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Description of six new species of Anomalini from Costa Rica (Coleoptera: Scarabaeidae: Rutelinae)

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Abstract

Four new species of *Anomala* Samouelle and two new species of *Callistethus* Blanchard (Coleoptera: Scarabaeidae: Rutelinae: Anomalini) from Costa Rica are described: *A. aglaos* new species, *A. estrella* new species, *A. inbio* new species, *A. pincelada* new species, *C. ruteloides* new species, and *C. yalizo* new species. A distribution map of each species is given and the male genitalia (aedeagus and endophallus) of the species described and similar species are illustrated.

Key words: aedeagus, Costa Rica, endophallus, new species, species distribution

Introduction

The subfamily Rutelinae (Coleoptera: Scarabaeidae) is recognized as an useful tool for biodiversity and ecology studies in the Neotropics (Morón 1997; García-López *et al.* 2010), and especially the tribe Anomalini for its abundance and diversity (Morón 1997).

However, the lack of taxonomical studies and identification tools makes it difficult to implement this group at its full potential, and the presence of undetermined species in diversity studies is common, especially in the genera *Anomala* and *Callistethus*, (see for example Deloya *et al.* 1995; García-López *et al.* 2013). The diversity of Anomalini in Costa Rica is high, with more than 100 species of *Anomala* and more than 20 of *Callistethus* (Instituto Nacional de Biodiversidad 2001, *Callistethus* species are classified under *Anomala*). We studied the type material and the scientific literature and discovered that most of the previously undetermined species were undescribed. In this paper we describe four new species of *Anomala* and two new species of *Callistethus*. This work is meant to be part of a general taxonomical work on Anomalini in Costa Rica, which will facilitate the use of this group in future diversity studies (see Filippini *et al.* 2013, 2014; more descriptions will be published soon).

Material and methods

The type specimens for 183 Neotropical species (about 80% of species described) were studied (listed in Table 1), and available literature has been consulted for the rest, to exclude cases of synonymy.

The material cited in this publication is deposited in the following collections:

CEUA	Colección Entomológica de la Universidad Alicante, Alicante, Spain
INBIO	Instituto Nacional de Biodiversidad, Santo Domingo de Heredia, Costa Rica
MLUH	Martin-Luther-Universität, Halle, Germany
MNHN	Muséum National d'Histoire Naturelle, Paris, France
MNHUB	Museum für Naturkunde der Humboldt Universität zu Berlin, Berlin, Germany
MUCR	Museo de insectos, Universidad de Costa Rica, San Pedro, Costa Rica

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