

*Natalus micropus*. By David C. Kerridge and Robert J. Baker

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*Natalus micropus* Dobson, 1880

*Natalus micropus* Dobson, 1880:443. Type locality; Kingston, Jamaica.

**CONTEXT AND CONTENT.** Order Chiroptera, Family Natalidae. The family contains a single genus, *Natalus*, which contains three subgenera, *Natalus*, *Chilonatalus*, and *Nyctiellus*. *Natalus micropus* is in the subgenus *Chilonatalus*, which contains four species that are restricted to the Greater Antilles, the Bahamas, and Old Providence Island off the Caribbean coast of Nicaragua. No subspecies are recognized.

**DIAGNOSIS.** The subgenus, *Chilonatalus*, can be separated from *Natalus* and *Nyctiellus* as the natalid organ of the former is medium-sized, rounded, and located on the base of the muzzle, whereas that of *Natalus* is large, bell-shaped, and covers the facial area. In *Nyctiellus*, this organ is small, rounded, and on the median part of the muzzle. *Nyctiellus* also has a more flattened braincase with the first premolars and canines reduced in size as compared to *Chilonatalus* (figure 1). The lower lip of *Chilonatalus* is deeply grooved (figure 2), whereas that of *Natalus* has a shallow invagination and no invagination or cleft is present in *Nyctiellus*. The rostrum of *Chilonatalus* is tipped up, whereas in the other subgenera it is tipped down. The ears of *Natalus* are large in size and straight beyond the median lobe, whereas those of *Chilonatalus*, although large, are truncated to a 30° angle beyond the median lobe. The ears of *Nyctiellus* are smaller in size and constricted beyond the median lobe (Dalquest, 1950). *Chilonatalus* also can be separated from *Natalus* on the basis of palatal ridges and bacular structure (Harrison and Pendleton, 1973). *Natalus* has 10 ridges, the anterior six undivided and the posterior four divided. *Chilonatalus* has only nine ridges, the anterior one divided, followed by four undivided and then four divided ridges. The second ridge of *Natalus* is expanded but not to the degree characteristic of *Chilonatalus*. The basal part of the baculum of *Natalus* is expanded and excavated ventrally and the shaft tapers and angles upwards to a blunt point, whereas the baculum of *Chilonatalus* is smaller and the basal portion is only a little wider than the short, blunt, straight shaft. The base is not excavated and the tip curves down slightly.

Although the four species of the subgenus *Chilonatalus* appear to be separated mainly on the basis of their distribution, the original descriptions of each of these species do note morphological differences. *Natalus brevimanus* from Old Providence Island has relatively longer ears and shorter fingers than *N. micropus*, although both bats are about the same general size. It is suggested that *N. brevimanus* is paler. *Natalus tumidifrons* from the Bahamas is larger than *N. micropus* but has a relatively shorter forearm, which is about the same size as that of *N. brevimanus* and *N. micropus*. The distal part of the ear is more evenly rounded in *N. tumidifrons* and the frontal gland is much larger (at least four times) than that of *N. micropus*, being longer and higher rather than wider. It extends from a point on the forehead nearly level with the middle of the prosencephalon to within 3 mm of the nostril, a distance of about 8 mm. *Natalus macer* from Cuba, although similar to *N. micropus*, has a longer tibia and more elongate rostrum (length from the narrowest part of the interorbital constriction).

The above mentioned specific characters are taken from Miller's (1898, 1903, 1914) original descriptions of the species and are based upon small samples of each taxon. The specific status of the four species in the subgenus is questionable and we suspect that all four may represent a single species, as indicated by Varona (1974). However, we consider any decision relative to the specific status of the four taxa to be premature without a detailed comparison of individuals from the nominal groups. This subgenus is clearly in need of revision. Additional discussion of characteristics of *Natalus* and its subgenera can be found in Goodwin (1959) and Dalquest (1950).

**GENERAL CHARACTERS.** In general appearance, *N. micropus* is a small and delicate bat. The following measurements are in millimeters. Means are followed by extremes (in parentheses), with measurements for males presented before those for females. External measurements for seven adult specimens, one male and two females from St. Clair Cave, and a female from Windsor Cave in the collection at The Museum, Texas Tech University, and two adult males and an adult female examined by Miller (1898:327) are as follows: total length, 84 (82 to 86), 84 (80 to 89); tail length, 46 (46 to 47), 46.5 (45 to 48); length of hind foot, 7 (7), 7 (7 to 8); length of ear, 14 (13 to 15), 13.4 (11.4 to 15); length of forearm, 33 (32 to 34), 34.1 (32.7 to 35.7).

Cranial measurements from 14 adult specimens in the collection at The Museum, Texas Tech University (seven males and six females from St. Clair Cave and a female from Windsor Cave), are as follows: basioccipital length, 13.1 (12.7 to 13.3), 13.2 (12.9 to 13.6); greatest length of skull, 14.3 (14.1 to 14.5), 14.3 (14.1 to

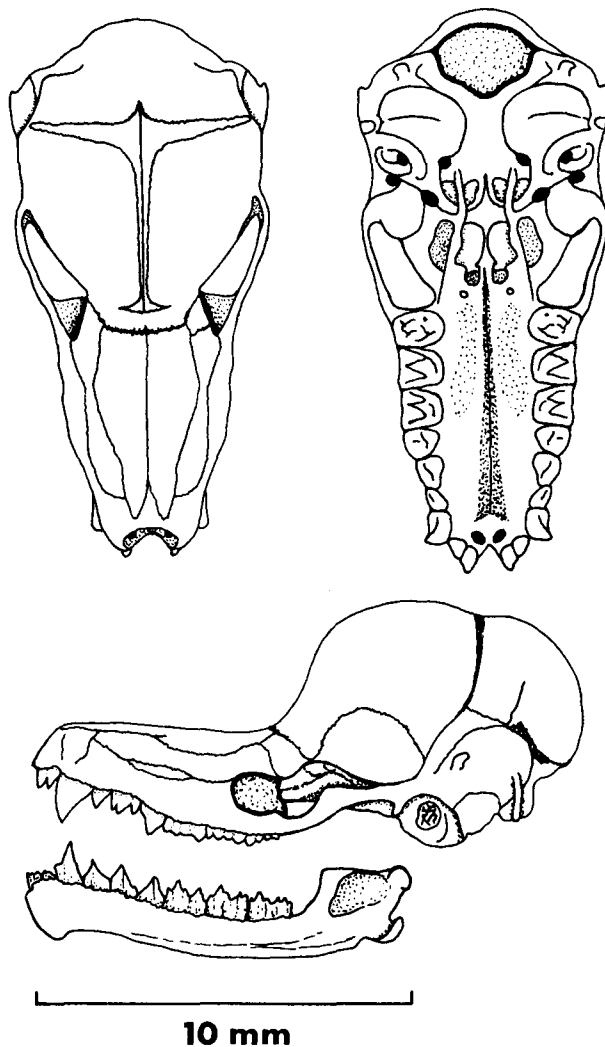


FIGURE 1. Dorsal, ventral, and lateral views of cranium, and lateral view of the lower jaw of *Natalus micropus* (TTU 22065, female) from Windsor Cave, Trelawney Parish, 4 mi SW Sherwood Content, Jamaica. Drawn by David C. Kerridge.



FIGURE 2. Photograph of a living *Natalus micropus*.

14.6); zygomatic breadth, 6.5 (6.4 to 6.7), 6.6 (6.4 to 6.7); breadth of braincase, 6.1 (6.0 to 6.2), 6.1 (5.9 to 6.2); postorbital constriction, 2.5 (2.5 to 2.6), 2.5 (2.4 to 2.5); depth of braincase, 4.9 (4.7 to 5.0), 4.8 (4.6 to 4.9); length of maxillary tooththrow (C-M3), 5.8 (5.7 to 5.9), 5.7 (5.5 to 5.9); length of mandible, 10.2 (10.1 to 10.4), 10.3 (10.2 to 10.5); length of mandibular tooththrow (i-m3), 6.1 (5.9 to 6.2), 6.1 (5.9 to 6.3).

**DISTRIBUTION.** Restricted to the Island of Jamaica in the Greater Antilles. Specific localities include Kingston, St. Clair Cave, and Windsor Cave. No fossils are known.

**FORM.** In the measurements available, no significant secondary sexual dimorphism appears.

This species resembles *N. stramineus*, the type for the genus, but has a much smaller foot (about half the size) and a process on the front of the muzzle that somewhat resembles a rudimentary noseleaf (figure 2). The tip of the ear conch is rounded and the inner margin of the conch is convex so that it projects forward as far as the extremity of the muzzle. The small, rounded, wartlike process above the nasal apertures is covered on the sides by thick-set hairs, but is naked in front where a projecting upper margin is found. The lower lip is reflected outward with a small horizontal cutaneous projection beneath it much like a second lower lip. The wing membrane is attached high up at the junction of the middle and lower thirds of the tibia. The fur above is pale yellowish brown at the base with the terminal half reddish or chestnut-brown; beneath it is pale yellowish brown throughout. It is a fine, soft fur. The outer upper incisor is equal or smaller in cross section to the inner one, rather than the reverse as in *N. stramineus*.

**ECOLOGY.** Two of the localities where *N. micropus* has been taken are large caves with complex bat faunas. St. Clair Cave is a deep cave with a high moisture content. The room where *N. micropus* was found was hot and unpleasant for bat collectors. The specific roosting sites were the undersides of low ledges where as many as several hundred hung together in loose



FIGURE 3. Photograph of the vegetation near the mouth of Windsor Cave where *Natalus micropus* has been collected.

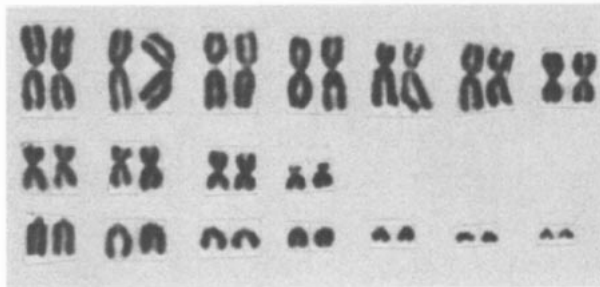


FIGURE 4. A representative karyotype of a female *Natalus micropus* (TTU 22065, from Windsor Cave, Trelawney Parish, 4 mi SW Sherwood Content, Jamaica).

clusters. Individuals were observed flying near the walls about one meter above the cave floor.

Both St. Clair Cave and Windsor Cave are in areas with considerable relief and rugged small ridges. Surrounding vegetation was tropical montane forest (figure 3).

Other species of bats recorded from St. Clair Cave are *Pteronotus fuliginosa*, *P. macleayi*, *P. parnellii*, *Mormoops blainvillii*, *Monophyllus redmani*, *Erophylla sezekorni*, *Phyllonycteris aphylla*, and *Natalus major* (Goodwin, 1970).

Other species of bats netted at Windsor Cave on 11 July 1974 were *Mormoops blainvillii*, *Pteronotus parnellii*, *P. macleayi*, *Macrotus waterhousii*, *Monophyllus redmani*, and *Artibeus jamaicensis*.

**REPRODUCTION.** Little is known about the reproductive habits of this species. Of 20 females taken at St. Clair Cave on 18 July 1974, none was pregnant. However, 18 of these specimens had prominent nipples and mammary tissue and, in at least four specimens, this tissue was massive. No other reproductive data are published.

**GENETICS.** No data have been published on the genetics of *Natalus micropus*. Four individuals of this species (one female from Windsor Cave and a female and two males from St. Clair Cave) were karyotyped by a field party from Texas Tech University. The karyotype of this species (figure 4) has a diploid number of 36 and a fundamental number of 54. The X appears to be submetacentric and the Y a small acrocentric.

The karyotype of this species is similar to those described for *N. stramineus* (figure 16 of Baker, 1970) and *N. tumidirostris* (figure 6 of Baker and Jordan, 1970). Although Baker and Jordan (1970) concluded that the karyotypes of *N. stramineus* and *N. tumidirostris* were identical, a comparison of the three karyotypes suggests that the three species may have some differences detectable from standard karyotypes. Of the three karyotypes, the two that most closely resemble each other are those of *N. micropus* and *N. stramineus*, which may be indistinguishable or may differ by the amount of material composing the shortest arm of the smallest banded element (in *N. stramineus* figure 16 of Baker, 1970, this is the last chromosome in the second row, which is counted as a banded element). In *N. micropus*, the element that we believe is homologous to this smallest banded pair is figured in the row of acrocentrics.

The karyotype of *N. tumidirostris* differs from those of *N. micropus* and *N. stramineus* in having a medium-sized pair of subtelocentric elements (in figure 6 of Baker and Jordan, 1970, this pair is the next to smallest pair of banded autosomes). Also, the smaller pairs of banded elements in *N. tumidirostris* do not appear to be closely comparable in size with those of the other two species.

**REMARKS.** The generic name *Natalus* is derived from a Latin word meaning "related to one's birth." The name was undoubtedly chosen because the bats of this genus are small and appear somewhat like a newborn even as adults. The specific name *micropus* is from the Greek words *mikros*, meaning small, and *pus*, referring to the foot.

Bats of the subgenus *Chilonatalus* are in need of systematic revision. One reason this has not been done is the scarcity of specimens in museums. For example, during 19 nights of collecting on Jamaica, a field party from Texas Tech University took *Natalus micropus* at only two localities, and from one locality (Windsor Cave) only a single specimen was obtained. At St. Clair

Cave there were hundreds, perhaps thousands, of individuals. Exactly why this species (and others in the subgenus as well) is so uncommon in collections is difficult to ascertain. Probably several reasons are involved. One is that these species may have narrow ecological requirements. Another reason is that there has not been much bat collecting on islands where these taxa are found. The problem is further compounded by the fact that these bats are so light in weight and such slow flyers that they are difficult to trap in mist nets.

Because of their unique distribution and their small size for a mammal, the taxa of *Chilonatalus* are a valuable natural resource for the evolutionary biologist, and care should be taken not to destroy their habitat so that this resource will be available for future generations.

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