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A new species and new subgenus of the Genus *Elaphrus* from North China, with cladistic analysis of taxa of the tribe Elaphrini (Coleoptera: Carabidae)

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Abstract

A new subgenus *Sinoelaphrus* **new subgenus** of *Elaphrus* is described based on a new species from north China, *E. angulonotus* **new species** (type locality: Beijing, Haidian, Yangtaishan, 205m). The new species is different from other members of the genus in having a prominent lateral angle on the pronotum and one seta on each angle. Cladistic analysis of the seven genera and subgenera of Elaphrini confirms the phylogenetic status of the new subgenus.

Key words: Coleoptera, Carabidae, *Elaphrus*, new species, new subgenus, phylogenetic analysis

Introduction

Elaphrus Fabricius is one of three genera included in the carabid beetle tribe Elaphrini. The species of *Elaphrus* have been grouped into four subgenera: *Arctelaphrus* Semenov, *Neoelaphrus* Hatch, *Elaphrus* Fabricius, and *Elaphroterus* Semenov (Goulet, 1983). To date, 38 species of this genus have been described from the Holarctic, namely, 1 *Arctelaphrus*, 14 *Neoelaphrus*, 18 *Elaphrus*, and 5 *Elaphroterus*. The other two genera of Elaphrini are *Diacheila* Motschulsky and *Blethisa* Bonelli, including 3 and 8 species, respectively (Lorenz, 2005). Elaphrini is a typical Holarctic tribe, distributed from 30° north latitude to very high latitudes in the arctic. Species of the tribe tend to be adapted to cold temperatures, most inhabiting in tundra areas (Lindroth, 1954).

A total of 12 species of this tribe were formerly recorded in China, including 1 *Diacheila*, 1 *Blethisa*, 3 *Neoelaphrus*, 6 *Elaphrus* and 1 *Elaphroterus*, with the highest diversity in northeast of China and northeast Tibetan Plateau. Adults of *Elaphrus* are easily distinguished from other carabid beetles by their tiger beetle shape, metallic shine, and unique pits and mirrors on the elytra. In northern China, these beetles can be found at river side, on the banks of reservoirs, or in wet grassland.

In the spring of 2006, Mr. Liu Yizhou, a young insect collector gave us two carabid specimens collected from Beijing. They were readily recognized as an *Elaphrus* species, but distinctly different from other species by the prominent lateral angles of the pronotum. Thereafter, more specimens of the same species were collected from Beijing, Inner Mongolia, and Shandong. One old specimen was found deposited in the museum of the Institute of Zoology (IOZ), Chinese Academy of Sciences, collected at least 50 years ago.

Using the key given by Goulet (1983) and character states provided by Goulet et al (1997), and comparing our specimens with those of identified materials available at IOZ, convinced us that they represent an additional species unknown to science. Furthermore, a unique and specific character state suggested to us that a new subgenus is required to accommodate this new species.

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