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Description of *Cyclocephala distincta* Burmeister (Coleoptera: Scarabaeidae: Dynastinae: Cyclocephalini) immatures and identification key for third instars of some *Cyclocephala* species

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Abstract

The larval instars and pupa of *Cyclocephala distinct*a Burmeister (Coleoptera: Scarabaeidae: Dynastinae: Cyclocephalini) are described and compared to those of other known congenerics. Adult *C. distincta*, specialized flower visitors of Neotropical palms (Arecaceae), were collected in an area of native Atlantic Forest cover in the northeastern coast of Brazil and reared in captivity. The larvae of *C. distincta* differ from those of the other congenerics because of a distinctive pattern and arrangement of the setae on the raster.

Key words: masked chafer, larvae, morphology, Neotropical region, pupa

Introduction

The study of immature beetles of the tribe Cyclocephalini (Coleoptera: Scarabaeidae: Dynastinae) is still incipient. The larval stage within the tribe is described for only four out of the 16 currently recognized genera: *Ancognatha* Erichson, *Aspidolea* Bates, *Cyclocephala* Dejean, and *Dyscinetus* Harold (Ritcher 1966, Ratcliffe 2003, Neita-Moreno *et al.* 2007, Ratcliffe *et al.* 2013). *Cyclocephala* encompasses over 85% of the species richness of cyclocephaline scarabs, with about 500 described species (Ratcliffe 2003, Ratcliffe *et al.* 2013). However the larvae and pupae of only 12 species of this large genus have been described (Gavotto 1964, Ritcher 1966, Gordon & Anderson 1981, Morelli 1991, Morelli & Alzugaray 1994, Bran *et al.* 2006, Lugo-García *et al*. 2009, Souza *et al*. 2013, Albuquerque *et al.* 2014)

The larvae of *Cyclocephala* are mostly edaphic and dwell under the soil surface, where they feed on grass roots and decaying organic matter or on the petioles of plants (Ratcliffe 2003, Grebennikov & Scholtz 2004, Ponchel 2006, Ratcliffe & Cave 2006, Stechauner-Rohringer & Pardo-Locarno 2010). Depending on the feeding substrate, the larvae can either function as main contributors to the environmental balance of soils (Gassen 2001) or as destructive agricultural pests (Ritcher 1966, Potter *et al.* 1996).

According to Morón (2004), most of the records of damage caused by scarabeiform larvae do not refer to any specific species. In general, larvae that occur in a particular environment may constitute a diverse group with regard to feeding habits. Therefore, their potential activity as pests of cultivated plants might vary greatly (Salvadori & Oliveira 2001). Thus, accurate species identification is critical to management measures, since in many cases the beetle fauna found in a particular farming area do not belong to species that can cause damage to cultivated plants but are nonetheless eliminated due to erroneous identification (Pereira & Salvadori 2006). Out of the 12 species of *Cyclocephala* whose immature forms have been described, six are considered agricultural pests: *C. longula* LeConte, *C. borealis* Arrow, *C. comata* Bates, *C. lurida* Bland, *C. parallela* Casey, and *C. signaticollis*

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- Maxillary stridulatory area with combination of 1+10 teeth. Maximum width of head capsule < 4.0 mm ....*C. longula* LeConte, 1863
4. Raster with 35–37 teges. Maximum width of head capsule 4.8 mm .....*C. comata* Bates, 1888
- Raster with 25 teges. Maximum width of head capsule 3.9 mm .....*C. borealis* Arrow, 1911
5. Clypeus with 1 external seta on each side. 6
- Clypeus with 2 external setae on each side. 10
6. Cephalic capsule with 8 or more dorsoepicranial setae on each side; frons with posterior and external setae on each side 7
- Cephalic capsule with 2 dorsoepicranial setae on each side; frons without posterior and external setae ..... *C. gregaria* Heyne & Taschenberg, 1907
7. Tarsal claws with 1 basal seta 8
- Tarsal claws with 2 basal setae . . . . . *C. lurida* Bland, 1863
8. Clypeus with 2 anterior setae on each side; right and left mandibles with 3 teeth each; number of setae on the left chaetoparia greater than the number of setae on the right chaetoparia; maximum width of head capsule > 4 mm 9
- Clypeus with 1 anterior seta on each side; right and left mandibles with 3 and 2 teeth, respectively; number of setae on the right chaetoparia greater than the number of setae on the left chaetoparia; maximum width of head capsule < 4 mm ..... *C. distincta* Burmeister, 1847
9. Maxillary stridulatory area with combination of 1+9-10 teeth; 21–28 dorsomolar setae of mandible; raster with 25–30 teges . .....*C. fulgurata* Burmeister, 1847
- Maxillary stridulatory area with combination of 1+7 teeth; 9–11 dorsomolar setae of mandible; raster with 20–25 teges ....*C. lunulata* Burmeister, 1847
10. Head capsule with 15 paraocellar setae; frons with 2 setae on anterior angle . . . . . .*C. celata* Dechambre, 1980
- Head capsule with 3 paraocellar setae; frons with 3 setae on anterior angle 11
11. Frons with 1 anterior seta and 1 posterior seta on each side; labrum with 14 anterior setae . . *C. signaticollis* Burmeister, 1847
- Frons with 2 anterior setae and 2 posterior setae on each side; labrum with 1 anterior seta .....*C. paraguayensis* Arrow, 1913

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