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Chaerephon chapini.

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Chaerephon chapini J. A. Allen, 1917

Chapin's Free-tailed Bat

Chaerephon chapini J. A. Allen, 1917:461–463. Type locality "Faradje, northeastern Belgian Congo," Democratic Republic of the Congo.

Chaerephon shortridgei Thomas, 1926:289–290. Type locality "Ukualukasi, N.W. Ovamboland," Namibia.

Chaerephon lancasteri Hayman, 1938:383–386. Type locality "Lunzi River, Lundazi District, Loangwa Valley, N.E. Rhodesia," Zambia.

CONTEXT AND CONTENT. Order Chiroptera, suborder Microchiroptera, family Molossidae, genus *Chaerephon* (Freeman 1981; Koopman 1993).

DIAGNOSIS. Combination of small size (length of forearm 34–40 mm), white wing membranes, and long erectile crest separate *C. chapini* from sympatric species of molossids. Interaural crest of male *C. chapini* (Fig. 1) is longer (12–15 mm) than that of any other molossid.

GENERAL CHARACTERISTICS. Color of venter varies from gray-brown, with middle of the belly white (Allen 1917) to pale drab, ends of hairs whitish (Thomas 1926) to pure white (Hayman 1938). *C. chapini* from Zimbabwe, Botswana, and Ghana have white venters, and those from east Africa and Sudan are gray to gray-brown. Most individuals have white to whitish wings, but a few from Kenya are pale brown to gray-brown. Color of upper parts of *C. chapini* is pale cinnamon brown (Allen 1917) to drab (Thomas 1926) to gray drab (Hayman 1938), with bases of hairs lighter. Allen (1917) describes a narrow band of white at proximal edge of wing membranes, between humerus and femur, a feature not consistently present in all Royal Ontario Museum specimens. Ears are joined with a lappet or pocket between them, and an interaural tuft of hairs originates in the lappet. Sexual dimorphism in the structure of interaural crest is striking, with females having a small crest (3–5 mm) and males a long, bicolored one (12–15 mm; Fig. 1). Tuft is reddish chestnut to blackish brown at base and whitish to pale buff at distal end (Allen 1917; Hayman 1938; Thomas 1926;) in breeding males. Crown has a naked triangular patch with its apex at center of tuft. The naked patch is covered when the crest is laid back (Hayman 1938).

The following measurements (in mm; mean with parenthetical range and sample size) were obtained from specimens in the Royal Ontario Museum: length of forearm, 36.5 (35.0–37.6, 9); total length, 86 (78–115, 9); length of tail, 32 (28–43, 9); length of hind foot, 7.6 (7–9, 8); length of ear, 14.7 (12–18, 9); length of tragus, 3.5 (3–4, 2); greatest length of skull, 14.7 (14.2–15.2, 8); zygomatic width, 9.4 (9.1–9.8, 9); breadth of braincase, 8.1 (7.8–8.9, 17); width of postorbital constriction, 3.6 (3.4–4.0, 17); width across M3–M3, 6.8 (6.5–7.2, 17); upper toothrow (C–M3), 5.56 (5.4–5.8, 9); and width across upper canines, 4.1 (3.7–4.5, 17). Mass of 4 specimens averaged 10 g (range 8–15 g).

DISTRIBUTION. *Chaerephon chapini* is widespread in Africa from Ghana in the northwest to Sudan, Uganda, and Kenya and south to Zambia, Zimbabwe, Botswana, and Namibia (Fig. 2). No fossils are known.

FORM AND FUNCTION. Dental formula is i 1/1–2, c 1/1, p 2/2, m 3/3, total 28–30. Upper incisors are parallel, slightly separated, and with a wide space between them and the canines. Lower incisors are bifid (Allen 1917), and occasionally a 2nd pair of weak incisors occurs. First upper premolar is minute, lies in the toothrow, and separates canine and P4. First lower premolar is smaller and with a much lower crown than the 2nd. Premaxillae are fully ossified. Palatal foramina have coalesced and form a small U-shaped vacuity. Basisphenoid pits are deep and slightly longer than wide (Fig. 3). Preorbital (lachrymal) processes are strongly developed. Median crest is slightly indented, whereas lambdoid crest is moderately strong (Allen 1917). Anterior palatal emargination is shallow, not extending behind level of upper incisors, and is separate from incisive foramina. Third commissure of last upper molar is well developed, ca. three-fourths the length of the 2nd.

Development of crest is likely dependent on breeding condition and age of male. Hairs of crest in mature males are osmetrichia, differing from body hairs (Hickey and Fenton 1987). Osmetrichia are specialized for scent dispersal (Hickey and Fenton 1987) and are associated with a glandular structure that is also sexually dimorphic in *Chaerephon pumilus* (Bouchard 2001).

ONTOGENY AND REPRODUCTION. A female caught in Zimbabwe in February was pregnant. Two females caught in Botswana in December were lactating and were not pregnant.

ECOLOGY. The type specimen of *C. chapini* was captured in a house at the station in Faradje (Democratic Republic of the Congo) and a 2nd specimen was removed from the crop of a Bat Hawk (*Macheiramphus alcinus*—Allen 1917). Another specimen was shot flying over short grassland in Botswana and a 4th (the type of *Chaerephon lancasteri*) was found roosting in a hole in a tree (Hayman 1938). *C. chapini* is most often caught in mist nets set over watercourses. Over the Sengwa River in Zimbabwe, *C.*

FIG. 1. Top: lateral view of a male *Chaerephon chapini* from the Sengwa Wildlife Research Station, Zimbabwe, with crest erected. Photograph by M. B. Fenton. Bottom: male and female *C. chapini* showing dimorphism in interaural crest. Bats captured at the Sengwa Wildlife Research Station in Zimbabwe. Photograph by M. B. Fenton.

FIG. 2. Dorsal, ventral, and lateral views of cranium and lateral view of mandible of *Chaerephon chapini* from Zimbabwe (18°6′S, 28°8′E; female, Royal Ontario Museum #79891). Condylocanine length is 15.11 mm.

chapini often is the most commonly captured molossid during periods of low or no water (June, October, and November).

BEHAVIOR. *Chaerephon chapini* is an aerial-feeding insectivorous bat. It uses echolocation calls that sweep from 27 to 19 kHz in 5–10 ms and often have a 2nd harmonic (Fenton and Bell 1981).

CONSERVATION STATUS. *Chaerephon chapini* is not listed by IUCN, and it is considered scarce but at lower risk (Hutson et al. 2001).

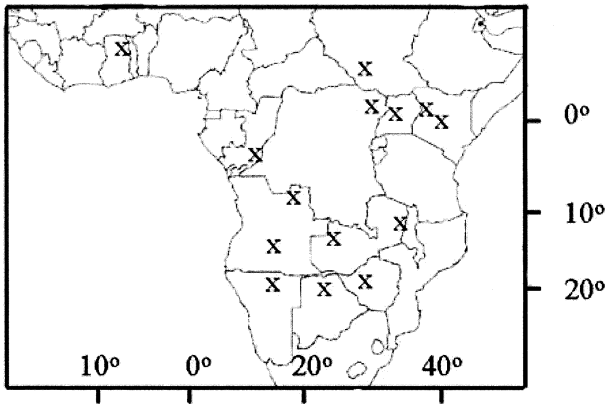

FIG. 3. Specimen records of *Chaerephon chapini* in Africa.

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