

PROCEEDINGS
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PRELIMINARY DESCRIPTIONS OF SEVEN SHREWS
OF THE GENUS SOREX.

BY HARTLEY H. T. JACKSON.

In bringing near to completion my taxonomic studies upon North American shrews of the genus *Sorex*, it becomes necessary to describe seven new forms. Six of these are from Mexico and are represented only in the collection of the U. S. Biological Survey; the other is from the north central United States and is represented in several American museums, the type-specimen being selected from the Merriam collection, U. S. National Museum. These shrews, more detailed descriptions of which will appear in the final monograph, may be recognized by the following diagnoses.

***Sorex arcticus laricorum*, subsp. nov.**

Type-specimen.—No. 186837, U. S. National Museum, Merriam collection (old number ²⁰¹⁹/₂₅₅₂); ♂ adult, skin and skull; collected February 19, 1886, by Vernon Bailey. Original number 75.

Type-locality.—Elk River, Sherburne County, Minnesota.

Diagnostic characters.—Similar to *Sorex arcticus arcticus* Kerr, possibly averaging paler on underparts and sides in winter pelage. Skull decidedly flatter and shallower than that of *S. a. arcticus*, less constricted interorbitally, palate somewhat longer.

Measurements.—Type-specimen (measured from dry skin by writer): Total length, 117; tail vertebrae, 42; hind foot, 14. *Skull* of type-specimen: Condylbasal length, 19.0; palatal length, 7.6; breadth of cranium, 9.3; interorbital breadth, 3.8; maxillary breadth, 5.3; maxillary tooth row, 6.8.

Remarks.—The geographic range of *Sorex arcticus laricorum* includes the northern parts of Michigan, Wisconsin, Minnesota, and North Dakota. The subspecies represents a southern form of the *Sorex arcticus* Kerr, the species until recently known under the name *Sorex richardsonii* Bachman.

***Sorex durangae*, sp. nov.**

Type-specimen.—No. 94540, U. S. National Museum, Biological Survey collection; ♂ adult, skin and skull; collected July 19, 1898, by E. W. Nelson and E. A. Goldman. Original number 12774.

Type-locality.—El Salto, Durango, Mexico.

Diagnostic characters.—A member of the *vagrans-obscurus* group, but differs from any other species in the group in its peculiarly high and broad lachrymal region. Posterior borders of molars relatively narrowly and deeply emarginate.

Measurements.—Type-specimen: Total length, 112; tail vertebrae, 50; hind foot, 13 (measured from dry skin by the writer). *Skull* of type-specimen: *Condylbasal length*, 17.1; palatal length, 6.7; breadth of cranium, 8.4; interorbital breadth, 3.7; maxillary breadth, 5.0; maxillary tooth row, 6.3.

Remarks.—Unfortunately there are only two specimens of this new shrew available for study, both from the type-locality, and these give insufficient material for an exact determination of the relation of the species to either *Sorex vagrans* or *Sorex obscurus*. The teeth of both specimens are worn, but indications suggest that the species is probably nearer related to *vagrans* than to *obscurus*.

Sorex saussurei veraecrucis, subsp. nov.

Type-specimen.—No. 55106, U. S. National Museum, Biological Survey collection; ♀ adult, skin and skull; collected July 14, 1893, by E. W. Nelson. Original number 5235.

Type-locality.—Xico, altitude 6,000 feet, State of Vera Cruz, Mexico.

Diagnostic characters.—Essentially like *Sorex saussurei saussurei* in color; tail longer; skull relatively longer and narrower in interorbital region. Paler than *Sorex saussurei oaxacae* or than any subspecies of *saussurei* ranging to the south or east.

Measurements.—Type-specimen: Total length, 118; tail vertebrae, 52; hind foot, 15. *Skull* of type-specimen: *Condylbasal length*, 18.3; palatal length, 7.4; breadth of cranium, 8.7; interorbital breadth, 4.1; maxillary breadth, 5.3; maxillary tooth row, 6.6.

Remarks.—The geographic range of this long-tailed form of *saussurei* is confined principally to the higher parts of the Atlantic drainage from central Vera Cruz south to northeastern Oaxaca.

Sorex saussurei oaxacae, subsp. nov.

Type-specimen.—Number 71467, U. S. National Museum, Biological Survey collection; ♀ adult, skin and skull; collected March 27, 1895, by E. W. Nelson and E. A. Goldman. Original number 7748.

Type-locality.—Mountains near Ozolotepec, altitude 10,000 feet, State of Oaxaca, Mexico.

Diagnostic characters.—Skull short, broad and depressed, compared with other forms of the species. Color distinctly darker than in *Sorex saussurei saussurei* or *Sorex saussurei veraecrucis*.

Measurements.—Type-specimen: Total length, 114; tail vertebrae, 48; hind foot, 15. *Skull* of type-specimen: *Condylbasal length*, 18.2; palatal length, 7.3; breadth of cranium, 9.0; interorbital breadth, 4.2; maxillary breadth, 5.6; maxillary tooth row, 6.7.

Remarks.—The description of this representative of *saussurei* is based upon a single specimen. The characteristic skull of the subspecies separates it sharply from other forms of the group.

***Sorex saussurei cristobalensis*, subsp. nov.**

Type-specimen.—Number 75883, U. S. National Museum, Biological Survey collection; ♀ adult, skin and skull; collected September 19, 1895, by E. W. Nelson and E. A. Goldman. Original number 8429.

Type-locality.—San Cristobal, altitude 8,400 feet, State of Chiapas, Mexico.

Diagnostic characters.—Similar in cranial characters to *Sorex saussurei veraeacrusis*, but with apparently heavier dentition; color darker than in *veraeacrusis* and tail shorter. Color much as in *Sorex saussurei oaxaca*, but skull distinctly longer and narrower.

Measurements.—Type-specimen: Total length, 116; tail vertebrae, 46.5; hind foot, 13.5. *Skull* of type-specimen: Condylobasal length, 18.5; palatal length, 7.6; breadth of cranium, 8.5; interorbital breadth, 4.0; maxillary breadth, 5.4; maxillary tooth row, 6.7.

Remarks.—As with *Sorex saussurei oaxaca*, this form is represented in collections only by a single specimen, and its variation and distribution are unknown. The single specimen, however, is so different from either *Sorex saussurei veraeacrusis* or *S. s. oaxaca* as to clearly separate it.

***Sorex emarginatus*, sp. nov.**

Type-specimen.—Number 90847, U. S. National Museum, Biological Survey collection; ♀ young adult, skin and skull; collected September 17, 1897, by E. W. Nelson and E. A. Goldman. Original number 11765.

Type-locality.—Sierra Madre near Bolanos, altitude 7,600 feet, State of Jalisco, Mexico.

Diagnostic characters.—Similar externally to *Sorex saussurei saussurei* but with shorter hind foot. Differs from *Sorex ventralis*, *Sorex oreopolus*, and from all other forms of the species *saussurei* in its narrow and deeply emarginate m^1 , and in having the fourth upper unicuspid distinctly smaller than the third.

Measurements.—Type-specimen: Total length, 100; tail vertebrae, 42; hind foot, 12.5. *Skull* of type-specimen: Condylobasal length, 16.9; palatal length, 7.0; breadth of cranium, 8.0; interorbital breadth, 4.0; maxillary breadth, 5.0; maxillary tooth row, 6.2.

Remarks.—This is a small species of the *saussurei* group of shrews. It is as small as *Sorex ventralis*, but in cranial characters is more like *saussurei*; and with the advent of more material it may prove to be a subspecies of the latter.

***Sorex veraepacis chiapensis*, subsp. nov.**

Type-specimen.—No. 75877, U. S. National Museum, Biological Survey Collection; ♀ adult, skin and skull; collected October 1, 1895, by E. W. Nelson and E. A. Goldman. Original number 8528.

Type-locality.—San Cristobal, altitude 9,500 feet, State of Chiapas, Mexico.

Diagnostic characters.—Intermediate in many respects between *Sorex veraepacis veraepacis* and *Sorex veraepacis mutabilis*. Smaller than *S. v. veraepacis*, about the size of *mutabilis* with longer tail; color in winter about as in *S. v. veraepacis*, more grayish than *mutabilis*. Skull somewhat similar to that of *mutabilis*, but broader and with wider mesopterygoid space.

Measurements.—Type-specimen: Total length, 120; tail vertebrae, 48; hind foot, 14.5. *Skull* of type-specimen: Condylbasal length, 18.3; palatal length, 7.3; breadth of cranium, 9.5; interorbital breadth, 4.2; maxillary breadth, 5.3; maxillary tooth row, 7.0.

Remarks.—Externally *Sorex veraepacis chiapensis* resembles *Sorex veraepacis veraepacis*, but cranially it is nearer to *Sorex veraepacis mutabilis*. Skulls of *S. v. chiapensis* can be separated from those of *S. v. veraepacis* by their smaller size, and from those of *S. v. mutabilis* by their wide mesopterygoid space.