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Revision of Palaearctic and Oriental *Necrophila* Kirby & Spence, part 1: subgenus *Deutosilpha* Portevin (Coleoptera: Silphidae)

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Abstract

Taxonomic revision of the subgenus *Deutosilpha* Portevin, 1920 (of *Necrophila* Kirby & Spence, 1828) through south-eastern Asia is presented. Two species are recognised: (1) *N*. (*D*.) *rufithorax* (Wiedemann, 1823), comb. nov. (ex *Deutosilpha*), with *Oiceoptoma tetraspilotum* Hope, 1833 as confirmed junior subjective synonym, from India, Nepal and Sri Lanka; and (2) *N*. (*D*.) *luciae* Růžička & Schneider, **sp. nov.** from Thailand, Laos, Vietnam and China: Sichuan province. A lectotype is designated for *Silpha rufithorax* Wiedemann, 1823 and *Oiceoptoma tetraspilotum* Hope, 1833. Morphology-based diagnosis and key to adults of both species are produced. Georeferenced records for both species are mapped.

Key words: Coleoptera, Silphidae, *Necrophila*, *Deutosilpha*, taxonomy, new species, new combination, distribution, Oriental region

Introduction

Portevin (1920) erected *Deutosilpha* as a subgenus of *Eusilpha* Semenov, 1890, to accommodate only one species, originally described as *Silpha rufithorax* by Wiedemann (1823). Later, Portevin (1926) treated *Deutosilpha* as a separate genus, related to Oriental and Eastern Palaearctic *Calosilpha* Portevin, 1920, *Chrysosilpha* Portevin, 1921 and *Eusilpha*, and redescribed all four genera. Hatch (1928) catalogued *Deutosilpha* as a subgenus of widely interpreted *Silpha* Linnaeus, 1758. Only recently, Peck (2001) and Sikes (2008) listed *Deutosilpha* along with *Calosilpha*, *Chrysosilpha* and *Eusilpha* as subgenera of Nearctic *Necrophila* Kirby & Spence, 1828; following unpublished taxonomical revision of A.F. Newton, Jr. This classification is also accepted here, detailed phylogenetic relationships of all subgenera will be treated in a separate study (J. Růžička, unpublished).

Phylogenetic affinities of these five genera/subgenera are not clear. Recently, Ikeda *et al.* (2008) published phylogenetic reconstruction of Silphinae based on sequences of one mitochondrial (16S) and three nuclear genes (28S, wingless (Wg), and phosphoenolpyruvate carboxykinase (PepCK)). Both Bayesian and maximum parsimony analyses produced the following tree topology: *Necrophila* + (*Eusilpha* + (*Calosilpha* + *Chrysosilpha*)) (Ikeda *et al.* 2008: 2072, fig. 1). However, *Deutosilpha* was not included into this analysis.

In another paper, Ikeda *et al.* (2007) studied flight capabilities and feeding habits of several species of Japanese carrion beetles of the subfamily Silphidae. *Necrophila* (*Calosilpha*) *brunnicollis* (Kraatz, 1877) and *N*. (*Eusilpha*) *jakowlewi* (Semenov, 1890) have fully developed flight muscles, but *N*. (*E*.) *japonica* (Motschulsky, 1861) showed flight muscle dimorphism. Comparing carbon and nitrogen stable isotope ratios based on the entire beetle body with other beetle predators and necrophages (Coleoptera: Carabidae and Silphidae), they concluded that *N*. (*C*.) *brunnicollis* is necrophagous, but *N*. (*E*.) *jakowlewi* and *N*. (*E*.) *japonica* are predaceous (interpreted as derived state from necrophagy; Ikeda et al. 2008: 2075, fig. 3).

The aim of this paper is to redescribe the subgenus *Necrophila* (*Deutosilpha*), Oriental in distribution, and to name a new species, separate from the type species of *Deutosilpha*, based on study of material from the eastern part of the distributional range of the subgenus. Detailed distribution of both species is also summarized and mapped, based on material available from museums and private collection.

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