

reproductive functions, and it is on these physical differences that sex determinations in the live bird can be based. In the simplest terms, and at the height of the reproductive cycle, they can be described as follows:

MALES: The cloacal region will be found to be in the form of a bulbous protuberance.

FEMALES: The cloacal region tapers off gradually to the vent, and the orifice itself often will be found to be dilated.

The following records taken at random are illustrative of the value of the method, particularly if breeding census work is being undertaken:

Eastern Purple Finch (*Carpodacus p. purpureus*) L32919, banded July 18, 1934, sex determined as young male, plumage fairly strong olivaceous. This bird was subsequently taken in the rosy plumage on July 2, 1935, and June 20, 1936.

Eastern Purple Finch 34-49122, banded June 22, 1935, sex determined as young male, plumage strongly olivaceous. The determination was verified on May 26, 1936, when the bird returned in the rosy plumage.

Eastern Purple Finch 36-61524, banded June 18, 1936, sexed as female, had plumage moderately olivaceous. On July 2, 1937, this bird was again trapped, and again sexed as female.

American Redstart (*Setophaga ruticilla*) 37-12856, banded June 1, 1937, and sex determined as female, repeated on July 5th, July 23d, and August 2d. On the latter date the plumage bore out the earlier sex-determination. (Dwight, *Annals N. Y. Acad. Sci.*, Vol. XIII, No. 1, pp. 1-72, July 18, 1900, referring to the Redstart, says: "Adult winter plumage acquired by a complete postnuptial moult in July.")

To repeat a previously made warning statement, the above system of determining sex has decided values, but not all individuals, even during the nesting season, can definitely be sexed by it. Such birds as clearly conform can be sexed safely, but whenever there is the least doubt, the system should not be pushed—the bird should be released as "sex undetermined."

THE EASTERN HAIRY WOODPECKER (*Dryobates v. villosus*) AS A MIGRANT

By LEWIS O. SHELLEY

IN none of the ornithological literature at my disposal have I seen any reference to the Eastern Hairy Woodpecker as a migratory species, in the sense that it migrates in a similar manner to other migratory species. The A. O. U. Check-List (Fourth Edition) does not mention any migration taking place among any race of Hairies.

In this connection I should like to present some data obtained from observations in East Westmoreland, southwestern New Hampshire. The data submitted cover the period from 1930 to 1935.

In the fall of 1930 it was apparent that there was an autumn increase of Hairies as the birds were almost common during the period from early September (mid-August in 1933) to mid-November, their number reaching a maximum in October. As a rule this species occurs near my home as a single pair having a territory as breeding birds of approximately three-fourths of a mile across. It has also been apparent that Hairies in winter occur as single birds, each male and female occupying a single territory, except that at my feeding station, both sexes are daily visitors throughout the year. Knowledge of the Hairy's distribution during the autumn and winter months has resulted from my being habitually much in the woods and covering a large area during the winter.

During the period above mentioned each fall a movement of Hairies moving southwesterly was easily observed. Coming from the direction of Wessley's Hill on the northeast, they pass by (often fanwise from this hill) toward White and Owl Hills to the southwestward. The distance separating the crests of Wessley's and White Hills is approximately two miles. I have with binoculars many times watched the passage of Hairies over this route between the hills and also at a lower altitude over the valley in which the village nestles. Some birds drop down when reaching the crest of Wessley's Hill and, on entering the woodlands appear to feed as they pass through; others cover the distance in a non-stop flight, at various heights above the tree-tops. They are often heard giving their loud call uttered at the low point in their undulating flight.

In this connection it is interesting to note that Frank M. Chapman mentions that Hairies are more common about Washington, D. C., in winter than in summer. (See the second revised edition of "Birds of Eastern North America," 1932, page 359).

The number of birds seen or heard passing through Westmoreland in a single day may seem small to be classed a migratory movement, but a count at the end of several weeks is surprising. Some days no birds were noted but on other days from one to as many as six were seen. The actual number would be even greater if the birds flying directly over my station and the ones passing more slowly through the woodlands could be seen and counted. In three years, passing Hairies were observed as follows: the first positive 1932 bird was seen and heard flying low on September 7th, and the last was seen on October 15th. One was seen migrating on August 3, 1933—an extremely early date—and the last bird in October. In 1934 a bird was seen September 20th, the last one on October 24th. It was not until this date, October 24, 1934, that I chanced to see what might in reality be classed as a mass movement, a movement which convinced me that this autumn increase of Hairies was, indeed, an actual migration. On this date beginning soon after noon, and

lasting until four o'clock, the birds continued to pass through. At least twelve birds were seen as I walked up a dirt roadway parallel to the course the birds were taking. Other moving Hairies were heard but how many actually were present was undetermined. At one time, when some two hundred yards of mowing and pasture land with some small trees in the borders and brush-growths in bisecting hedgerows was within good view, it was noticed that the birds were spaced from forty to fifty yards apart, keeping along at this distance and abreast of one another. As they approached a rock-maple woods the tendency was to close in nearer together like passing through the neck of a bottle and, once through the woods, again to spread out. Their progress was rather fast, the birds flying from tree to tree, stump or a stub.

I followed and watched in particular a male that continued keeping along nearby but always ahead of me. He would visit one tree, take a turn or two around the trunk or along a branch, stopping to look around, and then drop down to the next point of passage. Once when he flew across the road to a low stump, instead of using the normal bounding flight he resorted to the fast wing-fluttering phase, accompanying it with the chittered call—both of which were a part of the spring mating behavior. He repeatedly crossed the road in a zigzag manner. Climbing to the top of a fence-post or stump, he lingered, probably noting the progress of the other birds and often answering their ringing calls. He, as well as the other birds when seen nearby, gave the appearance of a stranger in a new environment. More time was spent by these birds in looking around and random flying as they advanced than in feeding, and little and often no food was seen to be gleaned in a distance of some sixty yards covered. Their examinations of bark crevices were desultory and hasty. I noted with acute interest how low the birds were passing, quite frequently flying as low as four feet or less from the ground over open spaces where long, bounding flights were made.

Three birds, a female and two males, measured in the course of this study were typical *villosus* in measurements.

If the Hairy Woodpecker shows a migratory trend in this locality, why not elsewhere?