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Vampyressa bidens.

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Vampyressa bidens (Dobson, 1878)

Bidentate Yellow-eared Bat

Chiroderma bidens Dobson, 1878:535. Type locality "Peru, Loreto, Santa Cruz (Río Huallaga)."
Vampyrops bidens Thomas, 1900:270. Renaming of *C. bidens* Dobson.
Vampyressa bidens Miller, 1907:156. First use of current name combination.

CONTEXT AND CONTENT. Order Chiroptera, suborder Microchiroptera, family Phyllostomidae, subfamily Stenoderminae, genus *Vampyressa*, subgenus *Vampyriscus*. The genus *Vampyressa* includes 5 extant species: *V. bidens*, *V. brocki*, *V. melissa*, *V. nymphaea*, and *V. pusilla*. *V. bidens* is monotypic (Koopman 1993).

DIAGNOSIS. *Vampyressa bidens* (Fig. 1) can usually be distinguished from all other *Vampyressa* species by the number of lower incisors: *V. bidens* has 1 pair of lower incisors, whereas all other species of *Vampyressa* have 2 pairs. Rarely, *V. bidens* from Peru may have 2 pairs of lower incisors (Davis 1975). *V. bidens* and *V. melissa* both have a 3rd lower molar that is absent in *V. brocki*, *V. nymphaea*, and *V. pusilla* (Lewis and Wilson 1987). When differentiating between *V. bidens* and *V. brocki*, the cranial measurements are more reliable than the number of incisors (Davis 1975).

Vampyressa bidens has a faint dorsal stripe that is absent in *V. pusilla* and *V. melissa*. Facial stripes are distinct in *V. bidens*. In *V. bidens* and *V. brocki*, tragus is hirsute on lateral attachment; *V. melissa*, *V. nymphaea*, and *V. pusilla* lack pilosity (Lewis and Wilson 1987).

GENERAL CHARACTERS. *Vampyressa bidens* is a small, fruit-eating bat. Upper parts of females are somewhat grayer or less brownish, blackish than those of males. Dorsal color of males is more variable, ranging from dark chocolate to pale wood brown (Davis 1975). Fur of neck and shoulders is paler than body (Emmons and Feer 1997). A distinct dark band is present at the base of the fur (Emmons and Feer 1997). Venter is grayish brown (Eisenberg 1989). White supraorbital and malar stripes are prominent; a whitish middorsal strip is more pronounced in darker individuals and obscure in those that are light brown. White edging of ear is pronounced on the basal half, but obscure or absent at the tip (Davis 1975). Rims and base of ears, tragus, and sides of noseleaf are bright yellow. Muzzle is short and broad; noseleaf is a large fleshy spear; horseshoe has a complete, free flange around base. Tongue is pink. Tail membrane is deeply notched, U-shaped, and naked except for some light hair near body. Calcar is <50% length of foot (Emmons and Feer 1997).

Skull (Fig. 2) and skeleton measurements of *V. bidens* are similar to those of other *Vampyressa*. Additionally, 2 sets of measurements from *V. bidens* suggest that females are slightly larger than males (Davis 1975; Eisenberg 1989). However, a small sample from Ecuador shows the reverse (Albuja V. 1999). Measurements (in mm), average (range), of 2 males and 5 females, respectively, from Ecuador (Albuja V. 1999), are as follows: length of head and body, 57.5 (55.0–60.0), 53.0 (50.0–59.0); length of hind foot, 10.0 (9.0–11.0), 9.4 (8.0–11.0); length of ear, 16.0 (14.0–18.0), 15.6 (11.0–18.0); length of forearm, 36.3 (35.6–37.0), 36.1 (34.9–37.1); length of skull, 20.1 (19.9–20.3), 19.9 (19.6–20.2). Body mass (g), average (range), of the same individuals is 12 (12–12) and 12.1 (11.7–13), respectively (Albuja V. 1999).

Measurements (average, in mm) and *SD* (in parentheses) of 55 males and 44 females, respectively, from Territorio Federal Amazonas in Venezuela (Eisenberg 1989): length of head and body, 50.20 (1.87), 52.11 (2.17); length of hind foot, 11.02 (0.53), 11.25 (0.53); length of ear, 17.20 (0.58), 17.09 (0.60); length of forearm, 35.39 (0.76), 35.83 (0.89). Average body mass (g) and *SD* (in parentheses) of 54 males and 18 females (Eisenberg 1989), respectively, was 11 (0.72) and 12.3 (1.06). Additional measurements and discussion of measurements are available (Cunha Vieira 1942; Hill 1964; Marinkelle and Cadena 1972; Sanborn 1936; Swanepoel and Genoways 1979).

Cranial and forelimb measurements (in mm) from the Río Nanay, Peru (Davis 1975), for 13 males and 10 females, respectively, average (range): greatest length of skull, 19.9 (19.5–20.5), 19.9 (19.5–20.2); zygomatic breadth, 11.6 (11.2–12.1), 11.5 (11.1–11.9); mastoid breadth, 9.9 (9.5–10.1), 10.0 (9.5–10.3); postorbital constriction, 5.2 (5.0–5.4), 5.2 (5.0–5.6); maxillary toothrow, 6.4 (6.1–6.5), 6.4 (6.2–6.7); width across upper M2–M2, 8.3 (8.0–8.5), 8.4 (8.0–8.7); length of mandible, 12.6 (12.2–12.9), 12.7 (12.2–13.1); mandibular toothrow C–M2/3, 7.1 (6.7–7.3), 7.1 (7.0–7.3); length of forearm, 35.4 (34.0–37.0), 36.0 (34.0–37.2); length of 3rd metacarpal, 36.0 (34.3–37.0), 36.2 (35.0–38.0).

DISTRIBUTION. *Vampyressa bidens* occurs from eastern Peru to the Guianas and south to northwestern Bolivia and Amazonian Brazil (Fig. 3). The bidentate yellow-eared bat is present in Colombia (east of the Andes), Venezuela (mostly south of the Orinoco River except for 1 locality in western Venezuela), Guyana, Suriname, French Guiana, and eastern Amazonian Ecuador (Albuja V. 1999; Anderson 1997; Brosset and Charles-Dominique 1990; Corbet and Hill 1986; Eisenberg 1989; Eisenberg and Redford 1999; Genoways and Williams 1979; Handley 1976; Hill 1964; Peterson 1968; Simmons and Voss 1998). In the Peruvian Andes the elevational limits of *V. bidens* are from 200 to 1,000 m (Graham 1983). No fossils are known.

FORM AND FUNCTION. The most common dental formula is i 2/1, c 1/1, p 2/2, m 2/3, total 28 (Peterson 1968). However,

FIG. 1. Ventral (left) and lateral (right) views of an adult specimen of *Vampyressa bidens* collected from 50 km NE Puerto Ayacucho, Venezuela. Photograph by Thomas E. Lee, Jr., John D. Hanson, and Burton K. Lim.

FIG. 2. Dorsal, ventral, and lateral views of cranium and lateral view of mandible of male *Vampyressa bidens* from 50 km NE Puerto Ayacucho, Venezuela (Abilene Christian University Natural History Collection #396). Greatest length of skull is 19.7 mm. Photographs by Steve Butman.

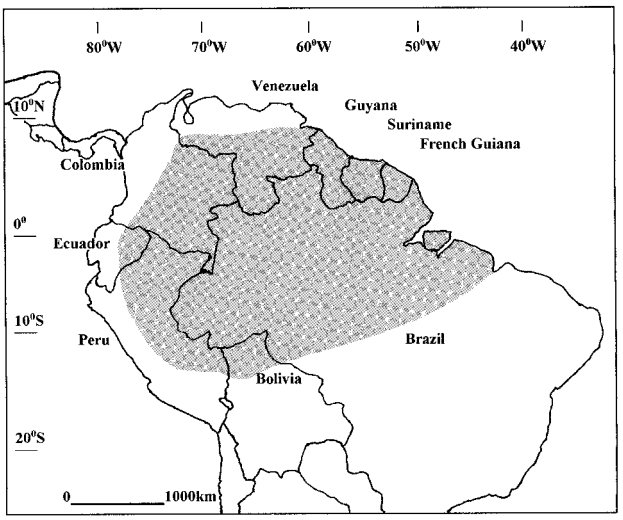

FIG. 3. Geographic distribution of *Vampyressa bidens* (modified from Albuja V. 1999; Eisenberg 1989; Eisenberg and Redford 1999).

the number and the combination of numbers of incisors and molars are polymorphic; for example, the following combinations were found: 1 male: i 2/2–2/2, m 2/3–2/3; 1 male: i 2/2–2/1, m 2/3–2/3; 2 males and 1 female: i 2/1–2/1, m 2/2–2/2; 2 females: i 2/1–2/1, m 2/2–2/2; 1 male: i 2/1–2/1, m 2/2–2/3 (Davis 1975).

ONTOGENY AND REPRODUCTION. One individual *V. bidens,* collected on 11 August 1977 in Suriname, was carrying 1 embryo that measured 16 mm in crown–rump length (Genoways and Williams 1979). In Bolivia, 1 pregnant female with 1 embryo was taken in September (Anderson 1997). Nearly every female netted was pregnant from 31 October to 8 November in Peru (Davis and Dixon 1976). Two of 14 females were pregnant when captured from 30 November to 2 December in Peru (Davis 1975). Each of these 2 Peruvian animals was carrying a single embryo with a crown–rump length of 18 mm (Davis 1975).

ECOLOGY. *Vampyressa bidens* is uncommon or rare throughout its range; except in a few locations (Davis and Dixon 1976). *V. bidens* usually occurs in lowland, evergreen forests near streams, moist areas, swamps, occasionally in clearings, second growth, and deciduous forest (Albuja V. 1999; Davis 1975; Handley 1976; Nowak 1994; Simmons and Voss 1998; Tuttle 1974). *V. bidens* shared a small tapir (*Tapirus terrestris*) water hole with many other sterodermine bats in Amazonas, Venezuela (Tuttle 1974). The water hole was in virgin evergreen forest with trees ca. 20–40 m tall, and streams passed within 10–20 m. The bats, including *Artibeus lituratus, Carollia perspicillata, Chiroderma trinitatum, C. villosum, Spaeronycteris toxophyllum, Uroderma bilobatum, V. bidens, V. pusilla, Vampyrodes caraccioli,* and *Vampyrops helleri,* prefer these sites even in the wet season when the surrounding area is flooded (Tuttle 1974). *V. bidens* was also captured in a clearing bordered by tropical forest vegetation in the hamlet of Mishana on the bank of the Río Nanay in Peru (Davis 1975). At Mishana *V. bidens* co-occurred with *A. lituratus, A. planirostris, C. trinitatum, C. villosum, Rhinophylla pumilio, Sturnira magna, U. bilobatum, V. pusilla,* and *V. helleri* (Davis 1975). Two netting sites, where there are a large number of *V. bidens,* include 1 a short distance from a pig wallow adjacent to a village house under which bats have a flyway and a 2nd located close to several fruit-bearing trees: *Ficus, Inga marginata,* and *Pourouma cecropiaefolia* (Davis and Dixon 1976). The first 2 specimens of *V. bidens* from Suriname were collected near Powaka, and nets were placed in a savannah along the edge of a tropical forest (Genoways and Williams 1979). Other bats caught with *V. bidens* in Suriname were *A. cinereus, A. concolor, Carollia perspicillata, C. trinitatum, C. villosum, Molossops planirostris, Urodema bilobatum,* and *V. helleri* (Genoways and Williams 1979). *V. bidens* probably roosts in trees (Handley 1976).

Vampyressa bidens flies more commonly at dusk (Davis 1975; Davis and Dixon 1976). However, this species flies from dusk until dawn, although it is not as common in the early morning hours (Davis and Dixon 1976).

GENETICS. *Vampyressa bidens* has 2n = 26 chromosomes, and the fundamental number is 48 (Gardner 1977; Honeycutt et al. 1980). *V. bidens* shares this karyotype with *V. nymphaea* and with *Chiroderma,* indicating a sister-group relationship between *Vampyressa* and *Chiroderma* (Lim 1993).

A cladistic analysis of morphology and chromosomes showed a closer relationship between *V. bidens* and other *Vampyressa* species except *V. nymphaea* (Lim 1993). A phenetic analysis of the Sterodermatinae consistently showed a cluster of *V. bidens* with *V. pusilla,* and in some analyses *V. bidens* and *V. pusilla* clustered with *V. brocki. V. melissa* never clustered with *V. bidens* (Owen 1988).

REMARKS. *Vampyressa bidens* was originally described as *C. bidens* (Dobson 1878). Thomas (1889) transferred the species to *Vampyrops* and subsequently (Thomas 1900) separated it as a subgenus of *Vampyriscus.* Three subgenera of *Vampyressa* have been recognized (Peterson 1968). *V. bidens* was placed in the subgenus *Vampyriscus* because it is the only member of the genus with 1 pair of lower incisors. However, Davis (1975) found some *V. bi-*

dens with 2 lower incisors. Koopman (1993) recognized *V. bidens* as a monotypic species of the subgenus *Vampyriscus*, with *V. brocki* and *V. nymphaea* in the subgenus *Metavampyressa* and with *V. melissa* and *V. pusilla* in the subgenus *Vampyressa*.

Vampyressa is derived from the Serbian word *wampira* meaning small vampire (Lewis and Wilson 1987; Miller 1907; Palmer 1904). In Latin, *bi* means two, and *dens* means tooth, referring to the presence of only 2 lower incisors that separate *V. bidens* from other *Vampyressa* species (Borror 1971).

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