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NORTH AMERICAN FAUNA

No. 49

[Date of publication, December, 1926]



A BIOLOGICAL SURVEY OF NORTH DAKOTA

I. PHYSIOGRAPHY AND LIFE ZONES

II. THE MAMMALS

BY

VERNON BAILEY

BIOLOGIST

DIVISION OF BIOLOGICAL INVESTIGATIONS

BUREAU OF BIOLOGICAL SURVEY



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- No. 4. Descriptions of Twenty-six New Species of North American Mammals. By C. Hart Merriam. Pp. 60, pls. 3, figs. 3. 1890. [Out of print.]
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- No. 6. Not issued.
- No. 7. The Death Valley Expedition: A Biological Survey of Parts of California, Nevada, Arizona, and Utah. Part II.—1. Birds, by A. K. Fisher. 2. Reptiles and Batrachians, by Leonhard Stejneger. 3. Fishes, by Charles H. Gilbert. 4. Insects, by C. V. Riley. 5. Mollusks, by R. E. C. Stearns. 6. Desert Trees and Shrubs, by C. Hart Merriam. 7. Desert Cactuses and Yuccas, by C. Hart Merriam. 8. List of Localities, by T. S. Palmer. Pp. 402, pls. 15, maps 5, figs. 2. 1893. [Out of print.]
- No. 8. Monographic Revision of the Pocket Gophers, Family Geomyidae (exclusive of the species of *Thomomys*). By C. Hart Merriam. Pp. 258, pls. 20, figs. 71, maps 4 (colored). 1895. [Out of print.]
- No. 9. Not issued.
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- No. 11. Synopsis of the Weasels of North America. By C. Hart Merriam. Pp. 44, pls. 6, figs. 16. 1896. [Out of print.]
- No. 12. The Genera and Subgenera of Voles and Lemmings. By Gerrit S. Miller, jr. Pp. 84, pls. 3, figs. 40. 1896. [Out of print.]
- No. 13. Revision of the North American Bats of the Family Vespertilionidae. By Gerrit S. Miller, jr. Pp. 140, pls. 3, figs. 40. 1897. [Out of print.]
- No. 14. Natural History of the Tres Marias Islands, Mexico. General Account of the Islands, with Reports on Mammals and Birds, by E. W. Nelson. Reptiles, by Leonhard Stejneger. Notes on Crustacea, by Mary J. Rathburn. Plants, by J. N. Rose. Bibliography, by E. W. Nelson. Pp. 97, pl. (map), figs. 2. 1899. [Out of print.]
- No. 15. Revision of the Jumping Mice of the Genus *Zapus*. By Edward A. Preble. Pp. 42, pl., figs. 4. 1890. [Out of print.]
- No. 16. Results of a Biological Survey of Mount Shasta, California. By C. Hart Merriam. Pp. 179, pls. 5, figs. 46. 1899. [Out of print.]
- No. 17. Revision of American Voles of the Genus *Microtus*. By Vernon Bailey. Pp. 88, pls. 5, figs. 17. 1900. [Out of print.]
- No. 18. Revision of the Pocket Mice of the Genus *Perognathus*. By Wilfred H. Osgood. Pp. 72, pls. 4 (incl. 2 maps), figs. 15. 1900. [Out of print.]
- No. 19. Results of a Biological Reconnaissance of the Yukon River Region: General Account of the Region; Annotated List of Mammals, by Wilfred H. Osgood. Annotated List of Birds, by Louis B. Bishop. Pp. 100, pls. 7 (incl. 1 map). 1900. [Out of print.]
- No. 20. Revision of the Skunks of the Genus *Chincha* [*Mephitis*]. By Arthur H. Howell. Pp. 62, pls. 8. 1901. [Out of print.]
- No. 21. Natural History of the Queen Charlotte Islands, British Columbia; and Natural History of the Cook Inlet Region, Alaska. By Wilfred H. Osgood. Pp. 87, pls. 7 (incl. 1 map), fig. (map). 1901. [Out of print.]

(Continued on page 3 of cover)

U. S. DEPARTMENT OF AGRICULTURE
BUREAU OF BIOLOGICAL SURVEY

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LETTER OF TRANSMITTAL

UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF BIOLOGICAL SURVEY,
Washington, D. C., December 11, 1925.

SIR: I have the honor to transmit herewith, recommending that it be published as No. 49 in the series of the North American Fauna, a report on the biological survey of North Dakota, prepared by Vernon Bailey, biologist of this bureau. This report is in two parts, the first treating of the physiography and natural life zones of the State, accompanied, as in similar reports, by a map of the life zones; and the second, the mammalian life, consisting of notes on the distribution, abundance, and habits of the mammals of the State. Both are based on natural-history explorations conducted by the bureau and cooperating State organizations in North Dakota over many years, the work on the mammals having begun in 1887, and preliminary reports thereon having been published in the annual report of this bureau in 1888, when it was known as the Division of Economic Ornithology and Mammalogy, and in a circular of the North Dakota Agricultural Experiment Station, in 1914, the latter being in the nature of a cooperative report of progress and an appeal for additional local detailed information. The present report comprises a valuable contribution to knowledge and will be useful to farmers, students, and others interested in the distribution, habits, and economic relations of our wild-animal life.

Respectfully,

E. W. NELSON,
Chief of Bureau.

HON. W. M. JARDINE,
Secretary of Agriculture.

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A BIOLOGICAL SURVEY OF NORTH DAKOTA

By VERNON BAILEY

INTRODUCTION

In the preliminary survey of the wild life of North America information has been gathered on the birds and mammals of the country at large, and provisional maps of the life zones of the continent and subdivisions of it have been published. Much of the general information gathered on birds and mammals has been given in bulletins, circulars, and annual reports. The present publication is prepared in accordance with the general plan of providing for definite subdivisions more detailed information on the natural life zones and on the distribution and habits of the native species of birds and mammals. Part I discusses the life zones of North Dakota and Part II the mammals of the State. The publication of the report on the birds will be arranged for separately.

The field work on which this report is largely based has been carried on in North Dakota by the Biological Survey at intervals from the year following its first organization as the Division of Economic Ornithology and Mammalogy in 1886. In 1912 a definite plan of cooperation for covering the State comprehensively by field work and for gathering the specimens and notes necessary for a better understanding of the animal life was entered into between the Biological Survey and organizations in North Dakota, including the State university, the agricultural experiment station, the agricultural and geological survey, and other State educational institutions. Under this plan field work was carried on each season during the subsequent four years.¹ In addition to the Biological Survey material, the collections of specimens at the agricultural college at Fargo and of those at the biological laboratory at Devils Lake, with the many field notes and reports gathered in connection with these, have been freely drawn upon in the preparation of this report.

The Flora of North Dakota, by Herbert F. Bergman (1918), published in the Sixth Biennial Report of the North Dakota Soil and Geological Survey, has been of great assistance in the preparation of the life-zone report and the map. Also, free use has been had of

¹The field work of the Biological Survey was carried on with the assistance of H. E. Anthony, Alfred Eastgate, Stanley G. Jewett, Remington Kellogg, J. Alden Loring, Edward A. Preble, H. H. Sheldon, and H. V. Williams. In 1893 A. K. Fisher made a trip across the State and collected specimens and important mammal notes. The field work of the agricultural college was done by W. B. Bell, assisted by U. S. Ebner, H. V. Williams, and other students at the college. At the State university the work was begun by M. A. Brannon, with the assistance of Alfred Eastgate, and later continued by R. T. Young.

a manuscript report on the Geographical Distribution of North Dakota Plants, by O. A. Stevens, of the agricultural college.

Important material was obtained from notes and records from the private collections of Morris J. Kernall, of the normal school, at Valley City; of Alfred Eastgate, of the fish and game commission, at Devils Lake; of H. V. Williams, taxidermist, at Grafton; of O. J. and M. C. H. Murie, of Moorhead, Minn.; and of other local naturalists. Much valuable information has also been gathered from ranchers and other residents of the State, and especially from early settlers familiar with conditions during pioneer days.

Of published reports consulted, there may be mentioned the following: The journal of Alexander Henry, the Younger (1897), in charge of the Northwest Company's trading posts in the Red River Valley from 1800 to 1808, edited by Elliott Coues and published in 1897; Lewis and Clark's (1893) journals of their trip up the Missouri River through North Dakota, in 1803 and 1804, edited by Doctor Coues in 1893; Maximilian's (Wied, 1839-1841) journal and notes made during his trip up the Missouri River through North Dakota in 1833, his wintering at the Mandan villages, and his return journey in 1834; John James Audubon's journals of his trip up the Missouri River to Fort Buford in 1843, edited in 1897 by his granddaughter, Miss Maria Audubon, and Doctor Coues; and also Audubon and Bachman's *Quadrupeds of North America*, in which many of Audubon's North Dakota notes were first published in 1851.

Elliott Coues, naturalist of the Northern Boundary Survey, in crossing the northern part of the State in 1873, collected many specimens and has included his records in various monographs and publications. J. A. Allen (1875, pp. 33-44), as naturalist of the North Pacific Railroad Expedition of 1873, traveled from Fort Rice, on the Missouri, west to the Yellowstone River in Montana and returned by nearly the same route, and published a list of the mammals observed. Col. Theodore Roosevelt (1900, 1919), from his cattle ranch in the Little Missouri Badlands (1884 to 1886), gave a full and delightful account of the game and natural history of the region in his "Hunting Trips of a Ranchman," "Hunting Trips on the Prairie," and "Hunting the Grisly." Ernest Thompson Seton, in his "Mammals of Manitoba" (1886), and later in his "Life-histories of Northern Animals" (1909), has included many important notes from the State. All these publications have been consulted.

In C. Hart Merriam's Report of the Ornithologist for 1887, there is a summary of Bailey's (1888) field notes of the year, taken on a trip from Fargo to Pembina, Devils Lake, the Turtle Mountains, and Fort Buford. In 1914 a brief preliminary report on the Mammals of North Dakota, by the writer (1914), collaborating with W. B. Bell, then of the agricultural college, and Melvin A. Brannon, of the State university, was published as Circular No. 3 of the North Dakota Agricultural Experiment Station. This was largely in the nature of an appeal for additional information on the mammals of the State.