

NOTES ON HAWKS

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Preface

Hawk-watching takes time and patience. It is full of disappointments and frustration. Quite possibly, an observer does not have the temperament to wait hours in one spot, until the hawks choose to fly. Sometimes you must make a dozen trips before hitting a good hawk flight. However, if you have the persistence to wait the hawks out, you will discover a magical feeling of pleasure, when you climb the Goat Peak tower at Mount Tom some fine September day and watch a flight for yourself.

At first the hawks may look confusing and unfamiliar. Take a notebook along and write them all down as something. "Cooper's (?)" is much better than a dull column of "Unidentifieds". Even though you will probably misidentify some hawks at first, writing each doubtful bird down as a species with a question mark will form part of the overall pattern; and sooner than you think, those question marks will disappear.

The major hawk flights in New England are still seen at Mount Tom in September and October. Much smaller subsidiary fall flight-lines have been found in western Massachusetts, at Savoy, Lenox, and Williamstown. The spring hawk flights are always much smaller and less predictable, with the Red-tails and Red-shoulders moving through in late March, and the Broad-wings, Ospreys, and accipiters, from mid-April through the first week in May. Bray Tower at Mount Tom and a spot two miles south from the headquarters building, in front of the old Peregrine Falcon cliff, are the two best observation points in the spring. When the wind is light S, SW, or W, try Bray Tower; but as soon as the wind becomes gusty or too strong, watch from the road in front of the Duck Hawk cliff.

Occasionally, there is a much smaller flight of falcons and accipiters in late April at Plum Island and W. Newbury, but wind and weather conditions have to be hair-trigger perfect to produce this flight. Usually the wind must be very strong and westerly, throughout the Connecticut Valley and Quabbin area. On a lighter, southwest wind the birds will disperse inland, and the flight will no longer be concentrated. If there is the slightest hint of east to the wind, stay away from Plum Island.

Less than thirty years ago, a fair flight of buteos and accipiters moved north through the Sudbury Valley. With the rapid decline of the Red-Shoulder in the last thirty years, this flight-line has disappeared except for an occasional wandering migrant. It is now difficult to locate a breeding pair of Red-shoulders in the entire Sudbury Valley, through country where formerly 25 pairs were established.

The following is a short commentary on the hawks to be seen in New England which carries their identification a step further than the popular field guides. Remember that hawks are notorious rule-breakers and non-conformists. Even under the most favorable weather conditions the birds sometimes refuse to fly. On the other hand, we once believed that hawk-watching at Mount Tom was useless on a southwest wind in September. About a dozen years ago, a major flight went through on a WSW wind. That year the birds were late, and they finally migrated in what would normally be considered highly unfavorable conditions.

Then there is always the Red-tail that flies like a Red-shoulder, or the Sharp-shin that behaves exactly like a Merlin. All one can do is to learn the characteristic flight patterns, the normal behavior picture. Perhaps the exceptions are what has made hawk-watching so constantly interesting over the past thirty-five years.

Good luck!

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TURKEY VULTURE (Cathartes aura)

This is a bird that has become much more common in Massachusetts during the last thirty years. At Mount Tom, it is seen regularly every year during the spring flights, but still occurs only rarely in the fall. Look for a bigger-than-Osprey-sized bird, smaller-headed than any of the hawks, long-tailed, narrow-winged, with a two-tone pattern on the under-wing surface - jet black on the fore-edge, silvery gray on the remainder. It flies and soars frequently with wings above the horizontal (in what is called a dihedral), and its habit of tipping from side to side is diagnostic.

In migration, one is seldom close enough to see the red area on the adult Turkey Vulture's head. In silhouette, the very small head rules out any eagle or hawk with which it might be confused.

BLACK VULTURE (Coragyps atratus)

This is still an accidental visitor in New England, although it is seen regularly as far north as New Jersey. In addition to a too-small head, this vulture has a too-short tail - much shorter than that of any other bird of prey seen in New England. The tail actually looks as though it has been chopped off, so short and square is it in proportion to the long broad wings. There is a contrasting white area on the under-surface on the wing beyond the wrist, in nearly the same position as on an immature Golden Eagle, but extending farther out along the primaries. The Golden Eagle, however, is a much heavier-looking bird, with a much greater wing-spread - 6 to 7½ feet as against less than 5 feet for the Black Vulture. Moreover, a Golden Eagle's tail would be much more ample. A close view will show the Black Vulture's feet protruding just beyond the tip of its very short tail. The bird does not soar with its wings in the dihedral so characteristic of the Turkey Vulture, but does rapidly "flap-flap-flap-sail" like an accipiter near the ground.

GOSHAWK (Accipiter gentilis)

This bird always provided one of the thrills of hawk-watching, for the Goshawk used to be a very rare hawk in Massachusetts flights. It seems to have become more common on the last several years, and occasionally there are flight-years when several may be seen. Look for a big, heavy hawk with wide, rounded wings, fully as large as a Red-tail, but with a tail appearing half-again as long. The bird has a slow, effortless wing-beat which somewhat disguises its speed and power; and in migration, at least, it tends to travel swiftly and directly with little of the maneuvering and circling of the smaller accipiters or the soaring buteos.

Although the silhouette might mislead a beginner, actually there is very little chance of confusing a Marsh Hawk with a Goshawk. The Marsh Hawk does have rounded wings and a long tail, but the resemblance ends right there. In flight, the Goshawk is such a heavy bird, compared with the almost vulture-like, delicate Marsh Hawk flight. The Goshawk's wings are thick and rounded, not narrow, long, and rounded; its tail is thicker-set and much heavier. Remember, that over years of observation, you will see hundreds of Marsh Hawks for every migrating Goshawk.

Young birds are dark brown with heavily streaked underparts; adults are slate-gray, nearly the same color as an adult Merlin. So seldom do Goshawks fly close enough to see the "conspicuous line over the eye", that this cannot be considered a valuable field-mark in migration. If one is lucky enough to come upon a Goshawk perched in a tree, look quickly for this eye-line, before the bird takes off and disappears.

The Goshawk overlaps in size with the Cooper's Hawk. A large, female Cooper's may be as big as a small, male Goshawk. Remember, in identifying hawks of this size, that the Goshawk is much the rarer bird. Ludlow Griscom used to say that I missed many Goshawks by refusing to "call" any of the Crow-sized accipiters anything but Cooper's Hawks. By calling only the unmistakably larger, Red-tail-sized birds, my Goshawks have been few and far between; but they were all unquestionable Goshawks, and, in retrospect, I

have no qualms of conscience about them.

SHARP-SHINNED HAWK (Accipiter striatus)

Theoretically, the Sharp-shin might be confused with any of the other three small hawks - Kestrel, Merlin, and Cooper's Hawk. Now the first two of these are falcons, and it is usually easy to eliminate the falcons as soon as one learns the difference between typical falconine and typical accipitrine flight. The falcons tend to beat along more steadily with their pointed wings, having none of the rapid "flap-flap-flap-sail" rhythm so characteristic of the rounder-winged Sharp-shins. Occasionally a Kestrel will stop to circle or to nose-dive at another hawk, but such breaks have no pattern or rhythm, and the bird will soon resume its regular, steady falconine wing-beat. If the hawk is close enough, the bright-red of the Kestrel's tail or its conspicuous face pattern will automatically eliminate the band-tailed Sharp-shin, which is either a steely-blue-gray or else brown and streaked, depending on whether it is an adult or immature. The Sharp-shin is usually a perceptibly heavier-in-the-air bird than the Kestrel.

Telling an immature Sharp-shin from a young Merlin is more of a problem. These two species are more evenly sized; both have banded tails; both are dark brown and streaked, the Merlin more heavily so; and there is no loitering or dallying in the flight of either species. The Merlin moves along directly and very fast on his chosen course. He is often out of sight before you can be sure that he really was a Pigeon Hawk. Remember that the Merlin is the much rarer bird, especially in flights away from the coast. In doubtful cases, your hawk is probably a Sharp-shin.

In migration, Sharp-shins tend to travel in twos and threes, while the Pigeon Hawk is nearly always a solitary bird. In winter, the Sharp-shin is now an uncommon bird in Massachusetts, and the Pigeon Hawk does not occur at all (except as an accidental straggler).

The slightly larger Cooper's Hawk shares all the accipitrine characteristics, but differs from a Sharp-shin in size and in overall heavier appearance in the air. It is perfectly possible to see a male Cooper's Hawk which is almost as small as a large, female Sharp-shin. Usually the Sharp-shin can be told by its relatively shorter tail, smaller head, and shorter wings in proportion to its body size, and by the much lighter and quicker "flap-flap-flap-sail" of its normal flight.

Not too much attention should be paid to the field-marks commonly offered in many bird guides. The Sharp-shin's wings, supposedly short and rounded, can look as pointed as a falcon's when the bird is bearing into the wind. Wait until the hawk circles, and then the familiar rounded wings of the Sharp-shin silhouette will appear. The famous "square forked tail" of the Sharp-shin vanishes and becomes rounded like the Cooper's, whenever he chooses to fan out his tail in his aerial maneuvering.

However, the Sharp-shin's tail is minutely shorter than the Cooper's in proportion to the body. When you see an accipiter with a noticeably longer-looking tail, larger head and neck, and slightly slower wing-beat, giving it a heavier appearance, be ready to write it down under the next species: Cooper's Hawk.

COOPER'S HAWK (Accipiter cooperii)

With a little experience in hawk-watching it is soon possible to pick out the heavier Cooper's Hawk, even at some distance, by its slower wing-beat. This might be written "flap-flap-flap-g-l-i-d-e" instead of the quicker "flap-flap-flap-sail" of the Sharp-shin. Look for the longer tail and bigger head in proportion to body-size. One flight characteristic of the Cooper's Hawk is its tendency to balance with its tail, fanning it slightly and then tilting it to elevate one edge or the other. This is a little-known field-mark, but over the years it has proved invaluable. I have never yet seen a Sharp-shin give this tail-balancing performance.

One seldom sees accipiters perched in trees, waiting to be observed. They are shy and quick to take alarm. More often than not, you will catch only a glimpse of a hawk flying off low through the trees, always away from you. If you do see a perched accipiter, and if he allows you to look him over, notice how short the wings are compared to the generously long tail. A falcon's wings extend almost to the tip of the tail; the wings of a perched accipiter end nearer the base of the tail.

Buteos

These are the hawks that give the migration-watcher a fair chance, and the group with which he first becomes most familiar. Riding the thermal air currents as they do, they often stop flapping to soar and circle around, giving the observer a much longer opportunity to look for differentiating field marks. Buteos are almost completely beneficial, rodent-eating birds. Far too many have been shot soaring high over farmyards, while the real "hen hawks", the accipiters, escape notice by coming in at low elevation, seizing their prey, and then sneaking rapidly away.

RED-TAILED HAWK (Buteo jamaicensis)

This big, handsome buteo is becoming more common in Massachusetts than it was thirty-five years ago. Although the main fall migration occurs west of New England, and one never sees here the numbers recorded at Hawk Mountain, Pa., it is still worth watching the smaller-scale flights at Mount Tom and western Massachusetts in the last few days of October or in early November.

I always associate Red-tails with those crisp, late-October days so perfect in the Berkshires. The morning may have been frosty-cold, but by noon there is enough warmth for the sun to create thermals, and there are fleecy clouds across the blue of the sky. Watch those clouds on such a day, near the Massachusetts-New York State line, and you are sure to see Red-tails silhouetted against them. Frequently, one will hover in one spot, so much more effortlessly than the Sparrow Hawk hovers. Immediately the Red-shoulder is eliminated, for it never hovers; and strike off the Broad-wing, which is never seen in late October in New England. The only other "hoverer" (aside from the Osprey, which does most of its hovering over water, looking for fish) is the Rough-legged Hawk, which may be told at some distance in silhouette by its much larger tail. The Red-tail has a rather short, squat tail, usually well fanned out when soaring; the wings are thick across and broad at the tips. If the bird is an adult, the brilliant red of the tail will settle its identification easily as it soars and circles. But if there is a high wind and the clouds thicken, the tail color may be hard to see. Immature birds not only lack the bright red, but may even have confusing fine bands in their tails. However, one learns quite easily to identify Red-tails at some distance by silhouette and actions alone.

Curiously enough, the typical flight pattern of the Red-tail on migration resembles the Broad-wing's -- a quick short dip of its wings before it then continues sailing. This is quite different from the Red-shoulder pattern, which is almost accipitrine with three or four flaps and a sail. Given less favorable wind conditions, the Red-tail may be forced to beat his wings quite heavily and steadily, and he does this with a somewhat deeper wing-beat than the shallower-beating Red-shoulder; but with good fall Red-tail weather, i.e. a west-northwest wind and sun enough for thermals, the bird will tend to soar and sail off to the south, with only an occasional wing-dip as he goes.

In recent years the Red-tail is becoming more common in eastern Massachusetts as a winter resident; and in the spring flights, there now seems to be an established trend of ascendancy of Red-tails and a decline of Red-shoulders.

As a common wintering hawk, the observer has many chances to study perched Red-tails and to note the great variation in size and plumage. This is a big, short-tailed hawk when perched, much larger and fatter than a Crow. The red of the tail will not show unless the bird happens to "pump" his

tail up and down, like a Sparrow Hawk; this they frequently do. Another characteristic, which I have found helpful with the perched Red-tails, is a series of large white splotches down the side of the folded wing, which Red-tails frequently show. In normal plumage this hawk has a conspicuous wide band of black spots across its stomach. However, many Red-tails lack this band altogether, so it is by no means an infallible field mark. The breast and belly may be clear, pale gray, in contrast to the uniformly rusty-red underparts of the Red-shoulder. Perched Rough-legs have much longer tails in proportion to their bodies and are almost invariably darker-plumaged. On the other hand, some young Red-tails are so pale in plumage with so little color in the tail that they have actually been mistaken for Snowy Owls.

If you see a large hawk being mobbed by Crows, the chances are even better that a Red-tail is the quarry. For some reason the Red-tail seems to be a rather stupid hawk, and the Crows delight in this fine sport. They may chase an occasional Red-shoulder or Rough-leg, and they surely will chase an owl; but think first of the Red-tail as the most likely possibility. With practice one can distinguish the more strident, shrill caws the Crows reserve especially for owls from their more moderate cries when they are attacking hawks.

RED-SHOULDERED HAWK (Buteo lineatus)

The call of the Red-shoulder is one of the true harbingers of spring in Massachusetts, and it is always a delight to hear their repeated and ringing "keee-you, keee-you" on that first warm day in March. These hawks seem more vocally inclined on migration than any of the others, and their calling certainly helps to locate the birds high against a cloud, floating off into clear blue sky. One of the spring highlights is witnessing what we call a "triangle fight", when two males vie with each other to attract a female circling with such apparent unconcern in the background. How the two males dive and somersault, shouting at each other until they are literally hoarse! Sometimes a pair, fighting for territory, will drive off single migrating birds, or even an unsettled pair; and the sound of all these Red-shoulders calling at once is something to remember through the long winter days until March brings them back to us again.

The main bulk of the Red-shoulder migration occurs from about the 10th of October to November in Massachusetts; and in past years there has been a fair spring flight from March 10th into the first week in April. In 1954 I counted 203 Red-shoulders in eastern Massachusetts during the month of March; but by 1958, the number had fallen off to 50 in the same period; in 1960, 23; and in 1961, 5 -- truly a discouraging picture.

The Red-shoulder's normal wing-beat looks more like that of an accipiter than like that of any of the other buteos -- three or four quick wing-beats, followed by a sail or circle. However, the tail, though banded and longer than that of the Red-tail, never is as long in proportion to its body as that of the Cooper's Hawk, for which by size it might be mistaken; and the Red-shoulder's wings are always proportionately longer than the Cooper's. From silhouette alone, the Red-shoulder could be more easily confused with the Cooper's Hawk than with any other buteo. It is then that the behavior of the hawk will help identify it, for the Red-shoulder is much more prone to circle and soar. The circling of a Cooper's Hawk is more occasional.

With practice it soon becomes easy to tell a Red-shoulder from a Red-tail at some distance by silhouette and flight alone. The Red-shoulder's tail is longer; and its wings are narrower, making them appear longer in relation to body proportion. These points can be observed even if you are too far away to see the so-called "windows" (light, translucent patches) near the Red-shoulder's wing tips. These "windows" are by no means an infallible field mark, for the bird has to be seen in just the right light to observe them. Moreover, I have occasionally seen Broad-wings with definite lightish spots in the same wing area. However, when the "windows" are clearly observed, the hawk is a Red-shoulder unless proved otherwise.

Telling a Red-shoulder from a Broad-wing takes a little practice, and undoubtedly many Red-shoulders escape notice in the September flights when large groups of Broad-wings are counted. At a distance, Red-tail and Broad-wing silhouettes are very much alike, with their thick, wide wings, and short, chunky tails. Look for the longer, narrower wings of the Red-shoulder, and its longer, thinner tail. Again, if you are close enough to see the "windows" in the wings clearly, you surely have a Red-shoulder.

The Red-shoulder is one of our wintering hawks, but has declined precariously in recent years. When perched facing you, the beautiful ruddy-colored underparts separate it at once from wintering Red-tails with their white throats and broad, dark stomach-bands. The tail bands are not conspicuous in the perched bird, but show at once if he flies. And the fox-red color on the shoulder of the wing may be seen, given a close enough observation with favorable light. In flight, the prominent tail bands alone will separate the Red-shoulder from the other New England buteos in the winter. With a little practice, they may also be used at other seasons to distinguish the Red-shoulder from the Broad-wing, which also has tail bands - but fewer of them.

BROAD-WINGED HAWK (Buteo platypterus)

Although a small number of Broad-wings may be seen in spring flights, it is in September that we see these small buteos migrating through New England in sizeable flocks. This is the only hawk in this part of the country that we see in numbers, often more than 10 or 12 at a time. With ideal weather conditions, I have had more than 1500 in sight at once, filling the sky far and near with more hawks than one could count. In 1969 a flight of over 6000 Broad-wings was seen in an hour.

The Broad-wing has a different pattern of flight than any other eastern hawk. It depends more on thermals and sails along with only an occasional wing-dip until it hits a good rising air current. Here it starts circling upward in a tight spiral, and other Broad-wings join in quickly until a sizeable group is formed and the whole mass swirls upward like a spinning top. Finally near the top of the spiral, one or two birds leave the group and start to level off once again on a straight course. Soon the whole group follows in fives and tens, and at this point the counters get busy. It is almost impossible to count the birds accurately until they straighten out of those spirals and march stiff-winged across the sky.

Because of their dependency on thermals, Broad-wings generally will not cross large bodies of water, and this is the reason for the enormous numbers counted on the north shores of the Great Lakes in the fall (and on the south shores in the spring). Driven by a northwest wind, the migrating fall hawks are swept toward the water, and here they gather in immense spirals and drift westward along the lake shores in Canada until they find a land crossing. As many as 25,000 or more have been counted in single-day flights at Port Stanley, Ontario. There is a much smaller flight along the southeast shores of Lake Ontario in the spring, where about 5000 Broad-wings have been seen in a day.

Our New England flights never approach these numbers, and the spring flights are so irregular that they do little more than give one practice in counting. But in the fall, any time after September 10th, watch for the day after a clear-off with northeast wind. The first day usually has too strong a wind, but as soon as the wind drops, the Broad-wings start moving. By October they have left New England (except for an occasional sick or wounded straggler), gone until next April.

As soon as one can tell an accipiter from a buteo and can develop an accurate eye for size, Broad-wing identification should be easy. No other buteo is smaller-than-Crow size and chunky. The Red-shoulder's wings are longer and narrower, and its tail-banding is narrower-spaced. The Broad-wing's tail has conspicuous, widely-spaced black and white bands. It has two flight characteristics that are diagnostic: as it glides along, it will frequently dip its wings; and when soaring, it often tilts its tail while circling.

SWAINSON'S HAWK (Buteo swainsoni)

Since this hawk is only an accidental straggler in New England, very little need be said, except that extreme caution should be used in identifying it. As many color variations of Swainson's exist as of the Rough-leg. For some reason the majority of birds identified in Massachusetts as Swainson's Hawks seem to be in the dark phase, which could easily be confused with dark Rough-legs (by far the commoner bird in the East).

A light-phase Swainson's shows a dark band across the breast with light throat and light belly; this, when clearly seen, is diagnostic. The Red-tails dark band is lower down, across the belly, with an area of white above and below it; and the Red-shoulder's underparts are entirely ruddy. In silhouette, the Swainson's is larger than a Red-shoulder, making it quite similar in size to a Rough-leg. The wings and tail are longer and narrower than those of a Red-tail.

The Swainson's flight pattern is different from any of the eastern buteos, resembling a too-heavy Marsh Hawk with its wings set in a conspicuous dihedral. In the West, where the bird belongs, it is given to frequent quick changes of altitude, soaring high and then plunging some distance, often calling during this maneuver.

To summarize: the Swainson's Hawk has some characteristics of at least four of our eastern hawks. It is approximately the size of a Red-tail, has wings more like a Red-shoulder, has a flight similar to the Marsh Hawk, and has a general outline resembling the Rough-leg. Until one becomes expert enough to rule out all these eastern hawks at a glance, identification of a Swainson's Hawk in New England should not be attempted.

ROUGH-LEGGED HAWKS (Buteo lagopus)

This handsome, large buteo is reversing the current downward trend of most species of hawks and becoming more common in coastal New England, but it is still one of the uncommon migrants in Connecticut Valley flights. Just thirty years ago, it was only by making winter trips to Martha's Vineyard that one could see as many as a dozen Rough-legs in Massachusetts. Now they are wintering regularly on the mainland, and may be seen in the Common Pastures at Newbury, at Salisbury Beach, and at Plum Island.

Rough-legs have more confusing color phases than any other hawk that we see regularly in New England. Individuals vary from the pale, light-phased bird with black "thumb-prints" two-thirds of the way out on the under-surface of the wing and narrow dark band across the belly, to the jet black individual with hardly a light feather to be seen. In silhouette from below, the Rough-leg has longer, narrower wings and a much longer tail (white at the base with a broad black border) than any other New England buteo. He is another "hoverer", like the Red-tail and the Kestrel; but the Rough-leg's hovering has none of the buoyancy of the Red-tail's, and is usually accompanied by ponderous wing-flapping.

Because of the white area usually seen at the base of the Rough-leg's tail, there is a possibility for confusion with the Marsh Hawk, which frequents the same type of country. But the Marsh Hawk is a narrower-scaled bird in every way: narrower wings, narrower tail, slimmer body; and the Marsh Hawk appears about half as heavy in the air as the bigger Rough-leg. A young Golden Eagle, which has a similar tail pattern, has a wing-spread of approximately 7 feet, against the Rough-leg's $4\frac{1}{2}$ feet.

GOLDEN EAGLE (Aquila chrysaetos)

This is another rare bird in New England, and it is always a "thriller" to see one close enough for positive identification. At Hawk Mountain, in Pennsylvania, where more Golden Eagles than Bald Eagles are recorded, some are always seen between October 20th and November 10th, and this affords an excellent chance to learn the silhouette and field marks thoroughly.

Immature Golden Eagles are easier to identify at some distance than are the

adults, because of the conspicuous tail pattern: white bordered by a wide black terminal band. If you are fortunate enough to make out this tail pattern on any eagle, it is a Golden. In the immature Golden Eagle's wings there is a sharply contrasting white area on the under-wing surface halfway out at the base of the primaries. Adult birds lack this white in the wings and have only an inconspicuously small, light area near the base of the tail. One almost never gets close enough to see the faint sheen of gold on the back of the neck. Since adult Bald Eagles and immature Golden Eagles identify themselves readily, the problem is with immature Balds and adult Golden.

Golden Eagles have a more hawk-like silhouette than Balds, because they lack the massive-billed head; their wings are slightly broader across the bend; and the ample tail is more likely to be fanned out, giving an impression of width rather than length. Furthermore, there is no pattern to the blotchy white areas which give young Bald Eagles such haphazard plumage variations. If you see a dark-headed eagle that you are not sure about, look first at the tail to see if it is white with a broad black band; then at the head, especially for the smaller bill size. Finally look at the wings for extra breadth and for white patches at the base of the primaries (as well as a more fingered look to the wing tips than in the Bald Eagle).

BALD EAGLE (Haliaeetus leucocephalus)

Here is another sadly vanishing American in the hawk world. Far in the distance you may spot him, and call out, "Here's a big one." Then watch as he comes closer, with his ponderous wing-beats. If you are lucky, he will circle majestically, showing his brilliant white head and tail gleaming in the sunlight. However, this may be an immature eagle a little farther away, and again the question of Bald or Golden Eagle arises. In New England, the chances are still much better than nine out of ten that it will be a Bald Eagle in any of its black-and-white blotchy variations. If the broadly "fingered" wings are very straight and no thicker across at the bend, and if the bird has no wide black terminal band on the tail, contrasting clearly and sharply with white clear up to the base, then its head should be noticeably heavy-billed, giving it a massive appearance never seen in a hawk profile: you have confirmed your Bald Eagle identification.

Enjoy him while you can, for unless the downward trend in the breeding population is miraculously reversed, the Bald Eagle will be as rare a bird as the Golden Eagle within a very few years in New England.

MARSH HAWK (Circus cyaneus)

Although this had been one of the commoner New England hawks, the species has now started a tragic decline. It is one of the easiest to identify. It has a very graceful, buoyant flight, and its effortless maneuverability as it quarters a field is always a pleasure to watch.

On migration, high in the sky, it is a different looking bird, and a surprisingly steady traveller with only occasional soaring circles. Looking up at the bird, one loses its easiest identification mark of ground-level flight -- the white rump, and silhouette and flight behavior must be relied upon. The long, narrow, round-tipped wings and long, narrow tail eliminate all but the accipiters, and a certain fragility and light-weightedness separates it from the Cooper's Hawk. The Goshawk is much larger and heavier with thick wings.

The courtship flight of the Marsh Hawk, sometimes seen in spring, is really beautiful. With slow, very deep wing-beats, the wings raised so far as to nearly touch each other overhead, the bird dips back and forth in semi-circles over nesting territory. Spring males are sometimes so pale that they look almost white, with sharply contrasting black wing-tips; females and young are a rich, ruddy chestnut-brown.

OSPREY (Pandion haliaetus)

Here is the satisfying "old dependable" of Massachusetts hawk migration. He usually progresses slowly enough to allow plenty of time for identification and, because of his large size, can be spotted a long distance away. The long, rather narrow wings with their striking black wrist marks, are frequently bent in an inverted-W shape when flying into the wind. This is characteristic, but not foolproof, since with other wind conditions the wings will straighten out broadly when the bird circles. Frequently in spring and fall, Ospreys will come in close and on a level with the observation towers at Mount Tom, so that every marking may be observed.

Compared with eagles (the only possibility for confusion, and this is remote), the smaller Osprey is a much whiter bird - white on head, wings, and body. The head is, of course, much smaller than the Eagle's; and the wings, much narrower. The Osprey has a rather dark, faintly banded tail, which occasionally looks quite rufous with sunlight shining through it. On migration the bird rarely hovers; this he does rather clumsily with much deep flapping of his wings before he swoops down over pond or river upon an unsuspecting, and usually unfortunate, fish.

GYRFALCON (Falco rusticolus)

Of all the accidental hawks occurring in New England, this is the rarest. In thirty-five years of hawk-watching, I have seen only three: one of these in December at Plum Island, one in April at Mount Tom, and one flying up the Salisbury breakwater in late April. This last was a gray-phase bird.

The Gyrfalcon is as large as a Herring Gull, with long, not so sharply pointed wings, which are very broad at the base. The wing-beat is effortlessly casual, not clear-cut like that of the Peregrine. Most of the New England records are of the dark-phase Gyrfalcon. Care should be taken in identifying these big, dark falcons, since there exists an extremely dark race of Duck Hawks. One must be very sure of size, and completely familiar with the Peregrine before positively identifying one of these exceedingly rare Gyrfalcons. In flight, the bird appears to have sectioned wings, using the part near the body first and then the outer wing.

The white Gyrfalcon must be an exquisite bird. Of all the birds in the world, this is the one I would most like to see.

PEREGRINE FALCON, OR DUCK HAWK (Falco peregrinus)

Of all the hawks, this is the most nostalgic for a New Englander to write about. In the early 1940's there were still at least ten eyries occupied nearly every year by Duck Hawks in Massachusetts. There could be no greater hawking treat than to arrive at one of these nesting sites soon after dawn and watch an adult bringing in food, either to its brooding mate, or to the young birds after they had hatched. Sometimes the female would begin calling and come off the shelf to meet her mate; the food might be transferred in mid-air, and the unforgettable food-call could be heard and learned. A good part of the pleasure in April hawk-watching at Mount Tom was the magnificent flight performance of the Peregrines in front of their cliff. Occasionally they would come out to drive off a migrating hawk that ventured too close to their nesting shelf; and once we saw them chase an Osprey until he dropped his fish which the Peregrine then caught in mid-air, in front of us.

Usually the Duck Hawks would scream their protest of any intrusion. When the young birds were banded, it was truly a hair-raising performance to watch the adult falcons screaming and dive-bombing at the head of the unfortunate human intruder, who was usually scrambling precariously down dizzily steep and loose-sliding rocks, or dangling even more helplessly on a length of rope. The fiercest female falcon of them all lived at Monument Mountain thirty years ago; and once, when I had been left in relative security at the top of the mountain, while the banders went down to the shelf, she put on her usual show of fireworks, shouting lustily as she dove closer and closer at the heads of the invaders. Then she flew onto a dead tree branch

slightly beneath me, about twenty yards away, and sat there with her eyes flashing fire, her beak open, her tongue aqiuver, panting like an animal from fury and frustration.

To me, the most thrilling sight in all hawk-watching was to watch the Peregrine Falcon starting off after prey. With several quick wing-beats he would suddenly gather speed; then, with wings folded back, he would catapult in a long, breath-taking glide or "stoop", faster and unbelievably faster, until he struck his victim lifeless with his talons. Far too often it was impossible to see the end of the chase. But presently, if the ending had indeed been successful, the female would begin her anticipatory "wi-chew, wi-chew", and in toward the shelf the male would fly, bearing the prize in his talons.

Of all the hawks, the Peregrine Falcon is by far the fastest and most powerful flier, the most brilliant maneuverer, the most interesting conversationalist. There is no nobler bird.

On migration, as we now see them on rare occasions, Duck Hawks are unmistakable. It is much larger and heavier than our other two falcons; and no other bird has such long, pointed wings. The deep, stiff wing-beat is another clue. If the bird comes close enough, the black mustache on the side of the face is diagnostic. The Duck Hawk is dark slate-color above, finely barred below, with a pure white throat and a long, narrow tail, faintly barred. Usually Peregrines are swift travellers when migrating, but occasionally one will stop and circle. Then it is a more difficult bird to identify, since the wing-tips may look less pointed when the hawk is soaring.

Our best chance to see Duck Hawks in Massachusetts now is probably along the coast in September and early October. As soon as the young birds become adept at flying, they leave their inland nesting sites and come to the coast to follow the shorebird migration.

MERLIN, OR PIGEON HAWK (Falco columbarius)

The Pigeon Hawk is a much smaller falcon, near the size of a Kestrel. It migrates more commonly near the coast than along the inland flyways. On migration, it is swift-moving and seldom gives one a second chance at identification. If you see what looks like a dusky-brown, oversized Kestrel coming in fast, look immediately at the tail, then at the wing-tips. If the tail is banded, and you are sure of pointed falcon wings, not rounded accipiter's, you have a Pigeon Hawk. Dark all over, it has no hint of ruddy red color anywhere in its plumage.

Pigeon Hawks do not stop to circle or soar, nor do they sit on fence posts and wag their tails, as Kestrels so often do. They just travel fast and far away, and very seldom is one lucky enough to come upon a Merlin at rest in Massachusetts, unless he is sitting in the rain waiting for the weather to clear.

Remember that you should see 100 Kestrels to 1 Merlin, and possibly 20 or 25 Sharp-shins to 1 Merlin in Massachusetts flights away from the coast, so identify with care.

AMERICAN KESTREL, or SPARROW HAWK (Falco sparverius)

Here is the common, garden variety of hawk with which everyone first becomes familiar. It is the smallest of our hawks, a graceful flier (like all falcons), a frequent hoverer, and very much given to perching conspicuously on telephone poles or in small trees, where it will submit to quite close examination. The male is brilliantly and beautifully colored -- the Harlequin Duck of the hawk kingdom, one might say, with his bright red tail, ruddy-colored back, gray-blue wings, and both blue and red on the head, and with a white cheek crossed with two or three sharply-contrasting black markings. The terminal band of the tail is white, with a broad black band just inside; the rest of it, red. In males this red area is unbanded, but females and young have very fine banding across the red. Remember that the tail background is always rufous; on the Sharp-shin and Pigeon Hawk, it is black-and-gray or black-and-brown, and the bands are much broader.