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* P IC, 1901 is also recorded for the first time from Iran. Moreover, additions to the recent checklist of Iranian Carabidae (AZADBKHISH & NOZARI 2015) are recorded and discussed.

**Keywords:** 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; VIGNAUTAGLIANTI 1967). A checklist of Iranian Carabidae was published recently by AZADBKHISH & 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; SCAKY & 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) melancholia (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

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

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

Clivina (Leucocara) laevifrons CHAUDOIR, 1842
Material examined: 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.
Note: New record for Khuzestan province.

Dyschiriini W. KOLBE, 1880

Dyschiriodes (Dyschiriodes) cariniceps (BAUDI DI SELVE, 1864)
Material examined: 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
Material examined: Iran, Khuzestan Province, Ahvaz, Sofhe, date palm garden, 14m, 31° 14° 56" N 48° 32' 32" E, 1 ex., 15.VIII.2013.
Note: New record for Khuzestan province.

Melaeninae ALLUAUD, 1934

Cymbionotini ANDREWES, 1933

Cymbionotum semelederi CHAUDOIR, 1861
Material examined: Iran, Khuzestan Province, Ahvaz, Hamidieh, date palm garden, 21m, 31° 26' 39" N 48° 26' 03" E, 2 ex., 28.V.2013.
Note: SHAFIEI et al. (2004) reported this species from Khuzestan province, but AZADBAKHISH & NOZARI (2015) missed this provincial record in their checklist.

Apotominae LECONTE, 1853

Apotomini LECONTE, 1853

Apotomus rufithorax PECCHIOLI, 1837
Material examined: Iran, Khuzestan Province, Ahvaz, Soveiseh, 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, 5 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 albissoni* 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. SHAHIEI et al. (2004) reported already this species from Khuzestan, but the species was not recorded in the checklist of Iranian Carabidae (AZADBAKHSH & 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

Lebiini BONELLI, 1810

*Platytarus faminii* (DEJEAN, 1826)

Material examined: Iran, Khuzestan Province, Ahvaz, Hamidieh, date palm garden, 21m, 31° 26' 39" N 48° 32' 41" 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
Material examined: 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)
Material examined: Iran, Khuzestan Province, Ahvaz, Hamidihe, 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.
Note: New record for Khuzestan province.

Microlestes corticalis (DUFOUR, 1820)
Material examined: 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.VII.2013, 1 ex., 15.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.
Note: This is new for southern Iran (AZADBAKHSH & NOZARI 2015).

Microlestes discoidalis (FAIRMAIRE, 1892)
Material examined: 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., 29.VII.2013, 1 ex., 25.VII.2013, 2 ex., 5.IX.2013.
Note: This species has previously recorded for Iran without exact locality (AZADBAKHSH & NOZARI 2015). This record is new for Khuzestan province.

Microlestes vittatus (MOTSCHULSKY, 1859)
Material examined: Iran, Khuzestan Province, Ahvaz, Sofhe, date palm garden, 14m, 31° 15' 12" N 48° 32' 41" E, 3 ex., 12.IX.2013.
Note: It was previously recorded from Hormozgan province in South Iran (AZADBAKHSH & NOZARI 2015). This is new record for Khuzestan province.

Lebia (Lebia) syriaca PIC, 1901
Material examined: 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.
Note: This species occurs in Syria and Iraq (ANICHCHENKO 2011). Lebia (Lebia) syriaca is new for the fauna of Iran.

Identification: 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 punctuated. 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)

**Material examined:** Iran, Khuzestan Province, Ahvaz, Soviseh, 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° 33' 02'' E, 1 ex., 19.VI.2013; 2 ex., 27.VI.2013; Iran, Khuzestan Province, Ahvaz, Sothe, date palm garden, 14m, 31° 15' 12'' N 48° 32' 41'' E, 1 ex., 1.VIII.2013.

**Note:** 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 MUILWIJK & 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; Trichius maculata KUGL, 1832 and Acupalpus jaegeri KATAEV, 1996. There are some species in common with southern Iranian provinces as well as Iraq, perhaps due to similar habitats (ALI 1966, 1967; JEDLICKA 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. SAEHBERG, 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


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