
Raptor report—Kittatinny Mountains

Leonard J. Soucy, Jr.

The Kittatinny Mountains Raptor Banding Station has been in operation full time each fall since 1971. Located on a major flyway in the north-western New Jersey, it was established for the purpose of banding birds of prey and for studying the phenomena of hawk migration.

The Kittatinny Mountains in New Jersey are the easternmost ridge of the Appalachian Mountain Chain. Using uplifting air currents and thermal currents, the hawks make their autumn migration along these ridges to their winter ranges in the south. Some species migrate many thousands of miles. The Broad-winged Hawk (*Buteo platypterus*) winters as far south as north-western South America and returns each spring to breed as far north as the Province of Quebec, Canada. Other species travel much shorter distances, many remaining in the southern United States, Mexico, and Central America. The eastern Canadian Provinces, New York, and New England are the source of most of the birds of prey that use this flyway.

Accurate records of all sightings, species identification and banding data are kept daily. At seasons end, the results of the sightings are sent to the North American Hawk Migration Association. This organization collects data from hawk watching stations along major flyways, nation-wide, and is attempting for the first time, on a joint basis, to study hawk movements throughout the United States.

The station was operated every day from 7 September 1975 until 30 November 1975, with 67 operational days and a total of 794 manned hours this season.

There are actually two stations, one 1.5 miles down range from the other. The northernmost station designated "Prow," because of its forward-facing location, is a knob 1200 feet high located in Stokes State Forest. The State of New Jersey, Dept. of Environmental Protection, Division of Parks and Forests, issues a scientific Special Permit yearly, to conduct this study on state land.

The second station, designated "Main" because of the more elaborate setup, is within the Delaware

Water Gap National Recreation Area and is operated under a Special Use Permit from the U.S. Dept. of the Interior, National Park Service.

This station, atop a bald ridge 1450 feet high affords an unobstructed view to the west and north and a fairly good view to the east. With powerful binoculars the birds can be seen many miles in the distance as they move in a general southwestward direction along the ridge. High Point Monument is visible 11 miles to the north.

Two main types of traps are used to catch the hawks. Spring actuated bow traps take most of the larger hawks and 12-meter nylon mist nets, arranged in a "U" shape, catch most of the smaller raptors.

Feral pigeons and House Sparrows are used to lure the hawks to the trapping area. These two species along with English Starlings are the only species that can be used as lure birds.

After capturing a hawk, it is weighed, measurements of wing and tail are taken, general condition and any abnormalities are noted and the bird is fitted with a U.S. Fish and Wildlife numbered band. The whole process takes only a few minutes, then the bird is released.

For the sake of accuracy, I must report this year, we unfortunately had two Sharp-shinned Hawk (*Accipiter striatus*) fatalities. Both birds were killed in mist nets by Red-tailed Hawks (*Buteo jamaicensis*) stooping on them. We are re-assessing the mist net arrangement for next season to eliminate the possibility of this reoccurring. In the past 5 years over 2,000 hawks, falcons, and eagles have been banded and these were our first casualties. Always foremost in our minds is the well-being of the bird.

This has been our most productive season thus far with 666 individuals of 11 species banded. Record numbers of Sharp-shinned Hawks were observed and 416 banded. The 23 Cooper's Hawks (*Accipiter cooperii*) banded is also an all time high for us. After some poor years recently, Cooper's Hawks seem to be making a comeback. In relation to the number seen we catch more Cooper's Hawks than

any other species. They are very aggressive and sometimes outright reckless. I trapped one individual this year while standing outside the blind. Goshawk (*Accipiter gentilis*) flights were good this year in October and November. Since the "invasion" year of 1972 when we banded 84 birds, we have regularly seen this large accipiter along our ridges. To my knowledge, there is no record of this species breeding in New Jersey. But for the past several years we have observed immature Goshawks in the study area in early September. These birds of the year may be from eastern Pennsylvania or southern New York nestings, but I believe there is a real possibility of Goshawks nesting in Northwestern Sussex County.

The most spectacular flights of migrating hawks take place in mid-September with the coming of the Broad-winged Hawk. These small buteos, about the size of a crow, travel together in considerable numbers during migration. On 15 September this year I was at the Prow station in Stokes with two helpers and witnessed an extraordinary flight. The day was clear, calm winds and bright sunshine creating thermal currents. These columns of rising warm air afforded up-lift for the hawks. They spiral higher and higher and the "kettle" of hawks grows as other birds join in until finally the birds begin to break out on set wings in a south-westward direction. We counted, to the best of our ability 4,500 hawks that day. In one "kettle", or group, we counted over 800 birds. This went on almost all day. Many times the swirling birds were so numerous and so high they looked like insects instead of hawks. On 22 September, an additional 2,000 Broad-wings were counted at this station.

We regularly see both eagles in migration. The Golden Eagle (*Aquila chrysaetos*) count this year was stable and we trapped one bird. The Bald Eagle (*Haliaeetus leucocephalus*) is a fish eater and not easily lured by pigeons. We did, however, trap an immature Bald Eagle in 1972, the only one to date. It was encouraging to see young birds of both species this year.

The Osprey (*Pandion haliaetus*) another fish eater, is a handsome bird to see, but we never have caught one. The populations in many areas seem to be recovering from the DDT syndrome and our sighting records this year show goodly numbers of this bird along the Kittatinny route.

The Marsh Hawk (*Circus cyaneus*) is an interesting bird. Our records show this bird migrates throughout the entire fall season. We have seen birds as early as August, when setting up our

equipment, and still see this harrier in late November. They are extremely wary and difficult to lure but we did catch eight individuals this season. The population seems stable, actually up somewhat by count this year.

November is the best month for the large buteos. Red-tailed Hawks, Red-shouldered Hawks (*Buteo lineatus*), and occasionally flights of Rough-legged Hawks (*Buteo lagopus*) have caused near frost-bite among our banders on many occasions. The predominant north-westerly winds this time of year are "chilly" to say the least. The 138 Red-tails trapped this season are lower than usual due mostly to the warmer than average temperatures this November and the lack of predominant NW winds. The mountains afford no lift for the migrant buteos without wind, and the flight pattern is much more widespread. No Rough-legged Hawks were seen this season. Separating buteo species with certainty is difficult. I believe many Red-shouldered Hawks are counted by hawk watchers as Red-tailed Hawks, which are certainly the more common species on our flyway.

Our policy is that, unless the observer can identify with some certainty whatever species of hawk is seen, the bird should be called unidentified. Possibly it can be identified as to genus by shape, flight pattern, etc., but positive recognition of some 11,000 raptors near and far is quite impossible.

Many times I have personally lured a bird I thought was one thing, trapped it, and upon removing the bird from the net found it to be something entirely different. All members of this study group are highly competent in hawk identification, hopefully keeping errors at a minimum.

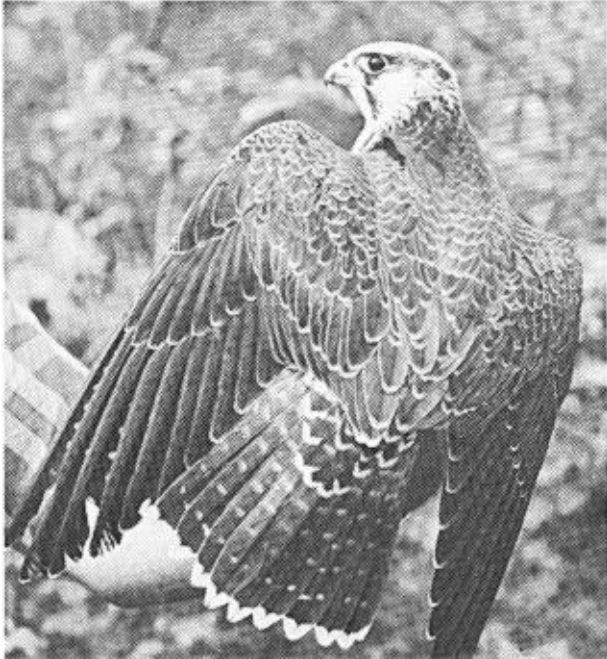
Turkey Vultures (*Cathartes aura*), both resident and migrating birds, are regularly seen. No tally of vultures is kept.

Next season we hope to participate in a project of the U.S. Fish and Wildlife Service checking the pesticide residue in the blood of migrating hawks. I will attempt to work out the details of this project with the Wildlife Research Center in Denver, Colorado before next September.

Acknowledgments

The banders participating this year were: John Burns, Ed Henckel, Carl Moritz, Arthur Panzer, Bob Templin, Greg Welsh, and myself. For their many hours of hard work and personal contribution I can only say, Thank You!

Our thanks go to Superintendent James L. McLaughlin, National Park Service and the



Our first Peregrine Falcon

rangers of the Delaware Water Gap National Recreation Area for their co-operation.

A special thank you to Louis Cherepy, Park Officer in Charge, Stokes State Forest, and to the Park Rangers without whose interest and assistance this study could not have been done.

The age/sex summary reveals that 75% of the birds we catch are immatures. We also catch more females than males of most species. Unfortunately there is no accurate method of sexing the buteos.

Age/Sex summary

Goshawk: HY, 37 (M, 29; F, 8). AHY, 6 (M, 4; F, 2).

Sharp-shinned Hawk: HY, 343 (M, 148; F, 195). AHY, 73 (M, 13; F, 60).

Cooper's Hawk: HY, 11 (M, 5; F, 6). AHY, 12 (M, 3; F, 9).

Red-tailed Hawk: HY, 105 (sex unknown). AHY, 33 (sex unknown).

Red-shouldered Hawk: HY, 3 (sex unknown).

Broad-winged Hawk: HY, 9 (sex unknown). AHY, 2 (sex unknown).

Golden Eagle: AHY, 1 (sex unknown).

Marsh Hawk: HY, 5 (M, 1; F, 4). AHY, 3 (all female).

Peregrine Falcon: HY, 1 (male).

Merlin: AHY, 2 (M, 1; F, 1).

American Kestrel: Age unknown, 20 (M, 15; F, 5).

Peak sighting days:

September

Sharp-shinned Hawk: 15th (37), 22nd (41), 27th (121), 30th (44)

Red-tailed Hawk: 15th (15)

Broad-winged Hawk: 15th (4,476), 22nd (1,914)

Marsh Hawk: 21st and 22nd (6 each)

Osprey: 21st (7), 22nd (9), 27th (10)

October

Goshawk: 30th (19)

Sharp-shinned Hawk: 2nd (132), 6th (171), 16th (119)

Cooper's Hawk: 2nd (11)

Red-tailed Hawk: 23rd (40), 26th (50), 27th (47), 28th (40), 30th (148)

Broad-winged Hawk: 1st (24)

Marsh Hawk: 5th (12)

Osprey: 2nd (10)

American Kestrel: 2nd (37), 6th (12)

November

Red-tailed Hawk: 4th (38), 5th (36), 15th (54), 22nd (38)

Red-shouldered Hawk: 4th (7)

Marsh Hawk: 3rd and 6th (6 each)

Unusual November sightings

Osprey: 19th (1)

Bald Eagle: 1st (1)

First year Goshawk



Photographs by Arthur Panzer

In the following tables, when the Prow and Main stations were operating, a system of "averaging" was used so there was no duplication in counting between the two stations. We are hopeful of installing some system of radio contact between the stations for next year.

Table 1. September raptor banding and sighting summary

| Day | Turkey Vulture | Black Vulture | Goshawk | Sharp-shinned Hawk | Cooper's Hawk | Red-tailed Hawk | Red-shouldered Hawk | Broad-winged Hawk | Rough-legged Hawk | Golden Eagle | Bald Eagle | Marsh Hawk | Osprey | Peregrine Falcon | Merlin | American Kestrel | Total | Day | Average Temperature | Wind Speed/Direction | Hours Manned |
|-----|----------------|---------------|---------|--------------------|---------------|-----------------|---------------------|-------------------|-------------------|--------------|------------|------------|--------|------------------|--------|------------------|-------|-----|---------------------|----------------------|--------------|
| 7 | | | 1 | | 1 | | | | | | | | | | | 2 | 7 | 85 | 7NW | 10 | |
| 8 | | | 3 | | | | | | | | | | | | | 3 | 8 | 78 | 8SW | 9 | |
| 9 | | | 3 | | 2 | | | | | | | | | | 1 | 6 | 9 | 60 | 14NW | 9 | |
| 10 | | | 3 | | | | | | | | | | | | | 3 | 10 | 62 | 2NW | 9 | |
| 11 | | | | | 1 | | 1 | | | | | | | | 1 | 3 | 11 | 63 | 7S | 9 | |
| 12 | | | | | | | | | | | | | | | | | 12 | | RAIN | | |
| 13 | | | 7 | | | | | | | | | 1 | | | | 8 | 13 | 69 | 2NW | 9 | |
| 14 | | | | | | | 1 | | | | | | | | 1 | 2 | 14 | 50 | 12NW | 9 | |
| 15 | | | 12 | | 1 | | | | | | | | | | | 13 | 15 | 67 | 10SE | 9 | |
| 16 | | | 9 | | | | 3 | | | | | | | | | 12 | 16 | 60 | 0 | 8 | |
| 17 | | | 7 | | | | 3 | | | | | | | | 1 | 11 | 17 | 66 | 5N | 10 | |
| 18 | | | 3 | | | | | | | | | | | | 1 | 4 | 18 | 62 | 12SE | 7 | |
| 19 | | | | | | | | | | | | | | | | | 19 | | RAIN | | |
| 20 | | | 5 | | 1 | | | | | | | | | | 1 | 7 | 20 | 72 | 7SE | 9 | |
| 21 | | | 10 | 1 | | | 1 | | | | | | | | 2 | 14 | 21 | 65 | 2SW | 10 | |
| 22 | | | 21 | 1 | 2 | | | | | | | | | | | 24 | 22 | 65 | 2SW | 12* | |
| 23 | | | | | | | | | | | | | | | | | 23 | | RAIN | | |
| 24 | | | | | | | | | | | | | | | | | 24 | | RAIN | | |
| 25 | | | 1 | | | | | | | | | | | | | 1 | 25 | 50 | 20NE | 5 | |
| 26 | | | | | | | | | | | | | | | | | 26 | | RAIN | | |
| 27 | | | 34 | 3 | 2 | | 2 | | | | | | | | 1 | 42 | 27 | 74 | 5NW | 14* | |
| 28 | | | 34 | 2 | 4 | 1 | | | | | | | | | 1 | 42 | 28 | 62 | 10NW | 17* | |
| 29 | | | 9 | | | | | | | | 1 | | | | | 10 | 29 | 60 | 2NE | 14* | |
| 30 | | | 17 | | | | | | | | | | | | 1 | 18 | 30 | 68 | 2SE | 16* | |

| | | | | | | | | | | | | | | | | |
|---|-----|----|----|---|------|--|--|--|---|----|----|--|--|----|------|---------------|
| 1 | 179 | 7 | 14 | 1 | 11 | | | | | 2 | | | | 11 | 225 | Total banded |
| | 494 | 12 | 71 | 3 | 7597 | | | | 2 | 55 | 68 | | | 48 | 8384 | Total sighted |

*Both stations

33 Unidentified

Table 2. October raptor banding and sighting summary

| Day | Turkey Vulture | Black Vulture | Goshawk | Sharp-shinned Hawk | Cooper's Hawk | Red-tailed Hawk | Red-shouldered Hawk | Broad-winged Hawk | Rough-legged Hawk | Golden Eagle | Bald Eagle | Marsh Hawk | Osprey | Peregrine Falcon | Merlin | American Kestrel | Total | Day | Average Temperature | Wind Speed/Direction | Hours Manned | | |
|-----|----------------|---------------|---------|--------------------|---------------|-----------------|---------------------|-------------------|-------------------|--------------|------------|------------|--------|------------------|--------|------------------|-------|---------------|---------------------|----------------------|--------------|--------------|--|
| 1 | | | | 9 | | | | | | | | | | 1 | | 1 | 11 | 1 | 71 | 10NE | 9 | | |
| 2 | | | | 19 | 8 | 5 | | | | | | | | | | 2 | 34 | 2 | 50 | 15NW | 19* | | |
| 3 | | | | 19 | 2 | 3 | | | | | | | | | 1 | 1 | 26 | 3 | 52 | 2NW | 17* | | |
| 4 | | | | 22 | | 1 | | | | | | | | | | 2 | 25 | 4 | 72 | 3NW | 17* | | |
| 5 | | | 1 | 27 | 1 | | | | | | | 2 | | | | 1 | 32 | 5 | 72 | 3E | 20* | | |
| 6 | | | | 29 | 2 | 4 | | | | | | | | | | | 35 | 6 | 70 | 10SW | 18* | | |
| 7 | | | | 6 | | 3 | | | | | | | | | | | 9 | 7 | 57 | 15NW | 15* | | |
| 8 | | | | 5 | | 1 | | | | | | | | | | 1 | 7 | 8 | 60 | 5W | 16* | | |
| 9 | | | | 7 | | 5 | | | | | | | | | | | 12 | 9 | 62 | 12E | 16* | | |
| 10 | | | | 3 | | 1 | | | | | | | | | | | 4 | 10 | 52 | 5SE | 8 | | |
| 11 | | | | | | | | | | | | | | | | | | 11 | | RAIN | | | |
| 12 | | | | 11 | | 2 | | | | | | | | | | | 13 | 12 | 50 | 15NW | 13* | | |
| 13 | | | | 5 | 1 | 5 | | | | | | | | | | | 11 | 13 | 60 | 12NW | 14* | | |
| 14 | | | | 17 | | 3 | | | | | | | | | | | 20 | 14 | 75 | 5SW | 15* | | |
| 15 | | | | 11 | | 2 | | | | | | | | | | 1 | 14 | 15 | 75 | 15W | 14* | | |
| 16 | | | 1 | 24 | | 1 | 1 | | | | | | | | | | 27 | 16 | 60 | 20NW | 15* | | |
| 17 | | | | 2 | | | | | | | | | | | | | 2 | 17 | 45 | 2N | 10* | | |
| 18 | | | | | | | | | | | | | | | | | | 18 | | RAIN | | | |
| 19 | | | | | | | | | | | | | | | | | | 19 | | RAIN | | | |
| 20 | | | | | | | | | | | | | | | | | | 20 | | RAIN | | | |
| 21 | | | 1 | 6 | | 5 | | | | | | | | | | | 12 | 21 | 59 | 10SW | 16* | | |
| 22 | | | 1 | 9 | 1 | 4 | | | | | | | | | 1 | | 16 | 22 | 70 | 12SW | 16* | | |
| 23 | | | 1 | 2 | | 4 | | | | | | | | | | | 7 | 23 | 72 | 10SE | 12* | | |
| 24 | | | | | | 2 | | | | | | | | | | | 2 | 24 | 65 | 5E | 15* | | |
| 25 | | | | | | | | | | | | | | | | | | 25 | | RAIN | | | |
| 26 | | | 2 | | | 7 | | | | | | | | | | | 10 | 26 | 48 | 10NW | 14* | | |
| 27 | | | | 1 | | 9 | | | | | | 1 | | | | | 11 | 27 | 55 | 10SE | 14* | | |
| 28 | | | | 2 | 1 | | 1 | | | | | | | | | | 4 | 28 | 52 | 5SW | 14* | | |
| 29 | | | | 2 | | | | | | | | | | | | | 2 | 29 | 55 | 5W | 8 | | |
| 30 | | | 7 | | | 21 | | | | | | | | | | | 28 | 30 | 36 | 15NW | 15* | | |
| 31 | | | 4 | | | 4 | | | | | | | | | | | 8 | 31 | 35 | 5NW | 15* | | |
| | | | 20 | 237 | 15 | 93 | 1 | | | | | 4 | | 1 | 2 | 9 | 382 | | | | | | |
| | | | 41 | 1053 | 16 | 621 | 12 | 42 | | 5 | 1 | 70 | 30 | 2 | 10 | 99 | 2065 | | | | | | |
| | | | | | | | | | | | | | | | | | | Total banded | | 63 | | Unidentified | |
| | | | | | | | | | | | | | | | | | | Total sighted | | | | | |

*Both stations

Table 3. November raptor banding and sighting summary

| Day | Turkey Vulture | Black Vulture | Goshawk | Sharp-shinned Hawk | Cooper's Hawk | Red-tailed Hawk | Red-shouldered Hawk | Broad-winged Hawk | Rough-legged Hawk | Golden Eagle | Bald Eagle | Marsh Hawk | Osprey | Peregrine Falcon | Merlin | American Kestrel | Total | Day | Average Temperature | Wind Speed/Direction | Hours Manned | |
|-----|----------------|---------------|---------|--------------------|---------------|-----------------|---------------------|-------------------|-------------------|--------------|------------|------------|--------|------------------|--------|------------------|-------|-----|---------------------|----------------------|--------------|--|
| 1 | | | | | 4 | | | | | | 1 | | | | | | 5 | 1 | 48 | 10N | 17* | |
| 2 | | | | | 1 | | | | | | | | | | | | 1 | 2 | 55 | 4SW | 11* | |
| 3 | | | 1 | | 1 | | | | | | | | | | | | 2 | 3 | 65 | 10SW | 6 | |
| 4 | | | 2 | | 4 | 1 | | | | | | | | | | | 7 | 4 | 65 | 15NW | 7 | |
| 5 | | | 2 | | 5 | | | | | | | | | | | | 7 | 5 | 62 | 15NW | 12* | |
| 6 | | | 1 | | 1 | | | | | | | | | | | | 2 | 6 | 62 | 5S | 14* | |
| 7 | | | | | 1 | | | | | | | | | | | | 1 | 7 | 68 | 10S | 8 | |
| 8 | | | | | 1 | | | | | | | | | | | | 1 | 8 | 70 | 2S | 14* | |
| 9 | | | | | 2 | | | | | | | | | | | | 2 | 9 | 70 | 2S | 13* | |
| 10 | | | | | | | | | | | | | | | | | | 10 | | RAIN | | |
| 11 | | | 6 | | 1 | 3 | | | | | | | | | | | 10 | 11 | 50 | 10NW | 15* | |
| 12 | | | | | | | | | | | | | | | | | | 12 | | RAIN | | |
| 13 | | | | | | | | | | | | | | | | | | 13 | | RAIN | | |
| 14 | | | 2 | | 1 | | | | 1 | | | | | | | | 4 | 14 | 28 | 30NW | 12* | |
| 15 | | | 1 | | 2 | | | | | | | | | | | | 3 | 15 | 35 | 15NW | 16* | |
| 16 | | | | | 1 | | | | | | | | | | | | 1 | 16 | 42 | 10NW | 8 | |
| 17 | | | | | 1 | | | | | | | | | | | | 1 | 17 | 45 | 5NW | 9 | |
| 18 | | | 2 | | 2 | | | | | | | | | | | | 4 | 18 | 55 | 10NW | 8 | |
| 19 | | | | | | | | | | | | | | | | | 0 | 19 | 60 | 5E | 7 | |
| 20 | | | 1 | | | | | | | | | | | | | | 1 | 20 | 58 | 3S | 7 | |
| 21 | | | | | | | | | | | | | | | | | | 21 | | RAIN | | |
| 22 | | | 1 | | | | | | | | 1 | | | | | | 2 | 22 | 35 | 10NW | 16* | |
| 23 | | | | | | | | | | | | | | | | | 0 | 23 | 35 | 2NW | 11* | |
| 24 | | | 2 | | | | | | | | | | | | | | 2 | 24 | 35 | 10N | 6 | |
| 25 | | | | | | | | | | | | | | | | | 0 | 25 | 40 | 3E | 5 | |
| 26 | | | | | | | | | | | | | | | | | | 26 | | Not Manned | | |
| 27 | | | | | | | | | | | | | | | | | | 27 | | RAIN | | |
| 28 | | | 2 | | 1 | | | | | | | | | | | | 3 | 28 | 38 | 15NW | 4 | |
| | | | 23 | | 1 | 31 | | | | 1 | 2 | | | | | | 59 | | | | | |
| | | | 30 | 21 | 1 | 352 | 14 | | | 3 | 1 | 19 | 1 | 1 | | 2 | 484 | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |

*Both stations

39 Unidentified

1390 White Bridge Road, Millington, NJ 07946
 EBBA