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## First record of *Lebia syriaca* (Carabidae, Lebiini) for Iran and additional faunistic notes on Carabidae from south-west Iran

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**Abstract:** Carabid beetles are a large cosmopolitan family of the Coleoptera which are distributed over broad geographic ranges and in all major terrestrial habitats. In this study, carabid beetles were collected by light traps in Ahvaz vicinity, Khuzestan province, south-west Iran during 2013. Totally, 21 species belonging to 17 genera of Carabidae were collected from which 9 species were new for Khuzestan province. The species *Lebia (Lebia) syriaca* PIC, 1901 is also recorded for the first time from Iran. Moreover, additions to the recent checklist of Iranian Carabidae (AZADBAKHSH & NOZARI 2015) are recorded and discussed.

**Key words:** fauna, new record, Carabidae, Iran.

### Introduction

The Carabidae or ground beetles are a large cosmopolitan family of the Coleoptera, with an estimated number of 40,000 species world-wide (ARNDT et al. 2005; LUFF 2007). They are distributed over broad geographic ranges and in all major terrestrial habitats (LÖVEI & SUNDERLAND 1996). Carabids are commonly used as bioindicators to assess the biodiversity of ecosystems, indicate the impact of landscape changes, evaluate environmental health, predict the effect of climate changes, classify habitats for nature protection, characterise soil-nutrient status in forestry (LAROCHELLE & LARIVIÈRE 2007).

In northern Europe and North America, ground beetles have been studied as natural enemies of pest insects in agroecosystems and their potential as biological control agents has been reported in both field and laboratory experiments. Particularly the genera *Pterostichus*, *Harpalus* and *Bembidion* are generally abundant in those regions and some of their species are efficient predators of cereal aphids, lepidopteran larvae and weevils (LÖVEI & SUNDERLAND 1996; SUENAGA & HAMAMURA 1998). There is no such data on predatory behavior of carabids in Iran.

Many faunistic and taxonomic reports have been published regarding to Carabidae of Iran by Iranian and non-Iranian researchers (e.g. ADELI et al. 2015; ESFANDIARI & MUILWIJK 2016; MUILWIJK & ESFANDIARI 2016; MUILWIJK & FELIX 2008; VIGNA-TAGLIANTI 1967). A checklist of Iranian Carabidae was published recently by AZADBAKHSH & NOZARI (2015). However, this list needs revision and corrections according to AHMADI et al. (2016).

## Materials and Methods

Carabid beetles were sampled weekly by light traps in Ahvaz vicinity, Khuzestan province, south-west Iran during May-September 2013. The insects were collected mainly from date palm gardens and rice fields by the first author. The examined carabid material were identified to the species level by using available literatures (e.g. CHAUDOIR 1876a,b; COULON 2011; FEDORENKO 1996; NETOLITZKY 1942-1943; TRAUTNER & GEIGENMÜLLER 1987; SCIAKY & VIGNA TAGLANTI 2003). Specimens have been deposited in the Insect and Mite Collection of Ahvaz (IMCA), Plant Protection Department, Shahid Chamran University of Ahvaz, Ahvaz, Iran and in the collection of J. Muilwijk at Bilthoven, the Netherlands (CMu). The nomenclature follows LÖBL & SMETANA (2003). Locations are given as longitude and latitude coordinates and altitude as metres above sea level.

## Results

In this study, 21 species belonging to 17 genera of Carabidae are recorded from which 9 species are new for Khuzestan province. Moreover, *Lebia (Lebia) syriaca* PIC, 1901 is recorded for the first time from Iran. The species list is as follows:

### **Cicindelinae LATREILLE, 1802**

#### **Cicindelini LATREILLE, 1802**

##### ***Myriochila (Myriochila) melancholica* (FABRICIUS, 1798)**

Material examined: Iran, Khuzestan Province, Ahvaz, Sofhe, date palm garden, 14m, 31° 15' 12" N 48° 32' 41" E, 1 ex., 5.IX.2013.

### **Siagoninae BONELLI, 1813**

#### **Siagonini BONELLI, 1813**

##### ***Siagona europaea* DEJEAN, 1826**

Material examined: Iran, Khuzestan Province, Ahvaz, Hamidieh, date palm garden, 21m, 31° 26' 39" N 48° 26' 03" E, 3 ex., 19.VI.2013; Iran, Khuzestan Province, Ahvaz, Sofhe, date palm garden, 14m, 31° 15' 12" N 48° 32' 41" E, 2 ex., 19.IX.2013; rice field, 14m, 31° 14' 56" N 48° 32' 32" E, 1 ex., 22.VIII.2013.

### **Scaritinae BONELLI, 1810**

#### **Scaritini BONELLI, 1810**

##### ***Distichus (Distichus) planus* (BONELLI, 1813)**

Material examined: Iran, Khuzestan Province, Ahvaz, Hamidieh, date palm garden, 21m, 31° 26' 39" N 48° 26' 03" E, 1 ex., 19.VI.2013; Iran, Khuzestan Province, Ahvaz, Sofhe, date palm garden, 14m, 31° 15' 12" N 48° 32' 41" E, 1 ex., 1.VIII.2013, 1 ex., 19.IX.2013; rice field, 14m, 31° 14' 56" N 48° 32' 32" E, 1 ex., 22.VIII.2013, 1 ex., 19.IX.2013.

**Clivinini RAFINASQUE, 1815*****Clivina (Clivina) ypsilon* DEJEAN, 1830**

**M a t e r i a l e x a m i n e d :** Iran, Khuzestan Province, Ahvaz, Sofhe, date palm garden, 14m, 31° 15' 12" N 48° 32' 41" E, 1 ex., 12.IX.2013.

**N o t e :** New record for Khuzestan province.

***Clivina (Leucocara) laevifrons* CHAUDOIR, 1842**

**M a t e r i a l e x a m i n e d :** Iran, Khuzestan Province, Ahvaz, Hamidieh, date palm garden, 21m, 31° 26' 39" N 48° 26' 03" E, 2 ex., 19.VI.2013; Iran, Khuzestan Province, Ahvaz, Sofhe, date palm garden, 14m, 31° 15' 12" N 48° 32' 41" E, 2 ex., 12.IX.2013.

**N o t e :** New record for Khuzestan province.

**Dyschiriini W. KOLBE, 1880*****Dyschiriodes (Dyschiriodes) cariniceps* (BAUDI di SELVE, 1864)**

**M a t e r i a l e x a m i n e d :** Iran, Khuzestan Province, Ahvaz, Sofhe, date palm garden, 14m, 31° 15' 12" N 48° 32' 41" E, 3 ex., 12.IX.2013.

***Dyschiriodes (Dyschiriodes) clypeatus* PUTZEYS, 1866**

**M a t e r i a l e x a m i n e d :** Iran, Khuzestan Province, Ahvaz, Sofhe, date palm garden, 14m, 31° 15' 12" N 48° 32' 41" E, 1 ex., 18.VII.2013, 1 ex. 12.IX.2013; rice field, 14m, 31° 14' 56" N 48° 32' 32" E, 1 ex., 15.VIII.2013.

**N o t e :** New record for Khuzestan province.

**Melaeninae ALLUAUD, 1934****Cymbionotini ANDREWES, 1933*****Cymbionotum semelederi* CHAUDOIR, 1861**

**M a t e r i a l e x a m i n e d :** Iran, Khuzestan Province, Ahvaz, Hamidieh, date palm garden, 21m, 31° 26' 39" N 48° 26' 03" E, 2 ex., 28.V.2013.

**N o t e :** SHAFIEI et al. (2004) reported this species from Khuzestan province, but AZADBAKHSH & NOZARI (2015) missed this provincial record in their checklist.

**Apotominae LECONTE, 1853****Apotomini LECONTE, 1853*****Apotomus rufithorax* PECCHIOLI, 1837**

**M a t e r i a l e x a m i n e d :** Iran, Khuzestan Province, Ahvaz, Soveish, date palm garden, 12m, 31° 12' 15" N 48° 33' 01" E, 2 ex., 28.V.2013; Iran, Khuzestan Province, Ahvaz, Hamidieh, date palm garden, 21m, 31° 26' 39" N 48° 26' 03" E, 1 ex., 4.VII.2013; Iran, Khuzestan Province, Ahvaz, Gabir, date palm garden, 26m, 31° 30' 24" N 48° 52' 10" E, 1 ex., 18.VII.2013; Iran, Khuzestan Province, Ahvaz, Sofhe, date palm garden, 14m, 31° 15' 12" N 48° 32' 41" E, 1 ex., 25.VII.2013, 1 ex., 8.VIII.2013, 4 ex., 29.VIII.2013, 5 ex., 5.IX.2013, 3 ex., 12.IX. 2013; rice field, 14m, 31° 14' 56" N 48° 32' 32" E, 1 ex., 8.VIII.2013, 1 ex., 5.IX.2013.

**Pterostichinae BONELLI, 1810****Pterostichini BONELLI, 1810*****Poecilus (Angoleus) wollastoni* WOLLASTON, 1854**

**Material examined:** Iran, Khuzestan Province, Ahvaz, Gabir, date palm garden, 26m, 31° 30' 24" N 48° 52' 10" E, 1 ex., 11.VII.2013; Iran, Khuzestan Province, Ahvaz, Sofhe, date palm garden, 14m, 31° 15' 12" N 48° 32' 41" E, 1 ex., 1.VIII.2013.

**Licininae BONELLI, 1810****Chlaeniini BRULLÉ, 1834*****Chlaenius albisoni* REITTER, 1908**

**Material examined:** Iran, Khuzestan Province, Ahvaz, Hamidieh, date palm garden, 21m, 31° 26' 39" N 48° 26' 03" E, 1 ex., 4.VII.2013.

**Note:** In Iran, this species is only known from plains of Khuzestan province. SHAFIEI et al. (2004) reported already this species from Khuzestan, but the species was not recorded in the checklist of Iranian Carabidae (AZADBAKSH & NOZARI 2015).

**Platyninae BONELLI, 1810****Platynini BONELLI, 1810*****Anchomenus (Anchomenus) turkestanicus* BALLION, 1871**

**Material examined:** Iran, Khuzestan Province, Ahvaz, Sofhe, date palm garden, 14m, 31° 15' 12" N 48° 32' 41" E, 1 ex., 15.VIII.2013.

**Lebiinae BONELLI, 1810****Cyclosomini LAPORTE, 1834*****Tetragonoderus (Tetragonoderus) intermedius* SOLSKY, 1874**

**Material examined:** Iran, Khuzestan Province, Ahvaz, Soveiseh, date palm garden, 12m, 31° 12' 15" N 48° 33' 01" E, 2 ex., 28.V.2013.

**Note:** New record for Khuzestan province.

**Lebiini BONELLI, 1810*****Platytarus faminii* (DEJEAN, 1826)**

**Material examined:** Iran, Khuzestan Province, Ahvaz, Hamidieh, date palm garden, 21m, 31° 26' 39" N 48° 26' 03" E, 1 ex., 27.VI.2013; Iran, Khuzestan Province, Ahvaz, Gabir, date palm garden, 26m, 31° 30' 24" N 48° 52' 10" E, 1 ex., 11.VII.2013.

***Trichis maculata* KLUG, 1832**

**M a t e r i a l e x a m i n e d :** Iran, Khuzestan Province, Ahvaz, Sofhe, date palm garden, 14m, 31° 15' 12" N 48° 32' 41" E, 1 ex., 8.VIII.2013, 1 ex., 5.IX.2013; rice field, 14m, 31° 14' 56" N 48° 32' 32" E, 1 ex., 5.IX.2013.

***Syntomus lateralis* (MOTSCHULSKY, 1855)**

**M a t e r i a l e x a m i n e d :** Iran, Khuzestan Province, Ahvaz, Hamidieh, date palm garden, 21m, 31° 26' 39" N 48° 26' 03" E, 2 ex., 19.VI.2013; Iran, Khuzestan Province, Ahvaz, Sofhe, date palm garden, 14m, 31° 15' 12" N 48° 32' 41" E, 2 ex., 1.VIII.2013, 1 ex., 8.VIII.2013.

**N o t e :** New record for Khuzestan province.

***Microlestes corticalis* (DUFOR, 1820)**

**M a t e r i a l e x a m i n e d :** Iran, Khuzestan Province, Ahvaz, Gabir, date palm garden, 26m, 31° 30' 24" N 48° 52' 10" E, 3 ex., 18.VII.2013; Iran, Khuzestan Province, Ahvaz, Sofhe, date palm garden, 14m, 31° 15' 12" N 48° 32' 41" E, 1 ex., 25.VII.2013, 2 ex., 29.VIII.2013, 1 ex., 12.IX. 2013; rice field, 14m, 31° 14' 56" N 48° 32' 32" E, 3 ex., 15.VIII.2013; 1 ex., 5.IX.2013.

**N o t e :** This is new for southern Iran (AZADBAKHS & NOZARI 2015).

***Microlestes discoidalis* (FAIRMAIRE, 1892)**

**M a t e r i a l e x a m i n e d :** Iran, Khuzestan Province, Ahvaz, Sofhe, date palm garden, 14m, 31° 15' 12" N 48° 32' 41" E, 1 ex., 4.VII.2013, 1 ex., 25.VII.2013, 2 ex., 5.IX. 2013.

**N o t e :** This species has previously recorded for Iran without exact locality (AZADBAKHS & NOZAR 2015). This record is new for Khuzestan province.

***Microlestes vittatus* (MOTSCHULSKY, 1859)**

**M a t e r i a l e x a m i n e d :** Iran, Khuzestan Province, Ahvaz, Sofhe, date palm garden, 14m, 31° 15' 12" N 48° 32' 41" E, 3 ex., 12.IX.2013.

**N o t e :** It was previously recorded from Hormozgan province in South Iran (AZADBAKHS & NOZARI 2015). This is new record for Khuzestan province.

***Lebia (Lebia) syriaca* PIC, 1901**

**M a t e r i a l e x a m i n e d :** Iran, Khuzestan Province, Ahvaz, Soveiseh, date palm garden, 12m, 31° 12' 15" N 48° 33' 01" E, 1 ex., 28.V.2013; Iran, Khuzestan Province, Ahvaz, Sofhe, date palm garden, 14m, 31° 15' 12" N 48° 32' 41" E, 1 ex., 1.VIII.2013.

**N o t e :** This species occurs in Syria and Iraq (ANICHTCHENKO 2011). *Lebia (Lebia) syriaca* is new for the fauna of Iran.

**I d e n t i f i c a t i o n :** The specimens (CMu) are compared with the holotype (fig. 1, 2). A small *Lebia* species 4.8-5 mm. Upperside slightly shiny, head black, pronotum orange-yellow, elytra and appendices yellow. Elytra just after the middle with a broad black undulating band. Upperside with hairs, elytral intervals with two rows of short hairs. Elytral striae punctated. Hind angles pronotum sharp, pronotal base strongly emarginated at sides.



**Fig. 1:** Dorsal view of *Lebia (Lebia) syriaca*, collected in this study.



**Fig. 2:** Dorsal view of *Lebia (Lebia) syriaca* holotype.

**Dryptinae BONELLI, 1810****Zuphiini BONELLI, 1810*****Zuphium olens* (P. ROSSI, 1790)**

**M a t e r i a l e x a m i n e d :** Iran, Khuzestan Province, Ahvaz, Soveiseh, date palm garden, 12m, 31° 12' 15" N 48° 33' 01" E, 1 ex., 31.V.2013; Iran, Khuzestan Province, Ahvaz, Hamidieh, date palm garden, 21m, 31° 26' 39" N 48° 26' 03" E, 1 ex., 19.VI.2013, 2 ex., 27.VI.2013; Iran, Khuzestan Province, Ahvaz, Sofhe, date palm garden, 14m, 31° 15' 12" N 48° 32' 41" E, 1 ex., 1.VIII.2013.

**N o t e :** AZADBAKHSH & NOZARI (2015) didn't cite any provincial record for this species. However, it has previously recorded from North (REZAEI NODEH et al. 2012) and South (ALICHI & MINAEI 2002) of Iran. It is new record for Khuzestan province.

**Conclusion**

This study is continuation of our previous publication on Carabidae in Khuzestan (AHMADI et al., 2016). According to available data, some fauna elements for plain parts of Khuzestan which have a warm climate are *Poecilus bonvoisini* (REICHE & SAULCY, 1855), *Duvalius koeni* MULVIJK & FELIX, 2008; *Bembidion quadriplagiatum* MOTSCHULSKY, 1844; *Bembidion dyscheres* NETOLITZKY, 1943; *Tachys fasciatus* (MOTSCHULSKY, 1851); *Badister naviauxi* WRASE, 1995; *Badister collaris* MOTSCHULSKY, 1844; *Daptus komarowi* SEMENOV, 1889; *Trichis maculata* KLUG, 1832 and *Acupalpus jaegeriv* KATAEV, 1996. There are some species in common with southern Iranian provinces as well as Iraq, perhaps due to similar habitats (ALI 1966, 1967; JEDLIČKA 1963).

SHAFIEI et al. (2004) reported the following species from Khuzestan which are missing in the checklist of Iranian Carabidae (AZADBAKHSH & NOZARI 2015): *Chlaenius dejeanii* DEJEAN, 1831; *Orthotrichus irakensis* ALI, 1967 (specimen from CMu is compared with holotype); *Brachinus oblongus* DEJEAN, 1825 and *Bembidion sporadicum sporadicum* J.R. SAHLBERG, 1903.

It is good to mention that our specimens were collected by light traps, and such traps attracts mostly flying Carabids. Therefore, to reach comprehensive data on fauna of Carabidae in Khuzestan province, it is necessary to use other collecting methods (e.g. pitfall traps). However, light traps could help to collect small species which may be missed in hand picking method.

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## Zusammenfassung

Laufkäfer sind eine weltweit verbreitete Familie und haben den Großteil der Lebensräume außerhalb des Wassers erschlossen. Vorliegende Studie basiert auf Lichtfang im Jahre 2013 in der Umgebung von Ahvaz, in der südwestlichen iranischen Provinz Khuzestan. Insgesamt gelang der Nachweis 21 Carabidae-Arten aus 17 Gattungen, wobei 9 Arten Neunachweise für die angesprochene Provinz darstellen. *Lebia (Lebia) syriaca* PIC, 1901 konnte als Erstnachweis für den Iran bestätigt werden. Zudem wurden Ergänzungen zur Checkliste der iranischen Carabidae (AZADBAKHSH & NOZARI 2015) festgehalten.

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