



The oldest fossil Ochodaeidae (Coleoptera: Scarabaeoidea) from the Middle Jurassic of China

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The relatively small family Ochodaeidae Mulsant & Rey, 1871 of the superfamily Scarabaeoidea Latreille, 1802 includes 13 genera and about 100 extant species and subspecies belonging to two subfamilies (Scholtz *et al.* 1988, Paulsen 2007, Nikolajev 2009). One more subfamily, Cretochodaeinae Nikolajev, 1995, is known only from fossils (Nikolajev 1995). In total, there are four known fossil species of Ochodaeidae belonging to three genera in two different subfamilies (Nikolajev 2007, Krell 2007). The monotypic genus *Mioochodaeus* Nikolajev, 1995 has been described from Oligocene Rott (Germany). The genera *Cretochodaeus* Nikolajev, 1995 and *Lithochodaeus* Nikolajev, 2007 are known from the Lower Cretaceous Bon-Tsagan (Mongolia).

Among specimens from the Middle Jurassic Daohugou beds (Jiulongshan Formation, Ningcheng County, Inner Mongolia in China, about 165 Ma: Ren *et al.* 2002, Chen *et al.* 2004, Rasnitsyn and Zhang 2004, Gao and Ren 2006) one representative of this family was recently found. Its taxonomic placement is unambiguous due to the antennae with 3-antennomere club, mandibles produced beyond apex of labrum, labrum produced beyond apex of clypeus, and eyes not divided by canthus. The purpose of this paper is to describe this new fossil genus and species and document the oldest known record of the family Ochodaeidae dating from the Mesozoic.

Material and methods

Materials collected from the Middle Jurassic Daohugou beds, Jiulongshan Formation, Ningcheng County, Inner Mongolia in China. The specimens were examined using a Leica MZ12.5 stereomicroscope. All photographs were taken with a Nikon Digital Camera DXM1200C. The holotype of the new species is deposited in Capital Normal University, Beijing, China.

Systematic palaeontology

Mesochodaeus new genus

(Figs. 1, 2)

Higher taxon names: Coleoptera: Polyphaga: Staphyliniformia: Scarabaeoidea: Ochodaeidae.

Family Ochodaeidae Mulsant & Rey, 1871; subfamily incertae sedis.

Type species: *Mesochodaeus daohugouensis* sp. nov.; Middle Jurassic, Daohugou beds, Ningcheng County, Inner Mongolia in China. **Here designated.**

Etymology: The name of the new genus refers to the era of its origin and the generic name *Ochodaeus* Dejean, 1821 (the type genus of this family); gender masculine.

Diagnosis and description: In addition to the species description given below, this genus can be diagnosed by the mandibles externally rounded, visible beyond labrum in dorsal view; mesocoxae appear to be contiguous (but probably very narrowly separated in life); mesotibiae with 2 or 3 transverse carinae along outer edge.

Composition: The type species only.

Remarks: It is impossible to determine an exact position of the genus *Mesochodaeus* within the family, because the structure of the mesotibial and metatibial spurs, wing venation, and a number of other key taxonomic characters are unknown.