The high was 77° on the 9th, and the low was 39° on the 12th. Rain was scarce. With only 0.41 inches of rain, it was the driest October since 1946 and tied with 1897 for the 4th driest October in 124 years of official records. The month was also the driest of any month since October 1946. R. H. S.

LOONS THROUGH WOODPECKERS

The lack of a significant storm during the month may have been one reason for the small numbers of Red-throated Loons, although Common Loons were well reported. Numbers of migrant Pied-billed Grebes in fall continue to be encouraging. Six Red-necked Grebes were reported at the Wachusett Reservoir on the 10th, a surprisingly large number for an inland location. Cory's Shearwaters graced the south shore of Martha's Vineyard with an impressive 150+ at Edgartown. One Greater Shearwater put in a very unexpected appearance at Plum Island. Normal numbers of gannets were present beginning in midmonth. As usual the heron group started the month strong with numbers dropping off rapidly after the first week. The highlight among herons was a Glossy Ibis over Mt. Wachusett in midmonth. The 75 Great Blue Herons migrating at Gay Head on the 2nd were indicative of the heavy migration on that weekend.

Two of the now-expected **Greater White-fronted Geese** were found at places where they have occurred previously. A remarkable Snow Goose flight on the 1st included flocks on the offshore islands where they are extremely unusual. A flight over Petersham on the 11th represented one of the highest single day totals ever. Although duck numbers were routine, the report of a hybrid male American x Eurasian Wigeon represents the first such sighting in the state. Essentially the individual was patterned much as a Eurasian Wigeon, but had the characteristic green ear patch of American Wigeon. Although such hybrids are frequent along the west coast and northern Great Plains, they are rare in our area. Ring-necked Duck put in a very good appearance, especially at Lakeville, and Ruddy Duck was widely distributed in excellent numbers.

Raptors were widely reported in solid numbers. Perhaps most interesting was a scattering of late Broad-winged Hawks along the coast and particularly the southeast, where they are decidedly uncommon. These came soon after strong northwest winds. Only one Rough-legged Hawk was reported. Peregrines put in a fairly good showing on Cape Cod and Martha's Vineyard. The remains of a recently killed **Yellow Rail** was small consolation for birders specifically searching for rails. Six Soras were also recorded. One King and two Clapper rails, and four Common Moorhens were good tallies for these species compared to recent totals. An excellent movement of American Coot, probably the best in 25 years, was highlighted by 590 at South Monomoy.

Shorebird migration during October includes a few species whose peak migration is in October, others that are in the tail end of their expected migration, and still others straggling beyond the expected departure dates. The highlights of this October included a record high count for Marbled Godwits, which visited several locations, and four **American Avocets** that appeared in Revere, some of which lingered in the general area until the end of the month. Both American Golden Plover and Hudsonian Godwit appeared in less than expected numbers, while Pectoral and White-rumped sandpipers were slightly below average. Slightly tardy species included Piping Plover and Wilson's Phalarope. The high count of American Oystercatchers on North Monomoy must have included all breeding adults and their progeny. The lack of storms resulted in no concentrations of jaegers. Substantial numbers of Laughing Gulls lingered, and three Little Gulls in recognizably different plumages were located among the throng of Bonaparte's Gulls at Lynn Beach on the 2nd. An adult Iceland Gull was early inland at Brookfield, while all Lesser Black-backed Gulls

reported were adults. A late Roseate Tern was found at Martha's Vineyard, and Forster's Terns, while fairly plentiful, were highly localized at favored localities in the southeast.

The event of the fall was the appearance of three well-documented ***Selasphorus*** hummingbirds. Two *Selasphorus* species, Rufous Hummingbird and Allen's Hummingbird, are virtually indistinguishable in the field in female and immature plumages. When definitive identification has been determined, almost all of the *Selasphorus* hummingbirds found east of the Mississipi River (with the exception of Louisiana) have been Rufous Hummingbirds. Less than five records for Allen's Hummingbird exist east of the Mississippi; one record was a bird on Nantucket in 1988 (*Birds of Massachusetts*, Veit and Petersen 1993). On the other hand, more than one hundred Rufous Hummingbirds have been reported east of the Mississippi, with nearly all eastern states having at least one record (one notable exception is Rhode Island). Thus, logic would indicate that this month's sighting of *Selasphorus* hummingbirds were likely of Rufous Hummingbirds. Coupled with the two prior reports in July and September, this could be considered nothing less than a banner year for *Selasphorus* hummingbirds. This cumulation doubles the number of *Selasphorus* hummingbirds ever reported in the state, and one questions the actual identity of a Rubythroat reported at Nantucket on the 21st, a very late date for that species. A blitz of woodpeckers early in the month produced a fine showing of Red-headed Woodpeckers, the best documented movement of Yellow-bellied Sapsuckers in many years, and a very impressive number of Northern Flickers at Nantucket. R. A. F.

Date	Location	Number	Observers
Red-throated Loon			
15	Newbypt H.	5	S. Perkins#
16	Boston H.	6	TASL (S. Zendeh)
16	Danvers	1	J. Brown#
22	Eastham (F.E.)	6	S. Arena#
23	P.I.	12	D. Chickering
30	Ipswich (C.B.)	8	J. Berry
Common Loon			
3	S. Peabody	8 migr	R. Heil
15	Salisbury	12 migr	R. Forster#
16	S. Dartmouth	4	M. Boucher
23, 29	Wachusett Res.	10, 16	M. Lynch#
28	Chilmark	50	A. Keith
29	P.I.	15	M. Pelikan
30	Quabbin (G35)	12	M. Lynch#
Pied-billed Grebe			
thr	Wakefield	5 max	P. + F. Vale
thr	P.I.	12 max	W. Drew#
1	Nantucket	6	S. Perkins#
8	Salem	5	BBC (I. Lynch)
8	W. Newbury	7	J. Berry
8	S. Monomoy	18	H. Ferguson#
23	Lakeville	32	W. Petersen
23	Westport	8	E. Nielsen#
Horned Grebe			
7	W. Boylston	8	R. Bradbury
7	P.I.	9	R. Heil
19	Hingham/Quincy	44	BBC (J. Kennedy)
23	Wachusett Res.	11	M. Lynch#
23	Lakeville	18	W. Petersen
24	Chilmark	6	A. Keith
30	Quabbin (G35)	12	M. Lynch#
Red-necked Grebe			
10	Wachusett Res.	6	R. Bradbury
27	Boylston	1	R. Bradbury
28	Chilmark	1	A. Keith
Cory's Shearwater			
13	Nantucket	35	B. Perkins
14	Wasque, M.V.	12	A. Keith#
21	Edgartown	150+	A. Brown#
Greater Shearwater			
6	Jeffries Ledge	1	N. Nash
22	P.I.	1	BBC (S. Charette)
Northern Gannet			
13	Nantucket	75	B. Perkins
17	Cape Cod Bay	1620	K. Hamilton
18	Rockport (A.P.)	2000	C. Leahy
22	Eastham (F.E.)	1000	S. Arena#
30	Ipswich (C.B.)	50+	J. Berry
Great Cormorant			
5	Chilmark	8	G. Daniels
15	P.I./Newbypt	6	S. Perkins#
22	Lakeville	2	W. Petersen#
Double-crested Cormorant			
5, 28	S. Dart (A.Pd)	106, 2	LCES (J. Hill)
13	E. Boston	200	J. Brown#
15	Newton	350	G. d'Entremont#
15	P.I./Newbypt	400+	S. Perkins#
American Bittern			
thr	P.I.	2 max	v. o.
1	GMNWR	6	P. Roberts
6	Eastham (F.H.)	4	E. + S. Miller
8	S. Monomoy	2	R. Stymeist#
9	WBWS	1	D. Brown#
15	Middleboro	1	D. Clapp
21	Dorchester	1	T. Aversa#
28	W. Roxbury	1	T. Aversa
29	N. Monomoy	1	B. Nikula
Great Blue Heron			
1	Nantucket	18	S. Perkins#
2	Gay Head	75	V. Laux#
14	P.I.	12	D. Chickering
15	S. Dartmouth	11	R. Stymeist#
Great Egret			
5, 28	S. Dart (A.Pd)	22, 1	LCES (J. Hill)
7, 28	P.I.	27, 7	R. Heil
9	Clinton	1	M. Lynch#
9	Rowley	7	J. Berry
11	Nantucket	12	M. Wilson#
23	Westport	21	J. Center
Snowy Egret			
1	Nantucket	8	S. Perkins#
5	S. Dart (A.Pd)	13	LCES (J. Hill)
7	P.I.	50	R. Heil
Little Blue Heron			
2	Lynn	1 imm	R. Heil
Cattle Egret			
3	Westport	1	K. Anderson
23	Barnstable	2	S. + E. Miller
Green Heron			
1	Bolton Flats	1	BBC (J. Center)
2, 7	Wellesley	4, 2	R. Forster
10	Arlington Res.	1	M. Pelikan
Black-crowned Night-Heron			
1	Nantucket	47	S. Perkins#
11	P.I.	3	G. Wood

Black-crowned Night-Heron (continued)

23	Boston	2	T. Aversa

Glossy Ibis

15	Mt. Wachusett	1	P.Roberts#

Whooper Swan

thr	P.I.	3 ad + 1 imm	v. o.

Mute Swan

1	Nantucket	60	S. Perkins#
16	Plymouth	38	D. Clapp

Greater White-fronted Goose

22	GMNWR	1	B. Malcolm
30	W. Newbury	1	BBC (S. Bolton)

Snow Goose

1	Saugus	65	S. Arena#
1	Nantucket	170	S. Perkins#
1	Wachusett Res.	1000+	J. Zumfe
1	Edgartown	100	R. Wainwright
10	Chatham	70	R. Clem
11	Southboro	40	L. Hubley
11	Petersham	3462	J. Baird
11	P.I.	70+	T. Young

Brant

22	Plymouth	50	W. Petersen#
22	Eastham (F.E.)	40	S. Arena#

Canada Goose

4	Petersham	612 migr	W. Baird#
11	Petersham	1673 migr	W. Baird#

Wood Duck

1	Stow	26	M. Lynch#
8	Salem	19	BBC (I. Lynch)
9	Dudley	44	R. Stymeist#
13	GMNWR	170	S. Perkins#
22	Wakefield	12	P. + F. Vale
28	M. V.	25	A. Mohrman

Green-winged Teal

12	S. Monomoy	225	B. Nikula
15	GMNWR	400+	M. Lynch#
16	Tisbury	75+	L. McDowell
22	Arlington Res.	30	L. Taylor
28	P.I.	215	R. Heil

American Black Duck

3, 24	P.I.	305, 860	W. Drew#

Northern Pintail

14, 24	P.I.	22, 60	W. Drew#
18	M.V.	3	L. McDowell
20	Ipswich	2	I. Lynch
22	GMNWR	40+	M. Lynch#
22	Wakefield	2	P. + F. Vale
30	S. Monomoy	150	W. Harrington

Blue-winged Teal

1	Wakefield	10	R. Forster#
7	Chilmark	69	L. McDowell
9	Newburyport	5	G. Wood
12	GMNWR	8	R. Stymeist#
21	E. Boston	4	T. Aversa

Northern Shoveler

8	S. Monomoy	43	R. Stymeist#
16	Revere	2	P. + F. Vale
22	GMNWR	2	M. Lynch#
22	Wakefield	2	P. + F. Vale
29	P.I.	3	H. Wiggin#

Gadwall

8	Marston Mills	15	B. Nikula
9	Pembroke	9	G. d'Entremont#
12	S. Monomoy	80	B. Nikula
22	GMNWR	8	M. Lynch#
28	P.I.	120	R. Heil
30	Ipswich	12	J. Berry

Eurasian Wigeon

8	Marston Mills	1 m	B. Nikula
15	Nantucket	2	M. Wilson#
18	P.I.	1	W. Drew#
20	Ipswich	1 m	I. Lynch
30	S. Monomoy	3	W. Harrington

American Wigeon

thr	Cambr. (F.P.)	31 max	J. Barton
thr	Arlington Res.	55 max	M. Pelikan
3	P.I.	85	W. Drew#
12	S. Monomoy	90	B. Nikula
22	GMNWR	60+	M. Lynch#
15	Newbury	65	R. Forster#
30	Ipswich	50	J. Berry

American x Eurasian Wigeon

thr	Marston Mills	1	S. + E. Miller#

Canvasback

22	GMNWR	9	G. d'Entremont#
22-31	Cambr. (F.P.)	122 max	J. Barton
23	Lakeville	2	W. Petersen
30	S. Monomoy	12	W. Harrington

Redhead

22-31	Cambr. (F.P.)	1-2	J. Barton

Ring-necked Duck

thr	Camb. (F.P.)	357 max	J. Barton
thr	W. Newbury	490 max	v. o.
12	S. Monomoy	50	B. Nikula
16	Danvers	200+	J. Brown#
23	Lakeville	1700+	W. Petersen
23	Randolph	200	G. d'Entremont
23	Southboro	664	M. Lynch#

Greater Scaup

thr	Cambr. (F.P.)	20 max	J. Barton
6	Nashawena I.	5	E. Nielsen#
7	W. Boylston	10	R. Bradbury
23	Randolph	44	G. d'Entremont#
11, 24	Chilmark	6, 30	A. Keith
27	Lakeville	65	S. Arena

Lesser Scaup

8	S. Monomoy	7	R. Stymeist#
11	Chilmark	25+	A. Keith
15	W. Newbury	1	S. Perkins
16-31	Cambr. (F.P.)	1-3	J. Barton#
18	P.I.	4	W. Drew#
27	Lakeville	95	S. Arena

Common Eider

5	Dennis	150+	R. Forster
16	Provincetown	190+	M. Lynch#
24	Chilmark	1000+	A. Keith

Harlequin Duck

13	Nantucket	4	B. Perkins
18	Rockport (A.P.)	1	C. Leahy
19	Westport	1 f	M. Boucher
24	Chilmark	3	A. Keith

Oldsquaw

11	Clinton	10	R. Bradbury
16	Provincetown	2	M. Lynch#
30	Chilmark	25	A. Keith

Black Scoter

9	P.I.	66	M. Lynch#
23	Clinton	3	R. Bradbury
23	Gay Head	25	A. Brown#

Surf Scoter

2	Westport	13	M. Boucher
2	Westboro	10	R. Bradbury
7	P.I.	1150	R. Heil
10	Boylston	12	R. Bradbury
16	Nahant	76	TASL (S. Zendeh)
18	Rockport (A.P.)	400	C. Leahy
21	Chappaquidick	15	A. Brown

White-winged Scoter

8	S. Monomoy	300+	G. Ferguson#
11-23	Clinton	38 max	R. Bradbury
16	Revere	600+	R. Stymeist#

White-winged Scoter (continued)

18	P.I.	500	W. Drew#

Bufflehead

27	Lakeville	24	S. Arena
28	W. Boxford	27	T. Walker#
29	Chilmark	40	A. Keith
30	Ipswich	19	J. Berry

Hooded Merganser

18	Attleboro	5	G. Valade
20	Falmouth	6	S. + E. Miller
23	Randolph	10	G. d'Entremont
27	Lakeville	12	S. Arena
29	Lynnfield	13	P. + F. Vale
30	Ipswich	14+	J. Berry

Common Merganser

19	W. Boxford	2	T. Walker#

Red-breasted Merganser

5, 28	S. Dart (A.Pd)	0, 114	LCES (J. Hill)
14, 29	Edgartown	250, 1500	A. Keith
16	Clinton	2	R. Bradbury
16	Winthrop	263	TASL (S. Zendeh)
22	Eastham (F.E.)	250	S. Arena#

Ruddy Duck

thr	M. V.	100 max	A. Keith
thr	Cambr. (F.P.)	130 max	J. Barton
9, 27	W. Newbury	30, 300	N. Nash
23	Southboro	113	M. Lynch#
24	Pembroke	165	W. Petersen
27	Lakeville	132	S. Arena
30	S. Monomoy	175	W. Harrington
30	Framingham	162	K. Hamilton#

Turkey Vulture

2	W. Peabody	3	R. Heil
9	P.I.	4	M. Lynch#
15	Mattapoisett	3	F. Smith
15	Westport	5	R. Stymeist#
19	Worc. (BMB)	30 migr	M. Lynch#

Osprey

2, 3	S. Peabody	5, 11	R. Heil
22	Wakefield	2	P. + F. Vale
23	Lakeville	2	W. Petersen
thr	Reports of indiv. from 5 locations		

Bald Eagle

8	S. Monomoy	1 imm	R. Stymeist#
9	Ipswich	1 imm	J. Berry
23	Lakeville	2 ad	W. Petersen#
30	Quabbin (G35)	1 ad	M. Lynch#

Northern Harrier

1	P.I.	7	J. Hoye#
1	Nantucket	10	S. Perkins#
2	Carlisle	2	BBC (D. Oliver)
9	Rowley	4-5	J. Berry
9	Wakefield	2	P. + F. Vale
15	Cumb. Farms	8	D. Clapp
16	Ipswich	3	BBC (J. Nove)
21	Edgartown	6	A. Brown

Sharp-shinned Hawk

1	Peabody	3	S. Arena#
1	Nantucket	4	S. Perkins#
7	Bolton Flats	3	M. Lynch#
4-24	Gay Head	62 total	A. Keith#
11	Worc. (BMB)	3	M. Lynch#
1-21	Reports of 1-2 indiv. from 16 loc.		

Cooper's Hawk

1	Peabody	3	S. Arena#
1	ONWR	2	BBC (J. Center)
2	Gay Head	6	V. Laux#
8	Pembroke	3	W. Petersen#
19	Worc. (BMB)	2	M. Lynch#
thr	Reports of indiv. from 17 locations		

Northern Goshawk

1	Wellfleet	1	R. Stymeist#
2	Carlisle	1	BBC (D. Oliver)
4	Wayland	1	D. Chickering
9	Westminster	1	L. Taylor#
18	Lincoln	1 ad	W. Petersen#
18	Wayland	1 ad	S. Arena
28	Salisbury	1 imm	R. Heil

Red-shouldered Hawk

thr	E. Boxford	1	J. Brown#
8	DWWS	1	W. Petersen#
8	Hanover	1	W. Petersen#
15	Mt. Wachusett	10	P. Roberts#
23	Lakeville	1	W. Petersen
25	E. Middleboro	1	K. Anderson

Broad-winged Hawk

1	Lynn B.	2	S. Arena#
1	Peabody	1	S. Arena#
2, 12	M.V.	1, 1	v. o.
2	Cuttyhunk I.	2	T. Raymond
6	Mattapoisett	4	F. Smith
9	S. Dartmouth	1	M. Boucher

Red-tailed Hawk

1	Nantucket	10	S. Perkins#
9	Ipswich	6	J. Berry
12	Worc. (BMB)	6	M. Lynch#
30	Wachusett Mt.	5	BBC (P. Roberts)

Rough-legged Hawk

23	P.I.	1 lt	P. Roberts
28	Salisbury	1 dk	R. Heil

American Kestrel

1	Nantucket	20	S. Perkins#
1	Stow	3	M. Lynch#
2	Gay Head	12	V. Laux#
8	Salem	2	BBC (I. Lynch)
21	Cambridge	2	D. Flood

Merlin

1	Nantucket	10	S. Perkins#
2	Gay Head	5	V. Laux#
2	Westport	2	M. Boucher
3	S. Peabody	2	R. Heil
9	Orleans	2	S. Arena#
9	P.I.	3	M. Lynch#
thr	Reports of indiv. from 12 locations		

Peregrine Falcon

1	Nantucket	7	S. Perkins#
2, 15	N. Monomoy	2, 1	B. Nikula
8	S. Monomoy	2	R. Stymeist#
8	Gay Head	5	D. Clapp#
9	P.I.	4	G. Wood
thr	Reports of indiv. from 8 locations		

Ring-necked Pheasant

16	Belmont	9	M. Pelikan

Ruffed Grouse

2	Boxford	2	J. Berry
2	E. Middleboro	1	K. Anderson
9	Stow	1	BBC (C. Cook)
23	Hamilton	1	J. Berry

Wild Turkey

4	Sherborn	20	H. Abbott
11	Bedford	78	R. Hulbert

Northern Bobwhite

9	Barnstable	1	G. d'Entremont#

Yellow Rail

8	Marshfield	1 dead	M. Emmons#

Clapper Rail

8-10	WBWS	1	S. + E. Miller
9	Eastham (F.H.)	1	S. Arena#

King Rail

1	Stow	1	M. Lynch#

Virginia Rail

1	Stow	5	M. Lynch#

Virginia Rail (continued)

6	Worc. (BMB)	1	M. Lynch#
8	DWWS	2	W. Petersen#
30	Essex	2	I. Lynch

Sora

1	Stow	2	M. Lynch#
5	Eastham (F.H.)	1	S. + E. Miller
8	Marshfield	6	W. Petersen#
12	Worc. (BMB)	1	M. Lynch#

Common Moorhen

1, 22	Wakefield	1 imm	R. Forster#
1	Stow	1	M. Lynch#
15	GMNWR	1	M. Lynch#
18	P.I.	1	W. Drew#

American Coot

thr	Cambr. (F.P.)	53 max	J. Barton
22	Plymouth	100	W. Petersen#
28	P.I.	132	R. Heil
28	W. Newbury	94	R. Heil
30	S. Monomoy	590	W. Harrington
30	Chilmark	100+	A. Keith
31	Norton	60	K. Ryan
22-31	Reports of 15-50 indiv. from 7 loc.		

Black-bellied Plover

thr	N. Monomoy	900 max	B. Nikula
9	Newburyport	90+	M. Lynch#
16	Ipswich	220	BBC (J. Nove)
16	Nauset Marsh	70+	M. Lynch#
21	P.I.	79	G. Wood

American Golden-Plover

2-3	Nantucket	4	J. Hoye#
3	Newburyport	11	G. Wood
8	S. Monomoy	5	H. Ferguson#
14	Edgartown	2	A. Keith#
16	Boston H.	7	TASL (S. Zendeh)
19	Westport	3	M. Boucher
22	P.I.	6	J. Berry
28	S. Dart (A.Pd)	1	LCES (J. Hill)

Semipalmated Plover

7	Newburyport	120	R. Heil
16	S. Dart (A.Pd)	6	M. Boucher
22	Eastham (F.E.)	4	S. Arena#
28	P.I.	6	R. Heil
29	Salisbury	2	M. Pelikan

Piping Plover

2	N. Monomoy	4	B. Nikula
10	Nantucket	2	M. Wilson#

Killdeer

1	Nantucket	44	S. Perkins#
1	Newbury	35	M. Argue#
2	Concord	122	J. Center
15	Arlington Res.	50+	M. Pelikan
23	Rochester	42	W. Petersen
26	Middleboro	28	M. Boucher#

American Oystercatcher

1	Nantucket	8	S. Perkins#
1-24	Edgartown	14 max	A. Keith#
2	N. Monomoy	105	B. Nikula

American Avocet

21	Revere	4 ph	S. Allen
30	E. Boston (B.I.)	2	R. Stymeist#

Greater Yellowlegs

2	Squantum	100	G. d'Entremont
21	E. Boston	110	T. Aversa
26	M.V.	29	A. Brown#
29	Newburyport	150	M. Pelikan
29	Eastham (F.E.)	107	K. Anderson

Lesser Yellowlegs

10	WBWS	2	G. d'Entremont#
10	Edgartown	2	A. Keith
11	Arlington Res.	1	J. Center
15	Newburyport	20	S. Perkins#
16	Boston H.	16	TASL (S. Zendeh)
18	P.I.	23	W. Drew#

Solitary Sandpiper

1	Belmont	2	L. Taylor
4	Wayland	1	S. Arena
15	S. Dartmouth	1	R. Stymeist#

Willet

15	N. Monomoy	1	B. Nikula

Spotted Sandpiper

6	Danvers	5	J. Brown#
22	Lakeville	1	W. Petersen#
23	Randolph	1	G. d'Entremont
24	M.V.	2	A. Keith
29	Wachusett Res.	1	M. Lynch#
30	Arlington Res.	1	M. Pelikan

Whimbrel

9	WBWS	2	G. d'Entremont#
9	N. Monomoy	1	B. Nikula
16	P.I.	1	D. Chickering

Hudsonian Godwit

28	S. Dart (A.Pd)	1	LCES (J. Hill)
29	P.I.	1	M. Pelikan

Marbled Godwit

9	Nauset	13	R. Hall
15	N. Monomoy	14	B. Nikula
24	Edgartown	12	A. Keith

Red Knot

thr	N. Monomoy	100 max	B. Nikula
8	Dennis	180	M. Rines#
15	Newburyport	40	S. Perkins#

Sanderling

thr	N. Monomoy	1200	B. Nikula
8	Dennis	100	R. Stymeist#
10	Nantucket	277	M. Wilson#
13	Nahant	400	G. Wood
21	Lynn	600	T. Aversa

Semipalmated Sandpiper

2	N. Monomoy	2	B. Nikula
18	P.I.	15	W. Drew#

Western Sandpiper

8	S. Monomoy	1	M. Rines#
16	E. Boston (B.I.)	3	TASL (S. Zendeh)
16	Nauset Marsh	1	M. Lynch#
24	Chilmark	3	A. Keith

Least Sandpiper

2	N. Monomoy	6	B. Nikula

White-rumped Sandpiper

12	Nantucket	2	M. Wilson#
28	Newburyport	37	R. Heil
30	S. Monomoy	30	W. Harrington

Pectoral Sandpiper

1	Newbypt/P.I.	34	R. Forster
1	E. Sandwich	20	S. + E. Miller
2, 29	N. Monomoy	40, 6	B. Nikula
11	Arlington Res.	6	J. Center
12	S. Monomoy	25	B. Nikula
16	Lexington	7	S. Perkins

Dunlin

thr	N. Monomoy	1500 max	B. Nikula
9	Newburyport	250+	M. Lynch#
18	P.I.	236	W. Drew#

Short-billed Dowitcher

23	Edgartown	1	A. Brown#

Long-billed Dowitcher

1	Newburyport	15	R. Forster#
29	P.I.	2	M. Pelikan
30	E. Boston (B.I.)	1	F. Bouchard

Common Snipe

15	Newbury	16	S. Perkins#

American Woodcock
1 Hamilton 1 J. Berry
26 Worc. (BMB) 1 M. Lynch#
30 Brighton 1 J. Paputseanos
Wilson's Phalarope
2 WBWS 1 J. Sones#
Pomarine Jaeger
8 S. Monomoy 4 G. Ferguson#
Parasitic Jaeger
8 S. Monomoy 2 G. Ferguson#
10 Edgartown 2 A. Keith
Jaeger species
29 Stellwagen 1 BBC (G. d'Entremont)
Laughing Gull
5 Dennis 20 R. Forster
21 Edgartown 700 A. Brown#
23 E. Boston 150 J. Quigley
28 Nantucket 347 E. Andrews
Little Gull
2 Lynn 3 J. Quigley
Common Black-headed Gull
10 Newbypt H. 1 ad J. Berry
23, 29 E. Boston 1, 2 J. Quigley
Bonaparte's Gull
1 Lynn B. 650 S. Arena#
10 Newburyport H. 500 J. Berry
20 Wayland 1 K. Hamilton#
Iceland Gull
25 Brookfield 1 ad R. Bradbury
29 Stellwagen 3 BBC (G. d'Entremont)
Lesser Black-backed Gull
5 Dennis 1 ad R. Forster
8-25 Lynn 1 ad J. Quigley
10 Edgartown 1 ad A. Keith#
12 Nantucket 1 ad M. Wilson#
Black-legged Kittiwake
22 Eastham (F.E.) 168 imm S. Arena#
Caspian Tern
8 P.I. 2 M. Argue#
Roseate Tern
14 Edgartown 1 A. Keith#
Common Tern
14, 29 M.V. 250, 1 A. Keith
17 Yarmouthport 65 K. Hamilton
22 Eastham (F.E.) 45 S. Arena#
22 Manomet 15 W. Petersen#
23 Westport 2 E. Nielsen#
Forster's Tern
17 Yarmouthport 12 K. Hamilton
23 Bourne 29 S. Arena#
23 Westport 47 E. Nielsen#
31 M.V. 9 A. Brown
30 Ipswich 1 J. Berry
Black-billed Cuckoo
4 Nantucket 1 J. Hoye#
Yellow-billed Cuckoo
2 Chatham 1 S. + E. Miller
4 Nantucket 2 J. Hoye#
Barn Owl
3 Nantucket 1 J. Hoye#
Eastern Screech-Owl
5 E. Middleboro 1 K. Anderson
7 Ipswich 2 J. Berry
12 Cambr. (F.P.) 1 R. Stymeist#
15 Webster 1 R. Stymeist#
16 E. Boxford 1 J. Brown#
17 N. Attleboro 2 G. Valade
23 Wayland 1 M. Pelikan
Great Horned Owl
1-16 Ipswich 1-2 juv J. Berry
1 Hamilton 2 J. Berry
6 E. Boxford 1 J. Brown#
8 S. Monomoy 2 G. Ferguson#
20 N. Dartmouth 1 M. Boucher
30 Essex 1 I. Lynch
Barred Owl
2 Boxford 1 J. Berry
14 Cambr. (F.P.) 1 M. Rines
30 Quabbin (G35) 1 M. Lynch#
31 Lincoln 1 D. Carlson#
Short-eared Owl
23 Boston (Logan) 1 TASL (S. Zendeh)
Chimney Swift
3 W. Newton 45 T. Kuklinski
8 Pembroke 8 W. Petersen#
Ruby-throated Hummingbird
21 Nantucket 1 J. Papale
***Selasphorus* species**
2-3 Westport 1 M. Sullivan + v. o.
29-31 Fairhaven 1 L. + N. Mach
26 Needham 1 K. Eriks
Belted Kingfisher
1 Truro 4 R. Stymeist#
1 Nantucket 9 S. Perkins#
2 Squantum 3 G. d'Entremont
Red-headed Woodpecker
2, 18 Gay Head 2, 1 V. Laux#
2 Chatham 1 ad W. Bailey
3 Jamaica Plain 1 imm A. Knue
4 Framingham 1 K. Hamilton
31 Newton 1 H. Miller
Red-bellied Woodpecker
1 Natick 1 E. Taylor
3 Westport 1 M. Boucher
16 Ipswich 1 BBC (J. Nove)
27 Carlisle 1 J. Hoye#
Yellow-bellied Sapsucker
1 P.I. 7 R. Forster
2 WBWS 6 J. Sones
2 Boston (F.Pk) 3 J. Young
2 Gay Head 12 V. Laux#
2 Boxford 2 J. Berry
2 Chatham 4 E. + S. Miller
3 Boston (F.Pk) 2 T. Aversa
4 Nantucket 12 J. Hoye#
4 P.I. 9 R. Heil
1-15 Reports of indiv. from 9 locations
Hairy Woodpecker
thr Worc. (BMB) 2-3 M. Lynch#
1 ONWR 2 BBC (J. Center)
2 Boxford 2 J. Berry
30 Ipswich 3 f J. Berry
Northern Flicker
1 Wellfleet 12 R. Stymeist#
1 P.I. 15 J. Hoye#
1 Nantucket 200+ S. Perkins#
4 Gay Head 50 T. Rivers
Pileated Woodpecker
2 Quabbin (G37) 1 C. Taylor#
23 Topsfield 1 J. Berry
25 Lincoln 1 W. Petersen
30 Quabbin (G35) 1 M. Lynch#

FLYCATCHERS THROUGH FINCHES

Eastern Phoebes were reported in very good numbers, and Western Kingbirds were found in five locations including two individuals at Cumberland Farms. Six Northern Rough-winged Swallows were

carefully identified sitting in the same tree where they were seen a year ago in September. The distinctive call note as well as the lazy mothlike flight and two-toned underwings were noted. Other late migrants included Veery, Wood and Gray-cheeked thrushes, Warbling Vireo, and Blue-winged and Black-and-white warblers. Twenty-eight species of warblers were noted, four more than October 1993. Among the highlights were 9 Orange-crowned, 1 Prothonotary, 3 Connecticut, and 2 Mourning warblers, and 9 Yellow-breasted Chats. An "Audubon's" Warbler was detected among the "Myrtles" at Wellfleet Bay Wildlife Sanctuary on October 17.

Uncommon but regular fall visitors included 11 Blue Grosbeaks; **39 or more** Dickcissels; 10 Clay-colored, 1 Lark, 7 Grasshopper, and **2 Le Conte's** sparrows; and an incredible flight of White-crowned Sparrows. Two **Yellow-headed Blackbirds** were also noted from Eastham and Nantucket. R. H. S.

Eastern Wood-Pewee
- 1 Peabody 1 S. Arena#
- 1 Nantucket 5 S. Perkins#
- 2 Gay Head 12 V. Laux#

Yellow-bellied Flycatcher
- 2 Gay Head 1 V. Laux#

Eastern Phoebe
- 1 P.I. 17 R. Forster#
- 1 Wellfleet 11 R. Stymeist#
- 1 ONWR 8 BBC (J. Center)
- 2 Quabbin (G37) 12 L. Taylor#
- 2 Cuttyhunk I. 55 T. Raymond
- 6, 18 Worc. (BMB) 12, 1 M. Lynch#
- 22 Wakefield 2 P. + F. Vale
- 23 N. Dartmouth 1 M. Boucher

Great Crested Flycatcher
- 1 Nantucket 1 S. Perkins#

Western Kingbird
- 6 Marston Mills 1 ph S. + E. Miller
- 8 P.I. 1 H. Wiggin#
- 23 Chappaquidick 1 B. Potter
- 27 Cumb. Farms 2 J. Hoye#

Horned Lark
- 14 Salisbury 25 D. Chickering
- 30 Ipswich (C.B.) 12 J. Berry

Tree Swallow
- 1 Nantucket 1000+ S. Perkins#
- 8 S. Monomoy 8000+ R. Stymeist#
- 9 Orleans 1000 S. Arena#
- 9 N. Monomoy 1000 B. Nikula
- 18 Gay Head 500+ G. Daniels
- 22 Provincetown 600 S. Arena#

N. Rough-winged Swallow
- 2 Wellesley 6 R. Forster

Barn Swallow
- 22 P.I. 1 R. Forster
- 24 Wayland 2 K. Hamilton
- 25 Sandwich 3 T. Aversa

Blue Jay
- 2 S. Peabody 67 R. Heil
- 4 Worc. (BMB) 33 M. Lynch#

American Crow
- 7 Bolton Flats 204 M. Lynch#

Fish Crow
- 2 Bedford 1 BBC (D. Oliver)
- 8 Braintree 1 G. d'Entremont
- 8 DWWS 4 W. Petersen#
- 8 Pembroke 4 W. Petersen#
- 17 Hanson 1 W. Petersen
- 23 Randolph 3 G. d'Entremont
- 25-31 N. Attleboro 1 G. Valade

Common Raven
- 30 Quabbin (G35) 5 M. Lynch#
- 30 Wachusett Mt. 3 BBC (P. Roberts)

Red-breasted Nuthatch
- 1 Wellfleet 7 R. Stymeist#
- 2 Boxford 1 J. Berry
- 7 E. Middleboro 1 K. Anderson
- 23 Hamilton 1 J. Berry

Brown Creeper
- thr E. Boxford 1-2 J. Brown#
- 1, 15 P.I. 1, 1 R. Forster
- 2 Lincoln 3 BBC (J. Nove)
- 2 Carlisle 1 BBC (D. Oliver)
- 22 Eastham (F.H.) 1 S. Arena#
- 23 Randolph 1 G. d'Entremont
- 25 E. Middleboro 1 K. Anderson
- 29 Salisbury 1 R. Forster

Carolina Wren
- 1 Nantucket 2 S. Perkins#
- 1 Wellfleet 5 R. Stymeist#
- 15 S. Dartmouth 12 R. Stymeist#
- 15 Southboro 1 M. Lynch#
- 15 Wakefield 1 G. Long
- 30 Ipswich 1 I. Lynch
- 30 Lexington 1 M. Pelikan
- 31 Worc. (BMB) 1 M. Lynch#

House Wren
- 1 Nantucket 2 S. Perkins#
- 2 S. Peabody 4 R. Heil
- 2 Newton 2 R. Forster
- 23 Wayland 1 M. Pelikan
- 28 Boston 1 T. Aversa

Winter Wren
- 15 P.I. 7 J. Hoye#
- 21 Nahant 4 T. Aversa
- 22 Eastham (F.H.) 2 S. Arena#
- 22 Boston H. 2 R. Stymeist#
- 27 Boston (F.Pk) 2 T. Aversa
- 30 Quabbin (G35) 2 M. Lynch#
- 31 Worc. (BMB) 2 M. Lynch#
- thr Reports of indiv. from 13 locations

Marsh Wren
- 7, 28 P.I. 10, 2 R. Heil
- 15 GMNWR 1 M. Lynch#

Golden-crowned Kinglet
- 1 Wellfleet 2 R. Stymeist#
- 2 Boxford 6-8 J. Berry
- 2 Newton 2 R. Forster
- 2 P.I. 12 D. Chickering
- 29 Wachusett Res. 20+ M. Lynch#

Ruby-crowned Kinglet
- 2 P.I., Salisbury 10, 10 D. Chickering
- 4-31 Worc. (BMB) 30 max M. Lynch#
- 7 P.I. 32 R. Heil
- 7 ONWR 26 T. Aversa
- 12 S. Monomoy 25 B. Nikula
- 12 Nantucket 110 M. Wilson#
- 15 Webster 9 R. Stymeist#
- 16 Belmont 10 M. Pelikan

Blue-gray Gnatcatcher
- 4 E. Orleans 1 J. Sones
- 8 N. Truro 1 J. Young#
- 18 Wellfleet 1 J. Sones

Northern Wheatear
- 12 Nantucket 1 imm P. Dunwiddie#

Eastern Bluebird

thr	E. Boxford	9 max	J. Brown#
thr	Mattapoisett	8 max	F. Smith
2	Quabbin (G37)	20	C. Taylor#
10	Hingham	10	S. Carey
12	N. Attleboro	8	G. Valade
16	DWWS	15	G. d'Entremont#
18	Wrentham	8	G. Valade
15-28	M.V.	32 total	v. o.

Veery

1	Nantucket	3	S. Perkins#
3	Gay Head	1	A. Brown

Gray-cheeked Thrush

11	Chatham	1	J. Sones

Swainson's Thrush

1	Wellfleet	2	R. Stymeist#
1	Nantucket	3	S. Perkins#
7	P.I.	2	R. Heil
1-10	Reports of invid. from 6 locations		

Hermit Thrush

7	ONWR	12	T. Aversa
11	P.I.	6	T. Young
15	Webster	9	R. Stymeist#
23	Waltham	20	L. Taylor
23	Mt.A.	13	R. Stymeist#
26	Worc. (BMB)	22	M. Lynch#
27	Carlisle	5	J. Hoye#

Wood Thrush

2	M.V.	1	S. Whiting

American Robin

1	Nantucket	325	S. Perkins#
25	Gay Head	500+	A. Brown#
27-31	Essex	600+	T. Young

Gray Catbird

1	Wellfleet	31	R. Stymeist#
1	Nantucket	45	S. Perkins#
1, 15	P.I.	25, 1	R. Forster
2	Warren	30+	M. Lynch#
7	Gay Head	25	G. Daniels#

Northern Mockingbird

7	Gay Head	25	G. Daniels#

Brown Thrasher

3	Nantucket	1	J. Hoye#
5	Medford	1	M. Rines
5	Dennis	4	R. Forster
6	Gay Head	2	G. Daniels#
25	Sandwich	2	T. Aversa

American Pipit

7	P.I.	55	R. Heil
10	Edgartown	50+	A. Keith
11	Nantucket	49	M. Wilson#
15	Newburyport	100	R. Forster#
23	Rochester	65	W. Petersen#
26	Middleboro	55	M. Boucher#
27	Concord (NAC)	45	J. Hoye#

Cedar Waxwing

1	Nantucket	300+	S. Perkins#
2	S. Peabody	70+	R. Heil
6	Truro	65	R. Forster#

Northern Shrike

11	N. Monomoy	1 ad	R. Clem
12	S. Monomoy	1 imm	B. Nikula
15	Salisbury	1 imm	E. Salmela
25	Cumb. Farms	1 imm	T. Aversa

European Starling

26	Worc. (BMB)	5000+	M. Lynch#
30	Methuen	500,000	J. Hogan

White-eyed Vireo

2	Chatham	1	W. Bailey
3	Chilmark	1	T. Rivers

Solitary Vireo

1	Wellfleet	6	R. Stymeist#
2	Quabbin (G37)	10+	L. Taylor#
2	Carlisle	3	BBC (D. Oliver)
2	Boxford	4	J. Berry
10	ONWR	5	E. Salmela
11	Worc. (BMB)	5	M. Lynch#
21	MNWS	3	T. Aversa
30	Framingham	1	R. Forster
30	Salisbury	1	D. Chickering

Yellow-throated Vireo

1	Nantucket	1	S. Perkins#
2	Chatham	1	S. + E. Miller

Warbling Vireo

1	MNWS	1	S. Arena#
8	DWWS	1	S. Arena#

Philadelphia Vireo

2	Quabbin (G37)	1	L. Taylor
3	Chilmark	1	T. Rivers

Red-eyed Vireo

1	Nantucket	12	S. Perkins#
1	Wellfleet	5	R. Stymeist
4	Ipswich	3	T. Young
10	P.I.	3	M. Pelikan
11	Chatham	4	J. Sones
21	MNWS	1	T. Aversa
21	Dorchester	1	T. Aversa
22	Eastham (F.H.)	1	S. Arena#
25	Medford	1	M. Rines

Blue-winged Warbler

5	Nantucket	1	J. Hoye#

Tennessee Warbler

1	Nantucket	1	S. Perkins#
2	Chatham	3	S. + E. Miller
2	Warren	1	M. Lynch#
3	S. Peabody	1	R. Heil

Orange-crowned Warbler

4	Nantucket	1	J. Hoye#
7	Bolton Flats	1	M. Lynch#
8	Newbury	1	H. Wiggin#
10	Stow	1	E. Salmela
12	Worc. (BMB)	1	M. Lynch#
28	W. Roxbury	2	T. Aversa
28	P.I.	1	R. Heil
29	Truro	1	K. Anderson

Nashville Warbler

1	Wellfleet	5	R. Stymeist#
1	Nantucket	5	S. Perkins#
2	Newton	11	R. Forster#
24	Gay Head	1	A. Keith#
24	Mt.A.	1	C. Floyd#
28	W. Roxbury	2	T. Aversa
29	Malden	1	P. + F. Vale
30	Boston (F.Pk)	1	T. Aversa

Northern Parula

1	MNWS	2	S. Arena#
8	Newton	2	BBC (J. Hepburn)
22	P.I.	1	P. O'Neill
26	Worc. (BMB)	1	M. Lynch#
30	Gay Head	1	G. Daniels

Yellow Warbler

23	Brookline	1	T. Aversa#

Chestnut-sided Warbler

3	Westport	1	K. Anderson
30	Gay Head	1	G. Daniels

Magnolia Warbler

1	P.I.	1	K. Hamilton
1	Nantucket	2	S. Perkins#
2	Newton	1	R. Forster
12	Worc. (BMB)	1	M. Lynch#
30	Gay Head	2	G. Daniels

Cape May Warbler
1 Nantucket 2 S. Perkins#
9 WBWS 2 G. d'Entremont#
30 Gay Head 7 G. Daniels
Black-throated Blue Warbler
1 ONWR 5 E. Salmela
4 Nantucket 4 m J. Hoye#
7 P.I. 10 R. Heil
8 Truro 3 J. Young
11 Stoneham 3 R. Stymeist#
11 Chilmark 4 A. Keith
21 Nahant 1 T. Aversa
24 Truro 1 J. Sones
24 Boston (F.Pk) 1 T. Aversa
Yellow-rumped Warbler
thr Worc. (BMB) 98 max M. Lynch#
8 Salem 30+ BBC (I. Lynch)
8, 29 Ipswich 40, 40 J. Berry
8 W. Newbury 30+ P. + F. Vale
9 P.I. 140+ M. Lynch#
9 Rowley 50 J. Berry
14 Chilmark 250 G. Daniels
23 Mt.A. 56 R. Stymeist
"Aububon's" Warbler
17 WBWS 1 J. Sones
Black-throated Green Warbler
1 Nantucket 6 S. Perkins#
1 Wellfleet 4 R. Stymeist#
2 Warren 9 M. Lynch#
15 Newton 2 G. d'Entremont#
22 Salisbury 1 R. Forster
22 Eastham (F.H.) 1 S. Arena#
24, 30 Boston (F.Pk) 2, 1 T. Aversa
30 Gay Head 4 G. Daniels
Blackburnian Warbler
5 Nantucket 1 J. Hoye#
Pine Warbler
1 Wellfleet 7 R. Stymeist#
1 Truro 27 R. Stymeist#
1-12 E. Boxford 4-6 J. Brown#
15 Newton 1 G. d'Entremont
Prairie Warbler
2 Truro 1 J. Hoye#
12 M.V. 1 A. Keith
15 Yarmouthport 1 R. Forster#
23 Westport 1 E. Nielsen#
Palm Warbler
1 Nantucket 55 S. Perkins#
2 Warren 30+ M. Lynch#
2 Quabbin (G37) 45 L. Taylor#
3 Chilmark 12 T. Rivers
8 S. Monomoy 12 R. Stymeist#
8 W. Newbury 10+ P. + F. Vale
25 Sandwich 43 T. Aversa
Bay-breasted Warbler
7 P.I. 1 R. Heil
Blackpoll Warbler
2 Warren 50+ M. Lynch#
5, 26 Boston (F.Pk) 4, 1 T. Aversa
23 Cambr. (F.P.) 1 M. Rines#
26 Worc. (BMB) 1 M. Lynch#
30 Gay Head 8 G. Daniels
Black-and-white Warbler
4 Nantucket 2 J. Hoye#
11 P.I. 1 T. Young
21 Cambr. (F.P.) 1 D. Flood
30 Gay Head 3 G. Daniels
American Redstart
2 Newton 4 R. Forster#
4 Nantucket 4 J. Hoye#
24 Cambr. (F.P.) 1 D. Cooper
24 Gay Head 1 A. Keith
Prothonotary Warbler
3 Chatham 1 W. Bailey
Ovenbird
1 M.V. 1 S. Whiting#
1 MNWS 1 S. Arena#
4 Nantucket 1 J. Hoye#
Northern Waterthrush
9 WBWS 1 G. d'Entremont#
Connecticut Warbler
1 M.V. 1 S. Whiting#
2 Warren 2 M. Lynch#
Mourning Warbler
10 P.I. 1 M. Pelikan
23 W. Peabody 1 R. Heil
Common Yellowthroat
1 Wellfleet 7 R. Stymeist#
2 S. Peabody 23 R. Heil
6 Worc. (BMB) 13 M. Lynch#
7 P.I. 9 R. Heil
7 Bolton Flats 15 M. Lynch#
8 W. Newbury 6+ J. Berry
15 Salisbury 5 R. Forster
Wilson's Warbler
1 Newton 1 G. d'Entremont#
21 Lakeville 1 m E. Weinheimer
25 Sandwich 1 T. Aversa
Yellow-breasted Chat
1 Nantucket 1 S. Perkins#
2-23 M.V. 4 total v. o.
7 P.I. 1 R. Heil
11 N. Reading 1 R. Stymeist#
15 S. Dartmouth 1 R. Stymeist#
24 Arlington 1 M. Rines
Scarlet Tanager
1 P.I. 2 R. Forster
2 Newton 2 R. Forster
4 Nantucket 6 J. Hoye#
30 Chilmark 6 G. Daniels
1-7 Reports of indiv. from 5 locations
Rose-breasted Grosbeak
1 Nantucket 5 S. Perkins#
2 P.I. 1 P. + F. Vale
3 E. Middleboro 1 K. Anderson
Blue Grosbeak
1 Wellfleet 2 R. Stymeist#
2, 28 Gay Head 1, 1 v. o.
9 Truro 2 B. Nikula
10 Woburn 1 L. Taylor
14 Marshfield 1 D. Clapp
23 W. Peabody 1 R. Heil
24 N. Dartmouth 1 f M. Boucher
29 P.I. 1 R. Forster#
Indigo Bunting
1 Wellfleet 4 R. Stymeist#
1 Nantucket 4 S. Perkins#
2 Gay Head 6 V. Laux#
3 Wayland 4 S. Arena
4 Belmont 5 M. Rines
8 Newton 3 BBC(J. Hepburn)
10 Truro 15 G. d'Entremont#
31 P.I. 1 T. Young
Dickcissel
2-10 Gay Head 12 max V. Laux#
2-3 S. Peabody 3 R. Heil
2-6 Boston 2 T. Aversa
8-9 Truro 2+ v. o.
17 Wayland 2 G. Long
26 Nantucket 2 B. Vigneau
28 Salisbury 2 R. Heil
thr Reports of indiv. from 14 locations

Rufous-sided Towhee
1 Wellfleet, Truro 42, 36 R. Stymeist#
1 P.I. 15 R. Forster#
29 Salisbury 1 R. Forster
American Tree Sparrow
28 W. Roxbury 5 T. Aversa
29 Ipswich 1 J. Berry
29 Salisbury 4 R. Forster#
30 Framingham 2 R. Forster
Chipping Sparrow
1 Wellfleet 38 R. Stymeist#
1 E. Boxford 26 J. Brown#
8 Hardwick 40+ M. Lynch#
8 Gay Head 50 A. Brown#
11 P.I. 30+ T. Young
Clay-colored Sparrow
1, 31 Truro 2, 1 J. Sones
2 P.I. 1 D. Chickering
6 S. Wellfleet 1 R. Forster#
6 Marston Mills 1 E. + S. Miller
11 Chilmark 1 ad A. Keith
12-14 Nantucket 2 M. Wilson#
28 Arlington 1 D. Cooper
Field Sparrow
6 S. Wellfleet 7 R. Forster#
11 P.I. 6 T. Young
12 Worc. (BMB) 16 M. Lynch#
25 Cumb. Farms 16 T. Aversa
28 W. Roxbury 6 T. Aversa
Vesper Sparrow
1, 15 P.I. 1, 1 J. Hoye#
6 S. Wellfleet 5 R. Forster
7 Bolton Flats 1 M. Lynch#
9 Truro 1 J. Center
14 DWWS 1 D. Clapp
15 Wayland 1 G. Long
25 Cumb. Farms 3 T. Aversa
Lark Sparrow
2 Gay Head 1 V. Laux#
Savannah Sparrow
2 S. Peabody 82 R. Heil
4 Concord (NAC) 85 R. Forster
7 Hamilton 26 J. Brown#
9 Rowley 25 J. Berry
15 Middleboro 60 W. Petersen#
23 Wayland 40 M. Pelikan
"Ipswich" Savannah Sparrow
12 S. Monomoy 1 B. Nikula
30 P.I. 2 BBC (S. Bolton)
Grasshopper Sparrow
2 Nantucket 1 J. Hoye#
6 Truro 1 R. Forster#
5 Nashawena I. 1 S. Perkins#
7, 16 M.V. 2 total E. Brown#
20 Wayland 1 K. Hamilton#
21 E. Boston (B.I.) 1 T. Aversa
LeConte's Sparow
17 Wayland 1 G. Long
20 N. Attleboro 1 G. Valade
Sharp-tailed Sparrow
1 Newbury 8 R. Forster
1 Nantucket 30 S. Perkins#
5, 28 S. Dart (A.Pd) 9, 2 LCES (J. Hill)
7 P.I. 53 R. Heil
22 Eastham (F.H.) 12 S. Arena#
Seaside Sparrow
5 S. Dart (A.Pd) 1 LCES (J. Hill)
7 P.I. 10 R. Heil
9 Eatham (F.H.) 2 W. Petersen#
14 Chappaquidick 2 A. Keith#
Fox Sparrow
15 Wayland 1 G. Long
28 Salisbury 1 R. Heil
31 Edgartown 1 V. Laux
Song Sparrow
7 Bolton Flats 148 M. Lynch#
15 Middleboro 80 W. Petersen#
Lincoln's Sparrow
1 Bolton Flats 6 E. Salmela
2 Truro 6 J. Hoye#
2 S. Peabody 6 R. Heil
2, 23 Newton 5, 1 R. Forster#
3 Wayland 3 S. Arena
4 Belmont 7 M. Rines
8 DWWS 3 W. Petersen#
10 Ipswich 5 N. Nash
thr Reports of 1-2 indiv. from 10 locations
Swamp Sparrow
7 Bolton Flats 169 M. Lynch#
7 N. Attleboro 100 G. Valade
9 Truro 50 B. Nikula
14 Marshfield 45 D. Clapp
15 GMNWR 50+ M. Lynch#
White-throated Sparrow
1 Wellfleet 55 R. Stymeist#
7 P.I. 135 R. Heil
7 Worc. (BMB) 75 M. Lynch#
15 Marshfield 50 W. Petersen#
White-crowned Sparrow
6-25 Gay Head 100 max A. Brown#
7 Bolton Flats 45 M. Lynch#
8 Sandwich 25 B. Nikula#
9 Truro 25 B. Nikula
10 Ipswich 18 J. Berry
12 P.I. 21 T. Young
12 Nantucket 22 M. Wilson#
thr Reports of 5-12 indiv. from 12 loc.
Dark-eyed Junco
1 Malden 1 P. + F. Vale
2 E. Boxford 1 J. Brown#
3 Westport 1 M. Boucher
4, 26 Worc. (BMB) 2, 31 M. Lynch#
4 Gay Head 2 T. Rivers
11 Nahant 20 G. Wood
Lapland Longspur
9 Gloucester 1 C. Leahy
12 Nantucket 3 M. Wilson#
14 Salisbury 4 D. Chickering
23 Boston (Logan) 1TASL (S. Zendeh)
29 P.I. 40 M. Pelikan
Snow Bunting
12 GMNWR 2 D. Cooper
28 S. Dart (A.Pd) 20 LCES (J. Hill)
29 Salisbury 108 M. Argue#
29 P.I. 60 M. Pelikan
30 Wachusett Mt. 12 BBC (P. Roberts)
30 Edgartown 7 A. Keith#
31 Danvers 4 J. Brown#
Bobolink
3 Nantucket 12 J. Hoye#
4 Concord (NAC) 2 R. Forster
6 Cuttyhunk I. 4 S. Perkins#
9 Truro 5 G. d'Entremont#
Red-winged Blackbird
7 Bolton Flats 380+ M. Lynch#
7 Beverly 500 J. Brown#
15 GMNWR 600+ M. Lynch#
17 Lakeville 2000 M. Boucher
26 Worc. (BMB) 2500 M. Lynch#
Eastern Meadowlark
15 Halifax 8 D. Clapp
22 Eastham (F.H.) 18 S. Arena#

Eastern Meadowlark (continued)			
23	Gay Head	25	A. Brown#
24	N. Attleboro	8	G. Valade
Yellow-headed Blackbird			
2	Eastham	1	R. Clem
5	Nantucket	1 f	J. Hoye#
Rusty Blackbird			
4	Boxford	100	T. Walker
10	ONWR	20	E. Salmela
23	Middleboro	35	W. Petersen
24	WBWS	16	J. Sones
26	Worc. (BMB)	10	M. Lynch#
29	Wakefield	18	P. + F. Vale
Common Grackle			
3	W. Peabody	1250+	R. Heil
17	Lakeville	7000	M. Boucher
24	Gay Head	3000+	A. Keith#
26	Worc. (BMB)	2000+	M. Lynch#
30	Methuen	"millions"	J. Hogan#
Brown-headed Cowbird			
3	W. Peabody	220	R. Heil
5	Harwichport	400+	B. Nikula
5	Yarmouthport	175	R. Forster
Northern Oriole			
1	MNWS	1	S. Arena#
1	P.I.	2	R. Forster
2	Newton	2	R. Forster#
2	Westport	1	M. Boucher
6	Truro	2	R. Forster#
11	Chilmark	2	A. Keith
17	Wayland	1	G. Long
Purple Finch			
3	E. Middleboro	1	K. Anderson
16	Ipswich	2	BBC (J. Nove)

LIST OF ABBREVIATIONS

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

ABOUT THE COVER: GYRFALCON

The largest and most majestic falcon in the world, the Gyrfalcon *(Falco rusticolus)* has for centuries been the favorite of falconers and kings. Swooping southward from arctic barrens in winter, this elegant bird is often near the top of the "want-list" of most New England birders. It is a polymorphic species with white, dark, and gray (intermediate) color morphs. White morph birds are unmistakable—there are no other white falcons—but dark morphs and particularly gray morphs may be confused with Peregrine Falcons. The crowns of dark Gyrfalcons lack the black cap and pronounced "sideburns" of the Peregrine. Gyrfalcons have proportionally longer tails, shorter, broader, and more rounded wings, and a slower wingbeat. All Gyrfalcons are variously spotted and barred; however, the genetics and evolutionary significance of the plumage variation in Gyrfalcons are not well understood. The sexes are similar in plumage, but males are significantly smaller in size and weigh only about two-thirds as much as females. Immature birds are more heavily streaked than adults.

A long controversy has raged over the taxonomy of this variably plumaged species. It has historically been subdivided into as many as three subspecies, largely on plumage characteristics, but authorities now generally agree that the species is monotypic, and subspecific designations are no longer accepted.

This circumpolar falcon breeds in North America in northern Canada, mostly above 60°N latitude, on the arctic islands, and in Labrador, Alaska, the Aleutian Islands, and Greenland. They winter irregularly as far south as southern Canada and the northern U.S. and occasionally farther south. Many Gyrfalcons are resident in the arctic throughout the year, and it appears that most migration is undertaken by immature and subadult birds. Movements are apparently influenced by food availability, especially ptarmigan. The Gyrfalcon is a rare and irregular winter visitor to Massachusetts, where the earliest record is October, and most sightings occur from December through February, with an occasional sighting as late as April. Most Gyrfalcon sightings have been in coastal areas from Essex County south to Cape Cod.

Gyrfalcons are monogamous, and may mate for life. They produce a single brood each year. Their breeding habitat is arctic and alpine tundra and taiga, and barren coastal and river areas, preferably where steep cliffs are available for nest sites. The territorial call of the Gyrfalcon is a series of *kak* notes. They are very aggressive when nesting and may attack any bird that wanders into their territory. Characteristically the territory is centered on the cliff eyrie, and a variety of displays, including a figure-eight flight, are used near the nest ledge. Other breeding displays include a variety of bowing, scraping, and bill-nibbling activities, usually accompanied by various chirps, chatterings, wails, and whines. Aerial displays include a repertoire of rolls, dives, fluttering, weaving,

and soaring maneuvers. Food is transferred to the female by the male either on the nest ledge or in flight.

Nesting begins in April or May. The cliff nests are nothing more than scrapes, but Gyrfalcons may use the previous stick nests of ravens, eagles, or other raptors. The usual clutch is four brown-spotted, white eggs. Both parents incubate, although the female does the majority of the work. Although the male has brood patches, they are not as well developed as in the female. Incubation lasts for about five weeks, and the chicks fledge seven to eight weeks after hatching. The male supplies food for the young during the first two to three weeks, but the female does most of the direct feeding of the young, usually dividing the prey equally among the chicks. During the nesting period the female may cache food within 100 yards of the nest. After four to six weeks the parents stop feeding the young directly; hence, the chicks must tear up prey brought to the nest.

Gyrfalcons have a variety of foraging strategies. They may perch on a rock and wait for prey, or actively search by flying back and forth low over the ground. They also soar along ridges. When attacking prey, they may fly low over the ground to reduce detection, or pursue prey directly. Sometimes they hover over their prey. Their chief food is ptarmigan, but they also take other birds ranging from sparrow-sized birds to geese. They also occasionally take mammals, especially hares.

The biggest threats to Gyrfalcons are the harsh arctic conditions and a scarce supply of food; their numbers south of their breeding range may reflect fluctuations in ptarmigan abundance. Their remote habitat has largely spared them from the pesticides and habitat alteration that have been so devastating to the Peregrine Falcon. Although North American Gyrfalcons have been largely spared from falconers collecting chicks and eggs, a practice that has caused problems for the birds in Russia and Scandinavia, they nonetheless remain highly valued by falconers. May the vigilant birder be fortunate enough to some day catch a glimpse of the magnificent "ice falcon." W. E. Davis, Jr.

ABOUT OUR COVER ARTIST

Paul Donahue's artwork last appeared on *Bird Observer*'s cover in August 1994. Paul can be reached at P.O. Box 554, Machias, Maine 04654.

The Gyrfalcon drawing first appeared in a catalog of Victor Emanual Nature Tours, Inc. (VENT). Victor Emanuel has kindly given *Bird Observer* permission to use this drawing. VENT conducts birding tours around the world. Their address is P.O. Box 33008, Austin, Texas 78764.

AT A GLANCE *December 1994* _____ *Wayne R. Petersen*

December's At A Glance photograph shows a sparrow, as characterized by the bird's apparently small size, heavy bill, and generally striped appearance. As with a previously discussed Lincoln's Sparrow photograph (see *Bird Observer* 22:281), because the mystery bird is shown feeding young at a nest, it is fair to assume that it is in adult plumage.

A traditional starting point for identifying an unknown sparrow is to notice the breast pattern—either plain or striped or marked in some way. The pictured bird clearly shows fine streaks across the upper breast, with the markings extending along the sides to the flanks. These features at once eliminate all the plain-breasted sparrows (e.g., Chipping and Field sparrows), along with those with heavy breast markings, such as Song and Fox sparrows. The lack of prominent head stripes removes as possibilities species such as White-throated and White-crowned sparrows. Vesper and Savannah sparrows would both show heavier and more extensive breast streaks and, respectively, a conspicuous eye ring or a bold, white, median crown stripe.

An important structural feature to notice is that the mystery sparrow exhibits a flat-headed, large-billed appearance that is especially characteristic of sparrows in the genus *Ammodramus*. Having reduced the possibilities to the generic level, it is necessary to distinguish between five small grassland or salt marsh sparrows: Grasshopper, Henslow's, LeConte's, Sharp-tailed, and Seaside.

Grasshopper Sparrows in adult plumage have a plain breast and an obvious eye ring. Seaside Sparrows are dusky with blurry breast streaks and have a conspicuous yellow loral spot between the eye and bill. The other three species all have at least some breast streaking, but the Sharp-tailed Sparrow also has a solid gray crown, a wide supercilium, and a dark ear patch. The choice thus becomes one between Henslow's and LeConte's sparrows. LeConte's Sparrow has streaks on the nape; a broad, buffy supercilium; and a thin, well-defined, white , median crown stripe. The mystery sparrow has an unstreaked nape, a dull median stripe, and a distinct malar (jaw) stripe. This combination of characteristics makes the mystery bird a Henslow's Sparrow *(Ammodramus henslowii)*.

Photo by Hal H. Harrison. Courtesy of MAS.

Always a rarity in Massachusetts, Henslow's Sparrows nested in Lincoln in 1994 for the first confirmed state breeding record in over twenty years.

AT A GLANCE

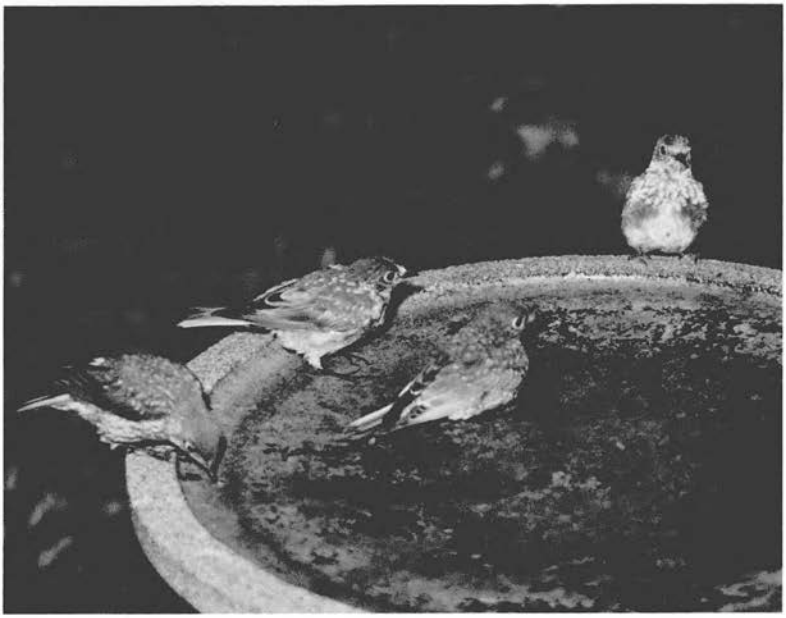


Photo by Frank H. Wood. Courtesy of MAS.

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

BIRD OBSERVER (USPS 369-850)
462 TRAPELO ROAD
BELMONT, MA 02178

SECOND CLASS POSTAGE PAID AT BOSTON, MA

Dec 95

[redacted]

Spring Workshops

SPRING WARBLERS
THE BARRENS AND THEIR BEASTS
MASSACHUSETTS BREEDING BIRDS
See page 4!

CONTENTS