

Chaerephon ansorgei. By Sylvie Bouchard

Published 23 January 2001 by the American Society of Mammalogists

***Chaerephon ansorgei* (Thomas, 1913)**

Ansorge's Free-tailed Bat

Nyctinomus ansorgei Thomas, 1913:318. Type locality "Malange" [Angola].

Nyctinomus rhodesiae Roberts, 1946:307. Type locality "Chikupo caves, Bindura district" [Zimbabwe].

CONTEXT AND CONTENT. Order Chiroptera, suborder Microchiroptera, family Molossidae, genus *Chaerephon*. The genus *Chaerephon* contains 13 species. *C. ansorgei* is monotypic.

DIAGNOSIS. *Chaerephon ansorgei* differs from nearly half the other members of its genus by lacking the lobe projecting between inner bases of ears, smaller size (<20 g), and smaller length of forearm (46–48 mm). Lack of caudal glands distinguish Ansorge's free-tailed bat from *C. bembelini* whereas lack of white marks, amber-brown color, and darker, almost black, top of head, neck, and throat differentiate it from *C. bivittata* (Hayman and Hill 1971). *C. ansorgei* has a greater condylobasal length (>17 mm) than does *C. bembelini* and a smaller zygomatic breadth (<12 mm) than in *C. bivittata* (Koopman 1975; Meester et al. 1986).

GENERAL CHARACTERS. *Chaerephon ansorgei* (Fig. 1) has a total length between 65 and 115 mm (Allen et al. 1917; Kingdon 1974; Smithers 1983). Dorsal fur is short, chocolate-brown, with paler tips, and ventral fur is light brown with markedly lighter tips but nowhere is white (Harrison 1959; Thomas 1913). Throat is blackish to brown, darker than other parts of body (Rautenbach et al. 1984; Thomas 1913) especially in adult males (Allen et al. 1917). Ears are rounded, of medium size (mean length 20.9 mm), and have a small tragus. Triangular antitragus is rounded above, half as high as it is long, and separated behind by a deep notch (Thomas 1913). Wing membranes are light brown and translucent (Smithers 1983). Tail protrudes for 67% of its length (Roberts 1946; Thomas 1913).

Ansorge's free-tailed bats are sexually dimorphic with males larger than females (Eger and Peterson 1979). Average external measurements (in mm with parenthetical range) from 60 males and 79 females, respectively, from Cameroon, Kenya, Rhodesia, and Zaire (Eger and Peterson 1979) are: length of forearm, 46.2 (44.4–48.3), 45.8 (43–47.9); length of metacarpal 3, 46.9 (44.8–48.9), 46.7 (43.8–49), length of phalanx 1, third digit, 19.4 (18–20.9), 19.1 (17.7–20.6); length of phalanx 2, third digit, 17.6 (16–19.1), 17.6 (15.7–19.5); length of metacarpal 4, 45.5 (43.1–47.9), 45.3 (42.9–47.4); length of phalanx 1, fourth digit, 15.7 (14–17), 15.6 (14.1–17.2); length of phalanx 2, fourth digit, 10 (8.1–12.6), 9.8 (8.4–11.4); length of metacarpal 5, 28.1 (26.5–30), 27.9 (26.4–29.6); length of phalanx 1, fifth digit, 13.1 (11.1–13.9), 13.2 (11.8–14.6); length of phalanx 2, 5th digit, 4.3 (3.6–5.2), 4.2 (3.5–4.8). Other mean (in mm with parenthetical range) external measurements from nine adults (Allen et al. 1917): length of head and body, 75 (72–79); length of tail, 35 (31–37); length of foot 11.6 (11–12); length of ear, 20.9 (20–21); wingspan, 331 (no range). Body masses (in g with parenthetical range) for 24 males and 46 females, respectively, are 16.5 (12.5–22) and 15.77 (9–22).

Skull (Fig. 2) has a well-developed palatal emargination that extends beyond upper incisors including area of incisive foramina. Width of anterior palatal emargination is less than diameter of upper incisor. Third commissures of last upper molars are well developed and almost as long as second commissures. Condylobasal length is 17–21 mm. Forehead is elevated (Meester et al. 1986). Average skull measurements (in mm, with parenthetical range) from 60 males and 79 females, respectively, from Cameroon, Kenya, Rhodesia, and Zaire (Eger and Peterson 1979) are: greatest length, 19.8 (19.1–20.5), 19.4 (18.6–20.3); condyloincisive length, 18.1

(17.3–18.9), 17.7 (17–18.5); palatal length, 7.7 (6.9–8.3), 7.5 (6.8–8.0); zygomatic width, 11.8 (11.1–12.2), 11.4 (11–12.2); mastoid width, 10.8 (10.2–11.2), 10.7 (10.2–11.1); breadth of braincase, 9.8 (9.4–10.3), 9.7 (9.2–10.3); height of braincase, 6.6 (6–7), 6.5 (6–7); lachrymal width of rostrum, 6.8 (6.3–7.4), 6.5 (6–7.3); interorbital width, 6.2 (5.8–6.5), 6 (5.6–6.3); width of postorbital constriction, 3.9 (3.6–4.1), 3.9 (3.5–4.2); M3–M3, 8.5 (8–8.9), 8.4 (8–9); C–M3, 7.3 (7–7.7), 7.2 (6.8–7.6); C1–C1, 5.2 (3.9–5.6), 4.9 (4.5–5.3). Mean mandibular measurements (in mm with parenthetical range) from the same animals are: condyloincisive paired length, 12.7 (12.3–13.2), 12.4 (11.7–13); greatest length, 13.2 (12.6–13.8), 12.9 (12.3–13.5); c–m3, 7.8 (7.4–8.2), 7.6 (7.3–8.1); c1–c1, 2.8 (2.8–3.1), 2.5 (2.3–2.8—Eger and Peterson 1979).

DISTRIBUTION. *Chaerephon ansorgei* occurs from Cameroon to Ethiopia, south to Angola and KwaZulu-Natal in South Africa (Fig. 3—Koopman 1993). No fossils of Ansorge's free-tailed bat are known.

FORM AND FUNCTION. Ansorge's free-tailed bat possesses a small gular gland surrounded by dark brown to black fur on throat and chin (Roberts 1946; Thomas 1913). The large smooth pad at the base of the first finger may be useful when climbing (Allen et al. 1917).

Chaerephon ansorgei is adapted to fast flight in open areas and uses high-intensity, shallow-frequency modulated calls of low frequency and long duration for echolocation (Fenton and Bell 1981). These calls, although susceptible to interference from clutter, are ideally suited for long-range detection of prey in open areas. Flight membranes are strong, leathery, and elastic. Ears are broad relative to length and lie against the head when in flight to reduce drag. Airfoils of high camber are formed by connective tissues that brace anterior and ventral borders of pinnae. Weight of head is compensated by carrying the occipital portion against the interscapular depression, placing the head closer to the body's center of gravity. Wrinkled lips spread outward when in flight and increase effective area available to catch insects. This may compensate for lack of maneuverability during fast flight (Vaughan 1966). When roosting, joints of the third finger flex upon each other and first joint rotates considerably on metacarpal, in order to tuck the fold sideways beneath the wing (Miller 1907).

ECOLOGY. Ansorge's free-tailed bat inhabits dry woodland savanna (Pienaar et al. 1987; Rautenbach et al. 1985). Although *C. ansorgei* has a wide distribution through equatorial Africa, it is



FIG. 1. Male *Chaerephon ansorgei* from South Africa. Photographed by M. B. Fenton.

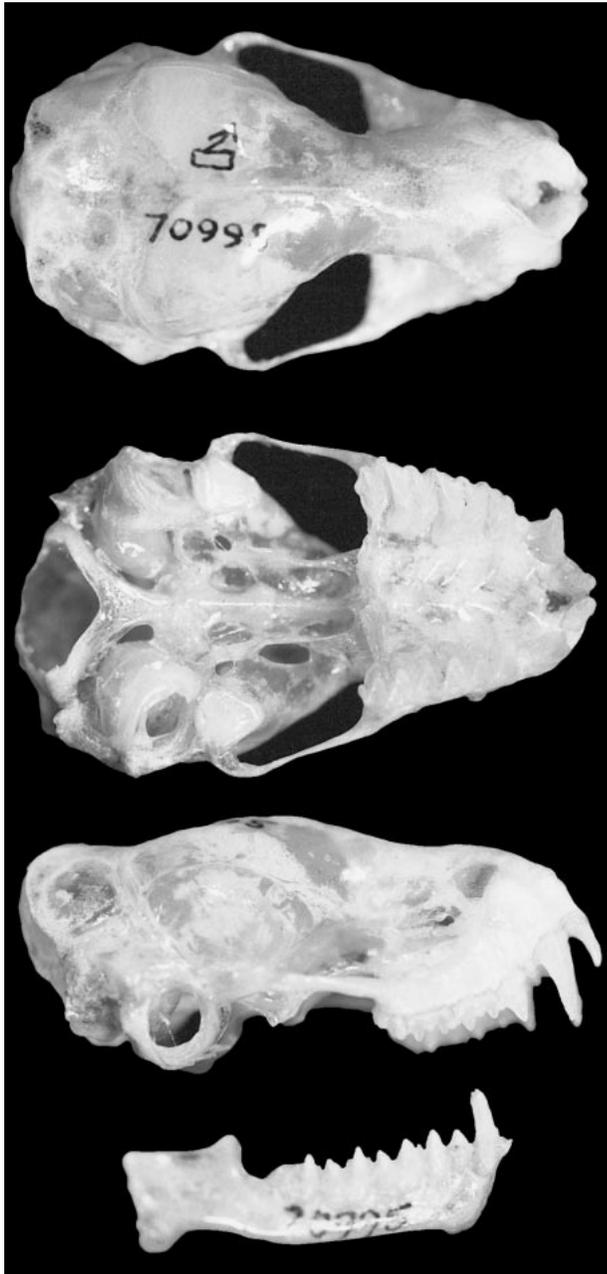


FIG. 2. Dorsal, ventral, and lateral views of cranium and lateral view of mandible of *Chaerephon ansorgei* from the Sengwa Wildlife Research Area, Zimbabwe (male, Royal Ontario Museum number 70 995). Greatest length of cranium is 19.6 mm.

nowhere common (Pienaar et al. 1987). *C. ansorgei* roosts in crevices of vertical rock faces (Cotterill and Fergusson 1993; Smithers 1983), which may be a primary habitat requirement (Smithers 1983). It also colonizes roofs of buildings, expansion joints in bridges (Pienaar et al. 1987), and mine adits (Smithers and Wilson 1979). The roost is at least 1 m high above ground, to insure free-fall and getting airborne (Pienaar et al. 1987), and may exceed 60 m above ground (Allen et al. 1917; Cotterill and Fergusson 1993). *C. ansorgei* roosts in large numbers, often with more than several hundred in a colony (Allen et al. 1917), and often is found with another molossid, *Tadarida fulminans* (Cotterill and Fergusson 1993; Kingdon 1974). Colonies probably remain in place for years, as indicated by guano underneath a roost in Zaire that was 0.3 m thick (Allen et al. 1917; Smithers 1983).

Ansorge's free-tailed bat is insectivorous (Pienaar et al. 1987). In Zaire, local people eat *C. ansorgei* (Allen et al. 1917). No natural predators are known.

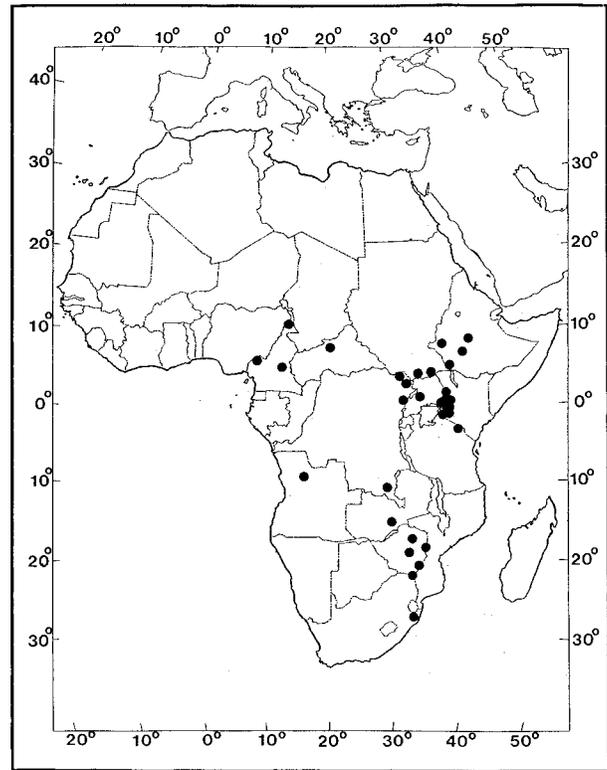


FIG. 3. Collection localities of *Chaerephon ansorgei* in Africa. *Ansorge's* free-tailed bat is scarce throughout its distribution.

BEHAVIOR. Colonies of *C. ansorgei* are noisy, with individuals squeaking and jostling when approached (Smithers 1983). Individuals are reluctant to take flight during the day: none of several hundred individuals flew from the roost while nine were shot (Allen et al. 1917).

GENETICS. The karyotype of *C. ansorgei* is $2n = 48$ with a fundamental number of 66. Autosomal chromosomes include 1 large and 3 medium metacentric pairs, 4 medium and 2 small subtelocentric pairs, and 13 medium to small acrocentric pairs. The subtelocentric X chromosome and acrocentric Y chromosome are of medium size (Smith et al. 1986).

REMARKS. *Chaerephon* was included in *Tadarida* as a subgenus because skull characters used to distinguish it from *Tadarida* were not constant (Simpson 1945; Tate 1941). *Chaerephon* was re-elevated to genus level by Freeman (1981), but some authors disagree (Corbet and Hill 1986; Legendre 1984). *Ansorge's* free-tailed bats were classified under the subgenus *Tadarida* as *Tadarida (Tadarida) ansorgei* (Corbet and Hill 1986; Hayman and Hill 1971; Largen et al. 1974), but Freeman (1981) demonstrated a close relationship between this bat and others of the genus *Chaerephon*, as Koopman (1975) had noted. The generic name *Chaerephon* refers to the friend of Socrates who is depicted as "Chaerephon the bat" in Aristophanes' comedy, *Aves* (Dobson 1874). The specific name *ansorgei* is in honor of Dr. W. J. Ansorge, who collected individuals in Malange, northern Angola.

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