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Taxonomy of the African army ant *Dorylus gribodoi* Emery, 1892 (Hymenoptera, Formicidae) — new insights from DNA sequence data and morphology

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Abstract

Numerous species in the Old World army ant genus *Dorylus* have been described based on a single sex or caste. Our analysis of mitochondrial *cytochrome oxidase II* gene sequences of specimens from the same population reveals that *D. gribodoi* Emery males are conspecific with *D. gerstaeckeri* Emery workers, rendering *D. gerstaeckeri* a junior synonym of *D. gribodoi*. *Dorylus gribodoi* var. *insularis* Santschi, *D. gribodoi* var. *confusus* Santschi and *Dorylus lamottei* Bernard are also synonymized under *D. gribodoi*. A description of the *D. gribodoi* queen, which was collected together with workers from a nest in Ivory Coast, is provided. *Dorylus gerstaeckeri* st. *quadratus* Santschi is shown to be distinct from *D. gribodoi* and synonymised under *Dorylus kohli* Wasmann. Similar studies examining the relationship between species described based on males and others described based on workers are needed to clarify the formidable taxonomic confusion in the ecologically important but little-studied genus *Dorylus*.

Key words: Dorylinae, Formicidae, male-worker matching, West Africa

Introduction

Due to their extraordinary behaviour, army ants of the Old World genus *Dorylus* have received considerable attention from naturalists and other biologists for over 200 years (Gotwald 1995). The queens in this genus are the largest known ants and have an enormous egg-laying capacity (an estimated 3–4 million eggs per month in *D. wilverthi*, Raignier and van Boven 1955). Colonies of certain species in the subgenus *Anomma* (the fierce and famous "driver ants", Savage 1847; see also Kronauer *et al.* 2007) have the largest worker populations among all monogynous ant species (up to 9 million adult individuals in *D. nigricans*, Leroux 1982) and stage massive swarm raids on the forest floor and up in the vegetation, where they attack, kill and retrieve an extremely diverse array of prey (Gotwald 1995). Species in the subgenus *Typhlopone* often attack and destroy huge colonies of fungus-growing termites (e.g. Darlington 1985) and even of other *Dorylus* species (Leroux 1982) in tremendous battles involving millions of social insects.

Dorylus s.l. taxonomy has been in disarray for a long time and this has represented a huge impediment for studies on all aspects of the group's biology. Emery (1910) was the last author to treat the genus as a whole taxonomically and since then numerous descriptions of species, subspecies, and varieties have been added to the literature (Bolton 1995). One of the major challenges in *Dorylus* taxonomy is that most taxa have been described based only on a single caste or sex. Twenty-four species are based solely on the large and distinctive males (Bolton 2003), which fly at night and are often collected at lights. The crucially important association

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