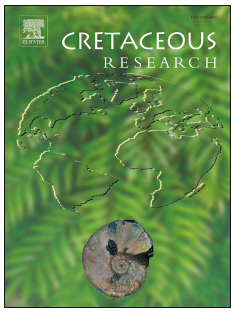
Accepted Manuscript



New Scarabaeoidea (Coleoptera) from the Lower Cretaceous Yixian Formation, western Liaoning Province, China: Elucidating the systematics of Mesozoic Hybosoridae

Yuanyuan Lu, Ruie Nie, Chungkun Shih, Dong Ren, Xingke Yang, Ming Bai

PII: S0195-6671(17)30409-3

DOI: 10.1016/j.cretres.2018.02.005

Reference: YCRES 3806

To appear in: *Cretaceous Research*

Received Date: 18 September 2017

Revised Date: 2 January 2018

Accepted Date: 6 February 2018

Please cite this article as: Lu, Y., Nie, R., Shih, C., Ren, D., Yang, X., Bai, M., New Scarabaeoidea (Coleoptera) from the Lower Cretaceous Yixian Formation, western Liaoning Province, China: Elucidating the systematics of Mesozoic Hybosoridae, *Cretaceous Research* (2018), doi: 10.1016/j.cretres.2018.02.005.

New Scarabaeoidea (Coleoptera) from the Lower Cretaceous Yixian Formation, western Liaoning Province, China: elucidating the systematics of Mesozoic Hybosoridae

Yuanyuan Lu[1,2#], Ruie Nie[1#], Chungkun Shih[3,4], Dong Ren[3*], Xingke Yang[1], Ming Bai[1*]

[1] Key Laboratory of Zoological Systematics and Evolution, Institute of Zoology, Chinese Academy of Sciences, 92 box, No. 1 Beichen West Road, Chaoyang District, Beijing, 100101, China;

[2] University of Chinese Academy of Sciences, Yuquan Road, Shijingshan District, Beijing, 100049, China;

[3] College of Life Sciences, Capital Normal University, Beijing, 100048, China;

[4] Department of Paleobiology, National Museum of Natural History, Smithsonian Institution, Washington, DC 20013-7012, USA

# Contributed equally

* Corresponding authors: Ming Bai: baim@ioz.ac.cn; Dong Ren: rendong@mail.cnu.edu.cn

Abstract. Two new genera are created to accommodate two new Hybosoridae (Coleoptera: Scarabaeoidea) species: *Sinohybosorus cheni* gen. *et* sp. n. and *Sinochaetodus tridentatus* gen. *et* sp. n.. The new species are described and illustrated based on two nearly complete fossil specimens from the Lower Cretaceous (Barremian– lower Aptian) Yixian Formation of western Liaoning Province, China. A key of described species of Hybosoridae from the Mesozoic and a catalogue of extinct Hybosoridae are provided. Based on the morphological characters, *Fortishybosorus ericeusicus* Yan, Bai *et* Ren, 2013 is transferred back to *Fortishybosorus* instead of *Lithohypna* in Glaphyridae. The discovery and description of these two new taxa provide further evidence for the Jurassic and Cretaceous diversification of lineages of Hybosoridae. Although the extant Hybosoridae constitute a relative small group in Scarabaeoidea, Hybosoridae are a relatively old group of scarab beetles with relative high diversity in the Mesozoic.