Scientific Note

Further Records of Ground beetles (Coleoptera: Carabidae) from Oman

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Abstract. The Carabidae family has a cosmopolitan distribution and form one of the most diverse and abundant group of insects. These beetles play an important role in ecosystems as bioindicators in habitat management, landscape ecology, conservation, pollution, climatic changes and soil characteristics. The knowledge of Carabidae from Oman is still not well studied. Only 44 species of Carabidae are reported from Oman so far and this indicates the large blank in our knowledge in this family when compared to recorded species from other neighboring countries in the Arabian Peninsula. A total of 37 specimens were collected, and 10 species from 10 genera and 4 subfamilies are being new records for Oman. The sampling was conducted by light traps and by hand. All reported species were collected from northern Oman (Wadi Alkoudh- Oman botanical garden-, Samad Ashan and Wadi beni Khalid). The vegetation was rich with the Leguminosae, Asteraceae and Poaceae. Most species were collected during autumn from wadi habitat. The carabid fauna was dominated by the Lebiinae and Harpalinae with 8 species. The species belong to Lebiinae are four species (*Tetragonoderus arcuatus* Dejean, 1829, *Microlestes discoidalis* (Fairmaire, 1892), *Metadromius ephippiatus* (Fairmaire, 1884), *Singilis persicus* (Jedlička, 1961)), four from Harpalinae (*Crasodactylus punctatus* Guérin-Ménéville, 1847, *Amara maindroni* Bedel, 1907, *Amblystomus orpheus* LaFerté-Sénéctère, 1853, *Zuphium olens* P. Rossi, 1790), one species from Trechinae (*Elaphropus babaulti* (Andrewes, 1924)) and one from Scaritinae (*Dyschirius schaumii* (Putzeys, 1866)).

Keywords: Oman, Carabidae, Arabian Peninsula, ground beetles, new records.

The Carabidae is one of the biggest families of beetles known worldwide (Lorenz 2005). The biology of the Carabidae is rather homogeneous, as most species are carnivorous, and larvae are predators too, few species eating pollen, seeds and berries (Felix 2009). Most Carabidae are active nocturnally, but some species of the subfamily Cicindelinae (tiger beetles) are active diurnally. The ground beetles inhabit amongst rocks, sand, the edges of ponds and rivers, under the bark of trees, on the stem of living trees and even on leaves of bushes. Some ground beetles are excellent indicators of the quality of their habitat in terms of biotic and abiotic disturbance or pureness because of their very specific habitats and ecological demands (Felix 2009).

List of the Carabidae of the Arabian Peninsula have been published (Gahan 1896; Britton 1948; Basilewsky 1968; 1978; 1979; Mateu 1979; 1986; 1990). Harten & Wagnener (1994) recorded 112 species from Yemen; Abu-Zoherah et al. (1993) recorded 223 species from Saudi Arabia and (Felix 2009; 2011; 2017) recorded 78 species from UAE. The knowledge of Carabidae from Oman is still insufficient. However, only 44 species of Carabidae are reported from Oman so far, and this indicates the large blank in our knowledge in this family when compared to recorded species from other neighbouring countries in the Arabian Peninsula and unbalanced.

The presented in this paper species do not represent a full check list for Oman, because most of the specimens were collected from some locations in northern Oman, as well as with limited methods of collection, like light traps and handpicking. However, the goal of this paper is to present some further records of Carabidae, with 10 species are being new records for Oman.

The carabids fauna were collected by the superior author from Samad Ashan and wadi beni Khalid during a research project focused on the arthropod fauna of the Oman, and by second and third authors from Oman Botanical Garden. Most of this material was captured

using light and by hand. The specimens have been deposited in the private collection of the superior author. The specimen were collected legally under the Permit No. 6210/10/87 issued by the Ministry of environment and climate affair.

In total 37 specimens were collected, and 10 species from 10 genera and 4 subfamilies are being new records for Oman. The Lebiinae and Harpalinae dominated the carabid fauna. The number of species in Lebiinae subfamily are four species (*Tetragonoderus arcuatus* Dejean, 1829, *Microlestes discoidalis* (Fairmaire, 1892), *Metadromius ephippiatus* (Fairmaire, 1884), *Singilis persicus* (Jedlička, 1961)), four from Harpalinae (*Crasodactylus punctatus* Guérin-Ménéville, 1847, *Amara maindroni* Bedel, 1907, *Amblystomus orpheus* LaFerté-Sénéctère, 1853, *Zuphium olens* P. Rossi, 1790), One from Scaritinae (*Dyschirius schaumii* (Putzeys, 1866)) and one species from Trechinae (*Elaphropus babaulti* (Andrewes, 1924)). Each species has been attributed to one the three bioregions in this study (Fig. 1).

Figure 1. Map show collection localities from northern Oman.

Scaritinae Bonelli, 1810

Dyschiriini W. Kolbe, 1880

Dyschirius Bonelli, 1810

Dyschirius (Eudyschirius) schaumii Putzeys, 1867

Specimens examined: Alkhoud alqadeema, Oman botanical garden, 23.559N 58.130E, 2 ♀, 13.ix.2019, light trap, leg Asma Al-Jaradi

Distribution: The nominal species is known from southwards in Africa and Egypt and Saudi Arabia, the subspec. *D. s. variabilis* is known from SE Iran, India, Nepal and UAE (Felix 2009). New to the Oman.

Harpalinae Bonelli, 1810

Zabrini Bonelli, 1810

Amara Bonelli, 1810

Amara (Harpalodema) maindroni Bedel, 1907

Specimens examined: Alkhoud alqadeema, Oman botanical garden, 23.559N 58.130E, 1 ♀, 13.ix.2019, light trap, leg Asma Al-Jaradi

Distribution: North Africa, Middle East, South West Asia and from Arabian Peninsula (Saudi Arabia and UAE) (Felix 2009). New to the Oman.

Harpalini Bonelli, 1810

Amblystomus Erichson, 1837

Amblystomus orpheus (LaFerté-Sénéctère, 1853)

Specimens examined: Samad Ashan, 22.8269 N 58.15062 E, ♂ 5 ♀, 13.viii.2019, light trap, leg. A. Al-Jahdhami.

Distribution: From Western Africa till East Africa and West Arabia and UAE (Felix 2009). New to the Oman.

Crasodactylus Guérin-Ménéville, 1847

Crasodactylus punctatus Guérin-Ménéville, 1847

Specimens examined: Samad Ashan, 22.8269 N 58.15062 E, 1 ♂ 3 ♀, 20.viii.2019, light trap, leg. A. Al-Jahdhami.

Distribution: Known from Algeria to India, Uganda, Somalia, Kenya and UAE (Felix 2017). New to the Oman.

Zuphiini Bonelli, 1810

Zuphium Latreille, 1806

Zuphium olens (P. Rossi, 1790)

Specimens examined: Alkhoud alqadeema, Oman botanical garden, 23.559N 58.130E, 1 ♀, 13.ix.2019, light trap, leg Asma Al-Jaradi.

Distribution: Southern Europe, North Africa, Middle East, Southern Asia and Oriental Region and UAE (Felix 2009). New to the Oman.

Trechinae Bonelli, 1810

Bembidiini Stephens, 1827

Elaphropus Motschulsky, 1839

Elaphropus (Tachyura) babaulti (Andrewes, 1924)

Specimens examined: Samad Ashan, 22.8269 N 58.15062 E, 4 ♂ 7 ♀, 13.viii.2019, light trap, leg. A. Al-Jahdhami

Distribution: India and UAE (Felix 2009). New to the Oman.

Lebiinae Bonelli, 1810

Cyclosomini Laporte, 1834

Tetragonoderus Dejean, 1829

Tetragonoderus arcuatus Dejean, 1829

Specimens examined: Wadi beni khalid, 22.604N 59.085E, 1 ♀, 5.iv.2017, light trap, leg. A. Al-Jahdhami.

Distribution: Known from Ethiopia, Egypt, Yemen, Iraq, Chad, Niger, Sudan, India, Nepal, Burma, Laos and UAE (Felix 2009). New to the Oman.

Lebiini Bonelli, 1810

Microlestes Schmidt-Goebel, 1846

Microlestes discoidalis (Fairmaire, 1892)

Specimens examined: Wadi beni khalid, 22.604N 59.085E 2 ♀, 5.iv.2017, light trap, leg. A. Al-Jahdhami.

Distribution: Known from Africa and the Oriental Region. In Asia in Afghanistan, Iran, Israel, Palestine, Saudi Arabia, Turkmenistan, India

and Yemen and UAE (Felix 2009). New to the Oman.

Metadromius Bedel, 1906

Metadromius ephippiatus (Fairmaire, 1884)

Specimens examined: Samad Ashan, 22.8269 N 58.15062 E, 2 ♂ 5 ♀, 7.v.2017, light trap, leg. A. Al-Jahdhami.

Distribution: North Africa: Algeria, Morocco and Tunisia and UAE (Felix 2009). New to the Oman.

Singilis Rambur, 1837

Singilis (Singilis) persicus (Jedlicka, 1961)

Specimens examined: Alkhoud alqadeema, Oman botanical garden, 23.559N 58.130E, 1 ♀, 13.ix.2019, light trap, leg Asma Al-Jaradi

Distribution: Iran and UAE (Felix 2009). New to the Oman.

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Authors' Contributions

Ali A. Al-Jahdhami performed species identification, reviewed the literature and wrote the manuscript. All authors performed data collection.

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