MAMMALIAN SPECIES No. 701, pp. 1–3, 3 figs.

Myotis welwitschii.

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Published 5 July 2002 by the American Society of Mammalogists

Myotis welwitschii (Gray, 1866)

Welwitsch's Bat

Scotophilus welwitschii Gray, 1866:211. Type locality "Angola."
Vespertilio welwitschii Dobson, 1878:806. Based on *Scotophilus welwitschii* Gray.
Vespertilio venustus Matschie, 1899:74. Type locality "Deutsch-Ost-Afrika."
Myotis venustus Kock, 1967:319. Based on *Vespertilio venustus* Matschie.
Myotis welwitschii Kock, 1967:319. First use of current name combination.

CONTEXT AND CONTENT. Order Chiroptera, suborder Microchiroptera, family Vespertilionidae, subfamily Vespertilioninae, genus *Myotis*, subgenus *Myotis* (Findley 1972). *M. welwitschii* is monotypic (Findley 1972; Hayman and Hill 1971; Kershaw 1922; Kock 1967; Meester et al. 1986).

DIAGNOSIS. *Myotis welwitschii* (Fig. 1) is larger in overall size than sympatric congeners *M. bocagei* (length of forearm ca. 50 mm) and *M. tricolor* (length of forearm ca. 40 mm—Rautenbach 1982). It can be distinguished from these species and almost all congeners by its strikingly dichromatic reddish-orange and black wings (Fig. 1; Ansell 1960). *M. formosus* has similarly patterned wings but is smaller (length of forearm 44–49 mm) and occurs from Afghanistan through India, China, and Japan (Bates and Harrison 1997).

GENERAL CHARACTERISTICS. *Myotis welwitschii* is a large member of the genus *Myotis*. Face is pinkish, and muzzle is elongated and hairy to the end of nose. Coppery-red ears are large, round, and elongate without conspicuous emarginations below acute tips of ears (Kingdon 1974; Nowak 1999). Tragus is elongate, lanceolate, acute, and ca. half the length of ear (Gray 1866). Dorsal hairs are tricolored: basal 40% is black, middle 40% is dark-brown, and apical 20% is rust-brown. Ventral hairs are bicolored: basal 33% is brown and apical 67% is white (Kock 1967). Overall, dorsum is chestnut-brown and ventrum is off-white (Kock 1967). Skin of fingers and arm is red-brown and reticulated with thin white lines and minute yellow speckles between forearm and 5th digit (Kingdon 1974). Interfemoral membrane is red-brown, speckled with black irregular spots, and sparsely haired near body (Kingdon 1974). Wing membranes are dichromatic with an orange-red to red to red-brown background that is speckled with irregular black-brown to black spots (Ansell 1960; Ellerman et al. 1953; Gray 1866; Kock 1967; Stuart and Stuart 1988). Variability in color may be due to alcohol preservation or age (Kock 1967). Wings attach to base of toes. Uropatagium is dichromatic and dark at margin; basal color is darker than that of wings. Calcar is elongate and extends ca. 67% the length of the edge of tail membrane (Kock 1967).

Braincase is slightly inflated (Fig. 2). Cranium is devoid of prominent crests (Kingdon 1974). Sagittal crest is present but very delicate (Kock 1967). A bony protuberance to right side of sagittal crest in 1 specimen may be an anomaly of development or a result of injury (Kock 1967).

Ranges of measurements (in mm) for external characters are: length of forearm, 52–58; total length, 105–127; length of tail, 52–63; length of hind foot, 11–15; length of ear, 19–22; and body mass (in g), 12.0–16.5 (Smithers and Wilson 1979). Ranges of external measurements (in mm) for 3 animals from the Transvaal, South Africa, are: total length, 109–127; length of tail, 50–61; length of hind foot, 8–10; length of ear, 18–22; and body mass (in g; n = 1), 14.3 (Rautenbach 1982). Skull measurements (in mm) of 3 males and 1 female (in parentheses) from the Royal Ontario Museum are: condylobasal length, 18.45–19.35 (18.45); postorbital breadth, 5.0–5.2 (5.0); C–M3 distance, 7.5–8.0 (7.35); and length of mandible, 15.0–15.7 (15.1).

DISTRIBUTION. Welwitsch's bat is scattered through southeastern Africa: Orange Free State; eastern, central, and northern Transvaal; western Mozambique; eastern Zimbabwe; and Mashonaland at elevations from 60 to >2,000 m (Fig. 3; Smithers 1983; Smithers and Wilson 1979). Extralimital records are from Angola, northeastern Zambia, Zaire, Tanzania, Kenya, Ethiopia, Uganda, and Sudan (Stanley et al. 1996; Taylor 1991). No fossils are known.

FORM AND FUNCTION. Dental formula is i 2/3, c 1/1, p 3/3, m 3/3, total 38 (Nowak 1999). Second and 3rd premolars are reduced and visible only under magnification. Toothrow is ca. one-half length of skull (Kingdon 1974). Two reduced premolars are present in a gap between C and P3 (Hayman and Hill 1971).

ECOLOGY. *Myotis welwitschii* inhabits mainly open woodland and savannah (Stuart and Stuart 1988). Though few live specimens have been collected, this species is considered solitary in its roosting habits (Smithers and Wilson 1979). However, in 1 instance, 2 animals were roosting in the same bush (Smithers and Wilson 1979). Anecdotal observations of day roosts include factories, houses, low bushes, trees (externally in hollows and among leaves), and deep in caves (Ansell 1978; Kingdon 1974; Rautenbach 1982; Skinner and Smithers 1990; Smithers and Wilson 1979; Stuart and Stuart 1988). Welwitsch's bat may enter houses during the night while foraging (Skinner and Smithers 1990). Welwitsch's bat is a slow flier with relatively broad wings (Fenton et al. 1977).

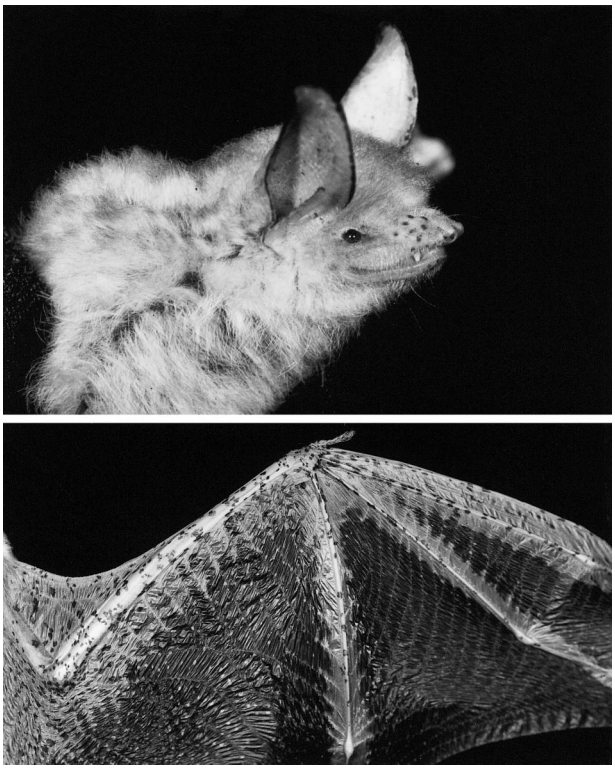

FIG. 1. Photographs of head and wing (dorsal view) of an adult *Myotis welwitschii* captured at Kruger National Park, South Africa (near Skukuza). Photographs by M. B. Fenton.

FIG. 2. Dorsal, ventral, and lateral views of cranium and lateral view of mandible of an adult female *Myotis welwitschii* (Royal Ontario Museum, 65964, captured near Kakagema Forest, western Kenya). Greatest length of skull is 20.0 mm. Photographs by M. B. Fenton.

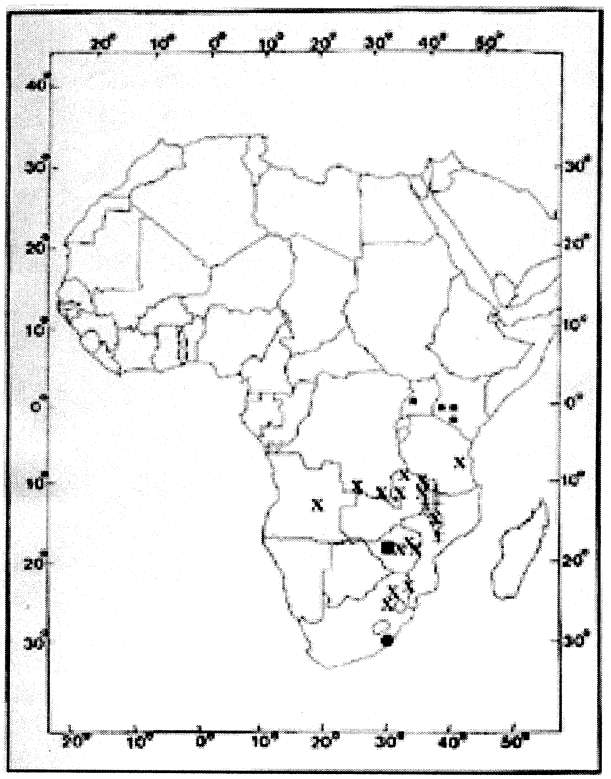

FIG. 3. Specimen records for *Myotis welwitschii* (■ M. B. Fenton, pers. comm., * Royal Ontario Museum, + Smithers 1983, × Taylor 1991). *M. welwitschii* is widely distributed in Malawi (Ansell and Dowsett 1988).

GENETICS. Diploid number is 44; fundamental number is 50 (Rautenbach et al. 1993; Taylor 1991). Karyotype includes 3 pairs of large and 1 pair of small metacentric autosomes, 17 acrocentric autosomes ranging in size from medium to minute, a submetacentric X of medium size, and a small submetacentric Y (Rautenbach et al. 1993).

REMARKS. Other common names are Welwitsch's hairy bat and Welwitschse Langhaarvlermuis (Roberts 1951). I thank M. D. Engstrom at the Royal Ontario Museum for access to the museum's collections of bats and reference materials, M. B. Fenton for use of photographs of both skull and intact animal, and E. Bernard for assistance with the map.

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