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THE WATER SHREW (*SOREX PALUSTRIS*) OF THE
SOUTHERN ALLEGHENY MOUNTAINS

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THAT shrews of the species *Sorex palustris* occur in the Appalachian mountain system south of Monroe County, Pennsylvania, the southernmost record of occurrence given by Jackson (1928: 183), has been suspected for some time. Kellogg (1937: 446-47), for example, indicated that the "water ground moles" reported seen by certain individuals on the headwaters of the Williams River, Pocahontas County, West Virginia, probably were shrews of that species. No specimens were collected from that area or elsewhere in the southern Allegheny Mountains, however, as far as I am aware.

A party from the Museum of Zoology, University of Michigan, which recently conducted studies in the mountains of West Virginia, Virginia, and North Carolina, obtained specimens of the water shrew from three localities in West Virginia. In certain features these specimens are unlike specimens of *albibarbis* and *hydrobadistes*, the races of *Sorex palustris* ranging nearest them. They represent an undescribed race, which may be designated

Sorex palustris punctulatus, new subspecies

TYPE.—Adult male, skin and skeleton, University of Michigan Museum of Zoology No. 85498; West Virginia, Randolph

County, six miles northwest of Durbin, Shavers Fork of the Cheat River, 3600 feet elevation; collected July 18, 1941, by Emmet T. Hooper; original number, 1664.

DISTRIBUTION.—Allegheny Mountains of eastern West Virginia, and probably also of southwestern Pennsylvania, western Maryland, and northwestern Virginia.

CHARACTERS.—A subspecies of *Sorex palustris* characterized by large size, grizzled upper parts, pale gray underparts in winter pelage, narrow interorbital space, and long, narrow metastyle of Pm⁴.

COLOR.—In both summer and winter pelage resembling the corresponding pelages of *Sorex palustris navigator*, particularly as regards the grizzling or flecking of the dorsum with whitish hairs, but considerably darker and browner than in that race.

Winter pelage: Upper parts, sides, and legs near Chaetura Black and Fuscous-Black, flecked with whitish by the silvery subterminal bands of the hairs, producing a grizzled and somewhat iridescent appearance. Underparts near Smoke Gray or Light Drab when viewed as suggested by Jackson (1928: 14-15), but silvery white when viewed with the light striking the specimen at a plane perpendicular to the plane of the ventral surface. Outer half of upper surface of feet (including long, fringing hairs) and entire upper part and distal one-third of lower part of tail dark brown. Proximal two-thirds of undersurface of tail whitish. Inner half of upper surface of feet (including fringing hairs) silvery white.

Summer pelage: Browner than winter pelage, the underparts barely paler than the upperparts, and the tail monocolored except at its base. Upperparts near Chaetura Drab, finely flecked with whitish, but with less than in the winter pelage. Ventral surface near Hair Brown or Olive-Brown, paling on throat and chin to grayish white. Upper surface of feet and fringing hairs brownish. Proximal one-fourth of tail whitish below.

COMPARISONS.—The race *punctulatus*, as presently known, is distinct in color from both *albibarbis* and *hydrobadistes*.

The hue in the summer pelage is essentially the same, but the stippling or grizzling effected by the whitish subterminal hair bands produces a different appearance of the dorsum. The winter pelage is even more distinct, considerably grayer, and more grizzled in appearance than in either of those races. Cranially, Pm^2 and Pm^3 are larger, and the metastyle of Pm^4 is longer and narrower. These differences, however, are slight and, relative to the condylobasal length of the skull, may be negligible. The race *punctulatus* is larger than *albibarbis* (head and body length averaging 85 mm. compared with 80 mm.; condylobasal length 21.15 mm. compared with 20.06 mm.) and relatively broader across the maxillae than *hydrobadistes* (maxillary breadth 62 per cent of cranial breadth, compared with 59 per cent in *hydrobadistes*).

MEASUREMENTS (in mm.).—Type and the two paratypes: total length, 152 (153–155); tail, 64 (70–71); hind foot, 19 (20–20); condylobasal length of skull, 21.1 (21.2); palatal length, 8.8 (9.0–9.1); cranial breadth, 10.6 (10.3); interorbital breadth, 3.9 (3.8–3.9); maxillary breadth, 6.5 (6.4–6.5); maxillary tooth row, 7.9 (8.0–8.1).

REMARKS.—The type specimen was collected under a log at the base of a yellow birch sapling, in a forest of spruce, hemlock, yellow birch, maple, and beech. The point of capture was about one hundred yards, and across highway U. S. 250, from Shavers Fork, the nearest body of water. It is in winter pelage. The other two specimens were taken at the edge of streams feeding or draining spruce swamps, one specimen among bracken, rhododendron, and hemlock, the other among sedges, rushes, willows, and spruce. Both have acquired most of their summer pelage (July 12 and July 21).

For the loan of comparative material, I am indebted to Frederick A. Ulmer, Jr., of the Academy of Natural Sciences of Philadelphia, and George L. Kirk of Rutland, Vermont.

Capitalized color terms are from Ridgway (1912). Measurements of the skull were taken as described by Jackson (1928: 13).

SPECIMENS EXAMINED.—*Sorex palustris navigator*. Cali-

ifornia: Inyo Co.: two and one-half miles east of Laws, 1. Colorado: Boulder Co., seven miles northwest of Nederlands, 1. El Paso Co., Minnehaha, 2; Rocky Mountain National Park, Willow Park, 1. Montana: Glacier National Park, Sherburne Lake, 1. Utah: Daggett Co., twenty-one miles south of Manila, Beaver Creek, 1. Wyoming: Teton Co., Jackson, 4; Whetstone Creek, 3; Beaver Dick Lake, 1.

Sorex palustris hydrobadistes.—Michigan: Chippewa Co., 1. Marquette Co., Huron Mountain Club, 1. Menominee Co., eight miles west-southwest of Stephenson, 1; eight miles north of Hermansville, 2. Ontonogon Co., Gogebic Lake, 3. Minnesota: Lake Co., Splitrock River, 1.

Sorex palustris albibarbis.—New Hampshire: Carroll Co., Intervale, 1. New York: Franklin Co., Tupper Lake, 1. Pennsylvania: Monroe Co., seven miles east of Cresco, Bushkill Creek, 1. Vermont: Rutland County: Chittendon, 1; East Wallingford, 4; Mendon, 1; Sherburne, 1; West Bridgewater, 1.

Sorex palustris punctulatus.—West Virginia: Preston Co., one mile south-southeast of Cranesville, 2600 feet, 1. Randolph Co., six miles northwest of Durbin, Shavers Fork of Cheat River, 3600 feet, 1; four miles north-northwest of Durbin, Blister Run, 3650 feet, 1.

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