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Myotis peninsularis.

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Myotis peninsularis Miller, 1898

Peninsular Myotis

Myotis peninsularis Miller, 1898:124. Type locality "San José del Cabo, Baja California, México."

CONTEXT AND CONTENT. Order Chiroptera, Family Vespertilionidae, Subfamily Vespertilioninae, Genus *Myotis*, Subgenus *Leuconoe*. *M. peninsularis* is monotypic (Hall, 1981). The genus *Myotis* is cosmopolitan in distribution and includes ca. 84 species. *Myotis peninsularis*, along with *M. grisescens* and *M. velifer*, belongs to the *grisescens* group of the subgenus *Leuconoe* (see remarks).

DIAGNOSIS. *Myotis peninsularis* is one of the largest species of *Myotis* in North America. Characters include the presence of a sagittal crest, brain case of medium size, rostrum broader relative to total length of skull, plagiopatagium attached to side of foot, calcar not keeled, and forearm longer than the majority of other North American *Myotis*. Compared to *M. velifer*, with which it was allied for many years (Fitch et al., 1981; Miller and Allen, 1928), *M. peninsularis* is smaller in all measurements (Hayward, 1970). Sample means (in mm) of *M. v. velifer* (first) and *M. peninsularis* can be compared: length of forearm, 43 and 38; greatest length of skull, 16 and 15; length of maxillary toothrow, 6.3 and 5.9; breadth of brain case, 7.9 and 7.2 (Hayward, 1970). In Baja California, Mexico, *M. peninsularis* can be distinguished from *M. evotis* by presence of shorter ears; from *M. californicus*, *M. ciliolabrum*, and *M. volans* by greater size and absence of a keeled calcar; from *M. yumanensis* by greater size and attachment of plagiopatagium to side of foot; and from *M. thysanodes* by absence of a fringe of hair on the uropatagium (Alvarez et al., 1994; Hall, 1981). *M. vivesi* is much larger (length of forearm, 59–63 mm; length of hind foot, 23–24 mm) than *M. peninsularis* (Hall, 1981).

GENERAL CHARACTERS. Externally, *M. peninsularis* generally resembles *M. velifer* but is smaller. The dorsum is clay-colored and the base of the hair is grayish to yellowish brown; ventral pelage is lighter with the base of the fur brownish olive and the tips chamois (Villa-R., 1967). Skull is large and robust; sagittal crest well developed (Fig. 1); dental formula i 2/3, c 1/1, p 3/3, m 3/3, total 38; calcar well developed, terminating in a minute lobule, but not keeled.

Means and ranges (in mm) for external (n = 15) and cranial (n = 20) measurements are as follows: length of head and body, 48.5 (44.8–55.0); length of tail, 35.6 (31.0–40.8); length of tibia, 15.9 (15.0–17.0); length of hind foot, 8.1 (7.6–8.4); length of forearm, 38.9 (37.2–40.6); length of thumb, 6.2 (5.2–6.8); length of third metacarpal, 35.9 (34.0–37.4); length of fifth metacarpal, 33.8 (32.4–35.4); greatest length of skull, 15.1 (14.2–15.6); condylobasal length, 14.3 (13.6–14.8); zygomatic breadth, 9.7 (9.0–10.0); length of interorbital constriction, 3.6 (3.4–3.8); breadth of brain case, 7.1 (7.0–7.2); occipital depth, 5.3 (5.0–5.8); length of mandible, 11.4 (11.0–12.0); length of maxillary toothrow, 6.1 (6.0–6.4); length of mandibular toothrow, 6.9 (6.2–7.0—Miller and Allen, 1928).

DISTRIBUTION. Specimens have been reported only from the Cape Region of Baja California Sur, Mexico (Huey, 1964; Ramírez-Pulido et al., 1983, 1986; Woloszyn and Woloszyn, 1982) from the following locations (Fig. 2): La Paz; 1 km S Las Cuevas; Miraflores, 225 m; 5 km SE Pescadero; Santa Anita; Santiago; San José del Cabo (Jones et al., 1965; Miller and Allen, 1928; Townsend, 1912; Villa-R., 1967). Additional localities are known from museum specimens: Sierra La Laguna, Cañon Ojo de Agua, 3 km E La Burrera; Arroyo San Jorge, 7 km SW Santiago; Cueva la Capilla; and El Triunfo. This species is found in arid tropical and lower Sonoran life zones (Nelson, 1922). No fossils of *M. peninsularis* are known. Its closest relative, *M. velifer*, is known from the Pleistocene (Fitch et al., 1981).

FORM AND FUNCTION. Two color phases were present in the original series of *M. peninsularis*, one "duller, the other more intense [reddish]." (Miller and Allen, 1928:94). In addition, males have a brighter (more yellowish or orangish) dorsum than females; males were noticeably more yellowish orange ventrally (Jones et al., 1965). Apparently Woloszyn and Woloszyn (1982) also captured bats of two color phases. The pelage of certain individuals of *M. velifer* tends to bleach at sites of high humidity and ammonia concentrations (Constantine, 1957) and *M. peninsularis* is known to roost at such sites (Woloszyn and Woloszyn, 1982). One skin in the original series of *M. peninsularis* (USNM 93553) is albinistic with a considerable sprinkling of white hairs on the nape and especially on the lower back and sides, just behind each shoulder (Miller and Allen, 1928).

Externally, females are slightly larger than males. Means and ranges (in mm) for 33 males and 33 females (males first) are as follows: length of head and body, 46 (41–50) and 47 (43–50); length of tail, 41 (36–44) and 41 (37–46); length of forearm, 39.1 (35.5–42.5) and 40.0 (37.8–42.5); and length of ear, 16 (14–18) and 16 (14–17—Woloszyn and Woloszyn, 1982). However, and unlike the situation in *M. velifer*, male *M. peninsularis* have greater body mass than females. Mean body mass among samples of *M. v. velifer* in southern Arizona ranged from 7.53 to 9.60 g in males and from 7.58 to 10.75 g in females. By comparison, average body mass for

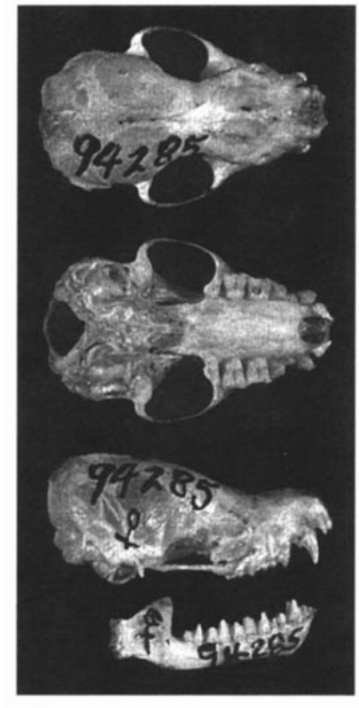

FIG. 1. Dorsal, ventral, and lateral views of cranium and dorsal and lateral views of mandible of a female *Myotis peninsularis* from Miraflores, 225 m, Baja California Sur, México. Greatest length of cranium is 15.70 mm. Photographs by Fernando A. Cervantes.

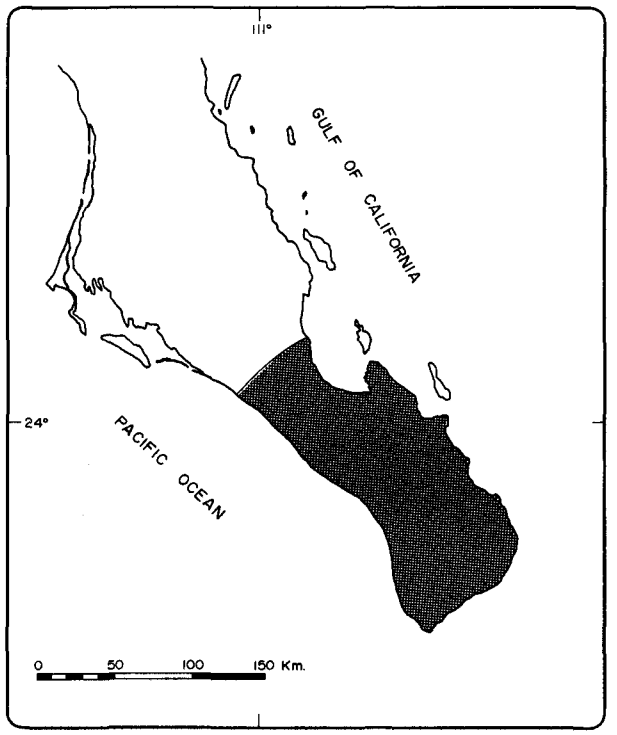

FIG. 2. Distribution of *Myotis peninsularis* in Baja California Sur, Mexico (modified from Hall, 1981).

male and female *M. peninsularis* from Baja California, Mexico was 5.98 g (n = 19) and 5.33 g (n = 12), respectively (Hayward, 1970). Other data on body mass exhibit similar trends, but absolute differences are smaller, with males averaging 5.5 g (4.5–7.0) and females averaging 5.3 g (4.0–6.0—Woloszyn and Woloszyn, 1982).

The spermatozoa from *M. peninsularis* and *M. velifer* do not differ among three individuals of the two species examined but are distinguished easily from those of other species of *Myotis*. The head is distinctly shorter than in spermatozoa of other *Myotis*, with a concave base, a blunt apex, and sides nearly parallel in dorsal and ventral views; the head is broad relative to the length. Measurements of the head (in μm) is, length, 3.95 (3.67–4.22); width, 1.84 (1.67–2.04); depth, 1.32 (1.19–1.50). The neck is short but distinct; length was 0.50 (0.44–0.54) in 10 spermatozoa. The midpiece (n = 10 spermatozoa) tapers markedly posteriorly owing to a broadened anterior end; width, (in μm) is 1.70 (1.53–1.90), length, 16.05 (15.27–16.49); axial filament not observed but assumed to be present. Width of midpiece is 92% width of head and length of midpiece is 4.05 times longer than the head, both more than in any other species of *Myotis* (Forman, 1968). *M. peninsularis* has not been observed during the winter and may hibernate; however no proof of this exists (Woloszyn and Woloszyn, 1982).

REPRODUCTION. Mating occurs at the end of summer and during autumn, sometimes continuing into the following spring (Woloszyn and Woloszyn, 1982). Pregnant females were found in May and June, with parturition occurring in late June and early July. Volant young-of-the-year have been captured at the end of July. An estimated 5,000 females and young occupied a large cave at Las Cuevas on 14 July; a maternity colony of ca. 100 females and young were found in the crevices of an abandoned adobe house in Miraflores on 12 July (Jones et al., 1965).

ECOLOGY. Few direct observations of *M. peninsularis* are available, but this species was in company with a maternity colony of *Tadarida brasiliensis* and ca. 100 *Natalus stramineus* at Las Cuevas (Jones et al., 1965). *M. peninsularis* was collected in the palm roof of a house near the Pacific coast and has been reported in desert matorral, tropical deciduous forest, oak forest, and pine-oak forest (Galina Tessaro et al., 1988). We have netted *M. peninsularis* in association with *Antrozous pallidus, Eptesicus fuscus, Lasiurus blossevillii, L. ega, N. stramineus, Nyctinomops femorosaccus, Pipistrellus hesperus,* and *T. brasiliensis.*

REMARKS. *Myotis peninsularis* was considered distinct from *M. velifer* based on its smaller size and restricted "insular" distribution (Hayward, 1970:5) and was retained as a full species within the subgenus *Leuconoe* by Koopman (1994). *M. velifer* was assigned to the *grisescens* group of the subgenus *Leuconoe* by Findley (1972), and we suspect *M. peninsularis* belongs to this group as well. No data on genetics, food habits, and activity are known. We thank F. A. Cervantes for taking photographs of the skull.

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