

GEOMETRIC MORPHOMETRICS ON TRIBOSPHEMIC MOLARS: A NEW APPROACH TO THE EVOLUTIONARY HISTORY OF LARGE-SIZED *MYOTIS*

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A major challenge when studying Quaternary fossil bats is the assignment of fragmentary remains to cryptic species, as in the complex of large-sized mouse-eared bats (LSMEB) that includes the extant *Myotis myotis* (Europe), *Myotis blythii* (southern Europe, Near East), and *Myotis punicus* (northwestern Africa, some Mediterranean islands). The first two form a monophyletic clade that split ca 0.6 Ma according to molecular data, with the appearance of *M. myotis* tentatively located in the Iberian Peninsula. The third one likely diverged from the *M. myotis*–*M. blythii* clade ca. 6 Ma. However, the published fossil evidence does not totally fit in, chronologically, with this molecular-based scenario. Solving the puzzle of LSMEB evolutionary history requires identifying the anatomical changes concurrent to the appearance and diversification of these bats, detectable on fragmentary fossils. Here we performed a 2D geometric morphometric study on the first to third upper and lower molars of the three extant LSMEB species (the out-of-the-clade species *Myotis nattereri* was included as external group), to obtain a suitable methodology for the study of fossil LSMEB. For the first and second molars, shape analyses showed very similar morphospaces, while form analyses showed a higher degree of variance related to size. Reversely, the third molars occupied distinct morphospaces but presented overlapping sizes. Finally, we performed a preliminary analysis on two fossil samples (Early and Middle Pleistocene, Gran Dolina site, Spain), which showed clearly distinct shape and form features in comparison to the extant LSMEB. Confirming these trends will need further analysis of larger samples.

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