



MAJOR AND LOCAL
SPRING
HAWK WATCHING
SITES

THE SPRING HAWK MIGRATION:

TOWARD UNDERSTANDING AN ENIGMA

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Remember that big hawk day last fall? Whether you had 4,000 broadwings at Mt. Tom, a kettle of 50 over your home, or three Peregrine Falcons at Plum Island, it is impossible to forget such spectacular occasions. You probably had several good hawk flights last September or October, but how many times have you seen similar flights in the spring? Most likely never. Many people do not believe there is a substantial spring hawk migration because, over years of birding, they've never seen a major spring flight. An examination of the published field records for Massachusetts would only confirm such a conclusion. Small flights are occasionally observed, usually at Mt. Tom, but there are only a few other scattered reports from around the state for the past three decades. An examination of American Birds' reports for regions south of our own would further strengthen the belief that the spring hawk migration is small and quite disparate.

However, there are substantial spring hawk flights, comparable to those of the fall, in at least two parts of the United States. Furthermore, recent field studies in New Jersey and New York prove that there are smaller but concentrated flights through those states. In general, the evidence suggests that there is a much larger, more concentrated spring hawk migration through Massachusetts than records indicate or than most birders realize.

A thorough survey of professional ornithological literature, American Birds, and the birding journals of various states reveals that substantial hawk flights occur each spring in southeast Texas and along the southern shores of the Great Lakes. Southeast Texas is the site of the largest recorded spring Broad-winged Hawk flights in the U.S. Returning from their wintering grounds in Central and South America, these buteos are apparently driven by southern and southwesterly winds until they approach the Texas Gulf Coast in the vicinity of the Santa Ana National Wildlife Refuge just south of McAllen. Broadwings are usually gregarious during migration, the vast majority of them moving in groups over a two to three week period. Hence, during late March and early April, as many as 200,000 have been seen passing through this corner of Texas in a single week. On March 27, 1976, more than 100,000 flew over the Santa Ana Refuge. Towns in the vicinity, from the Rio Grande to Corpus Christi and north and west to San Antonio, have reported seasonal peaks as high as 85,000. Santa Ana, however, is probably the best location from which to observe the migration, although apparently there are no topographical features that confine the hawks to a specific path over the refuge. If the winds are not just right, the majority of the birds can easily pass on either side of the refuge, since the broadwings appear to move on a rather wide front. Good flights of Swainson's Hawks can also be observed here, though in much smaller numbers.

The second major concentration of hawks occurs along the southern shores of the Great Lakes, particularly at Whitefish Point, Michigan, and at Braddock Bay and Derby Hill, New York. Whitefish Point has not been well covered for hawk counts, although major banding operations are

conducted there. Derby Hill, and to a lesser extent Braddock Bay, have been thoroughly monitored for more than a decade. The magnitude of the migration is amply revealed by the spring, 1977, migration totals for these two sites and for Grimsby, Ontario, a major fall migration site.

| | <u>Braddock Bay</u> | <u>Derby Hill</u> | <u>Grimsby</u> |
|---------------------|---------------------|-------------------|----------------|
| Turkey Vulture | 858 | 683 | 460 |
| Northern Goshawk | 8 | 40 | 11 |
| Sharp-shinned Hawk | 1,923 | 3,919 | 4,412 |
| Cooper's Hawk | 59 | 269 | 114 |
| Red-tailed Hawk | 1,156 | 3,701 | 2,250 |
| Red-shouldered Hawk | 265 | 935 | 651 |
| Broad-winged Hawk | 16,919 | 16,107 | 1,551 |
| Rough-legged Hawk | 174 | 203 | 57 |
| Golden Eagle | 4 | 25 | 1 |
| Bald Eagle | 3 | 5 | 2 |
| Northern Harrier | 182 | 337 | 79 |
| Osprey | 40 | 130 | 11 |
| Peregrine Falcon | 1 | 3 | 0 |
| Merlin | 0 | 5 | 2 |
| American Kestrel | 109 | 283 | 97 |
| Unidentified | 865 | 196 | 195 |
| Total | 22,566 | 26,841 | 10,163 |

The seasonal peaks are also impressive. At Derby Hill, 589 Red-tailed Hawks were seen on March 29th and five species attained season peaks on April 21st. On the latter day, observers counted 982 Sharp-shinned Hawks, 8,105 Broad-winged Hawks, 44 Rough-legged Hawks, and 57 Northern Harriers (Marsh Hawks). An incredible 10 Golden Eagles passed within 1 1/2 hours that afternoon.

These concentrations are the result of the "lake effect," which works in this manner. The most numerous species seen along the lake coasts are those which tend to rely on soaring flight. In traveling long distances, these birds seek out thermals and updrafts to provide uplift to carry them in the desired direction with a minimum expenditure of their own energy. During the spring they employ winds from the south, west, and even northwest to carry them to their breeding grounds.

However, when hawks encounter the Great Lakes, they meet a barrier to soaring flight. On a sunny day, the waters are much colder than the land, and no thermals are produced over them to provide uplift for the birds. The absence of thermals is compounded by the lakes' onshore breeze, which tends to force most soaring birds slightly inland.

Thus, their flight is concentrated into paths over the hills and ridges, where there is the most thermal activity and updrafts. Most of the soaring hawks, especially the masses of broadwings, follow the southern

shores of the lakes, using the winds, updrafts, and thermals to carry them northeastward until they reach a land bridge to Canada. This "lake effect" is cumulative, producing ever greater concentrations of birds at several points along the southern coasts of Lake Erie and Lake Ontario, including Cleveland, Ohio; Lake City, Pennsylvania; Braddock Bay, east of Rochester, New York; and Derby Hill, in New York's Oswego County. To the northwest, Lake Michigan and Lake Superior combine with the predominant winds to drive the migrating buteos and Sharp-shinned Hawks eastward, to Whitefish Point on the Upper Peninsula of Michigan.

But what about the rest of the country? Where do the broadwings go between southeastern Texas and the Great Lakes? The birds seemingly evaporate into thin air once they pass San Antonio, only to rematerialize on the southern shores of the Great Lakes.

The absence of topographical barriers similar to the Great Lakes would seem to indicate that there could be no comparable concentrations of hawks elsewhere in the United States. Thus people have not bothered to look for what they think does not exist--and they haven't seen what they haven't looked for.

Epistemological questions aside, in 1976 ambitious members of the recently established Hawk Migration Association of North America organized spring hawk watches in several parts of the Appalachian chain. Two watches had particular relevance for New England. Peter Dunne maintained a watch at Raccoon Ridge, New Jersey, just north of the Delaware Water Gap, from March 1st through April 30th, and various individuals staffed a site at Hook Mountain, New York, not far north of New York City. Dunne's work was particularly significant, as it was the first truly systematic spring hawk watch in the northeast, with the exception of the Great Lakes. Observers at both Raccoon Ridge and Hook Mountain, well-known fall hawk-watching sites, discovered impressive spring movements. Their season totals for the first two years of the watches are:

| | <u>RACCOON RIDGE, N.J.</u> | | <u>HOOK MOUNTAIN N.Y.</u> | |
|------|----------------------------|----------------------------|---------------------------|-------------------------------|
| | 1976 (61 days/451 hrs) | 1977 (54 days /443 hrs) | 1976 (51 days/219 hrs) | 1977 (25 days/141 1/2 hrs) |
| TV | 0 | 0 | 0 | 0 |
| NG | 19 | 18 | 7 | 9 |
| SS | 403 | 546 | 533 | 305 |
| C | 22 | 26 | 6 | 4 |
| RT | 372 | 416 | 104 | 26 |
| RS | 102 | 201 | 36 | 28 |
| BW | 1,902 | 2,042 | 1,220 | 961 |
| RL | 2 | 5 | 0 | 0 |
| GE | 3 | 1 | 1 | 1 |
| BE | 7 | 1 | 0 | 0 |
| NH | 89 | 91 | 48 | 22 |
| OS | 153 | 240 | 75 | 50 |
| PF | 2 | 0 | 1 | 2 |
| M | 6 | 2 | 1 | 3 |
| AK | 163 | 230 | 197 | 86 |
| UI | 35 | 0 | 69 | 98 |
| TOT. | 3,280 | 3,819 | 2,398 | 1,595 |

Their specific reports, not reproduced here, provide invaluable data regarding not only the magnitude of the flight, but a daily break-down of species counts, rhythm, and weather conditions. Their tentative conclusions were supported by the findings of William Clark and Steve Potts, who maintained a raptor banding station at Sandy Hook, New Jersey, from March 21 through May 5, 1977. Their totals for the first systematic coastal spring hawk watch in the U.S. were:

| TV | NG | SS | C | RT | RS | BW | RL | BE | NH | OS | PF | M | AK | TOTAL |
|----|----|-------|-----|----|-----|----|----|----|-----|----|----|-----|-------|-------|
| 54 | 1 | 1,130 | 137 | 41 | 145 | 29 | 1 | 1 | 375 | 28 | 3 | 143 | 2,599 | 4,687 |

The Clark-Potts' totals are even more impressive when several factors are considered. Their banding station, for example, was established almost a month after the migration began, and it was closed almost a month before the migration ended. Secondly, based on their experience at Cape May, Clark estimated that less than two thirds of the birds passing by were seen from the banding blind. This would imply that the actual size of the migration between March 21st and May 5th would be in the vicinity of 7,000 hawks. However, it is not possible to use information from interior sites to estimate the percentage of the flight that might have passed coastal Sandy Hook between May 5th and June 15th; inland sites tend to have large buteo and minimal falcon flights. One might only guess that as many as 7,500 to 8,000 hawks passed over Sandy Hook during the 1977 spring migration. (Of course, the use of the blind might also have limited the numbers seen of certain species.)

Several aspects of Clark's extensive report on the Sandy Hook operation deserve special comment. The very high count of American Kestrels, with sharpies a distant second, supports the conventional theory about the tendency of those two species to concentrate along the coast during their spring migration. The ratio of Cooper's Hawks to Sharp-shinneds was quite high, more than 1:10. Banding ratios were 1 Cooper's per every 4 Sharp-shinneds. Red-shouldered Hawk numbers were impressive, especially during April. Northern Harrier counts were high and surprisingly consistent throughout the seven week period, while Osprey counts were disappointing. (Unusual local conditions might have been responsible for this.) Peregrine counts were also discouraging, but Merlins were in very good numbers, especially during the last two weeks of April and early May (25 on May 2nd alone!). Undoubtedly, the total count would have been even more impressive if the watch had continued through May.

The Raccoon Ridge, Sandy Hook, and Hook Mountain reports clearly prove that there is a substantial spring hawk migration in the northeast. However, their spring counts represent only 10-15% of the fall totals at the same sites (comparing Sandy Hook with Cape May).

If we arbitrarily assume a 50% fall and winter mortality rate for the migrants, 35-40% of the total numbers reported in the fall are still not seen at the same sites in the spring. We can only speculate as to the reasons for this. The birds might return to their breeding grounds by different routes. This could be on an individual basis, in small flocks on a broad front, or in major concentrations along unknown flight paths. (Burns, in 1911, speculated that spring broadwing flights followed the major river basins north.) Finally, the hawks might actually

pass the fall migration sites, but with the powerful spring thermals lifting them out of the field of human vision. Of course, the mortality rate might be higher, but even postulating a 66% mortality rate, as much as 24% of the fall totals would still not be seen at the same observation sites in the spring. (Statistics for the following autumns would indicate that there was not such a high mortality rate.) No meaningful conclusions can be drawn without years of field work by many individuals across the country.

The New Jersey and New York results also compel us to ask another question. Even assuming that a substantial fraction of their birds migrate through eastern New York or nest in Connecticut and Rhode Island, why haven't comparable flights been reported in Massachusetts?

Certainly, apart from the limited effect of the Atlantic Ocean, we don't have any topographical features that would create concentrations of hawks comparable to those achieved by the Great Lakes, but the simplest and probably most accurate explanation as to why hawks have not been seen in good numbers in Massachusetts in the spring is that people haven't been looking for them.

There are several reasons for this. Initially, when the migration begins in late February or early March, people aren't willing to brave inhospitable weather and snow-covered peaks to observe a migration that isn't an established fact; consequently, this annual flight would go undetected. Birders tend to remain home in exceptionally cold or inclement weather, or they confine their activity to the warmer coastal areas. When warm winds, shorebirds, and passerines arrive in April and May, the birders focus their attention on the salt pans, shrubs, and trees--not on the sky. Most spring hawk reports in eastern Massachusetts are of individual birds, and the vast majority of sightings appear to be accidental, such as when a birder works out the kinks from a bad case of "warbler neck," or when a flock of shorebirds suddenly takes to wing.

The one exception to this pattern is Mt. Tom, which has been covered sporadically on weekends in April and May, occasionally with more extensive coverage during the anticipated peak of the broadwing flight. The New England Hawk Watch has held coordinated spring watches throughout the region for the past six years, but their activity is confined to one weekend. Inclement weather often plagues this two-day watch which, even in the best of circumstances, is insufficient to provide significant data regarding the size and nature of the migration through the region.

Certainly, there is ample evidence to indicate that a substantial spring hawk flight enters Massachusetts and data from New York, New Jersey, Mt. Tom, Plum Island, and Cape Cod indicates that there are occasional if not regular concentrations of migrating raptors in the state. If people start looking for them, they should be seen in increasing numbers. Provincetown is a case in point. For decades there were no published reports of any substantial broadwing flights through eastern Massachusetts. Suddenly, on May 5, 1973, an astute observer saw 65 broadwings over Provincetown. This triggered an awareness of possible broadwing flights on the Cape, yielding reports of 60 on May 1, 1976, and 70 on June 9th. Last year 40 were seen on April 30th and 50 on May 12th. It

is improbable that some sudden change in the environment, or in the habits of the broadwing, began to drive these birds out onto the Cape. It seems much more likely that the important change was that birders were now looking for broadwing flights there. It is hoped that a similar awareness of spring hawk flights can be developed throughout the state. To this end, the following "loose" timetable of hawk migration has been prepared. Dates are based on limited published Massachusetts records and extrapolation from New York and New Jersey reports. When possible, peak migration times, seasonal peak counts, and locations are provided. (Totals given are edited to indicate maximum numbers reported at several sites.)

CATHARTIDAE

TURKEY VULTURES (Cathartes aura), reported in increasing numbers during the past several decades, are usually seen migrating from early March into early May. Flights are usually tallied in April, with good numbers frequently seen on the Cape.

| | |
|---------------------|--------------------------|
| 10 (4-10-66) Dana | 5 (3-27-76) Provincetown |
| 6 (4-18-65) Mt. Tom | 5 (4-22-77) Provincetown |

ACCIPITRINAE

These are among the most difficult birds to observe during the spring, with the notable exception of the Sharp-shinned Hawk. Relatively few NORTHERN GOSHAWKS (Accipiter gentilis) migrate, except during eruption years, and those that do move tend to move individually and without much dependence on updrafts and thermals. Furthermore, most return to their breeding grounds during February and March, when there are few observers in the field to note their passage.

| | |
|-----------------------|------------------------|
| 5 (4-18-75) Granville | 2 (3-6-76) Plum Island |
| 3 (3-20-76) Mt. Tom | |

The SHARP-SHINNED HAWK (Accipiter striatus) is by far the most numerous and easily observed accipiter. Its inclination to soar with other hawks enhances its visibility, as does its relatively late migration, which occurs in the month of April when more birders are in the field. Good numbers can be seen both in the interior and on the coast. Derby Hill, New York, has had 5,138 sharpies in a single season, with a peak of 2,787 Sharp-shinneds on April 21, 1966. Massachusetts counts are, regrettably, not comparable, but good numbers have been seen between April 6th and May 5th. Mount Tom produced most reports until recently, when observers began to notice good flights along the coast of Barnstable and Essex Counties. Probably there are much larger sharpie flights along our coast than any single report indicates. Seeing the spring sharpie flight is particularly exciting because these feisty birds often come zooming in quite close to the observers' eye level.

| | |
|--------------------------|--------------------------|
| 70 (4-15-76) Mt. Tom | 35 (4-13-76) Plum Island |
| 54 (4-19-76) Mt. Tom | 33 (4-4-56) Mt. Tom |
| 52 (4-30-77) Plum Island | 30 (4-18-75) Mt. Tom |
| 40 (5-6-76) Truro | 20 (5-12-77) Truro |
| 38 (4-17-73) Mt. Tom | |

COOPER'S HAWKS (Accipiter cooperii) are not seen in great numbers. Their migration tends to be early, mid-March to mid-April, and they prove to be an identification problem for many observers. Their seasonal peaks in Massachusetts usually occur in April. Cooper's may be seen both inland and on the coast.

| | |
|------------------------|------------------------------------|
| 11 (4-30-56) Mt. Tom | 8 (4-6-56) Mt. Tom |
| 10 (4-15-76) Granville | 5 (4-15-60) Plum Island |
| 9 (4-21-56) Mt. Tom | 3 (4-24-76) Long Island, Boston |

BUTEONINAE

The buteos are the easiest hawks to observe due to their heavy though by no means total dependence on thermals and updrafts. Most buteo flights are seen inland, where air circulation off hills, ridges and mountains provides uplift for soaring.

RED-TAILED HAWKS (Buteo jamaicensis) tend to move early, beginning the first week in March and extending through April. The flight is apparently quite disparate; only systematic observation at various sites will give us any indication of the magnitude of their migration through the state. Many observers have reported seeing good numbers of redtails during the spring, but they rarely note whether the birds were local wintering birds, breeders, or migrants.

| |
|----------------------|
| 14 (3-20-76) Mt. Tom |
| 11 (4-5-56) Mt. Tom |
| 11 (4-26-64) Mt. Tom |

RED-SHOULDERED HAWKS (Buteo lineatus) are also early migrants, often moving in numbers in late February, early March, though the peak period is between mid-March and mid-April. More systematic observation at Mt. Tom has produced record peak counts in recent years despite what is considered to be a substantially reduced breeding population in Massachusetts and points north. There are several indications that the red shouldered might be making a recovery. Due in part to identification problems, the Red-shouldered Hawk is often better seen in spring than in the fall.

| |
|-----------------------------|
| 54 (3-20-76) Mt. Tom |
| 41 (3-25-75) Mt. Tom |
| 21 (3-15-56) Sudbury Valley |
| 10 (3-27-76) Provincetown |

The largest observed migration through Massachusetts is that of the BROAD-WINGED HAWK (Buteo platypterus), which can usually be seen from late March on. The bulk of the birds move through during the last two weeks of April and the first week of May. Peak counts reported from Mt. Tom (Bray Tower) are:

| | |
|---------------|---------------|
| 712 (4-25-64) | 178 (4-22-67) |
| 305 (4-26-66) | 173 (4-24-64) |
| 300 (4-29-66) | 168 (4-23-64) |
| 361 (4-20-56) | 142 (4-23-67) |

Until quite recently, few broadwings have been reported migrating through eastern Massachusetts, but this is almost certainly due to the lack of observers looking for them at the appropriate times and places. Theoretically, the best broadwing counts near the coast should be produced the day of and a day after fairly strong southwest or westerly winds.

| | | | |
|--------------|--------------|--------------|--------------|
| 70 (6-9-76) | Provincetown | 49 (4-26-64) | Wellesley |
| 65 (5-5-73) | Provincetown | 40 (4-30-77) | Provincetown |
| 60 (5-1-76) | Provincetown | 19 (5-1-76) | Mt. Auburn, |
| 50 (5-12-77) | Truro | | Cambridge |

The ROUGH-LEGGED HAWK (Buteo lagopus) migration is undoubtedly small and variable. Migrants are seen in March, April, May, and even June. Field reports again fail to distinguish between wintering and clearly migrating roughlegs. The peak report of positive migrants is:

4 (4-20-68) Mt. Tom

AQUILINAE and HALIAETINAE

With the important exception of Quabbin Reservoir, relatively few eagles are seen in Massachusetts. Migrating GOLDEN EAGLES (Aquila chrysaetos) have been seen in March, April and May with most Mt. Tom reports occurring in mid-April.

| | | | |
|-------------|-------------|-------------|----------------------|
| 2 (4-19-56) | Mt. Tom | 1 (4-12-73) | Templeton |
| 1 (4-16-59) | Mt. Tom | 1 (5-1-73) | Holden |
| 1 (3-16-68) | Newburyport | 1 (5-9-75) | Natick |
| 1 (3-21-73) | Westport | 1 (6-13-75) | Martha's Vineyard |

BALD EAGLES (Haliaeetus leucocephalus) are reported throughout the year due to the different migration patterns of the northern and southern breeding birds and immatures. Most spring movement occurs between the first week of March and the first week of May. Sightings are usually of solitary eagles, but they are often found soaring in kettles with buteos.

| | | | |
|-------------|--------------|-------------|-------------|
| 4 (5-19-64) | West Harwich | 1 (5-12-73) | Plum Island |
| 3 (4-30-56) | Mt. Tom | 1 (3-13-76) | Concord |
| 2 (3-15-77) | Littleton | 1 (3-26-77) | Hingham |
| 1 (3-22-65) | Needham | 1 (5-28-77) | Monomoy |

CIRCINAE

NORTHERN HARRIERS (Circus cyaneus), migrate from mid-March well into May. Field reports from Massachusetts are woefully slim and fail to differentiate between wintering, breeding, or migrating birds. New Jersey reports indicate that we should expect most harrier movement during the second and third weeks of April.

| | |
|-------------|----------------|
| 8 (5-12-77) | North Scituate |
| 3 (3-27-68) | Mt. Tom |
| 3 (4-25-64) | Mt. Tom |

PANDIONIDAE

The OSPREY (Pandion haliaetus) migration is much more compact than that of the Northern Harrier. A few individuals are reported in late March but the bulk of the flights appears during the last two weeks of April and the first week of May, essentially the same as the broadwing. Spring flights are often more concentrated than those of the fall.

| | |
|----------------------|-----------------------------|
| 51 (4-19-75) Mt. Tom | 23 (4-9-60) Merrimack |
| 31 (4-30-56) Mt. Tom | Valley |
| 27 (4-24-64) Mt. Tom | 22 (4-8-59) Plum Island |
| 25 (4-25-64) Mt. Tom | 20 (4-18-64) Mt. Tom |
| | 15 (4-19-56) Sudbury Valley |

FALCONINAE

The PEREGRINE FALCON (Falco peregrinus) is perhaps our most sought-after regular migrant. Few are reported, primarily in April with declining numbers in May. Sightings are usually of individuals along the coast. With such species, it is particularly important that the observer does not overcount, that is, add a bird each time a single individual makes a pass over a flock of shorebirds. Quite often a single Peregrine, hunting in the area, will be seen many times throughout the day.

| | |
|-------------------------|------------------------|
| 9 (4-25-69) Scituate | 3 (4-1-67) Newburyport |
| 6 (4-15-60) Plum Island | 2 (4-20-68) Mt. Tom |
| 3 (4-9-60) Plum Island | 2 (4-27-56) Mt. Tom |

The MERLIN (Falco columbarius) migration is usually light during the first two weeks of April with most individuals passing through during the last two weeks of that month and the first week of May. Very few are reported inland, but Clark's reports from New Jersey indicate that there is probably a much larger migration along the eastern Massachusetts coast than any field reports indicate. Systematic observation from one of several coastal sites should provide a much better picture of the Merlin migration.

| | |
|--------------------------|-------------------------|
| 20 (4-25-70) Plum Island | 6 (4-22-60) Plum Island |
| 11 (4-7-73) Plum Island | 3 (4-3-76) Plum Island |

The AMERICAN KESTREL (Falco sparverius) is probably our most underevaluated migrant. This wholly subjective judgement is based on the apparent tendency of many birders to ignore substantial flights of these fast, colorful, and usually highly visible falcons. Many kestrel reports appear to be drawn from brief sporadic observation while birders seek relief from warbler searches. Clark's work indicates there probably is a substantial, consistent movement of kestrels along our coast from late March well into May. Most kestrels are usually seen on the coast, with Mt. Tom numbers quite low.

| | |
|---------------------------|--------------------------|
| 100 (4-20-75) Outer Cape | 30 (4-27-66) Plum Island |
| 89 (4-8-59) Plum Island | 30 (3-30-68) Plum Island |
| 65+ (4-11-76) Plum Island | 30 (4-10-68) Plum Island |
| 60 (4-13-76) Plum Island | 28 (4-30-77) Plum Island |
| 40 (4-19-76) Truro | 17 (4-11-65) Wellesley |
| 39 (4-16-76) Truro | |

VAGRANTS

Many spring migrations produce unusual raptors. Familiarizing oneself with the vagrants most often seen in Massachusetts could prove quite rewarding, as we have had some spectacular visitors in recent years.

BLACK VULTURES (Coragyps atratus) occasionally work their way into the state. At least four have been seen in the western half of Massachusetts within the last 12 years. Two were seen at Montague on March 20, 1965; one at Springfield on April 18, 1965; and one at Dana on May 5, 1968. Two have been reported from the eastern portion of the state over the past five years, one in Needham on April 17, 1973, and one in Truro from May 5-12, 1976.

At least two MISSISSIPPI KITES (Ictinia mississippiensis) have been observed in eastern Massachusetts within the past ten years. One was seen in Norwell from May 12 through May 19, 1969. Another was seen in Eastham on May 23, 1976, probably the same bird reported from Truro and Provincetown on June 8-11.

AMERICAN SWALLOW-TAILED KITES (Elanoides forficatus) are much more frequent. The first sighting since 1940 occurred in Provincetown on May 21, 1972. There were two reported the following year, at South Westport on May 6th and at Plymouth Center on May 30th. One was seen on April 14, 1974, at Braintree and another sighted at North Beach and Orleans on May 30, 1975.

The most unusual buteo vagrant is the SWAINSON'S HAWK (Buteo swainsoni) which presents some field identification problems. Extremely thorough field notes should be taken when calling this bird, as Swainson's have been reported with surprising regularity every couple of years. Spring reports include birds at Ipswich, February 21, 1960; Plum Island, May 16, 1960; Lynnfield, April 12, 1967; Mt. Tom, April 21, 1967; Newbury, March 4, 1975; Byfield, March 16, 1975; and Mt. Tom, April 22, 1975.

One of our most spectacular and sought-after rarities is the GYRFALCON (Falco rusticolus). Wintering gyrs are notoriously random in their movements, so individuals might be seen at any time of the winter or spring. A white gyr was seen in South Dartmouth on April 25, 1966, and a dark bird at Plum Island on April 8, 1972. An interesting pattern of observations has developed over the past three years. A white gyr was seen in Essex from March 12-18, 1976. The following year another white gyr was seen in Boston from March 6-19, and in 1978, a gray bird was seen by many at Newburyport on March 12th.

In summary, the accipiter and especially the buteo migrations are best observed inland, from hills, ridges and mountains. Turkey Vultures, goshawks, Cooper's, redtails, red-shoulders, and roughlegs dominate the migration during March. The biggest buteo flights (primarily broadwings) should occur during the last two weeks of April, when almost any elevated spot permitting a clear view to the south and west could prove rewarding. Most of the falcon flights and good sharp-shin counts are made along the coast where the biggest numbers are likely to be seen during the last two weeks of April.

Contemporary wisdom has it that southwest winds produce the best spring flights, particularly of buteos, but this is not always the case. Hook Mountain had its best activity on northwest winds. Racoon Ridge had moderate to good flights on all winds from the south and west, including northwest. During the last two weeks of April, if your inland observation site does not have much activity on a day when the winds are from the southwest, don't give up hope. Check the site on westerly and north-westerly winds as well.

hawk movement along the coast is known to occur even in apparently adverse winds. Kestrels and sharpies use natural features such as dunes and woodlots to break the force of the wind. Also, anticipate the effect of a spring sea breeze. Even when you have a strong predominant southwest wind, a local sea breeze might be sufficient to drive most of the migrating hawks slightly inland. For example, when an ocean breeze hits Plum Island, the hawk activity often shifts westward to Route 1 and the Common Pastures.

Finally, when you go hawk watching, either in the spring or the fall, keep as thorough and accurate field records as conditions permit. Our knowledge of both migrations is so limited that every bit of data is valuable. If possible, record the times each bird or flocks of hawks were seen. Note on an hourly or half-hourly basis the speed and direction of predominant and local winds, and the approximate air temperature. Also, estimate the percent of cloud cover or precipitation, if any. Such data are critical to developing an understanding of why and how these raptors migrate. If unusual species are observed, such as peregrines, gyrs, or eagles, record your impressions as to size, sex and age. Please report your observations to the Massachusetts Audubon Society or to the author (care of the Bird Observer) so that your data can be made available to all and expand our common knowledge of hawk migration.

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The following published field records were used with reference to Massachusetts:

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UPCOMING EVENTS

The New England Hawk Watch will take place on April 22nd and 23rd. Volunteers willing to donate a portion of either day are asked to call Paul M. Roberts, 24 Pearson Road, Somerville, Massachusetts 02144 (776-8566) for further details. Paul will also be grateful if birders who have seen any significant hawk movements on those days, or any other day, would drop him a note describing what was seen, where, when, and what the weather conditions were.

Pelagic trip, Sunday, June 4, 1978. The Brookline Bird Club is sponsoring a trip to Pollock Rip from Harwichport. For reservations, send a non-refundable deposit of \$7.00 to Mr. Herman D'Entremont, Box 207, Newton Center, Massachusetts 02159 (969-8146).

Manomet Bird Observatory is a scientific research station where individuals and groups are welcomed with an advance reservations. On May 6, MBO has invited the Brookline Bird Club to come find out "What you always wanted to know about birds but were afraid to ask." Bird banding demonstrations will be given, and if the group is not too large, there will be a guided walk around the property. For more information, call Ellie Soja after April 27, at 734-1289.

FOR SALE: Felt-lined rubber boots, boys size 5, almost new, \$20. Call 969-8146 after 6 p.m.