THE HAWK MIGRATION ALONG THE KITTATINNY RIDGE IN PENNSYLVANIA.

BY EARL L. POOLE.

The Kittatinny Ridge, known locally as the "Blue Ridge," has, since time immemorial, been a favorite highway for the fall migration of certain species of birds of prey, as well as many of our smaller birds. Just why they should elect to follow this ridge is not clear to the writer, since at the locality where the following observations were made it extends from east-northeast to west-southwest, as it does for many miles in either direction. A possible explanation is the fact that, being a practically continuous ridge for many hundreds of miles, it offers a peculiar condition of continuous uplifting air-currents on the windward side in normal weather, thus aiding the typical soaring flight which is characteristic of the Hawks during migration.

My reason for entertaining this view is that during an easterly or southerly breeze the birds pass to the southeast of the crest of the ridge, while during a normal northwesterly breeze the flight follows the northwestern slope of the mountain. This rule appears to be invariable.

The point at which these observations were made is near Eckville, along the boundary line of Berks and Schuylkill Counties, where a mountain road makes accessible a series of rocky prominences from which a clear view may be had of the approaching Hawks as they work their way along the ridge. Similar conditions exist, no doubt, along the entire extent of the ridge, from northern New Jersey to the Southern States.

The scene along the ridge at this point is one of bleak desolation, with a scattering of bleached skeletons of fire-mangled hemlocks and pines projecting above the new growth of the ridge.

The flight of the Hawks over this place during a heavy flight is one of the most impressive sights that one could wish to behold. Singly, or in small scattered groups, they appear from the northeast, soaring in intricate spirals, but all drifting in the same direction. Now and then a low-flying Sharp-shin, probably hoping to surprise

some small prey, skims swiftly past just over the tree-tops, or an Eagle or Osprey, dwarfing even the Red-tails, circles majestically overhead. From far up the ridge they come, now flashing their white undersides toward the sun, and then disappearing for a moment as the darker backs turn sunward, but continually keeping their course along "the endless mountain," as it was known to the Indians.

The sad part of the scene, to the mind of the observer, is the scores of gunners that gather on these promontories, especially on Sundays, during the fall, and slaughter the birds wholesale and indiscriminately as they attempt to run the gauntlet of the blood-thirsty mob.

The lamentable feature of this slaughter is that most of the victims are not even picked up as they fall, but allowed to decompose or serve as food for the foxes, skunks, oppossums, cave-rats, mice and shrews that live in the rocks. Many of them are merely wounded and allowed to die a lingering and miserable death. One could almost condone the killing of the Sharp-shinned and Cooper's Hawks, but during September hundreds of the distinctly beneficial Broad-wings are butchered in the same manner, and in October many Ospreys, Red-tailed and Red-shouldered Hawks and Eagles receive the same treatment.

On certain Sundays in October the writer has seen as many as forty cars parked along the nearby road, with considerably over a hundred gunners stationed at points of vantage along the ridge. On such days the roar of the guns is almost continuous, and resembles a Fourth-of-July celebration on a vast scale. The concensus of opinion among those who have taken part in these "Hawk shoots" over a number of years, is that only a quarter as many fly past this point now as could be seen eight years ago. Little wonder!

From the information that I have been able to gather this condition has existed since 1925, although a few farmers from the immediate neighborhood have been shooting here since about 1915.

The migration commences about August 20 and continues on through November. It starts with a straggling movement of Sharp-shins, Cooper's and Broad-wings, and attains its full momentum by about September 10.

The large flight of Broad-wings occurs around the 20th of Sep-

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Possibly two thousand, mostly Red-tails, with	1 1 4	4	<u>•</u>
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tember, and the main flights of the other species depend to a certain extent on the weather conditions; a heavy flight being almost certain to occur during a sudden drop in temperature, accompanied by a strong northwest breeze.

The flight is usually heaviest from 9 until 11 o'clock in the morning, then there is a lull during the noon hours, and a resumption after 2 o'clock, lasting until about 4:30. From the state of the stomach contents of many of the Hawks shot, it is apparent that they feed mainly in the early morning, although food is doubtless picked up as opportunity offers during the flight. This is especially true of the Sharp-shins.

A summary of the actual observations obtained from reliable sources, along with notes made by the writer during some eighteen visits to the region, will present a composite picture (p. 19) of the nature of this migration during its different stages.

In addition a single Golden Eagle (Aquila chrysaëtos canadensis) was shot by an unknown gunner on November 10, 1931, and seized by the game protector; a Bald Eagle (Haliaeetus l. leucocephalus) was seen on September 10, 1933, and another on October 1 of the same year; a Red-shouldered Hawk (Buteo l. lineatus) on October 14, 1930, and two on October 25, 1931; single Pigeon Hawks (Falco c. columbarius) on October 3, 1931, October 5, 1930, October 18 and 25, 1931, and single Sparrow Hawks (Falco s. sparverius) on September 27, 1931, October 8, 1933, October 14, 1930 and October 27, 1929.

Reading Public Museum, Reading Pa.