

ARTIGO / ARTÍCULO / ARTICLE

New data of Heteroceridae MacLeay, 1825 from Pakistan
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Abstract: An updated checklist of the variegated mud-loving beetles (Coleoptera: Heteroceridae) from Pakistan is presented. One species is firstly reported from the country, *Heterocerus dubius* Fabricius, 1801, while the status of five species of the genus *Heterocerus* Fabricius, 1792 in Pakistan is addressed.

Key words: Coleoptera, Heteroceridae, *Augyles*, *Heterocerus*, new records, status, Pakistan.

Resumen: Nuevos datos de Heteroceridae MacLeay, 1825 de Pakistán (Coleoptera). Se presenta una lista actualizada de los heterocéridos (Coleoptera: Heteroceridae) de Pakistán. Una especie se cita por primera vez para el país, *Heterocerus dubius* Fabricius, 1801, y se aborda la situación de cinco especies del género *Heterocerus* Fabricius, 1792 en Pakistán.

Palabras clave: Coleoptera, Heteroceridae, *Augyles*, *Heterocerus*, nuevas citas, status, Pakistán.

Recibido: 7 de abril de 2015

Aceptado: 6 de septiembre de 2015

Publicado on-line: 7 de octubre de 2015

Introduction

The family Heteroceridae MacLeay, 1825, or variegated mud-loving beetles, is distributed throughout the world except Antarctica (King & Lago, 2012). Three genera, namely *Augyles* Schiödtte, 1866, *Heterocerus* Fabricius, 1792, and *Micilus* Mulsant & Rey, 1872 are present in the Palaearctic region, including 95 species (Mascagni, 2006).

The composition of Heteroceridae in Pakistan is virtually unknown. The first attempts on faunistics of the Heteroceridae from the Indian sub-continent date back to the XIXth century and earliest decades of the XXth century (Motschulsky, 1858; Grouvelle, 1903, 1911; Mamitza, 1928, 1930, 1933). More recently, Mascagni & Sforzi (1999) listed 14 species of the family Heteroceridae from India and neighbouring countries, being incidentally mentioned *Heterocerus holosericeus* Rosenhauer, 1856 as a new record to Pakistan. They also recorded 25 species from India. Tasar & Mascagni (2014) presented the first checklist of Heteroceridae from Turkey.

There has never been a contribution on Pakistan's Heteroceridae to elucidate its biodiversity and faunistics. Two inventories were made concerning insects (Chaudhry et al., 1966) and beetles (Hashmi & Tashfeen, 1992), but the first one did not provide any information about the Heteroceridae of Pakistan, while the latter checklist included less species than the Palaearctic Catalogue (Mascagni, 2006). There are five species of Heteroceridae listed by Hashmi & Tashfeen (1992), *Augyles bellus* (Grouvelle, 1911), *A. feai* (Grouvelle, 1896), *Heterocerus dubiosus* Zaitzev, 1910, *H. fryi* Grouvelle, 1896, and *H. pervarus* Grouvelle, 1896, not compiled by Mascagni (2006). However, Mascagni & Sforzi (1999)

listed *Augyles bellus* from Bihar as type locality while *A. feai* from Nepal, Burma, Sri Lanka, and India (Mascagni, 2006), therefore the status of both species in Pakistan is uncertain according to Hashmi & Tashfeen (1992) while remaining three species never listed elsewhere. There are eleven species of Heteroceridae reported from Pakistan (Mascagni, 2006).

The first annotated list of species of Heteroceridae of Pakistan including new collection data and new records from two areas of the province of Sind is here presented. There must be more species of Heteroceridae potentially present in Pakistan and more precise searching is needed to update the list.

Material and methods

Specimens were collected by hand picking on street lights at petrol stations and sent to Max Barclay (Natural History Museum, London), who forwarded them to Mr. Stanislav Skalický for determination.

Systematic Account

Family Heteroceridae MacLeay, 1825

Subfamily Heterocerinae MacLeay, 1825

Tribe Augylini Pacheco, 1964

Augyles pucholti Skalický, 2001

Known from Pakistan (Mascagni, 2006). More than 50 specimens were collected on 8.V.2013 at the light in a highway petrol station in Naushehroferoz, province of Sind.

Augyles cantus Miller, 1995

Pakistan (Mascagni & Sforzi, 1999; Mascagni, 2006).

Augyles flavidus (P. Rossi, 1794)

Syn.: *Heterocerus minutus* Kiesenwetter, 1835; *H. minimus* Kiesenwetter, 1843; *H. campestris* Motschulsky, 1853; *H. flavescens* Schaufuss, 1862; *H. pallescens* Schaufuss, 1862; *H. albipennis* Kuwert, 1890

Pakistan, Bela, Baluchistan, 13/14.III.1995 (Mascagni, 2003, 2009).

Augyles stipebozici Mascagni & Rada, 2012

Halala Village, Pakistan (Mascagni & Rada, 2012).

Augyles uncis Miller, 1995

Gilgit, Pakistan, 26.VII.2000 and 16.VIII.2000 (Skalický, 2005).

Tribe Heterocerini MacLeay, 1825

Heterocerus flexuosus Stephens, 1828

Syn.: *Heterocerus marginatus* Gyllenhal, 1808; *H. femoralis* Krynický, 1832; *H. hamifer* Gené, 1836; *H. arenarius* Kiesenwetter, 1851; *H. maculosus* Fairmaire, 1868; *H. fausti* Reitter, 1879; *H. damryi* Kuwert, 1890; *H. dentifasciatus* Kuwert, 1890; *H. heydeni* Kuwert, 1890; *H. apfelbecki* Kuwert, 1890; *H. corsicus* Rey, 1890; *H. senegalensis* Fairmaire, 1894; *H. syrcticus* Peyerimhoff, 1924

Known from Pakistan (Mascagni, 2006). Only one specimen was collected in Mithi, Thar Desert, province of Sind, at the light in a highway petrol station near the city on 26.VII.2012.

***Heterocerus holosericeus* Rosenhauer, 1856**

Syn.: *Heterocerus pustulatus* Schilsky, 1890; *H. panormitanus* Kuwert, 1890; *H. ragusae* Kuwert, 1890; *H. lineatus* Kuwert, 1890; *H. pustulatus* Schilsky, 1892; *H. fluvialtilis* A. Fiori, 1906; *H. subfossor* A. Fiori, 1906; *H. villiger* A. Fiori, 1906; *H. villosus* A. Fiori, 1908

Known from Pakistan (Mascagni & Sforzi, 1999). They reported this species from Karchat, Kirther National Park, Sindh.

***Heterocerus dubius* Fabricius, 1801**

Syn.: *Heterocerus maindroni* Grouvelle, 1903

Previously recorded from India and Sri Lanka (Mascagni & Sforzi, 1999). Three specimens were collected in Naushehroferoz, province of Sind, at the light in a highway petrol station on 8.V.2013. New record for the country.

***Heterocerus mus* Charpentier, 1965**

Known from Pakistan (Mascagni, 2006, 2009). More than 40 specimens were collected in Naushehroferoz and Mithi, Thar Desert, province of Sind, at the light.

***Heterocerus virgatus* Mamitza, 1933**

Previously recorded from India (Mascagni & Sforzi, 1999) and Pakistan, Sind Prov., Makli, near Thatta, 22.IX.1976 (Skalický, 2005; Mascagni & Rada 2012). Six specimens were collected in Naushehroferoz, province of Sind, at the light in a highway petrol station on 8.V.2013.

***Heterocerus lorenzevae* Mascagni, 1993**

Bela, Baluchistan, 13/14.III.1995 (Mascagni, 2003); 90 km SSE of Quetta Kundlani, Baluchistan, 20/23.II.1995, Sind Karchat, Kirthar Natural Park, 25.II/4.III.1995, Sind Prov., Makli, near Tratta, 22.IX.1976 (Skalický, 2005).

***Heterocerus nepalensis* Mascagni, 1993**

90 km SSE of Quetta Kundlani, Baluchistan, 20/23.II.1995, Bela, Baluchistan, 13/14.III.1995 (Mascagni, 2003); Sind Karchat, Kirthar Natural Park, 25.II/4.III.1995 (Skalický, 2005).

***Heterocerus persicus* Mascagni, 1989**

NE Pakistan, Hindukush / Chitral Yarklum Rv., 5 km W Mastuj, 23.IX.1995, Sind Prov., Makli, near Tratta, 22.IX.1976 (Skalický, 2005).

Discussion

Inventorying studies such as the present one reveal that extensive field studies and surveys are very necessary in Pakistan. The fauna of Heteroceridae of Pakistan is inadequately known. There is no systematic work ever done for the study of Heteroceridae of Pakistan, although this region is rich of all kind of habitats for the insects including variegated mud-loving beetles.

In this study one species, *Heterocerus dubius* Fabricius, 1801, is newly recorded for the country, raising the known fauna of Heteroceridae of Pakistan to 13 species.

Acknowledgements

We thank to Mr. Stanislav Skalický (Ústí nad Orlicí, CZ) for the determination of species and also indebted to Dr. Max Barclay (Natural History Museum, London) for his assistance. We also specially thank to Dr. Alessandro Mascagni (Italy) for improving the manuscript.

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