Balantiopteryx io and Balantiopteryx infusca.

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Balantiopteryx io Thomas, 1904

Thomas' Sac-winged Bat

Balantiopteryx io Thomas, 1904:252. Type locality "R. Dolores, near Coban [Rio Dolores, near Coban, Alta Verapaz, Guatemala]."

CONTEXT AND CONTENT. Order Chiroptera, Suborder Microchiroptera, Family Emballonuridae, Subfamily Emballonurinae. The genus Balantiopteryx contains three species, a key to which was given by Arroyo-C. and Jones (1987). Balantiopteryx io is monotypic.

DIAGNOSIS. Balantiopteryx io can be distinguished from B. plicata, with which it is partly sympatric, as follows: size smaller (forearm < 39 mm, greatest length of skull usually < 13); no white line on posterior edge of wing membrane; inner margin of ear concave; interpterygoid fossa broader, U-shaped; basi-pleurospinal pits larger, longer than broad, not divided by a medium septum. B. io is the smallest species of the genus (Hall, 1981; Thomas, 1904).

GENERAL CHARACTERS. Thomas' sac-winged bat is a slenderly built species; the wing and leg bones are remarkably thin. The ears are short and rounded, concave on the inner surface just below the tip. The tragus is slender, rounded at the tip; there is a marked tubulation opposite the base of the inner margin and another slight projection above it. The wing sac is located in the center of the antehemibranchial membrane as in other species of the genus. Feet are free of the membranes, the wing is attached to the distal end of the tibia. The calcus is slender and does not reach the knee when bent forward. The uropatagium is furled basally as far as excision of tail. The pelage is dark brownish dorsally, paler below (Sanioorn, 1937; Thomas, 1904; Villa-R., 1967). The zygoma are abruptly and widely expanded (Fig. 1); the anterior margin of the palatal has a well-marked median spine; the dental formula, as in other American emballonurids, is $1 \frac{1}{3}, c \frac{1}{1}, p 2 \frac{2}{2}, m 3 \frac{3}{3},$ total 35.

Average external measurements (in mm) of 28 males and 14 females (except where noted parenthetically) from Belize (Kirkpatrick et al., 1975) are, respectively: total length, 52.6, 54.4; length of tail, 14.8, 14.2; length of hind foot, 6.1, 6.3; length of ear, 12.1, 12.4; length of tragus, 5.4 (27), 5.2; length of forearm, 36.8 (26), 38.0. The average weight (in g) of 28 males and 11 females from the above series was 3.7 and 5.0, respectively; Jones (1966) reported the average weight of 35 specimens (9 males, 26 females) from Guatemala as 4.2 (range, 4 to 6).

Ranges in cranial measurements (in mm) of specimens from Guatemala (Sanioorn, 1936, 1937) are as follows: greatest length of skull, 12.4 to 13.1; condylobasal length, 10.9 to 11.7; postorbital constriction, 3.1 to 3.6; breadth of rostrum, 5.7 to 6.2; zygomatic breadth, 8.2 to 8.7; mastoid breadth, 7.5 to 7.9; breadth of brain-case, 6.4 to 6.8; length of maxillary toothrow, 4.5 to 4.9; breadth across upper canines, 3.0 to 3.3; breadth across upper molars, 5.5 to 5.9.

DISTRIBUTION. This species occurs in lowland tropical areas (Fig. 2) from central Veracruz and eastern Oaxaca eastward to Belize and Guatemala (Hall, 1981). Additionally, Dulques and Roth (1970) reported a late Pleistocene mandible from Cueva del Abr, Tamulipas, to the north of the presently known range.

FORM AND FUNCTION. The small baculum of B. io is flat basally and rounded distally (Brown et al., 1971). Measurements (in mm) of two specimens from Veracruz were: greatest length of baculum, 0.7, 0.8; greatest breadth at base, 0.8, 0.9.

Phillips and Jones (1969) studied dentitions of 116 specimens

Fig. 1. Dorsal, ventral, and lateral views of cranium, and lateral view of lower jaw of Balantiopteryx io (Texas Tech University 43628, d) from Tabasco. Greatest length of skull, excluding incisors, is 12.9 mm.
and found two males from Guatemala with supernumerary first upper premolars on each side that closely resembled the small upper premolar; in each case both small premolars on each side bore evidence of wear. They also found an adult female and adult male that lacked the first upper premolar on the left side, with no trace of an alveolus. Five other specimens had lost teeth in life.

Strickler (1978) figured the scapula, clavicle, humerus, and shoulder musculature of B. io, and compared the osteology and myology of the shoulder region with that of other chiroptera. He reported an aspect ratio of 7.41 for this species, which he described as a moderately fast flyer.

Ontogeny and Reproduction. Few data have been published on reproduction in this species and none is available on growth and development. Gravid females, all with one fetus, have been recorded from the months of March, April, May, and July (Baker and Greer, 1960; Hall and Dalquest, 1963; Villa-R., 1967). Crown-rump lengths of fetuses were 9 mm in March and 17 and 20 mm in May. Average length of testes of nine January-born males from Guatemala was 1.4 (1 to 2) mm; none of 26 females taken in January was pregnant (Jones, 1966).

Ecology and Behavior. Published information on natural history of B. io is anecdotal. The species roosts predominantly in caves, selecting dimly lit areas near the cave entrance, but Hall and Dalquest (1963) found individuals as deep as 300 m in one cave and Baker and Greer (1960) also observed these bats in a dark cave chamber. Hall and Dalquest (1963:215) reported that 500 to 1,000 individuals in a cave in Veracruz all "hanging singly, and usually more than nine inches from one another. They preferred to hang from the tops of pits and crevices but some hung from the open, flat ceiling."

These authors (1963:216) also reported B. io as roosting "in deep, dark crevices and masses of stalactites" that hung from faces of cliffs. Sanborn (1936:95) reported these sac-winged bats as being shot from a crevice in a limestone cliff in Guatemala—the crevice forming a "cave 100 feet long, 100 feet high, and from two to four feet wide." Only two females were found among 89 specimens collected by Hall and Dalquest (1963) at one locality in Veracruz, although essentially equal sex ratios also have been reported. Thomas' sac-winged bat is found primarily in areas of lowland tropical forest, but it has been reported also from "upland broadleaf seasonal forest" in Guatemala (McCarthy, 1982:683).

Other bats reported as inhabiting caves with B. io include: Saccopteryx bilineata, Peronotus parnellii, Glossophaga soricina, Artibeus jamaicensis, Desmodus rotundus, Diphylla ecaudata, and at least two species of Myotis (Hall and Dalquest, 1963; Kirkpatrick et al., 1975; Schaldach, 1965). Hall and Dalquest (1963) reported that specimens had small red mites attached to the uropatagium, wings, and ears.

Genetics. Chromosomal structure of a number of embal-lonurine bats was reported by Baker and Hood (1986), but the karyotype of B. io has not been described.

Balantiopteryx infuscus (Thomas, 1897)

Ecuadorian Sac-winged Bat

Saccopteryx infuscus Thomas, 1897:546. Type locality "Cachahi, N. Ecuador" [Rio Cachabi, 150 m, Esmeraldas, Ecuador].

*Balantiopteryx* infuscus: Thomas, 1904:252, first use of current name-combination.


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