



A new genus and two new species of fossil Elaterids from the Yixian Formation of Western Liaoning, China (Coleoptera: Elateridae)

HUALI CHANG¹, FAN ZHANG^{2,3} & DONG REN^{1,3}

¹College of Life Science, Capital Normal University, Beijing 100037, China

²Institute of Plant and Environment Protection, Beijing Academy of Agriculture and Forestry Sciences, Beijing 100089, China

³Corresponding author. E-mail: rendong@mail.cnu.edu.cn or zff6131@263.net

Abstract

A new genus and two new species of fossil Elateridae are described and illustrated: *Paralithomerus* **gen. nov.**, *P. exquisitus* **sp. nov.**, and *P. parallelus* **sp. nov.** Both species were collected from the Late Jurassic-Early Cretaceous Yixian Formation of western Liaoning, China. Fossil elaterids expressing a sutured mesoventrite have been otherwise discovered only from the Upper Jurassic strata of Karatau.

Key words: Elateridae, fossil, Yixian Formation, Late Jurassic-Early Cretaceous, China

Introduction

The superfamily Elateroidea is a large taxon of beetles that contains the familiar click beetles (Elateridae, Eucnemidae, and Throscidae), fireflies (Lampyridae), soldier beetles (Cantharidae), and their relatives. Elateridae is the largest family of the series Elateriformia and the superfamily Elateroidea, and is the ninth most diverse family of beetles, with nearly 10,000 species worldwide (Lawrence 1982). Adult elaterids are easily recognizable by their distinctive slender body shape, prothorax with extended pronotal angles on the posterior corners, and furthermore, by their ability to jump into the air while making a clicking noise. Adult elaterids are usually found on flowers or vegetation, under bark or rocks and rotten wood, and may be saprophagous, phytophagous, or predacious. Larvae occur in a variety of habitats, including soil, litter, and rotten wood. Phytophagous soil-dwelling larvae are commonly known as wireworms, which have harmful impact to crops and forests (Lawrence *et al.* 2000; Johnson 2007).

A diversity of fossil Elateridae are known from the Late Jurassic (Dolin 1975, 1976, 1980). Various Cretaceous and Tertiary deposits (including ambers) also contain adult elaterids, although most of these have not been studied. Up to date, the family includes approximately 168 fossil species (Dunstan 1923; Martynov 1926; Ping 1928; Gardiner 1961; Dolin 1975, 1976, 1980; Hong 1982, 1984; Lin 1986; Zhang 1989; Tröster 1991, 1993, 1994a, 1994b; Zhang 1994; Hörnschemeyer *et al.* 1995; Zhang 1997; Nel *et al.* 1999; Tröster 1999; Dolin & Nel 2002; Chang *et al.* 2007; Chang & Ren 2008) and 25 amber species (Handlirsch 1906–1908; Yablokov-Khzorjan 1961; Becker 1963) that are attributed to some 74 genera reported from all over the world. Among these records, only 21 species in eight genera are known from China (Ping 1928; Hong 1982, 1984; Lin 1986; Zhang 1989, 1994; Zhang 1997; Dolin & Nel 2002; Chang *et al.* 2007; Chang & Ren 2008). Based on these published records elaterids probably originated no later than the Early to Mid-Jurassic and flourished by the Late Jurassic, with many recent genera established by the Early Palaeogene. Therefore, the Late Jurassic-Early Cretaceous may be a vital period for elaterid evolution.