



<http://dx.doi.org/10.11646/zootaxa.4057.1.9>

<http://zoobank.org/urn:lsid:zoobank.org:pub:7AC91C1D-5EAB-40A6-B177-3A154AF2F9EA>

Taxonomy of *Colophon* Gray (Coleoptera: Lucanidae): new species and a status change

CARMEN T. JACOBS, CLARKE H. SCHOLTZ & WERNER P. STRÜMPHER

Scarab Research Group, Department of Zoology & Entomology, University of Pretoria, Private Bag X 20, Hatfield 0028, Pretoria, South Africa. E-mail: ctjacobs@zoology.up.ac.za

Abstract

Three new species of the Cape high-mountain stag beetle genus, *Colophon* Gray (Coleoptera: Lucanidae), from South Africa are described. They are *C. deschodti* **new species**, *C. switalae* **new species**, and *C. struempheri* **new species**. The new taxa fall within a species complex of geographically disjunct entities related to *Colophon stokoei* Barnard. Furthermore, the mitochondrial COI gene shows a high degree of sequence divergence, with pairwise genetic distances between the species ranging between 7.4–10.7%. The new species are illustrated by photographs. *Colophon eastmani nagaii* Mizukami is raised to species level on the basis of geographic range and molecular differences between it and the nominate subspecies. This brings the total number of described species in the genus to 21. An updated checklist of the South African species of *Colophon* is also provided.

Key words: Cape high-mountain stag beetle, Cape Fold Mountains, flightlessness, mountain relicts

Introduction

Colophon Gray (Coleoptera: Lucanidae: Lucanini) is taxonomically unique and hypothesised to be a relict of an extinct Cretaceous temperate Gondwanan lineage (Switala *et al.* 2014; Kim & Farrell 2015). It is thought to have separated from its sister clade, represented by extant members of the Neotropical-Australasian Chiasognathini (Lucaninae) of which most are highland or montane forms. Two recent studies hypothesised this divergence at about 86 mya (Switala *et al.* 2014) and 87 mya (Kim & Farrell 2015). All the *Colophon* species are restricted to cool, high mountain peaks of the Fynbos biome of the southwestern Cape Province, South Africa to which they were possibly gradually driven by the northward drift of the continent and progressive warming of the area since the Pleistocene. The genus currently consists of 17 recognised species, as well as several subspecies and various “forms/varieties” which occur on disjunct mountain peaks and show small morphological differences. Males and females are strongly dimorphic with males having large mandibles, although these vary considerably within a species, apparently allometrically. All species are wingless and have very localised distributions on only those peaks that receive evening and morning summer fog. Various global change scenarios predict further drying of these peaks. Consequences for the beetles are likely to be severe.

Colophon is the only African insect group to be Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)-listed (Category III) although very little is known about the natural history of any of the species. The reasons for its listing revolve around the perceived rarity of the species and the astronomical amounts that the beetles command in the insect trade. However, the question of the rarity and need for protection of species in this genus have been emotionally driven since no study has attempted to determine any aspect of the natural history or population parameters of any of the species. The species are highly prized by collectors because of their putative rarity, and the recent CITES-listing has clearly increased their black-market value. Because of their remote distribution at high altitude in largely inaccessible areas, effective policing of collection of the species is difficult. An underground black market of sale of the species is currently flourishing.

During a 10-year study of the species’ genetic uniqueness, distribution, phylogenetic relationships, habitat-