

ART. XLVII.—*Remarks on the Fauna of the Great Smoky Mountains; with Description of a new species of Red-backed Mouse (Evotomys Carolinensis)*; by DR. C. HART MERRIAM.

THE fauna of the higher portions of the southern Alleghanies remained almost unknown until 1870, when Prof. E. D. Cope published a paper on the subject.* His bird notes were made so late in the season (in August and September) as to include the beginning of the fall migration and hence are without value so far as concerns the faunal position of the region. Among mammals, he recorded the Red Squirrel and Canada Lynx as inhabiting the higher mountains. A single species of Salamander, the northern *Desmognathus ochrophæus*, was found on the high peaks of the Black Mountains.

The botany of the region received considerable attention, but sixteen years passed after the appearance of Prof. Cope's paper before anything of importance was contributed to our knowledge of its vertebrate fauna. In 1886 Mr. William Brewster published the results of a very brief visit, made at the beginning of the breeding season of birds, to the mountains of western North Carolina (The Auk, iii, 1886, 94-112; 173-179).

* Observations on the Fauna of the Southern Alleghanies. Am. Nat. iv, 1870, pp. 392-402.

On the higher summits Mr. Brewster found breeding in abundance such northern birds as the Winter Wren, Golden-crested Kinglet, Red-bellied Nuthatch, Junco, Solitary Vireo, Olive-sided Flycatcher, Red Crossbill, Pine Linnet, Black-throated Blue Warbler, Blackburnian Warbler, Canada Flycatching Warbler, and several others. He found the region separable into the Canadian, Alleghanian, and Carolinian Faunæ, concerning which he says: "The boundaries of these divisions are determined chiefly by elevation, the Canadian occupying the tops and upper slopes of the higher mountains down to about 4500 feet, the Alleghanian, the mountain sides, higher valleys, and plateaus between 4500 and 2500 feet, and the Carolinian everything below the altitude last named."

Two of the Canadian birds, namely the Junco and the Blue-headed Vireo, were found to be distinguishable from their northern representatives, and hence were subspecifically separated under the names *Junco hyemalis Carolinensis* and *Vireo solitarius alticola*, respectively.

During the summer of 1887 it was my good fortune to visit this very interesting region, in company with Mr. Henry Gannett, Chief Geographer of the U. S. Geological Survey. By Mr. Gannett's kindness I was enabled to accompany him during a buckboard drive of several hundred miles through the Great Smoky Mountains of Tennessee and North Carolina. Although we entered the mountains in the last week of July, migration had already begun, and it was impossible in most cases to discriminate between the resident and migrant birds. In the case of the Junco, however, young were found in all stages of development from the newly hatched nestling to the fully adult bird; and the important fact was ascertained that the local form inhabiting these mountains is specifically distinct from its northern congener. Hence it must stand as *Junco Carolinensis* Brewster.

Of mammals, the Black Bear, Wolf, Deer, Wild Cat, both Red and Gray Foxes, Raccoon, Opossum, and Gray Squirrel still occur in greater or less abundance according to the locality and altitude. The Panther, Porcupine, Pekan, and Varying Hare are unknown. The Chipmunk (*Tamias striatus*) and Woodchuck or Ground Hog (*Arctomys monax*) were common in places in the Alleghanian belt, about half way up the mountains; and the Gray Rabbit (*Lepus sylvaticus*), Red Squirrel (*Sciurus Hudsonius*), and a Red-backed Mouse (*Eutamias*), were common on the higher summits. The latter genus is circumpolar in distribution and has not been previously recorded from any locality south of Massachusetts. The present representative of the genus is about double the size of the Canadian *Eutamias Gapperi*, and proves to be distinct from any previously described species. It may be characterized as follows:

Evotomys Carolinensis, sp. nov.

Type 3660, ♀ adult, Merriam Collection. From Roan Mountain, North Carolina (altitude 6000 feet), August 11, 1887. C. H. M.

Description of type.—Size much larger than that of any other known representative of the genus. The following measurements were taken in the flesh: total length 164^{mm}; head and body 111^{mm}; nose to eye 13^{mm}; to center of pupil 15^{mm}; nose to occiput 29^{mm}; tail vertebrae 44^{mm}; pencil 7^{mm}; fore foot 13^{mm}; hind foot 21^{mm}; fore leg 26^{mm}; hind leg 37^{mm}; height of ear from crown 11^{mm}; distance between eyes 9^{mm}; Ears large, suborbicular, prominent; superior margin much incurved but not inflexed; superior root considerably anterior to plane of meatus; antitragus large, its anterior root curving upward in front of meatus and almost reaching the superior root of the auricle. Tail long and slender, tapering from base to tip; not sharply bicolor, though paler below than above. Whiskers black and white, reaching little beyond tips of ears. Hind feet very large, and as broad as in Arctic *rutilus*, though by no means so densely haired; dark, with whitish hairs about the nails; posterior third of soles well haired.

Upper parts dark, with a liberal admixture of black-tipped hairs (agreeing in this respect with specimens of *E. Gapperi* from the upper Red River Valley); dorsal stripe dull chestnut and very broad, spreading out laterally and almost fading insensibly into the fulvous suffusion of the sides (in all the other known forms the dorsal stripe is sharply defined laterally). Sides bister, strongly suffused with light fulvous all the way from the cheeks to the thighs. Color of sides reaching down so far as to seem to encroach on the whitish of the belly, completely enveloping the legs. The belly is strongly washed with ochraceous.

Description of other specimens.—A number of specimens from Highlands, N. C., collected in February, March, and April, agree with the above in all essential respects. The line separating the color of the sides from that of the belly is always distinct and sometimes sharply defined (as in Nos. 2057 ♀, and 2314 ♂). The plumbeous basal portion of the fur shows through on the throat but not on the belly, where it is usually entirely obscured by the whitish apical portion. The ochraceous wash is strongest on the middle of the belly. The tail varies in length in the dry skins from 44^{mm} to 58^{mm}, but these measurements must be regarded as approximate only, owing to possible distortion in preparing the specimens. It is always bicolor with a distinct line of demarcation, though the under surface is never white. The average length of the hind foot in six dry skins is 19.5^{mm}.