

SYNOPSIS

In Venezuela, there are five species of bats [*Mormoops megalophylla tumidiceps*, *Pteronotus (Pteronotus) davyi davyi*, *P. (Pteronotus) gymnonotus*, *P. (Phyllodia) parnellii*, *P. (Chilonycteris) personatus personatus*] of the family Mormoopidae. In the case of *P. parnellii*, three subspecies are recognized (*paraguanensis*, *fuscus*, *rubiginosus*). Using Principal Components and Cluster Analyses, we extracted the size and shape constituents of 34 measurements (13 cranial, 4 mandibular, 10 dental, 7 apendicular) of 673 Venezuelan specimens of the five species. The most important results are: (1) the available specimens extend notably the number of known localities for all the species in the country, being the most remarkable cases those of *P. davyi*, *P. gymnonotus* and *P. personatus*, recorded for the first time for the Andes and Llanos regions; (2) in the case of *M. megalophylla* ($n = 85$), although the males of the Península de Paraguaná are significantly smaller in some internal measurements than those of the rest of the country, little sexual and geographical variability is observed in size and shape; (3) in the case of *P. davyi* ($n = 126$), the males are significantly larger than females in internal measurements, and the females are significantly larger than males in external measurements. In external measurements, the difference between sexes is greater in Paraguaná than in the mainland to the north of the Orinoco, and it is not observable in the small sample available from the south of the Orinoco. In internal measurements, the difference between males and females does not vary geographically, but the average south of Orinoco exceeds that of Paraguaná, which in turn exceeds that of the mainland to the

north of the Orinoco. Averaging males and females, there is no geographical variability in size. Regarding shape, we did not detect any clear geographical pattern; (5) in the case of *P. gymnonotus* ($n = 144$), as in *P. davyi*, males are significantly larger than females in internal measurements, and females are significantly larger than males in external measurements. To the north and south of the Orinoco, the values and the sexual difference in external measurements are similar. However, to the south of the Orinoco, the magnitude of the values is smaller and the sexual difference is larger in internal measurements. Regarding shape, we did not detect clear geographical trends; (6) when contrasting *P. davyi* and *P. gymnonotus*, the two members of the subgenus *Pteronotus*, we observed little overlap in external measurements and no overlap in internal measurements. Regarding shape, we observed a small overlap in external measurements and absence of overlap in internal measurements; (7) in the case of *P. parnellii* ($n = 267$), although the males of the three subspecies are larger than females in internal measurements, they are similar in external measurements. The subspecies of Paraguaná (*paraguanensis*, $n = 25$) differs greatly from the other subspecies in being smaller and in having different shape, both externally and internally. The subspecies of mainland to the north (*fuscus*, $n = 117$) and south of the Orinoco (*rubiginosus*, $n = 125$) also differ notably in external and internal size and shape, although to a lesser degree than the smallest of them (*fuscus*) with respect to *paraguanensis*. *P. parnellii* seems to be absent of the Llanos. The members of the only *rubiginosus* populations to the north of the Orinoco live in forest islands, adjacent to this river, in the south of Estado Apure. These populations merit

future taxonomic research because they differ from typical *rubiginosus* in having smaller external and internal sizes, similar to those of *fuscus*; and (8) in the case of *P. personatus* ($n = 51$), in internal measurements, males are significantly larger than the females, being this trend more marked to the north of the Orinoco. In external measurements, north of the Orinoco males are similar to females to the, but south of the Orinoco they are smaller. Regarding both internal and external measurements, specimens of the north of the Orinoco are smaller than those of the south. Regarding shape, males and females tend to be different in internal measurements. In conclusion, in our opinion the degree of morphometric differentiation found in *M. megalophylla*, *P. davyi*, *P. gymnonotus* and *P. personatus* are not enough to justify modifying current taxonomy. In the case of *P. parnellii*, we propose that the Paraguana subspecies be promoted to species rank, i.e., *P. paraguanaensis*. This full species requires special conservation measures. *P. p. fuscus* and *P. p. rubiginosus* are also candidates to be promoted to full species rank once that they are studied with other techniques. With respect to other Venezuelan Mormoopidae, we interpret the greater taxonomic differentiation of the *parnellii* complex as resulting from the tight forest-dependence of these bats, leading to isolation among populations separated by savannas or xerophilous vegetation. Contrarily, the other Venezuelan Mormoopidae fly in open spaces, which should facilitate genetic flow among populations.