A New Species of Extinct False Vampire Bat (Megadermatidae: Macrodera) from the Kimberley Region of Western Australia

Kyle N. Armstrong1,2,3, Ken Aplin1,4†, and Masaharu Motokawa1

1 The Kyoto University Museum, Yoshida Honmachi, Sakyo-ku, Kyoto, 606-8501, Japan
2 School of Biological Sciences, The University of Adelaide SA 5005, Australia
3 South Australian Museum, North Terrace, Adelaide SA 5000, Australia
4 Australian Museum Research Associate, 1 William Street, Sydney NSW 2010, Australia

ABSTRACT. A new species of False Vampire Bat (Megadermatidae), Macrodera handae sp. nov., is described from dental, dentary and maxillary fragments recovered from limestone deposits at Dingo Gap, Oscar Range, in the Kimberley region of Western Australia. This material is likely to be of Pliocene age, or early Pleistocene, based on biocorrelation within the same sample. The absence of the P4 indicates that it is more derived than Miocene taxa including M. malugara and M. godthelpi, but its phylogenetic position relative to M. koppa could not be determined. It appears to be slightly smaller than M. gigas and M. koppa based on the size of M1 and M2. It can be distinguished from M. gigas by the lesser degree of fenestration in the maxilla; and from all other species of Macrodera by the shape of the protofossa of the M1, plus the M2 protocristid relatively high and of proportionally greater area within the trigonid. Other material collected, but not identified completely or described, includes several lower canines from a species of emballonurid, and a dentary with M2, representing a vesperilionid bat. Given the wear striations observed on the M3 of the newly-described Macrodera species, we suggest that it was a predator of small vertebrates, including possibly the chiropteran co-inhabitants of the cave. This new species of Macrodera is the sixth species recognized in the genus so far, and the second from the Pliocene.

Introduction

The family Megadermatidae (False Vampire Bats) has a long history that began in the mid-Eocene with its divergence from the Craseonycteridae c. 44–43 Ma, based on molecular dating methods (95% credibility interval 47–39 Ma; Teeling et al., 2005; Foley et al., 2015). Until recently, the oldest known megadermatid fossil was considered to be Necromantis adichaster Weithofer, 1887, represented in the Quercy Phosphorites Formation, France, but this genus is now accepted to be part of a distinct family (Necromantiidae; Sigé, 2011; Ravel et al., 2016; Hand & Sigé, 2018). Early megadermatid lineages are represented by modern extant taxa in the genera Lavia and Cardioderma, based on their inferred phylogenetic position (Hand, 1985; but see Kaňuch et al., 2015). The oldest megadermatid fossils, however, are: Saharaderma pseudovampyrus Gunnell et al., 2008 from early Oligocene deposits in Egypt (33.9–28.4 Ma), which shows similarities to Cardioderma and Lavia, and with which it may form a distinct African clade (Gunnell et al., 2008); and Megaderma lopezae Sevilla, 1990 from early Oligocene deposits in Spain. The remaining eight described Afro-European species of extinct Macrodera are represented in deposits that range