FALL HAWK WATCH AT MT. PETER

STEPHEN F. BAILEY

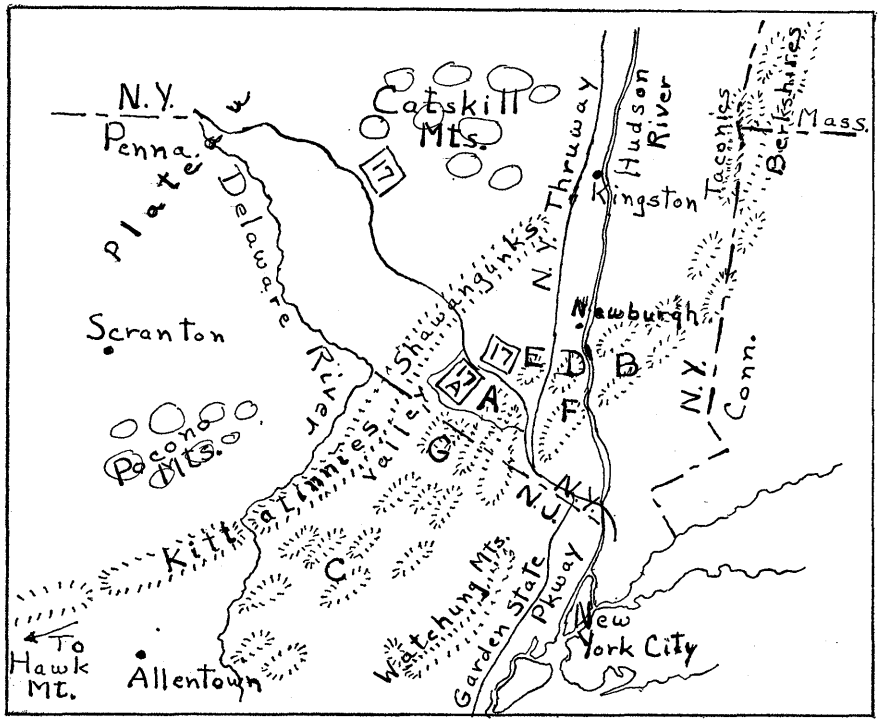
Mt. Peter is probably the best lookout in southeastern New York State from which the annual fall hawk migration may be observed. When one considers its advantages, it is amazing that Mt. Peter was not discovered or utilized earlier. The observer drives to the top of the mountain on a good road, parks in the parking lot for a restaurant and bar, and walks less than a hundred yards to the lookout. There is no sheer drop to terrify the timid, yet there is an adequate to good view in all directions and an excellent one to the west.

Mt. Peter's discovery is obscure, but the Fyke Nature Association of Ramsey, New Jersey was assigned to cover it for the Across-The-State (New Jersey)-Hawk-Watch in 1958. This is the first watching of which we have any record. Mt. Peter emerged as an excellent site for hawk study. Members of the Fyke Nature Association were so impressed that we undertook a continuous watch of eight days in September the following year and coverage has expanded almost every year since, including some days in August, October and November.

Mt. Peter lookout is located on Bellvale Mountain (A, see map) just off Route 17A north of Greenwood Lake, N.Y. The parking lot is on the north side of the road, on the western edge of the crest. From here the little wooden "Summer House" on the crest itself is clearly visible. This is crowned by a wind vane, and during the hawk season we leave a thermometer and information about the watch (particularly a daily hawk list to date) in this shelter.

Bellvale Mountain is a continuous razorback ridge running northeast to southwest, rising abruptly from the valleys on either side. There are actually four lookouts on this ridge. Mt. Peter itself has been described above. At Falcon Ridge, ½ mile up the ridge where a gas pipeline cut crosses the thickly wooded ridge, the hawks are usually very low and closer than at Mt. Peter, but because of trees one can see only overhead, east and west, not up or down the ridge. A tower at this point would be ideal. Osprey Rocks, across 17A about ¼ mile down the ridge, is a row of rock outcroppings with a better view east than Mt. Peter but a very poor view west. It is practical only when the hawks are ridge flying on the east side or on a Broad-wing day. Osprey Rocks and Falcon Ridge are just off the Appalachian Trail. The fourth lookout, on the east side several miles farther up the Appalachian Trail near the origin of the ridge, is practical only on a Broad-wing day because of limited view.

A study of a contour map reveals some interesting possibilities concerning the geography of inland hawk migration through southeastern New York, northern New Jersey and eastern Pennsylvania. The follow-



Geography of Hawk Migration Flight Lines

Non-directional Mountains
A, B, C, D, E, F, & G — text references
1 inch = about 33 miles

Ridges

ing pattern of hawk migration is not all proven fact, but is part of my personal explanation of the flight lines hawks use through this area. The map shows a number of mountain groups, some favorable for migration, others not. East of the Hudson River are the Berkshires and other ranges in southwestern New England, and a belt of mountains through Putnam County, New York (B). West of the Hudson are the Catskills, the Poconos, Kittatinny-Shawangunk (Blue Ridge) Range, and a belt of mountains running from Rockland and eastern Orange Counties, N.Y., southwest through central northern New Jersey (D, E, F, A, G, C). Hawks migrating west of the Hudson encounter the Catskills and Poconos, both jumbled mountain areas with no ridges favorable for migration. Thus these birds "funnel in" to the Kittatinny Ridge, or Shawangunks as the New York section is called. This is the most important flight line, being the ridge Hawk Mountain Sanctuary is on.

The hawks are concentrated on this ridge because in Pennsylvania most of the other fold-type ridges, so favorable to migration, are west of the Poconos; thus, they do not drain hawks off the Kittatinnies until west of Hawk Mountain. Hawks moving south and west through New England funnel in through Putnam and Westchester counties. The mountains in Putnam County (B) conduct the hawks to two main points for crossing the Hudson. Hawks crossing over the northern point at Storm King (D) and Whitehorse Mountains head west to Schunemunk Mountain (E), and then fly down Schunemunk and Bellvale Mountain (A) which are the western edge of the mountain belt in Orange County. Those which cross at Bear Mountain (F) move west to Mt. Peter or south into New Jersey. The latter and those which cross the Hudson further south either fly down the Watchung Range or to the west. South and southwest of Mt. Peter the ranges spread out, becoming broader and more numerous; thus the hawks which continue down these ranges move on a broad front. Many of our hawks, however, have been observed to "cut out" over the broad valley separating Mt. Peter from the Kittatinnies. Many, if not most of our Buteos and Accipiters end up on the Kittatinnies. Very few of our Falcons and Ospreys do, however. The Kittatinny, Bellvale Mountain and Watchung Ranges are thus favored, being pronounced ridges at the edges of the mountain belts.

The status, weather preferences, and flight habits of the hawk species at Mt. Peter are discussed below.

Turkey Vulture: Although Turkey Vultures migrate past Mt. Peter and are seen almost every day, we do not count them for several reasons. Until recently our count was almost exclusively during September when this species does not normally migrate. The large resident population in the area would make the count huge and meaningless because, although we can tell migrant hawks from residents, with Turkey Vultures it is sometimes impossible to tell. Since we cannot be sure whether an individual is migrating and we have not noticed any obvious movement, we have learned little about its status as a migrant or about how to tell migrants from residents. We do know, however, that our local population tends to decrease during October and has usually departed by early November. Most of the apparent migrants are observed in the second half of October.

Accipiters: Although we have only one unquestionable record for the Goshawk (an adult Oct. 2, 1966) there are several hypotheticals and I have little doubt that complete coverage would reveal a few each year in October and November.

The Sharp-shinned Hawk is one of the major migrants at Mt. Peter. Its migration begins in early September and ends in the middle of November. Most are observed between September 20 and October 20, with only scattered individuals recorded before and after this period.

Our highest count is 82 on Oct. 17, 1959. Our coverage has not been enough to determine a population trend. Sharp-shins pass Mt. Peter on any wind, and small flights have occurred even on a south wind. Westerly and southwesterly winds are their preference, however. Although most Sharp-shins ridge-fly rather low on the windward side with the updraft (usually the west) in their typical "flap-sail" manner, in mid-day some soar and sail high like Buteos. Some also seem to ignore the wind-created updraft, darting through the tree-tops down the middle or either side of the crest. On westerly winds, especially if they are light, many are seen out over the valley to the west. These have two destinations. Some head right across the valley and join the Kittatinny flight-line, while others are merely taking a shortcut to the ridge (Warwick Mountain, G) which begins southwest of Mt. Peter.

The above comments concerning migration period, wind preference and flight habits also apply to the Cooper's Hawk. This species is much less numerous, however, the maximum being 9, Oct. 11, 1965. The ratio of Sharp-shins to Cooper's Hawks varies but averages 9:1, comparing well with the often quoted 10:1. Cooper's Hawks seem to fly higher and soar more than the Sharp-shinned Hawks.

Accipiters seem to be less gregarious than other hawks. They fly up to three together, usually singles and pairs, but often a small number (2 to 6) will fly within sight of each other, follow-the-leader style with a short interval separating them. When in the vicinity of another hawk or crow, an Accipiter will often harrass the other bird.

Buteos: Our Buteos are mostly adults. Red-tailed Hawks (up to 4) are resident at Mt. Peter throughout the fall season and often add spice to dull days as they pass nearby on their daily patrols. Migrants begin moving, a few per day, in mid-September and numbers increase rapidly into early October. The majority come in the last half of October through the third week of November, with small numbers later. The high count is 67 on Oct. 30, 1966. However, on at least one other good Red-tail day many hawks went unidentified and undoubtedly this count has been surpassed many times. Most Red-tails migrate on northwest, west, or west-southwest winds, although some are seen on any wind direction. One excellent flight (52 in less than 3 hours on Oct. 27, 1960) occurred on a northeast wind, but these winds are rather rare at this season. When a flight is in progress on a westerly wind, a switch to north or south-southwest almost always stops it. Although some "Tails" ridge-fly low on the west side, most fly at a moderate-to-high altitude. They use two methods for gaining altitude: 1. The bird circles on the updraft or a thermal and then "peels off" in a long sustained glide. 2. Red-tailed Hawks in the updraft are commonly observed to spread their tails, set their wings flat above the level of their bodies, droop their heads and necks straight down, and hang motionless. This behavior is known as "going on the hook" or "hooking". On a strong wind,

Red-tails "go on the hook" on the updraft and soar upwards while remaining nearly motionless, then they peel off. They can move in any direction in this position by adjusting their wings. The Red-tailed hawk is the *only* hawk that goes on the hook and it is their *best* field mark. Our "Tails" often play with each other, at times making spectacular performances as they swoop and tumble nearby. This species and the next sometimes fly west across the valley toward the Kittatinnies.

The Red-shouldered Hawk is seen during October and November, a few earlier. They occur with Red-tails, but in lesser numbers; our maximum count is 46 on Oct. 18, 1958. The easiest way to separate "Tails" and "Shoulders" at a distance is by behavior, although only hooking is infallible. The Red-shoulder soars and circles less than the Red-tail. "Shoulders" fly rapidly and more directly, using a "flap-sail" technique like that of Accipiters but with more flaps and a longer sail. These flaps are deep and vigorous, while the Red-tails usually use only weak, shallow, unsustained flaps. These two species often migrate in small groups, sometimes mixed.

The Rough-legged Hawk has never been reliably recorded at Mt. Peter. Nevertheless, I suspect that a few pass each November.

The Broad-winged Hawk is the most numerous migrant hawk at Mt. Peter. A few head south as early as the middle of August and small flights are seen during the first ten days of September. The large flights come between September 11 and 25. Smaller numbers continue through the first few days of October and the last two years stragglers have been seen as late as the 14th, our latest record. Our best movement was 2404 on Sept. 13, 1964 (1047 between 2:30 and 3:00 PM, EDT). We have occasionally observed Broad-wings capturing and eating flying insects while migrating. The Broad-winged Hawk is one of the least aggressive hawks, this partially explaining their tendency to migrate in flocks ("kettles") of up to several hundred birds each.

There are two basic types of Broad-wing flights, each with its own characteristic behavior: the ridge flight and the kettle flight. A ridge flight occurs with a crosswind, usually westerly and stronger than 12 to 15 miles per hour. It is the principal type of flight (for all hawks, not only Broad-wings) after the shift from summer weather to cool, windy fall weather – often about September 23rd. The hawks sail on the cross-wind-created updraft, parallel to the ridge at a moderate altitude. At times they circle on a strong part of the updraft to gain altitude, then peel off again. There is usually a fairly steady stream of hawks with no large concentrations, and usually no more than 250 Broad-wings per day. Broad-wings which are riding an updraft or have peeled off from a thermal fold their tails and trim their wings, resembling stubby-tailed Accipiters.

Kettle flights occur on warmer, less windy days, mostly before the weather shift mentioned above. All our largest Broad-wing days are kettle days. The birds gain altitude in a thermal, circling with wings and

tail fully spread (the way they are usually pictured) and then peel off and glide, sometimes on a tail-wind. A Broad-wing which has found a strong thermal is soon joined by many more, thus forming a kettle, approximately equal numbers moving clockwise and counter-clockwise. A Broad-wing circling in a thermal commonly twists, swings laterally, raises, and depresses its tail for steering. This I call "tail twisting", a characteristic of the Broad-winged Hawk but also performed by other soaring hawks, notably Red-tails. The top hawks in the kettle peel off in the direction of migration when they reach the proper altitude and are followed by the lower hawks when they, too, reach the same altitude. Thus a kettle becomes a level sheet or line of Broad-wings in an effortless, direct glide until altitude is lost and a new thermal is found. At other times, for example if a thermal breaks down or is too weak, the hawks straggle out in a moving mass until more favorable conditions are found, sometimes even resorting to flapping flight. Since a kettle flight depends on thermals and/or tailwind, the flight direction is often across ridges rather than parallel to them. On a kettle day at Mt. Peter one must look in *all* directions or risk missing many hawks.

Many area hawk watchers have thought that Broad-wing kettle flights at Mt. Peter and similar lookouts followed no definite pattern with respect to the weather, except that they often occurred with a weather change or disturbance; any wind direction could produce a flight, and they came about equally with clear or overcast skies. My analysis of Mt. Peter kettle flights, however, reveals two distinctly different types of kettle flight, not just one. They are the thermal-predominating flight (thermal flight) and the tailwind-predominating flight (tailwind flight). Weather conditions for a thermal flight are light or sometimes moderate winds from the northwest, west, southwest, south or southeast (occasionally other directions) with clear to 50% cloudy skies – clouds usually cumulus. The sun, essential to this type of flight, produces thermals which the hawks use to gain altitude, gliding between thermals as described above. Wind direction is relatively unimportant, but if it is too strong it destroys a thermal flight and forces a ridge flight. Weather conditions for a tailwind flight are usually gentle to moderate (7–20 mph) winds from the north, northeast or east with overcast or mostly overcast skies. The overcast screens the sun so thermals are few or weak. The tailwind, however, helps the hawks gain ground between thermals, and thus the flight direction is the same as the wind direction (northeast to southwest, east to west, etc.). The loose, horizontally moving kettles mentioned above occur mostly on tailwind days. One good tailwind flight in 1962 was on a northwest wind. Because of this the Broad-wings moved southeast, an unusual occurrence at Mt. Peter. Kettle flights of both kinds are characterized by large numbers separated by lulls of various duration. Both can bring large numbers, but our best day (above) was a tailwind flight. Articles I have read concerning hawk

flights at other lookouts seem to indicate that the same three types of flight (ridge, thermal and tailwind) discussed above occur at most or all ridge lookouts. I urge hawk watchers to check their records to confirm or deny this for their lookout, and would welcome comments on this subject.

Eagles: No Golden Eagle has been recorded during the Fyke Hawk Watch at Mt. Peter, as far as I know. Some must occur, however, during October and November when our coverage is inadequate; perhaps it is regular at this time. Of our 9 Bald Eagles (all adults but one), 7 were seen in September and one each in late August and mid-October (the immature). Although Bald Eagles use our flyway much less than the Kittatinnies, they are a possibility at any time, especially in August and September. One reason we see so few is that the majority head south during August and the first week of September before our continuous count begins. Only once have we seen two in one day.

Marsh Hawk: The fall migration of the Marsh Hawk at Mt. Peter is of longer duration than that of any other species, lasting at least four months. Single birds begin passing at least as early as August 15. Most days in September, October and November have a few Marsh Hawks (1 to 5, occasionally more); they are relatively consistent. Although we have not watched during December, we have happened to see, on a neighboring ridge, migrants as late as December 15, and once on a Christmas Count Dec. 26, 1966! Some must migrate when inland wetlands freeze. The maximum is 15 on Oct. 30, 1965. An interesting phenomenon published elsewhere and verified for Mt. Peter is the migration "schedule" for the ages and sexes of Marsh Hawks. Immatures migrate mainly during August and September, adult females mid-September to late October, and adult males from mid-October to the end of November. Of course, some exceptions are scattered through the fall. Our Marsh Hawks do not seem to have a marked weather preference, but very few come on a north or northeast wind. They fly at all levels and seldom in a straight line. They zigzag and circle while seeking updrafts, thermals, etc., frequently crossing the ridge in so doing. Marsh Hawks alternate gliding in their familiar dihedral with a short series of deep, Red-shoulderlike flaps, but their dihedral and non-direct flight easily identify them.

Osprey: Ospreys pass Mt. Peter from late August to the end of Ocrober. Most pass during September, with the peak usually in the third week. Smaller numbers come in the first half of October, few later. They seem to be relatively indifferent to the weather, except that the majority of our "flights" (8 to 20 individuals) have been on westerly winds. On our best day, however, (46 on Sept. 19, 1964) the wind was east-to-southeast. Ospreys flap little at Mt. Peter, using their typical gull-wing glide, usually at a constant altitude although they sometimes circle on rising

air. The Osprey flies parallel to the ridge more than any other hawk. Its tendency to continue down-ridge across Osprey Rocks gives this lookout its name. Hawks of other species leave the ridge more often than the Osprey. At times, Ospreys fly with one or more satellite hawks of another species.

Falcons: I have records of 16 Peregrine Falcons (11 in September, 5 in October) and 19 Pigeon Hawks (12 in September, 7 in October) at Mt. Peter. Fewer have been seen in October because of less watching in that month. Most of them come on days with northwest, west or moderate to strong southwest winds. Almost all, perhaps all of our Peregrines were seen on such days, usually with a flight of Sparrow Hawks. The same is true for the Pigeon Hawks, except that a few of them were seen on days with a southeast wind. These two falcons migrate swiftly and directly, usually low, and flap more than the Sparrow Hawk.

We have experienced, especially in the last two years, a "population boom" in Sparrow Hawks which is clearly shown in the tables. This is the only increase indicated by our nine-year study, with the possible exception of the Osprey. I feel safe in stating that Mt. Peter probably has more migrant Sparrow Hawks than any other inland lookout in northeastern North America. They begin migrating early in August and by the end of the month are passing through in numbers. Peak flights occur in September and early October, but in 1966 two days in mid-October had 41 and 47. Numbers taper off toward the end of the month and they are very scarce after the third week. Since our coverage is incomplete to say the least, we probably miss many excellent flights of these delightful little hawks. Our Sparrow Hawk single day record is 210 on Sept. 11, 1965 (116 between 10:30 and 12:00 noon, EDT). I know of no higher count from any other inland location in this section. It is a very rare day, before late October, when we do not see a Sparrow Hawk. Sparrow Hawks breed in the valley to the west, thus observers must be careful not to count them as migrants.

All of our Sparrow Hawk flights have occurred on gently to strong northwest or west, occasionally moderate to strong southwest winds. It is our most predictable hawk; the above conditions mean Sparrow Hawks whereas other winds produce only small numbers. Sparrow Hawks often fly in pairs or small groups (somewhat separated) of up to six individuals. Most ridge fly, at any altitude, alternating periods of rapid flapping with a glide, sometimes sustained, with the wingtips bowed downwards – sometimes useful as a field mark. Others flap continually, but less so than Pigeon Hawks or Peregrines. Some, usually in mid-day, soar high and glide like a Buteo. On mild days we see hawks of this species catching dragonflies and other large insects and eating them out of their talons on the wing. One even attempted to catch a hummingbird! When a Sparrow Hawk flight is in progress, a lone hawk

watcher must not study each one as it passes or he will miss many others. Check each one for the distinctive face pattern and then look for others. This is the quickest and most reliable way to check for Pigeon Hawks and even Peregrines. Occasionally, if the bird is high overhead, one must use tail pattern and other field marks.

Ridge Flight Weather: Most ridge flights are generated by northwest, west, or moderate to strong west-southwest winds. These always bring falcon flights until late October. Lesser ridge flights may occur when the wind is east, southeast or occasionally northeast, but not north, south or south-southwest. Although our best flights come on westerly winds, they are usually on the first or second day of these winds; if westerly winds persist, numbers taper off. This dependence of hawk flights on weather changes is the rule after the departure of the Broad-wings. Sometimes the wind can be too strong; in November this usually limits the flight to Red-tails. After September, a mild day with winds light and variable, or absent, ("Bluebird weather") means few hawks (10–35). This brings up one of Mt. Peter's advantages: although our good days are not as good as other lookouts' best days, our worst are usually better than theirs. If an observer spends a day at Mt. Peter and the day is not rainy or foggy, he will almost always see 10 to 30 hawks, even on the worst of days. I have been informed by many sources that almost all other lookouts have days, other than rainouts, with fewer than six hawks or even completely hawkless.

A weather change during the day often changes the flight type or even halts the flight. For example, on our record-setting Sparrow Hawk day (Sept. 11, 1965), a northwest wind until 3:30 PM, EDT, brought a ridge flight of 273 hawks of 9 species. Of these, 205 were Sparrow Hawks and only 34 were Broad-wings. In the next 1 ½ hours, a north and then east wind produced a tailwind flight of 265 hawks of which all but 9 were Broad-wings. The Broad-wings moved south and then west as the wind shifted. If a westerly wind is creating a ridge flight, a shift to north or south-southwest usually kills it. Similarly, rain showers force the hawks to perch, thus stalling the flight. It takes about an hour for the flight to resume. On rainy or misty days we do not even watch, since we have seen only a handful of hawks ever fly in the rain.

Non-raptors: Hawks are not the only avian features of Mt. Peter in the fall. Permanent residents include Ruffed Grouse and Pileated Woodpecker; the latter often fly past the lookout. Loons and waterfowl are commonly observed, especially Canada Geese but also ducks and, rarely, Brant and Snow Geese. Shorebirds sometimes dart overhead, but often too fast for identification. Diurnal migrants include: Chimney Swift, Common Crow, Tree Swallow (in numbers in August and September), Robin (October and November), blackbirds of all species, Purple Finch, Pine Siskin, Evening Grosbeak, and sometimes Red and White-winged

Crossbills and Pine Grosbeak. At the peak of Blue Jay migration during early October, on some days perhaps over a thousand pass, the bulk before 10:30 EDT. A Common Raven passed the lookout very close on Oct. 2, 1966 and there are several older records which may be correct. A few Red-headed Woodpeckers have been a feature of practically every season, but 1966 was a banner year with about a dozen in only 29 days of observation. These occurred in September and early October and were mostly adults. Mockingbirds and Bluebirds as well as flycatchers in September perch on the telephone wires. Sparrows frequent the brush by the parking area and, early in the morning until mid-October, the woods on the crest contain many migrant Passerines, mainly warblers and vireos, later kinglets. Red-breasted Nuthatches may be seen singly or in small groups beginning in late August. During September hummingbirds streak past, hugging the ridge.

Fyke Hawk Watch Operation: During the summer our hawk watch committee, chairmanned by Stiles Thomas, 111 Allendale Avenue, Allendale, N.J. 07401, meets to make up the schedule for the coming season. We decide which days are most important and which we are likely to find leaders for, and then we try to find them. A leader is a reliable observer who promises to watch for a full day (9:00 AM to 5:00 PM, EDT) or a half day (9:00 to 1:00 or 1:00 to 5:00). If a flight is in progress at 5:00 PM, the leader should be certain that someone watches to its conclusion. We arrange dates with past leaders and new prospects, first filling in all the holes in our continuous watches in September and October, then adding any other days we can get covered. Although weekend days usually have from ten to twenty full or part time observers, most weekday leaders are lucky if they have four helpers, and sometimes spend the whole day alone. A typed list of leaders is distributed to interested persons. Each leader has a daily report form on which he records the date, start and stop times, sky condition, wind direction and speed, temperature and observers. There is a column for each species and a row for each half hour and the total. This is mailed, at the end of the day, to Stiles Thomas and the daily total is recorded on a master sheet which is left in the Summer House at the lookout. After the close of the season, the figures are compiled and distributed to the participants and the Fish and Wildlife Service at Patuxent Research Refuge, Laurel, Maryland.

We need many more leaders and helpers for our hawk watch. Mt. Peter's flight line is important enough to warrant extended coverage. With complete coverage our results would be more informative. It never ceases to distress me how many birders have never been on a hawk watch, especially now when the hawks need every ally they can get. Mt. Peter is an ideal place to learn the art of hawk watching.

Recommended equipment includes: warm clothing (you can take it off but you can't put it on if it's not there), gloves, tennis shoes or some-

thing comparable, a cushion or lawn chair, and lunch. Binoculars are a necessity and if they are above 9 power, it is recommended that the observers bring a 6 or 7 power pair for scanning. A single-lens reflex camera with a telephoto lens and gunstock can be used to obtain good pictures. A spotting scope may be useful if it is mounted on a sturdy tripod or gunstock and the observer is skilled in its use. My Balscope Zoom 60 has been invaluable for settling arguments over the identity of distant hawks and for obtaining close-ups of nearer ones.

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Acknowledgments

Thanks are due the many participants, especially leaders, who have been responsible for these observations, more especially those who have supported our count from its inception. These are primarily from the Fyke Nature Association whose project the count has been. Other nature organizations which have aided us and are thus deserving of thanks are the Ridgewood Audubon Society, Hackensack Audubon Society, and Morris Nature Club in New Jersey and the E. A. Mearns Bird Club in New York. I must single out Stiles Thomas, however, as under his chairmanship our hawk watch has continued, expanded, and improved. I also wish to thank Stiles for his help in preparing this paper; without his encouragement I would not have begun.

TABLE I

MT. PETER HAWK TOTALS BY MONTH 1958 THROUGH 1964

The number of days and hours of observation are listed for each month and year. The hawk totals are meaningless if these are not considered by the reader. The number of scheduled days which were rained out, thus not covered, is listed in parentheses, unless zero.

Abbreviations: Gos – Goshawk, SSH – Sharp-shinned Hawk, CH – Cooper's Hawk, RTH – Red-tailed Hawk, RSH – Red-shouldered Hawk, BWH – Broad-winged Hawk, BE – Bald Eagle, MH – Marsh Hawk, Os – Osprey, Per – Peregrine Falcon, Pig – Pigeon Hawk, SpH – Sparrow Hawk, UnI – Unidentified Hawk, ST – Season Total, Hrs. – Hours, Obs. – Number of Observers.

	1958			1959			
	Sept.	Oct.	ST		Sept.*	Oct.	ST
Days	2	1	3	Days	8	3	11
Hrs.	17	8	25	Hrs.	55	17	72
SSH	6	33	39	SSH	18	103	121
CH	–	6	6	CH	5	4	9
RTH	1	52	53	RTH	13	77	90
RSH	–	46	46	RSH	6	17	23
BWH	90	–	90	BWH	1605	–	1605
BE	1	–	1	BE	1	–	1
MH	7	12	19	MH	20	7	27
Os	15	–	15	Os	28	3	31
Per	–	2	2	Per	4	–	4
Pig	–	1	1	Pig	4	2	6
SpH	–	25	25	SpH	23	6	29
UnI	4	50	54	UnI	47	15	62
Total	124	227	351	Total	1774	234	2008

TABLE I – Continued

1960	Sept.*	Oct.	ST
Days (3)	9	3 (3)	12
Hrs.	56	11	67
SSH	61	13	74
CH	2	2	4
RTH	9	66	75
RSH	5	11	16
BWH	1293	–	1293
BE	1	–	1
MH	8	4	12
Os	24	1	25
Per	–	–	–
Pig	–	–	–
SpH	55	6	61
UnI	72	25	97
Total	1530	128	1658

1961	Sept.*	Oct.	ST
Days (3)	13	2 (3)	15
Hrs.	79	12	91
SSH	51	16	67
CH	5	5	10
RTH	31	17	48
RSH	13	9	22
BWH	1136	–	1136
BE	1	–	1
MH	24	–	24
Os	16	1	17
Per	1	1	2
Pig	3	–	3
SpH	71	11	82
UnI	50	10	60
Total	1402	70	1472

1962	Sept.	Nov.	ST
Days	12	1	13
Hrs.	75	5½	80½
SSH	44	1	45
CH	8	1	9
RTH	8	66	74
RSH	2	3	5
BWH	3701	–	3701
BE	–	–	–
MH	16	2	18
Os	58	–	58
Per	3	–	3
Pig	1	–	1
SpH	157	–	157
UnI	32	1	33
Total	4030	74	4104

1963	Sept.	Oct.	ST
Days (4)	18	2 (4)	20
Hrs.	129½	10	139½
SSH	62	9	71
CH	7	1	8
RTH	19	–	19
RSH	1	–	1
BWH	1428	–	1428
BE	–	–	–
MH	29	4	33
Os	31	1	32
Per	–	–	–
Pig	2	–	2
SpH	199	2	201
UnI	74	–	74
Total	1852	17	1869

1964	Sept.	Oct.	ST
Days (1)	20	2 (1)	22
Hrs.	135	7½	142½
SSH	116	7	123
CH	12	1	13
RTH	19	11	30
RSH	–	2	2
BWH	3489	–	3489
BE	4	–	4
MH	16	1	17
Os	86	2	88
Per	–	–	–
Pig	–	–	–
SpH	101	15	116
UnI	48	5	53
Total	3891	44	3935

* Includes one day in August.

TABLE II

MT. PETER DAILY HAWK COUNTS IN 1965 AND 1966

The number of hours of observation is listed for each day, as is the number of observers. Totals are given for August – September, October – November, and the year. These are the first two years with extended non-September coverage; both were poor Broadwing years.

1965

Date	Gos	SSH	CH	RTH	RSH	BWH	BE	MH	Os	Per	Pig	SpH	UnI	Total	Hrs.	Obs.
								August and September								
8/29	–	–	–	–	–	5	–	–	2	–	–	9	–	16	5	5
9/4	–	1	–	–	–	–	–	–	4	–	–	2	–	7	8	1
9/5	–	–	–	–	–	7	–	1	5	–	–	7	3	23	7	2
9/6	–	–	1	–	–	4	–	–	2	–	–	6	–	13	7	2
9/7								Not Covered								
9/8								Rain								
9/9	–	2	–	2	–	31	–	1	4	–	–	3	1	44	8	5
9/10	–	2	1	–	–	40	–	–	1	1	–	5	22	72	8	1?
9/11	–	10	3	5	1	290	–	4	13	–	1	210	1	538	9	2
9/12	–	3	–	–	–	296	–	2	4	–	–	3	1	309	7	4
9/13								Rain								
9/14	–	1	1	–	–	84	–	–	1	–	–	3	–	90	5	?
9/15								Rain and Mist								
9/16	–	11	–	8	2	205	–	–	11	–	1	46	6	290	8	5
9/17	–	6	1	1	2	79	–	–	6	–	–	1	–	96	9	6
9/18	–	36	3	9	4	124	–	4	23	2	–	49	2	256	8	9
9/19	–	12	–	1	–	28	–	1	2	–	–	2	1	47	8	3
9/20	–	–	1	–	–	5	–	2	–	–	–	–	–	8	4	5
9/21	–	3	1	–	–	27	–	1	11	–	–	3	5	51	8	1
9/22	–	5	4	2	–	8	–	8	6	–	–	16	–	49	4½	1
9/23	–	8	1	1	–	17	–	5	14	–	–	11	4	61	7	3
9/24	–	12	3	1	–	6	–	–	12	–	–	3	8	45	4	1
9/25	–	41	1	2	–	245	–	–	7	–	–	12	15	323	7	?
9/26	–	9	–	5	–	7	–	1	–	–	–	10	–	32	6	5?
Total	0	162	21	37	9	1508	0	30	128	3	2	401	69	2370	137½	
								October and November								
10/2	–	6	1	13	3	–	–	3	5	1	–	31	7	70	4½	2
10/9	–	14	1	3	–	8	–	–	1	–	–	2	4	33	6½	3
10/10	–	28	–	3	3	10	–	–	–	–	–	5	14	63	8	3
10/11	–	57	9	10	5	1	–	–	3	–	–	3	6	94	7½	?
10/12	–	16	–	4	–	–	–	10	–	–	–	11	3	44	3½	2
10/13	–	8	3	19	1	4	–	–	1	–	–	6	–	42	7½	3
10/14	–	36	1	8	1	1	–	2	2	–	–	12	3	66	8	3
10/15	–	9	–	–	–	–	–	–	–	–	–	–	–	9	5½	1
10/16	–	20	3	43	9	–	–	1	5	–	–	2	17	100	8	14
10/17	–	3	–	12	5	–	1 (i)	3	1	–	–	–	3	28	7	23
10/30	–	6	–	17	7	–	–	15	–	–	1	–	3	49	4½	18
11/6	–	3	–	14	19	–	–	2	–	–	–	–	6	44	7	1
11/7	–	–	–	4	–	–	–	–	–	–	–	–	–	4	4	1
11/13								Rain								
11/14	–	–	–	11	–	–	–	–	–	–	–	–	–	11	6½	2
Total	0	206	18	161	53	24	1	36	18	1	1	72	66	657	88	
S/Total	0	368	39	198	62	1532	1	66	146	4	3	473	135	3027	225½	

TABLE II — Continued

1966

Date	Gos	SSH	CH	RTH	RSH	BWH	BE	MH	Os	Per	Pig	SpH	UnI	Total	Hrs.	Obs.
								August and September								
8/24	–	–	–	–	–	1	–	1	–	–	–	13	–	15	1	2
9/5	–	–	–	–	–	15	–	–	5	–	–	2	–	22	4	3
9/9	–	–	–	–	–	21	–	–	–	–	–	22	–	43	8	2
9/10	–	–	–	–	–	28	–	1	–	–	–	25	–	54	8	16
9/11	–	–	–	–	–	197	–	3	2	–	–	10	3	215	10	17
9/12	–	–	–	–	–	265	–	3	9	–	–	7	1	285	8	4
9/13	–	1	–	–	–	12	–	2	3	–	–	1	2	21	8	2
9/14								Rain								
9/15	–	5	–	–	–	30	–	2	4	–	–	6	3	50	7	8
9/16	–	–	–	3	–	37	–	–	–	–	–	16	–	56	8	3
9/17	–	1	–	–	–	389	–	–	1	–	–	16	–	407	8	16
9/18	–	–	2	–	1	194	–	–	5	–	–	12	2	216	8	19
9/19	–	–	–	–	–	8	–	–	–	–	–	3	–	11	7	1
9/20								Rain								
9/21								Rain								
9/22	–	2	–	–	–	–	–	–	1	–	–	–	–	3	6	2
9/23	–	11	–	2	–	13	–	3	4	–	–	32	–	65	7	8
9/24	–	2	2	1	–	51	–	2	9	–	–	66	–	133	8	3
9/25	–	7	3	12	–	60	–	1	4	–	–	49	11	147	8	15
Total	0	29	7	18	1	1321	0	18	47	0	0	280	22	1743	114	
								October and November								
10/2	1	19	3	18	1	56	–	2	4	–	–	108	2	214	5½	11
10/8	–	27	–	6	–	3	–	1	–	–	–	15	1	53	8	6
10/9	–	10	–	5	–	2	–	1	3	–	–	11	–	32	8	14
10/10								Rain								
10/11	–	12	2	8	1	1	–	1	3	–	2	14	4	48	7	8
10/12	–	22	3	17	1	1	–	4	2	–	–	41	4	95	8	9
10/13	–	3	2	1	1	–	–	–	–	–	–	5	–	12	3	3
10/14	–	14	5	13	1	9	–	1	1	–	1	4	–	49	7	1
10/15	–	9	–	15	1	–	–	4	1	–	–	11	5	46	7	5
10/16	–	11	1	10	3	–	–	2	–	1	–	47	1	76	6	3
10/23	–	5	1	–	–	–	–	–	–	–	–	–	–	6	5	1
10/30	–	1	1	67	14	–	–	4	–	–	–	1	8	96	8	5
11/5	–	2	–	17	7	–	–	–	–	–	–	1	–	27	4	2
11/6	–	–	–	18	13	–	–	1	–	–	–	–	1	33	6	2
Total	1	135	18	195	43	72	0	21	14	1	3	258	26	787	82½	
S/Total	1	164	25	213	44	1393	0	39	61	1	3	538	48	2530	196½	

RECENT TOWER KILLS IN UPSTATE NEW YORK

STEPHEN W. EATON

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During two months in the fall, from mid-August to mid-October, about 10,000 song birds a year are killed at night by flying into communication towers on the Allegheny Plateau. This is a conservative estimate based on tower kills at Colden in southern Erie Co., at various towers in Cattaraugus, Allegany and Steuben Counties, and at towers checked near Elmira and Syracuse.

This is developing into a conservation problem of the magnitude of the sandpiper slaughter in spring during the 19th century, the heron plume hunters of the early 1900's, the duck plight of the 1930's and the current hawk-prey-pesticide problem. A report of the A.O.U. committee on bird protection published in the *Auk* (83:465–467, July 1966) sum-