



A new *Helluodes* Westwood species from Western Ghats with notes on habitat, distribution and phylogenetic relationships of genera *Helluodes* Westwood and *Physocrotaphus* Parry of the tribe Physocrotaphini Chaudoir (Insecta: Coleoptera: Carabidae: Anthiinae)

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Abstract

Description of *Helluodes devagiriensis*, **n.sp.** from western slopes of the Western Ghats, a global biodiversity hot spot in southwest India, is provided along with redescrptions of all species of *Helluodes* Westwood and *Physocrotaphus* Parry (*H. taprobanae* Westwood, *H. westwoodi* Chaudoir, *Physocrotaphus ceylonicus* Parry), keys to the genera of tribe Physocrotaphini and the species of genus *Helluodes*, notes on a curious sexually dimorphic character of species in the tribe and on termitophilous and geophilous habits of genus *Helluodes*, a discussion of the geographic distribution and phylogenetic relationships of the genera, and supportive evidence for the divergence of Physocrotaphini Chaudoir from Zuphiini Bonelli. Based on distributional patterns and phylogenetic relationships, (1) origin of the tribe in the southwest region of the Greater Indian Plate is hypothesized with *Helluodes* as basal stock; (2) *Helluodes* is endemic to the Western Ghats-Sri Lanka global hot spot of biodiversity; (3) *Physocrotaphus* is endemic to the globally outstanding montane evergreen forest ecoregion of Sri Lanka; (4) *Pogonoglossus* Chaudoir is a derivative of the *Helluodes* ancestral stock that dispersed into southeast Asia and beyond before Deccan trap formation; and (5) *Physocrotaphus* is a later derivative of the *Helluodes* stock after the separation of Sri Lanka from the Indian mainland.

Key words: Coleoptera, Carabidae, *Helluodes*, *Physocrotaphus*, endemism, Western Ghats, India, new species

Introduction

Beetles of the tribe Physocrotaphini Chaudoir (Carabidae: Anthiinae), previously referred to as the Helluodini (Csiki 1932; Moore 1998; Lawrence & Britton 1994; Lorenz 2005), are restricted to tropical and sub-tropical moist forests of the Indian sub-continent, Indo-China, Sunda Shelf-Philippines and New Guinea-Melanesia bioregions of the Indo-pacific terrestrial region (Wikramanayake *et al.* 2002) and the northern margins of North Australia in the South Pacific (Baehr 1988). Except for two *Pogonoglossus* species from Papua New Guinea, all species in the tribe are very rare in collections and are known from single or very few light-attracted specimens; and there are no data available on the biology or habits of member species leading to its labeling as an 'enigmatic tribe' (Moore 1998).

Forty-two species arranged in five genera are known for the tribe, with highest taxonomic diversity occurring in the Sunda-Shelf-Philippines and New Guinea-Melanesia bioregions. The large genus *Pogonoglossus* Chaudoir includes 34 species distributed over the whole range of the tribe (Darlington 1968; Baehr 1988,