

FIG. 1.—Mean, maximum and minimum heart rates of black bears in relation to age. Bears 6 months of age or less were hand-held; older bears were anesthetized with succinylcholine chloride.

action to it must be considered as factors in elevation of the heart rate. However, rectal temperature was normal, but the rapidity with which the heart rate may be elevated is much greater than that with which the rectal temperature can rise in as large an animal as the adult bears.

It thus seems possible that the heart rates of the young bears are more reliable, and that the decrease in heart rate with age is even more marked than shown here.—RAYMOND J. HOCK, *Northrop Space Laboratories, Hawthorne, California*. Accepted 15 January 1966.

#### GEOGRAPHIC AND ECOLOGICAL RANGE OF THE LONG-NOSED BATS, *LEPTONYCTERIS*

As currently understood, the long-nosed bats of southwestern United States and northern México are divisible into two species, *Leptonycteris nivalis* (Saussure) and *Leptonycteris sanborni* Hoffmeister (Davis and Carter, Proc. Biol. Soc. Wash. 75: 193–198, 1962). *L. nivalis* is known from Texas and Coahuila south, at least in winter, through eastern México to Morelos and Veracruz. *L. sanborni* is known from southern Arizona southward through

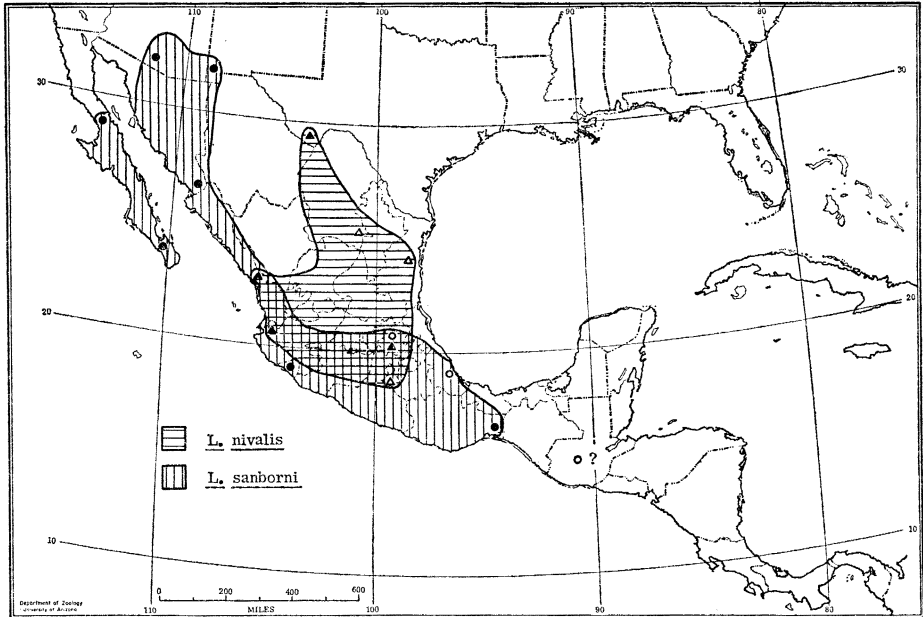


FIG. 1.—Distribution of *L. nivalis* and *L. sanborni*.

western México to southern México where presumably it occurs from coast to coast and overlaps the southern range of *L. nivalis* during the winter.

Two specimens in the University of Arizona collection from Sinaloa, western México, appear to be *L. nivalis*, thus extending the known range of the species to western México. These, both female, were taken on 18 February 1964 by Richard S. Crossin 10.3 miles by road W of Palmito, 6,000 ft, in southern Sinaloa.

Selected measurements of these specimens followed in parentheses by the range of variation for female *L. nivalis* as given by Davis and Carter (1962) are as follows: forearm, 55.9, 59.1 (54.5–58.2); third phalanx III, 16.9, 17.3 (17.0–18.3); length of third finger, 106.9, 111.0 (108.4–112.3); mastoid breadth, 11.6, 12.1 (11.5–12.2). A specimen of *L. sanborni* collected at Elota, Sinaloa, measured: forearm, 52.9; third phalanx III, 12.2; total length of third finger, 97.4 and mastoid breadth, 11.15, which falls within the range of variation for that species. The series of *L. nivalis* in the Texas A & M University collection has been examined. The two Sinaloan specimens do not appear taxonomically different from *L. nivalis* of eastern México and Texas. The uropatagium is shorter and more densely haired in the *L. nivalis* specimens than in the *L. sanborni* specimens.

An analysis of the locality data of the various specimens examined in this study indicates that *L. nivalis* and *L. sanborni* are ecologically isolated. Fig. 1 shows the known distribution of the two species. The specific designation of the two specimens from Guatemala is not known.

*L. nivalis* has been collected at 7,500 ft, Emory Peak, Texas; 7,500 ft, 2 miles E, 12 miles S Arteaga, Coahuila; 11,500 ft La Jaha, Nuevo León, and the specimens from Sinaloa were taken at 6,000 ft in the pine-oak zone. *L. sanborni* has been taken at 2,500 ft, Slate Mtn., Pinal County; 3,500 ft, Colossal Cave, Pima County; 4,800 ft, Blue Mtn. Cave, Cochise County; 5,500 ft, Pyatt Cave, Huachuca Mtns., all in Arizona; 1,000 ft, Alamos; 2,500 ft, Tajitos; 1,800 ft, Carbo, Sonora, México. Although information concerning the

habitat of *L. nivalis* is scarce, it appears to be in the pine-oak zone above that of *L. sanborni*; while the habitat of *L. sanborni* appears to be lower and restricted to desert, desert grassland and the lower margin of the oak zone. In fact, Saussure's original specimen of *L. nivalis* reportedly was taken at the "snow line of mountain," which further supports Davis' and Carter's application of the name *L. nivalis* to the eastern population.

*Leptonycteris nivalis*.—Specimens examined: **TEXAS**, Brewster County, Chisos Mtns., 2 (U. Ariz.). **HIDALGO**, Tulacinga, 1 (USNM). **JALISCO**, San Sebastian, 6 (USNM). Other records: **COAHUILA**, 12 miles S, 2 miles E Arteaga (Davis and Carter, 1962). **TAMAULIPAS**, 6.5 miles N, 13 miles W Jimenez, 1 (Alvarez, Univ. Kansas Publ., Mus. Nat. Hist., 14: 401, 1963). **MORELOS**, Tepoztlan, 3 miles E Tepoztlan (Davis and Carter, 1962).

*Leptonycteris sanborni*.—Specimens examined: **ARIZONA**, Pinal County, 27 miles SW Casa Grande, 2 (U. Ariz.). **NEW MEXICO**, Hidalgo County, 17 miles NNE Rodeo, 2 (U. Ariz.). **SONORA**, ¼ mile W La Aduana, 59 (U. Ariz.). **COLIMA**, Pueblo La Jola, 5 (U. Ariz.). **OAXACA**, 29 miles NW Tehuantepec, 2 (U. Ariz.). Other records: **BAJA CALIFORNIA**, 2 miles W Santa Rosalia, Cerro del Elote (Mus. Vert. Zoology). **VERACRUZ**, 3 miles W Boca del Río (Davis and Carter, 1962). **HIDALGO**, 6 km NW Tasquillo (Davis and Carter, 1962).

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#### THE MIDVENTRAL GLAND IN MALAYSIAN MURID RODENTS

A midventral sebaceous gland of unknown function has been described in *Rattus exulans* in Hawaii by Quay and Tomich (J. Mamm., 44: 537-542). These authors were unable to locate descriptions of the gland's occurrence in other murids from the Pacific area, but suggested from comparisons with other families a potential taxonomic value based on the occurrence and character of this and other glands. In May 1964 during the course of other studies I examined 109 individuals of 12 species of Malaysian murids and noted the presence or absence of the gland and in many instances the size of externally stained area if present. Serial sections were later made from 21 specimens representing nine species. Specimens examined came from two rain forest localities in the state of Selangor, Malaysia: Ulu Gombak, ½ mile E Genting Sempah Youth Hostel, and the aboriginal village, Bukit Lagong Forest Preserve. Scientific names follow those of Harrison and Traub (J. Mamm., 31: 337-346) and Lord Medway (Mammals of Borneo, in press).

The histological description given by Quay and Tomich accurately describes the appearance of the glands that I examined with one exception. In a few old individuals the gland is much larger, reflected histologically in the presence of very large sebaceous glands. Other features are precisely the same and need no further comparison here.

External examination showed the gland to be absent in one species, poorly expressed and possibly absent in another, lightly expressed in a third species and present in the remaining nine dependent upon age and sexual state. For weight and growth information on these and other Malaysian species, see Rudd (J. Mamm., 46: 588-594). Comments on the midventral gland by species follow:

*Rattus annandalei*.—1 ♂; 1 ♀. Both individuals showed dark external staining. The female had bred; the male was adult with a testis length of 18 mm.

*Rattus muelleri*.—4 ♂. Staining was very pronounced in two individuals each having a testis length of 20 mm.