

New Records of the Giant Dung Beetle Genus *Heliocopris* Hope, 1837 (Coleoptera, Scarabaeidae, Scarabaeinae)

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ABSTRACT

Some new country records of dung beetles belonging to the genus *Heliocopris* Hope, 1837 are given: *H. marshalli* Péringuey, 1901 is recorded for the first time for Zambia; *H. hamadryas* (Fabricius, 1775) is recorded for the first time for the Lubombo region (Swaziland); the first exact locality for Gabon is reported for *H. haroldi* Kolbe, 1893; finally the occurrence of *H. antenor* (Olivier, 1789) is confirmed for Uganda.

Key words: Scarabaeidae, *Heliocopris antenor*, *Heliocopris hamadryas*, *Heliocopris marshalli*, *Heliocopris haroldi*, new record.

INTRODUCTION

Heliocoprís Hope, 1837 is a genus of dung beetle including night-flying, tunneling species which feed preferentially upon elephant dung, although some of them use also other dung types of herbivores and sometimes even of human (Davis, Frolov, & Scholtz, 2008). This genus comprises 55 large-to very large body species, 50 of which are endemic to Africa, four endemic to Asia, and one occurring in both continents (Schoolmeesters, 2020). The Asian species occur in the southern part of the continent: from Iran to China, although records are quite scattered; one species occurs in north east Africa and Arabian Peninsula; finally African species are present in all the sub-Saharan region, even if some countries (Chad, Mali, and Mauritania) have not records (Pokorný, Zidek, & Werner, 2009), probably due to lacking of research. Despite the impressiveness of these beetles, knowledge about their distribution is still poor and fragmented and even new species have been collected and described in recent years (Moretto & Minetti, 2013; Moretto, 2014, 2017) after the genus revision by Pokorný et al (*op. cit.*). The present work provides new country records for some species of these dung beetles.

MATERIAL AND METHODS

The examined material consists of collected or photographed specimens from the naturalistic online platform “iNaturalist” (www.inaturalist.org) (see abbreviations). For each site, the following information is provided: locality, date, collector or photographer, number of specimens, sex, repository or source. Geographical coordinates are in decimal degrees (datum WGS84). The uncertainty (in metres) of data from the online source is indicated according to the point-radius method (Wieczorek, Guo, & Hijmans, 2004). Each record was identified or confirmed by the authors.

Abbreviations: CFC = Filippo Ceccolini collection, Rassina (Arezzo), Italy. MZUF = Natural History Museum of the University of Florence, Italy. IN = www.inaturalist.org
leg. = legit

RESULTS

List of species

Heliocoprís antenor (Olivier, 1789)

Material examined. UGANDA: Kuchumbala, Kumi district, Teso sub-region, Eastern Region, 14.04.2016, P.-D. Svoboda legit, 1 ♂, CFC.

Biology: This species seems to be attracted by light (Pokorný, et al, 2009; De Jong & Krell, 2011); some specimens are found in burrows under cattle pads (Pokorný, Zidek, & Werner, *op. cit.*) and human dung is also reported as trophic source (Davis, Frolov, & Scholtz, 2008).

General distribution: The species is known for almost all central Africa, from Senegal to Ethiopia and Zimbabwe as southern limit (Pokorný, Zidek, & Werner, *op. cit.*). Few

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records are reported from large areas of oriental Africa. The species is reported in Ethiopia (Pokorný, Zidek, & Werner, *op. cit.*), but no data are recorded from Kenya, while in Tanzania a single record was reported by Kolbe (1898) in XIX century; also in Uganda the distribution knowledge of this species is very poor: only one record is known from literature, recently quoted by De Jong & Krell (2011).

Remarks. The present record is the second one from Uganda; the occurrence of *H. anterior* is confirmed in this poorly investigated country.

***Heliocopris hamadryas* (Fabricius, 1775)**

Material examined. SWAZILAND: Mlawula Nature Reserve, Magadzavane Lodge area, Lugongolweni, Lubombo region, -26.316652° N 31.989698° E (uncertainty = 1 m), 19.02.2016, 1 ♂ (Fig. 1), photo by Kate Braun, IN.

Biology: This dung beetle can be attracted at light (Pokorný, et al, 2009). During nesting behaviour, in the tunnel the dung cake is relocated piecemeal to a deeper chamber before brood construction (Davis, Frolov, & Scholtz, 2008). Besides elephant dung, *H. hamadryas* can use as trophic source also cattle dung (Pokorný, Zidek, & Werner, *op. cit.*) and this adaptation has allowed this species to thrive in regions where elephants no longer exist (Stronkhorst & Stronkhorst, 2013).

General distribution: The species is documented in almost all countries of Africa south to equator (Pokorný, Zidek, & Werner, *op. cit.*; Stronkhorst & Stronkhorst, *op. cit.*).

Remarks: The record for the Mlawula Nature Reserve is the first one for the Lubombo region and only the second one from Swaziland, after that which Stronkhorst & Stronkhorst (*op. cit.*) cited on a website.



Fig. 1. Male specimen of *Heliocopris hamadryas* (Fabricius, 1775) from Swaziland in two different positions (photos by Kate Braun).

***Heliocopris haroldi* Kolbe, 1893**

Material examined. GABON: Ivindo National Park, Makokou, Ivindo Department, Ogooué-Ivindo Province, 05.2009, A. Susini leg., 1 ♀, MZUF; *idem*, 01-15.03.2010, 4 ♂♂, 4 ♀♀, MZUF.

Biology. It seems to be a mainly rainforest species (Moretto, 2014).

General distribution. It is known for almost all central-eastern Africa, while in many countries of western Africa its occurrence needs confirmation (see Pokorný, Zidek, &

Werner, 2009; Moretto, 2014).

Remarks. So far, the only record of this species for Gabon was reported by Moretto (2014), but without precise locality.

***Heliocopris marshalli* Péringuey, 1901**

Material examined. ZAMBIA: Kasanka National Park, Serenje district, Central Province, -12.502312° N 30.131646° E (uncertainty = 21 m), 13.12.2013, 1 ♂ (Fig. 2), photo by Jakob Fahr, IN.

Biology: Little known species, a few specimens were found from underneath cattle dung (Pokorný, et al 2009).

General distribution: Very few data are known for this species, which is rarely encountered in the field, and was recorded so far only for two countries: Tanzania and Zimbabwe (Pokorný, Zidek, & Werner, *op. cit.*)

Remarks: First record for Zambia.



Fig. 2. Male specimen of *Heliocopris marshalli* Péringuey, 1901 from Zambia in two different positions (photos by Jakob Fahr).

DISCUSSION

New records for this relatively little investigated genus of dung beetles are added by this contribution. The record of *H. marshalli* is particularly interesting, since still scarce is the distribution knowledge of this species: Zambia is only the third country in which this beetle is found. Further research could help to verify if the species occurs also in other neighboring countries, like Malawi or Mozambique.

Uganda and especially Swaziland are relatively uninvestigated countries for *Heliocopris* fauna. *Heliocopris antenor* was not reported by Pokorný, et al (2009) in Uganda, where the species was documented for the first time only in recent years (De Jong & Krell, 2011), bringing to seven the number of *Heliocopris* species occurring in this country (see Pokorný, Zidek, & Werner, *op. cit.*).

Even less investigated is Swaziland. No records from this country are reported by Pokorný, Zidek, & Werner (*op. cit.*) and the only records from this state can be found in Gillet & Barr (2018), as well as in a privately published online article by Stronkhorst & Stronkhorst (1997) and in website of the same authors (Stronkhorst & Stronkhorst, 2013), for a total of five species.

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Then, in Pokorný, Zidek, & Werner (*op. cit.*) only three species were reported from Gabon; one of which, *H. haroldi*, was generically recorded by Moretto (2014) for the country. Herein, a first exact locality for Gabon is given for this scarab beetle.

Further research is certainly needed to better define the distribution of many species of these dung beetles.

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