

Short Communication

First record of the carrion beetle *Diamesus osculans* (Vigors, 1825) (Coleoptera: Silphidae) in Cambodia

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Paper submitted 7 June 2021, revised manuscript accepted 30 October August 2021.

Members of the Silphidae are commonly known as carrion beetles (Sikes, 2008). These provide essential services by feeding on decaying organic matter such as dead animals and recycling this in terrestrial ecosystems (Shubeck & Blank, 1982; Wolf & Gibbs, 2004; Oliva & Di-Iorio, 2008; Kalinova *et al.*, 2009; Midgley *et al.*, 2010; Dekeirsschieter *et al.*, 2011), though not all species feed on carrion (Anderson *et al.*, 1984; Sikes, 2008). For example, adults of *Silpha* spp. and *Dendroxena* spp. consume the eggs and larvae of flies, snails, caterpillars and slugs, whereas *Aclypea* spp. feed on plants (Sikes, 2008). Some silphid species are attracted to fungi and dung (Hastir & Gaspar, 2001; Sikes, 2005), whereas the remaining species are necrophagous (Hastir & Gaspar, 2001; Sikes, 2005, 2008) and prefer vertebrate carcasses including pigs, rodents and birds (Shubeck & Blank, 1982; Kalinova *et al.*, 2009). These are located using sensitive chemoreceptors on the antennal club (Boeckh, 1962; Ernst, 1972; Shubeck & Blank, 1982; Smith & Heese, 1995; Kalinova *et al.*, 2009) up to distances of several kilometres (Petruška, 1975).

Carrion beetles are relatively easily recognized by their flattened bodies, large size (10–35 mm in length), lack of ocelli and elytra always punctate, with 6–7 differentiated ventrites (Hansen, 1997). The family includes two subfamilies which comprise approximately 187 valid species in 23 genera (Dobler & Muller, 2000; Sikes, 2008; Majka, 2011; Newton, 2021). The first, the Silphinae,

includes 14 genera, four subgenera and about 113 species (Newton, 2021), whereas the second, the Nicrophorinae, comprises 74 species and includes the well-known burying beetles *Nicrophorus* spp. (Sikes, 2008).

Only two species of carrion beetles have been previously documented in Cambodia: *N. nepalensis* Hope, 1831 and *Necrophila* (*Calosilpha*) *cyaniiventris* (Motschulsky, 1870). These were reported from Phumi Kalai Thum in Ratanakiri Province (Fig. 1) (Nishikawa & Sikes, 2008; Růžička *et al.*, 2015) and both species are widely distributed, occurring from India to Southeast Asia. We present the first country record of an additional species, *Diamesus osculans* (Vigors, 1825), based on a single specimen and photographs of additional individuals which were identified following Hope (1840), Williams (1981) and Peck (2001). We also provide an identification key for the three species of Silphidae now known in Cambodia.

Subfamily Silphinae, Genus *Diamesus* Hope, 1840, *Diamesus osculans* (Vigors, 1825). Synonyms: *D. reductus* Pic, 1917, *Nicrodes bifasciatus* Dejean, 1833.

Material examined: one female (accession no. CEI-004123, Fig. 2), Phnom Khnang Phsa, R'leak Korng Cherng village, Ta Sal commune, Aural district, Kampong Speu Province, 11°46.731' N, 103°46.592' E (Fig. 1), 869 m above sea level (a.s.l.), 13.VIII.2020, collected by Phauk S. and CEI team using a light trap (LT02) situated in pine forest near a stream.

CITATION: Sin S., Khin C., Chhorn S., Yok G., Phak S., Thou S. & Phauk S. (2021) First record of the carrion beetle *Diamesus osculans* (Vigors, 1825) in Cambodia. *Cambodian Journal of Natural History*, 2021, 8–11.

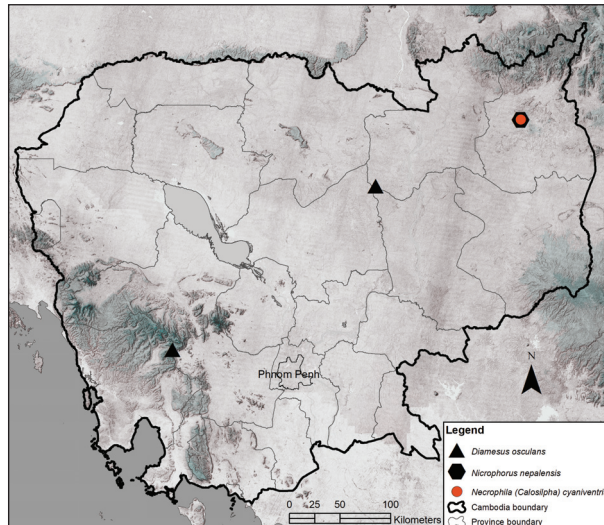


Fig. 1 Existing records of silphid taxa in Cambodia.

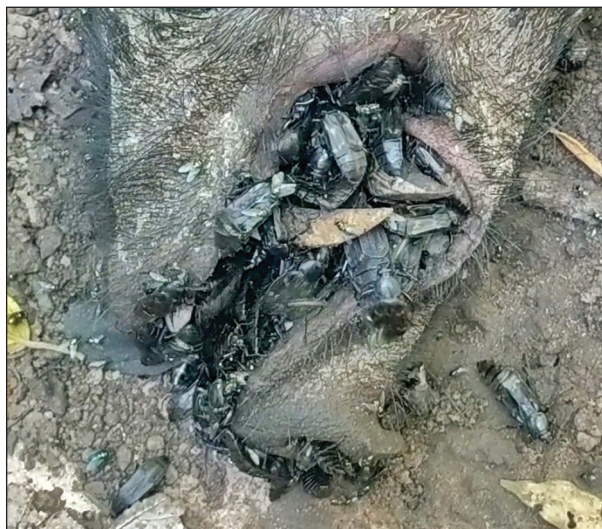


Fig. 3 Live *Diamesus osculans* scavenging on a wild pig carcass in Prey Lang Wildlife Sanctuary, Stung Treng Province (© Hun Seiha).

Additional records: Observed by Mr. Hun Seiha on 15.XII.2020 (<https://www.inaturalist.org/observations/93230483>; Fig. 3), Prey Lang Wildlife Sanctuary, Stung Treng Province, 13°14.705' N, 105°37.278' E (Fig. 1), 129 m a.s.l.

Description: Body black and dorsoventrally flattened with yellow setae, elytra shortened and not covering the four terminal segments of the abdomen. These characters match the specimen of *D. osculans* described from India (Peck, 2001). Pronotum finely punctate, two irreg-

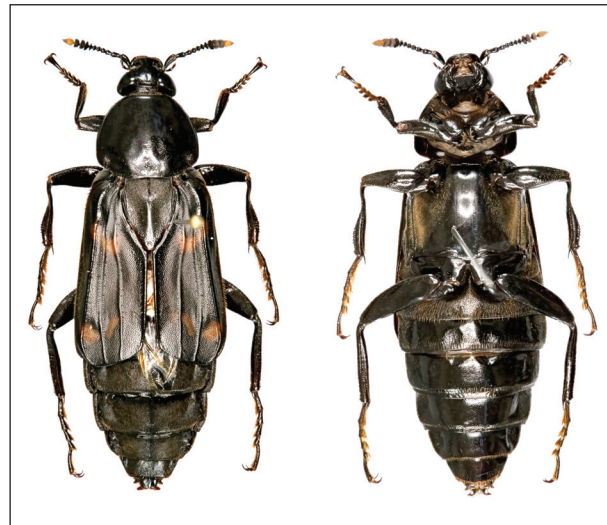


Fig. 2 Dorsal (left) and ventral (right) view of adult female *Diamesus osculans* (Vigors, 1825) collected at Phnom Khnang Phsa, Kampong Speu Province.

ular, orange maculae on each elytron. Antenna with 11 antennomeres, basal segment of club black, further two segments of club greyish, segment XI orange at base with red spot on apex. Setae on mesotarsus longer than on other surfaces, metafemora weakly expanded. Body large, length 42 mm (Fig. 2).

Ecology: Phnom Khnang Phsa is situated on the border of the Koh Kong and Kampong Speu provinces in the Central Cardamom Mountains National Park (Fig. 1). Habitats in the area include grasslands surrounded by patches of evergreen and pine forests and elevations reach up to 1,030 m a.s.l. Our specimen was captured using a light trap and numerous individuals were photographed scavenging on a carcass of a wild pig *Sus scrofa* Linnaeus, 1758 in the Stung Treng portion of Prey Lang Wildlife Sanctuary (Fig. 3). Prey Lang represents one of the largest areas of lowland evergreen forest remaining in the Indo-Burma region (Hayes *et al.*, 2015).

Distribution: *Diamesus osculans* is a widespread species, occurring in Sri Lanka to southern India, China, Philippines, Vietnam, Laos, Thailand, Malaysia, Indonesia (Sumatra, Java, Borneo, Papua), Papua New Guinea, New Britain, and Australia (Růžička *et al.*, 2000, 2002; Peck, 2001). Our records represent the first for Cambodia.

Carrion beetles have received very little attention in Cambodia compared to other countries in Asia such as India with ≈29 known species, China with ≈74 known species, Japan with ≈27 known species, North Korea with

≈24 known species, South Korea with ≈26 known species and Nepal with ≈20 known species (Růžička *et al.*, 2011, 2015; Růžička, 2021). The genus *Diamesus* comprises just two taxa, namely *D. bimaculatus* Portevin, 1914 which is endemic to Taiwan (Peck, 2001) and *D. osculans* which is widely distributed. *Diamesus osculans* has been recorded at 235 m in Myanmar and up to 1,200 m in Laos (Růžička *et al.*, 2000), whereas we observed the species at 869 m a.s.l. (Phnom Khnang Phsa) and 129 m a.s.l. (Prey Lang) in Cambodia.

Our study contributes to understanding of carrion beetles in Cambodia. These provide important services in decomposing and recycling organic materials in natural ecosystems and further inventory studies should be undertaken to improve knowledge of their diversity and occurrence in the country.

Key to the three species of Silphidae known in Cambodia

1. Elytra completely without posterior macula, blue metallic glossy. Pronotum orange in dorsal view.....*Necrophila (Calosilpha) cyaniventris*
- 1'. Elytra with posterior macula, black metallic. Pronotum black in dorsal view.....2
2. Usually with orange spot medially on frons. Apical 3 segments of antennal club orange. Elytra with posterior macula reaching dorsal margin.....*Necrophorus nepalensis*
- 2'. Without any orange spot on frons. Apical 2 segments of antennal club grayish, ultimate segment orange at base and apex with a red spot. Elytra with posterior macula not reaching dorsal margin.....*Diamesus osculans*

Acknowledgements

We are grateful to the rangers of the Central Cardamom Mountains National Park and local porters from R'leak Korng Cherng village for their help during our survey and thank Hun Seiha for allowing us to include his record of *D. osculans*. We also thank the Swedish International Development Cooperation Agency (under the Cambodia Bilateral Programme Contribution grant, no. 5410004501) and the Centre for Biodiversity Conservation for financial and other support.

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