

MARTEN. *Martes americana*.—One of the commonest and most profitable furbearers of the Mackenzie valley. One was seen chasing a red squirrel about 10 o'clock at night, June 30th, about 50 miles below Simpson.

WEASEL. *Mustela* (cf. to Dr. Anderson).—Probably common. A specimen, taken from a trap at La Butte, near Fitzgerald, was sent to Dr. Anderson.

RED FOX. *Vulpes* sp. ?—One seen on Mt. Clarke, August 13th.

LYNX. *Lynx canadensis*.—A common furbearer in most of the region. One heard in Franklin Mountains, August 2nd.

CANADA WOODCHUCK. *Marmota monax canadensis* (Erxleben).—Sub-species assumed from distribution. One seen at Nig Creek, May 26th. Two seen along Fort Nelson River, June 10th and 16th; they were smaller and with redder and more bushy tail than eastern animals. One at Liard Rapids, June 24th. Two skins seen at Fort Simpson, where they are called "Winisks"; like small eastern ground hogs, one of about the eastern colour, and one dead black.

NORTHERN CHIPMUNK. *Eutamias minimus borealis* (Allen).—Common at Rolla Landing, May 12th, also at Barker Creek, May 28th. One at Waterways, September 25th.

RED SQUIRREL. *Sciurus hudsonicus*.—Well distributed in the coniferous forests everywhere. Very common along Sikanni Chief River, one seen on bare top of Nahanni Butte, 3,900 feet above the river, June 24th. Reasonably common in Franklin Mountains, common at Norman, and on Mt. Charles.

MEADOW MOUSE. *Microtus* (sp. see Dr. Anderson).—A specimen taken at Fort St. John, May 17th, was sent to Dr. R. M. Anderson. Near Blueberry River, writer saw a small "vole" swim across a small creek under water.

VARYING HARE. *Lepus americanus*. sub. sp.?—Very common at St. John and Taylor's Flats. Occurring sparingly along the whole route.

MUSKRAT. *Ondatra zibethica*.—Common in suitable localities. One seen at Trout River, September 7th.

MOOSE. *Alces americana*.—This is the most dependable large game of the Liard and Mackenzie valleys, and yet is rarely seen and may be scarce over some areas. Two seen on Sikanni Chief River. Tracks along Fort Nelson River, in Franklin Mountains and along tributaries of Mackenzie below Simpson. A cow and calf swam Liard River near mouth, June 25th.

BARREN GROUND CARIBOU. *Rangifer arcticus* sp.?—Two cast antlers, one large, on Cap Mountain; antlers were also found on Mt. Clarke.

REPTILES AND BATRACHIANS.

GARTER SNAKE.—A light grey snake, 28 inches long, seen at Fort St. John, May 13th.

FROGS.—Probably northern spotted, in full song from Taylor's Flats to Blueberry River, May 14th to 18th. Several seen near mouth of Fort Nelson River, June 16th and 17th. "Pipers" in Franklin Mountains east of Wrigley, July 6th. Several frogs and tadpoles at Wrigley, July 19th and 20th. Frogs common at Johnson River, July 29th to 31st. Several along Saline River, August 9th.

GEOGRAPHIC VARIATION IN THE BIG BROWN BAT (*Eptesicus fuscus*)

By GLOVER M. ALLEN



THROUGH the courtesy of Dr. R. M. Anderson, I have lately had the opportunity of studying the series of Big Brown Bats (*Eptesicus fuscus*) in the collection of the National Museum of Canada (Ottawa), taken at various places in eastern Canada, Alberta and British Columbia. On laying out this series according to localities, it was evident at once that notwithstanding the generally uniform type of colouring and the slight amount of individual variation, three distinct geographic forms were represented, (1) the olive-brown eastern bat, (2) a much paler, almost white-bellied one from the semi-arid regions of Alberta, and (3) a richly

coloured form from the saturate regions of the Pacific coast of British Columbia. A further comparison of the specimens in the Museum of Comparative Zoology, together with a series of eight lent by the Academy of Natural Sciences at Philadelphia, representing topotypes of the subspecies described as *bernardinus* and *melanopterus*, has resulted in making clearer the distribution of the races found in the continent of North America.

The colour differences correspond fairly well with areas of contrasted humidity. Thus the eastern race, *Eptesicus fuscus fuscus* (Beauvois), type locality, Philadelphia, Pennsylvania, is

tawny olive and glossy above, slightly paler and dull below, with a small amount of individual variation. This race extends from Nova Scotia, to western Ontario and south to northern Florida, east of the Plains.

In southern Florida there is an obvious increase in the richness and intensity of the colouring, which though slight, is sufficient to characterize the race *Eptesicus fuscus osceola* Rhoads, type locality, Tarpon Springs, Hillsboro County, Florida. It closely resembles in colour the Pacific Coast race.

Westward of the Mississippi River region, in correlation with the greater aridity, there is a decided paling out of the colouration, characterizing a well-marked race of the west-central United States and Canada, to which the appropriate name *pallidus* was given by Young in 1908, type locality, Boulder, Boulder County, Colorado. In this dry-country subspecies, the lower surface is sometimes nearly pure white at the tips of the hairs, although their bases are dark, while the dorsal surface is, in extreme examples, "pinkish buff" of Ridgway (1912), as is the case in some of the Alberta specimens (Lac La Nonne). Others from Las Cruces, New Mexico, are nearly as pale though a trifle more soiled whitish below. The range of this form, *Eptesicus fuscus pallidus* Young, is then from Colorado and New Mexico north to Dakota and Alberta.

Westward again, the colouring deepens in intensity as the Pacific coast is reached, resulting in a much brighter brown, nearly cinnamon above, and a duller tint below. This colouring is most extreme in the series from the coast of British Columbia where the atmospheric moisture is greatest but specimens from California, including

Yosemite, Mt. Tallac, San Bernardino, and Mt. Whitney, are distinctly this rather than the whitish-bellied race of the interior. To these Pacific Coast specimens, therefore, the name *Eptesicus fuscus bernardinus* Rhoads will apply, type locality, near San Bernardino, San Bernardino County, California. A synonym is *E. f. melanopterus* Rehn, based on the Mt. Tallac series, some of which I have studied in this connection. A single specimen from Pacheco, Chihuahua, is perhaps as near this as to typical *fuscus*, from which it is hardly distinguishable. Complete intergradation between all these subspecies is obvious, so that frequently it is hard to place individual specimens, but when series are compared the average differences come to view.

From southern Mexico (Mirador, Vera Cruz) has been described a yet darker form, *Eptesicus fuscus miradorensis*, of which a specimen in the Museum of Comparative Zoology from Boquete, eastern Panama, adds a slight extension to the range as given in Miller's check-list (1924). It is nearly "cinnamon brown" above and slightly paler, nearly "buckthorn brown" below.

Finally, from the arid tip of the Lower California peninsula Thomas has named as a distinct race, *Eptesicus fuscus peninsulae*, type locality, Sierra Laguna, Lower California, Mexico. Of this I have seen no specimens.

These notes are offered in an attempt to make the status of the various described subspecies a little clearer and to define their general ranges, since there has been hitherto more or less uncertainty as to the validity of the western races and their general distribution. In Central America a distinct and smaller species, *E. propinquus* (Peters) occurs side by side with the larger.

WILLIAM MARKWICK'S "FLORULA CANADENSIS"

By JOHN ARDAGH



HIS INTERESTING manuscript is in the collection of the Linnean Society of London, and as it is apparently unknown to Canadian botanists, my friend Mr. John Adams, of the Central Experimental Farm, Ottawa, suggested the compilation of this note.

The "Florula" consists of 219 drawings, in Indian ink outline and wash, with a few in water-colour, accompanied by short descriptions on the opposite pages, and is now bound in three folio volumes, with this title-page:—

"Florula Canadensis, or Figures and Descriptions of North American Plants found in Canada

and at Gaspee [sic] Bay in Nova Scotia. Drawn from dried specimens in the possession of Mrs. Prescott by William Markwick F.L.S."

On the back of the title-page is this inscription: To the President, Vice Presidents and Fellows of the Linnaean Society these Drawings of Canadian Plants are most respectfully presented by their most obedient humble servant Wm. Markwick.

The volumes are not dated, but many of the sheets are watermarked "1795" and "1801"; some of the plants were sent from Upper Canada by Mr. White, Attorney-General.



Allen, Glover M. 1933. "Geographic Variation in the Big Brown Bat (*Eptesicus fuscus*)." *The Canadian field-naturalist* 47(2), 31–32.

<https://doi.org/10.5962/p.339438>.

View This Item Online: <https://www.biodiversitylibrary.org/item/89103>

DOI: <https://doi.org/10.5962/p.339438>

Permalink: <https://www.biodiversitylibrary.org/partpdf/339438>

Holding Institution

Harvard University, Museum of Comparative Zoology, Ernst Mayr Library

Sponsored by

Harvard University, Museum of Comparative Zoology, Ernst Mayr Library

Copyright & Reuse

Copyright Status: In copyright. Digitized with the permission of the rights holder.

Rights Holder: Ottawa Field-Naturalists' Club

License: <http://creativecommons.org/licenses/by-nc-sa/3.0/>

Rights: <https://biodiversitylibrary.org/permissions>

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.