



Contributions to the leafhoppers (Auchenorrhyncha: Cicadellidae) of Khuzestan, southwest of Iran

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ABSTRACT. A faunal study of leafhoppers (Hemiptera: Auchenorrhyncha: Cicadellidae) was conducted in some parts of Khuzestan province (southwest of Iran) in 2014 and 2015. Totally, 90 species belonging to 49 genera and seven subfamilies were collected and identified. Most of samples were collected by using sweeping net and Malaise trap and a few by aspirator and sticky yellow trap. As a result of this study 47 species are recorded from Khuzestan province for the first time and eight species are new records for the fauna of Iran including *Euscelidius schenckii* (Kirschbaum, 1868); *Hardya* (*Hardya*) *melanopsis* (Hardy, 1850); *Paradorydium* (*Paradorydium*) *lanceolatum* (Burmeister, 1839); *Hecalus prasinus* (Matsumura, 1905); *Psammotettix emarginatus* Singh, 1969; *Grammacephalus pallidus* (Linnavuori, 1978); *Helionidia punctulata* (Ramakrishnan & Menon, 1974) and *Eupteryx* (*Eupteryx*) *kaghanensis* Ahmed, 1969. For each species geographical distribution in Iran are completely mentioned. In addition morphological data and illustration of adults and their male genitalia are given for the eight newly recorded species.

Key words: Leafhoppers, Fauna, Khuzestan, Distribution, new records, Iran.

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Introduction

Based on the number of described species, Cicadellidae (commonly named leafhoppers) is the largest family of the suborder Auchenorrhyncha with more than 20,000 described species (Dietrich, 2008). This family may be distinguished from other Hemiptera by the following combination of characters: the presence of rows of spin-like setae on their hind tibiae; postclypeus enlarged; antennal pedicel small; flagellum

aristiform, tegulae absent; forewing anal veins usually separate from base to wing margin; middle coxa small and narrowly separated (Anufriev and Emeljanov 1988; Dietrich 2005). The most important character to identify and classify nearly all species and most genera is the male genitalia. Character of similar value are almost completely lacking in female (Dakhil *et al.* 2011). In fact, the aedeagus is the most

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consistently used character in leafhoppers species differentiation (Ribaut 1936; 1952). Relatively, few species are economically important but there are some major pest, such as potato leafhopper, *Empoasca fabae* (Harris, 1841) and sugar beet leafhopper, *Neoliturus (Circulifer) tenells* (Baker, 1896) (Dietrich, 2005). Leafhoppers injure plants either directly through feeding (Backus 1988; Backus *et al.* 2005) or indirectly through transmission of plant pathogen, such as phytoplasmas and viruses (Nielson 1968; Maramorosch and Harris 1979; Wientraub and Beenland 2006). The fauna of leafhoppers in Iran is very diverse, the famous Czechoslovakian entomologist Dr. Jiri Dlabola, who worked on the Iranian Auchenorrhyncha fauna in the 1960s and 1970s, and described more than 100 new leafhoppers species (Dlabola 1960, 1963, 1964, 1965, 1971, 1972, 1974, 1977, 1979, 1980, 1981, 1984, 1987, 1994; Dlabola and Heller, 1962; Dlabola and Jankovich, 1981). After Dlabola's publications, new data on the Iranian leafhoppers were scarce and consist a few faunistic studies concerning leafhoppers have been conducted that most of them published in Conference Proceedings (Karimzadeh *et al.* 1998; Haghshanas and Khajeali 2000; Nematollahi and Khajehali 2000; Khajeali *et al.* 2001; Darvish-Mojeni and Taghizadeh 2008; Mozaffarian and Taghizadeh 2010; Olyaei Torshiz *et al.* 2011; Pakarpour *et al.* 2011a, b, c; Pakarpour and Nozari 2011; Moosavi Mahvelati and Modarres Awal 2011; Taghizadeh 2012; Khormali 2013; Abdollahi *et al.* 2013; 2014a, b, c; 2015; Rezaei *et al.* 2014; Pakarpour and Nozari 2014a, b; Pakarpour *et al.* 2014a, b; Pakarpour Rayeni *et al.* 2015 a, b, c. A checklist was provided for the subfamily Deltocephalinae by Pakarpour Rayeni *et al.* (2015a) and another one was published for all recorded species for the family Cicadellidae by Mozaffarian and Wilson

(2016) which presented the occurrence of 390 species.

Khuzestan province is located in southwest of Iran and covers 64,057 km² (Mossadegh and Kocheili 2003). This province has border with Ilam and Lorestan province in north, Isafahan, Chaharmal and Bakhtiari and Kohgiluyeh and Boyerahmad provinces in east, Bushehr province and Persian Gulf in south and with Iraq in west (Fig. 1). Abundance of water and fertile soils in Khuzestan favored the condition for existence of the various vegetation (Mossadegh and Kocheili 2003). However, southwest of Iran contains high insect diversity (Mossadegh and Kocheili 2003; Ramezani *et al.* 2006) but there is inadequate knowledge relating to the Cicadellids from this region. The objective of the current study is to report new data about occurrence of leafhoppers in this region as well as new records for fauna of Iran.

Material and methods

Leafhopper specimens were mostly collected with standard sweeping net and Malaise trap and a few by using aspirator and sticky yellow trap from tree locations in Khuzestan province with different climate, during 2014-2015. Sampling localities were selected to cover different types of habitats for collecting maximum occurring species (Table.1). Materials were killed by dropping into standard killing jar containing ethyl acetate and then mounted on the points, labeled and put into collection boxes.

The identifications were done according to the keys of Ribaut (1936; 1952), Le Quesne (1965; 1969), Le Quesne and Payne (1981), Anufriev and Emeljanov (1988), Della Guistina (1989), Biedermann and Niedringhaus (2009) and for endemic species were identified by using original description from Dlabola (1957, 1960, 1963, 1964, 1974, 1979, 1984, 1994).

Table 1. Coordinates, altitudes, localities and date of sampling in Khuzestan province

Localities	Coordinates	Altitude	Date of Sampling
Ahvaz I (Shahid Chamran University)	31°18'13.5"N, 48°39'40.3"E	17 m	13.iii.2014
Ahvaz II (Om-el-Tamir)	31°15'18.2"N, 48°32'38.3"E	17 m	07.ix.2014
Ahvaz III (Kut-e-Abdollah)	31°13'00.2"N, 48°41'42.3"E	15 m	26.iv.2015
Ahvaz IV (Mollasani)	31°34'11.3"N, 48°53'26.2"E	18 m	25.vii.2015
Bagh-e Malek I (Manjanigh Park)	31°31'06.5"N, 49°53'29.1"E	920 m	16.iii.2014
Bagh-e Malek II (Ghale-Tal)	31°32'04.8"N, 49°51'58.7"E	950 m	09.ix.2014
Bagh-e Malek III (Laleb village)	31°32'35.8"N, 49°58'26.7"E	1000 m	15.v.2015
Bagh-e Malek IV (10km, road to Ramhormoz)	31°30'38.2"N, 49°53'34.5"E	910 m	28.vii.2015
Dezful I (Andimeshk, Dezful Road)	32°22'29.2"N, 48°27'13.0"E	140 m	14.iii.2014
Dezful II (Sanjar village)	32°23'22.7"N, 48°21'13.9"E	140 m	12.ix.2014
Dezful III (Zaviyeh Mashali village)	32°17'36.8"N, 48°18'13.3"E	120 m	27.iv.2015
Dezful IV (Zaviyeh Hamudi village)	32°17'38.0"N, 48°19'12.3"E	120 m	27.vii.2015

Final confirmation was done mostly by Dr. Michael R. Wilson (National Museum of Wales, Cardiff) and a few by Dr. Christopher H. Dietrich (Illinois Natural History Survey) and Dr. James N. Zahniser (USDA-APHIS-PPQ, San Diego, California). The specimens were deposited in Jalal Afshar Zoological Museum at University of Tehran (JAZMUT). The identified species are ordered based on subfamilies, tribes and genera alphabetically (Emeljanov 1999; Dmitriev 2016; Zahniser 2016). The species marked with an asterisk are recorded for the first time from Khuzestan province and those marked with two asterisks are newly recorded for Iran. Abbreviation for the collector as follow: F.P.R.: Farzad Pakarpour Rayeni.

Results

Family Cicadellidae

This family includes 390 valid species belonging to 13 subfamilies in Iran (Mozaffarian and Wilson 2016).

Subfamily Aphrodinae

This subfamily includes three species in three genera in Iran (Mozaffarian and Wilson 2016).

Aphrodes bicincta (Schrank, 1776)*

Material examined: Bagh-e Malek, 1♂, 1♀, collected with Malaise trap, 28.vii.2015, leg.: F.P.R.

Distribution in Iran: Azarbaijan-e Sharghi, Golestan, Guilan, Khorasan-e Razavi and Tehran provinces; north and northwest of Iran (Dlabola 1981; Mirzayans 1995; Abdollahi *et al.* 2015; Mozaffarian and Wilson 2016).

Subfamily Deltocephalinae

Deltocephalinae is the largest subfamily of Cicadellidae comprising more than 6700 valid species (Zahniser 2016) of which 232 extant species were recognized in Iran (Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Tribe Athysanini

45 species belonging to 15 genera have been recorded from Iran (Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Euscelidius schenckii (Kirschbaum, 1868)** (Fig. 2a)

Material examined: Dezful, 1♂, 3♀, swept on weeds in citrus orchards, 14.iii.2014, leg.:

F.P.R.; Bagh-e Malek, 1♀, swept on grasslands, 16.iii.2014, leg.: F.P.R.; Bagh-e Malek, 1♂, swept on *Medicago sativa*, 09.ix.2014, leg.: F.P.R.; Dezful, 1♀, swept on gramineae, 12.ix.2014, leg.: F.P.R.; Ahvaz, 3♂, 7♀, swept on weeds in palm orchards, 26.iv.2015, leg.: F.P.R.

Distribution in Iran: This species is a new record for the Iranian leafhoppers fauna.

Remarks: Male: Length, 4.5 mm.; Robust; Base color greyish yellow, frontoclypeus with two longitudinal and series of transverse dark brown streaks, vertex with irregular spots, fore wings longer than abdomen, marked with fine irregular dark brown dots which can locally be more or less fused into small patches; in male shaft of aedeagus up to middle more or less straight and then curved, apically with appendages like outwards directed hook (Fig. 3a).

Euscelidius mundus (Haupt, 1927)

Material examined: Bagh-e Malek, 1♂, 4♀, swept on grasslands, 16.iii.2014, leg.: F.P.R.; Bagh-e Malek, 5♂, 12♀, swept on grasslands, 09.ix.2014, leg.: F.P.R.; Ahvaz, 2♀, collected with Malaise trap, 25.vii.2015, leg.: F.P.R.

Distribution in Iran: Alborz, Azarbaijan-e Sharghi, Bushehr, Fars, Guilan, Qom, Hormozgan, Khorasan-e Razavi, Kerman, Khuzestan and Tehran provinces; northwest, north and northeast, south and southwest of Iran (Dlabola 1965, 1972; Nast 1972; Mirzayans 1995; Pakarpour *et al.* 2011a, 2011c; Moosavi Mahvelati and Modarres Awal 2011; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Euscelis alsius Ribaut, 1952*

Material examined: Dezful, 3♂, 3♀, swept on weeds in citrus orchards, 14.iii.2014, leg.: F.P.R.; Bagh-e Malek, 1♂, swept on grasslands, 16.iii.2014, leg.: F.P.R.; Bagh-e malek, 1♂, 2♀, swept on grasslands,

09.ix.2014, leg.: F.P.R.; Ahvaz, 3♂, 4♀, swept on *Medicago sativa*, 26.iv.2015, leg.: F.P.R.; Ahvaz, 1♂, 1♀, swept on *Medicago sativa* in palm orchards, 25.vii.2015, leg.: F.P.R.

Distribution in Iran: Fars, Kerman and Tehran provinces; north, northwest, west and southwest of Iran (Dlabola 1971, 1981; Kheyri 1989; Modarres Awal 1994; Mirzayans 1995; Pakarpour *et al.* 2011a, 2011c; Pakarpour Rayeni *et al.* 2015a; Abdollahi *et al.* 2014b; 2015; Mozaffarian and Wilson 2016).

Euscelis incisus (Kirschbaum, 1858)*

Material examined: Dezful, 1♂, swept on gramineae, 12.ix.2014, leg.: F.P.R.; Ahvaz, 1♂, swept on weeds in palm orchards, 26.iv.2015, leg.: F.P.R.

Distribution in Iran: Qom, Hormozgan, Isfahan, Kerman and Tehran provinces; north, center and south of Iran (Dlabola 1960; Nast 1972; Modarres Awal 1994; Mirzayans 1995; Nematollahi and Khajehali 2000; Haghshenas and Khajehali 2000; Khajehali *et al.* 2001; Pakarpour *et al.* 2011a, 2011c; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Euscelis (Euscelis) lineolatus Brullé, 1832*

Material examined: Dezful, 1♂, 1♀, swept on gramineae, 12.ix.2014, leg.: F.P.R.; Ahvaz, 3♂, 7♀, swept on weeds in palm orchards, 26.iv.2015, leg.: F.P.R.

Distribution in Iran: Isfahan; Khorasan-e Razavi and Khorasan-e Shomali provinces; northeast and center of Iran (Dlabola 1981, 1984; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Hardya (Hardya) iranicola Zachvatkin, 1946*

Material examined: Bagh-e Malek, 1♂, 3♀, swept on grasslands, 16.iii.2014, leg.: F.P.R.; Ahvaz, 1♂, swept on weeds in palm orchards, 07.ix.2014, leg.: F.P.R.; Dezful, 1♂,

swept on weeds in citrus orchards, 12.ix.2014, leg.: F.P.R.

Distribution in Iran: Azarbaijan-e Sharghi, Guilan, Kerman, Kordestan, Qom, Tehran provinces; north, northwest and south of Iran (Dlabola 1981; Mirzayans 1995; Pakarpour *et al.* 2011a, 2011c; Abdollahi *et al.* 2015; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Hardya (Hardya) melanopsis* (Hardy, 1850)* (Fig. 2b)

Material examined: Dezful, 1♂, swept on grasslands and weeds, 27.iv.2015, leg.: F.P.R.; Bagh-e Malek, 1♂, 1♀, swept on grasslands, 15.v.2015, leg.: F.P.R.

Distribution in Iran: This species is a new record for the Iranian leafhoppers fauna.

Remarks: Male: Length, 2.8-3 mm.; Base color dark brown, face black with interrupted transverse light brown bands on fronto-clypeus, vertex brownish with irregular black streak along anterior margin and back marking posteriorly in form of outline of clover-leaf with median lobe bisected; aedeagus hind margin of shaft only apically and basally curved (Fig. 3b).

Platymetopius (Platymetopius) coronatus* Dlabola, 1974

Material examined: Bagh-e Malek, 1♂, 1♀, collected with Malaise trap, 28.vii.2015, leg.: F.P.R.

Distribution in Iran: Alborz Mountains and north of Iran (Dlabola 1974, 1981; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

***Platymetopius (Platymetopius) cruentatus* Haupt, 1927**

Material examined: Ahvaz, 2♂, 3♀, 2 nymph, swept on weeds in palm orchards in Shahid Chamran University of Ahvaz, 13.iii.2014, leg.: F.P.R.; Ahvaz, 1♂, 2♀, swept on weeds in palm orchards, 07.ix.2014, leg.: F.P.R.; Ahvaz, 2♂, 1 nymph, collected with Malaise trap, 25.vii.2015, leg.: F.P.R.

Distribution in Iran: Fars, Hormozgan, Kerman, Khuzestan, Sistan-o Baluchestan provinces; north, southwest, south and southeast of Iran (Dlabola 1960, 1981; Nast 1972; Mirzayans *et al.* 1976; Kheyri 1989; Modarres Awal 1994; Mirzayans 1995; Abaiei 2000; Pakarpour Rayeni *et al.* 2015a; Mozaffarin and Wilson 2016).

Platymetopius (Platymetopius) exalbescens* Dlabola, 1974

Material examined: Bagh-e Malek, 1♂, swept on *Medicago sativa*, 09.ix.2014, leg.: F.P.R.; Dezful, 1♂, 1♀, swept on grasslands and weeds, 27.iv.2015, leg.: F.P.R.

Distribution in Iran: Fars, Kohgiluyeh and Boyer-Ahmad; southwest of Iran (Dlabola 1974; Mirzayans 1995; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Platymetopius (Platymetopius) rostratus* (Herrich-Schäffer, 1834)

Material examined: Ahvaz, 3♀, swept on weeds in palm orchards in Shahid Chamran University of Ahvaz, 13.iii.2014, leg.: F.P.R.; Dezful, 1♂, swept on weeds in citrus orchards, 14.iii.2014, leg.: F.P.R.; Bagh-e Malek, 6♂, 5♀, swept on *Medicago sativa*, 09.ix.2014, leg.: F.P.R.; Ahvaz, 2♂, collected with Malaise trap, 25.vii.2015, leg.: F.P.R.; Dezful, 1♂, collected with Malaise trap, 27.vii.2015, leg.: F.P.R.

Distribution in Iran: Chaharmahal-o Bakhtiari, Isfahan, Kerman and Tehran provinces; south of central region of Alborz mountains, southeast and south of Iran (Dlabola 1981; Mirzayans 1995; Haghshenas and Khajehali 2000; Khajehali *et al.* 2001; Pakarpour *et al.* 2011a, 2011c; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Platymetopius (Platymetopius) shirazicus* Dlabola, 1974

Material examined: Bagh-e Malek, 1♂, swept on grasslands, 09.ix.2014, leg.: F.P.R.;

Dezful, 1♂, 1♀, swept on grasslands and weeds, 27.iv.2015, leg.: F.P.R.

Distribution in Iran: Alborz, Azarbaijan-e Sharghi, Fars, Golestan, Guilan, Mazandaran and Tehran provinces; north, northwest, west, southwest and center (Dlabola 1974, 1981; Mirzayans *et al.* 1976; Rajabi 1991; Modarres Awal 1994; Mirzayans 1995; Abaai 2000; Abdollahi *et al.* 2015; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Tribe Chiasmini

15 species belonging to six genera have been recorded from Iran (Pakarpour Rayeni *et al.*, 2015a; Mozaffarian and Wilson 2016).

Aconurella nuristana (Dlabola, 1957)

Material examined: Dezful, 4♂, 3♀, swept on weeds in citrus orchards, 14.iii.2014, leg.: F.P.R.

Distribution in Iran: Khuzestan province (Pakarpour Rayeni *et al.* 2015c).

Aconurella prolixa (Lethierry, 1855)

Material examined: Bagh-e Malek, 2♂, 11♀, collected with Malaise trap, 28.vii.2015, leg.: F.P.R.

Distribution in Iran: Alborz, Azarbaijan-e Gharbi, Azarbaijan-e Gharbi, Fars, Kerman, Khuzestan, Sistan-o Baluchestan and Tehran provinces; north, northwest, west, southwest, south and center (Dlabola 1963, 1965; 1971, 1981; Nast 1972; Kheyri 1989; Modarres Awal 1994; Mirzayans 1995; Pakarpour *et al.* 2011a; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Chiasmus sp.

Material examined: Ahvaz, 2♀, collected with Malaise trap, 25.vii.2015, leg.: F.P.R.

Exitianus capicola (Stål, 1855)

Material examined: Dezful, 1♂, swept on weeds in citrus orchards, 14.iii.2014, leg.: F.P.R.; Dezful, 1♂, swept on graminæ,

12.ix.2014, leg.: F.P.R.; Dezful, 3♂, 6♀, collected with Malaise trap, 27.vii.2015, leg.: F.P.R.; Bagh-e-Malek, 3♂, 2♀, collected with Malaise trap, 28.vii.2015, leg.: F.P.R.

Distribution in Iran: Fars, Hormozgan, Kerman, Khuzestan, Sistan-o Baluchestan provinces; southwest, south and southeast (Dlabola 1960, 1963, 1965, 1981; Nast 1972; Mirzayans 1995; Pakarpour *et al.* 2011a; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Exitianus indicus (Distant, 1908)*

Material examined: Ahvaz, 1♂, swept on weeds in palm orchards in Shahid Chamran University of Ahvaz, 13.iii.2014, leg.: F.P.R.; Dezful, 2♂, 1♀, swept on weeds in citrus orchards, 14.iii.2014, leg.: F.P.R.; Bagh-e Malek, 3♂, 4♀, swept on grasslands, 16.iii.2014, leg.: F.P.R.; Ahvaz, 4♂, 5♀, swept on *Medicago sativa*, 26.iv.2015, leg.: F.P.R.; Ahvaz, 2♂, swept on *Medicago sativa* in palm orchards, 25.vii.2015, leg.: F.P.R.; Dezful, 8♂, 11♀, collected with Malaise trap, 27.vii.2015, leg.: F.P.R.

Distribution in Iran: Kerman province (Pakarpour and Nozari 2014a; Pakarpour *et al.* 2015a).

Exitianus nanus (Distant 1908)

Material examined: Dezful, 5♀, swept on weeds in palm orchards, 14.iii.2014, leg.: F.P.R.; Bagh-e Malek, 1♂, 3♀, swept on grasslands, 16.iii.2014, leg.: F.P.R.; Ahvaz, 1♀, swept on weeds in palm orchards, 07.ix.2014, leg.: F.P.R.; Dezful, 1♀, collected with Malaise trap, 27.vii.2015, leg.: F.P.R.

Distribution in Iran: Bushehr, Fars, Guilan, Hormozgan, Kerman, Kordestan, Khuzestan, Lorestan, Mazandaran, Sistan-o Baluchestan and Tehran provinces; center, southwest, south and southeast (Dlabola 1960, 1963, 1964, 1972, 1981; Nast 1972; Mirzayans *et al.* 1976; Kheyri 1989; Modarres Awal 1994; Mirzayans 1995; Pakarpour *et al.* 2011a; Pakarpour and Nozari 2014a; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Tribe Cicadulini

10 species belonging to six genera have been recorded from Iran (Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Cicadula (Cicadula) lineatopunctata* (Matsumura, 1908)

Material examined: Dezful, 1♂, 1♀, swept on weeds in citrus orchards, 14.iii.2014, leg.: F.P.R.

Distribution in Iran: Alborz, Azarbaijan-e Sharghi, Guilan, Hormozgan, Isfahan, Kerman, Sistan-o Baluchestan and Tehran provinces; north, center, southwest, south and southeast (Dlabola 1981; Mirzayans 1995; Karimzadeh *et al.* 1998; Khajehali *et al.* 2001; Pakarpour *et al.* 2011a, 2011c; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Elymana sulphurella* (Zetterstedt, 1828)

Material examined: Ahvaz, 1♂, swept on *Medicago sativa*, 26.iv.2015, leg.: F.P.R.

Distribution in Iran: Kerman and Tehran provinces; south of central region of Alborz mountains and south of Iran (Mirzayans 1995; Pakarpour *et al.* 2011a; 2011c; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Mocydiopsis parvicauda* Ribaut, 1939

Material examined: Dezful, 1♂, 1♀, swept on gramineae, 12.ix.2014, leg.: F.P.R.; Dezful, 2♀, swept on grasslands and weeds, 27.iv.2015, leg.: F.P.R.; Ahvaz, 1♂, 1♀, collected with Malaise trap, 25.vii.2015, leg.: F.P.R.

Distribution in Iran: Kerman province; north and south (Dlabola 1981; Pakarpour *et al.* 2011a; 2011c; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Proceps acicularis* Mulsant and Rey, 1855

Material examined: Bagh-e Malek, 2♂, swept on grasslands, 09.ix.2014, leg.: F.P.R.

Distribution in Iran: Hormozgan and Kerman provinces; south of Iran (Dlabola 1981; Mirzayans 1995; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Tribe Deltocephalini

Six species belonging to two genera have been recorded from Iran (Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

***Maiestas horvathi* (Then, 1896)**

Material examined: Ahvaz, 1♂, swept on weeds in palm orchards, 07.ix.2014, leg.: F.P.R.; Bagh-e Malek, 1♂, 2♀, swept on grasslands, 15.v.2015, leg.: F.P.R.

Distribution in Iran: Guilan, Hormozgan, Kerman, Khorasan-e Razavi and Khuzestan provinces; south, southwest and north (Dlabola 1981; Mirzayans 1995; Pakarpour *et al.* 2011a; 2011c; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Maiestas trifasciata* (Lindberg, 1954)

Material examined: Dezful, 1♂, 1♀, swept on weeds in citrus orchards, 14.iii.2014, leg.: F.P.R.

Distribution in Iran: Hormozgan, Sistan-o Baluchestan provinces; south and southeast of Iran (Dlabola 1994; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Tribe Eupelicini

Four species belonging two genera have been recorded from Iran (Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

***Eupelix cuspidata* (Fabricius, 1775)**

Material examined: Bagh-e Malek, 2♂, 1♀, swept on grasslands, 16.iii.2014, leg.: F.P.R.; Bagh-e Malek, 1♂, swept on *Medicago sativa*, 09.ix.2014, leg.: F.P.R.; Dezful, 1♀, swept on gramineae, 12.ix.2014, leg.: F.P.R.; Bagh-e Malek, 1♂, 1♀, swept on grasslands, 15.v.2015, leg.: F.P.R.

Distribution in Iran: Azarbaijan-e Sharghi, Golestan, Kerman, Khuzestan, Lorestan, Mazandaran and Tehran provinces; north, northwest, southwest, south and center of Iran (Dlabola 1981; Mirzayans 1995; Pakarpour *et al.* 2011a; Abdollahi *et al.* 2015; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Paradorydium breviceps* (Melichar, 1902)

Material examined: Dezful, 1♂, 3♀, swept on grasslands and weeds, 27.iv.2015, leg.: F.P.R.

Distribution in Iran: Isfahan, Kerman, Sistan-o Baluchestan province; center, south and southeast of Iran (Dlabola 1960, 1972, 1981; Khajehali *et al.* 2001; Pakarpour *et al.* 2011c; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

***Paradorydium (Paradorydium) lanceolatum* (Burmeister, 1839)** (Fig. 2c)**

Material examined: Bagh-e Malek, 1♂, 2♀, swept on gramineae, 09.ix.2014, leg.: F.P.R.

Distribution in Iran: This species is a new record for the Iranian leafhoppers fauna.

Remarks: Male: Length, 7.2 mm.; Base color brownish yellow, macropterous and forewings much longer than abdomen, the head extends forwards and is 3 time longer than wide, The vertex is strongly ridged and narrows gradually towards the apex which is flat, round, dorsally incurved and has a concave dorsal surface; in male the aedeagus has a pentagonal base which is long rounded near the origin of the shaft that stems from the ventral portion of the base. The shaft is swollen at the base and then narrows sharply becoming cylindrical (Fig. 3c).

Paradorydium (Paradorydium) paradoxum* (Herrich-Schäffer, 1837)

Material examined: Bagh-e Malek, 2♂, 1♀, collected with Malaise trap, 28.vii.2015, leg.: F.P.R.

Distribution in Iran: Kerman province; southeast of Iran (Pakarpour *et al.* 2011b; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Tribe Fieberiellini

Five species belonging three genera have been recorded from Iran (Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Fieberiella florii* (Stål, 1864)

Material examined: Dezful, 1♂, 1♀, collected with Malaise trap, 27.vii.2015, leg.: F.P.R.; Bagh-e Malek, 1♂, 3♀, collected with Malaise trap, 28.vii.2015, leg.: F.P.R.

Distribution in Iran: Recorded from Iran without certain locality (Dlabola 1961; 1965; Nast 1972; Modarres Awal 1994; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Fieberiella macchiae* Linnavuori, 1962

Material examined: Dezful, 1♂, 1♀, collected with Malaise trap, 27.vii.2015, leg.: F.P.R.

Distribution in Iran: Qom and Tehran provinces; north and center of Iran (Dlabola 1981, 1984; Rajabi 1991; Modarres Awal 1994; Mirzayans 1995; Abaie 2000; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Tribe Goniagnathini

10 species belonging three genera have been recorded from Iran (Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Goniagnathus (Goniagnathus) brevis* (Herrich-Schäffer, 1835)

Material examined: Dezful, 1♂, swept on grasslands, 12.ix.2014, leg.: F.P.R.

Distribution in Iran: Azarbaijan-e Sharghi, Kohgiluyeh and Boyer-Ahmad provinces; northwest, west, and center of Iran (Nast 1972; Mirzayans *et al.* 1976; Dlabola 1981; Modarres Awal 1994; Mirzayans 1995;

Abdollahi *et al.* 2013, 2015; Pakarpour *et al.* 2015a; Mozaffarian and Wilson 2016).

***Goniagnathus (Epistagma) guttulinervis* (Kirschbaum, 1868)**

Material examined: Ahvaz, 9♂, 8♀, swept on weeds in Shahid Chamran University of Ahvaz, 13.iii.2014, leg.: F.P.R.; Dezful, 1♂, 1♀, swept on grasslands, 12.ix.2014, leg.: F.P.R.

Distribution in Iran: Hormozgan, Kerman, Khuzestan, Sistan-o Baluchestan and Tehran provinces; northwest, southwest, south, southeast and center of Iran (Dlabola 1972, 1981, 1994; Nast 1972; Mirzayans 1995; Pakarpour *et al.* 2011a; 2011c; Abdollahi *et al.* 2015; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Tribe Hecalini

Two species from one genus have been recorded from Iran (Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Hecalus eximius* (Kirschbaum, 1868)

Material examined: Ahvaz, 5♂, 4♀, swept on weeds in palm orchards in Shahid Chamran University of Ahvaz, 13.iii.2014, leg.: F.P.R.; Ahvaz, 8♂, 2♀, swept on weeds in palm orchards, 07.ix.2014, leg.: F.P.R.; Dezful, 1♂, 2♀, swept on gramineae, 12.ix.2014, leg.: F.P.R.

Distribution in Iran: Bushehr, Fars, Hormozgan, Kerman, Khorasan-e Jonubi, Mazandaran, Sistan-o Baluchestan provinces; north, southwest, south, southeast and east of Iran (Dlabola 1972, 1981; Nast 1972; Kheyri 1989; Modarres Awal 1994; Mirzayans 1995; Pakarpour *et al.* 2011a; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

***Hecalus glaucescens* (Fieber, 1866)**

Material examined: Bagh-e Malek, 2♂, 1 nymph, swept on grasslands, 16.iii.2014, leg.: F.P.R.; Bagh-e Malek, 1♀, swept on

Medicago sativa, 09.ix.2014, leg.: F.P.R.; Dezful, 3♂, 3♀, swept on gramineae, 12.ix.2014, leg.: F.P.R.; Bagh-e Malek, 2♂, 1♀, collected with Malaise trap, 28.vii.2015, leg.: F.P.R.; Ahvaz, 1♂, collected with Malaise trap, 25.vii.2015, leg.: F.P.R.

Distribution in Iran: Alborz, Azarbaijan-e Sharghi, Bushehr, Fars, Hormozgan, Kerman, Khorasan-e Jonubi, Khuzestan, Sistan-o Baluchestan provinces; northwest, southwest, south, southeast, east and center of Iran (Dlabola 1959, 1960, 1961, 1965, 1972, 1981; Mirzayans *et al.* 1976; Modarres Awal 1994; Mirzayans 1995; Abdollahi *et al.* 2015; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Hecalus prasinus* (Matsumura, 1905)*

(Fig. 2d)

Material examined: Ahvaz, 1♂, 5♀, swept on weeds in Shahid Chamran University of Ahvaz, 13.iii.2014, leg.: F.P.R.; Ahvaz, 3♂, swept on weeds in palm orchards, 07.ix.2014, leg.: F.P.R.

Distribution in Iran: This species is a new record for the Iranian leafhoppers fauna.

Remarks: Male: Length, 7.2 mm.; Base color yellowish brown, vertex parabolic with acute margin at apex, macropterous and forewings longer than abdomen; in male, aedeagus symmetrical, tubular, with one pair of processes at apex (Fig. 3d).

Tribe Macrostelini

24 species from six genera have been recorded from Iran (Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Balclutharhenana* Wagner, 1939

Material examined: Ahvaz, 2♂, 1♀, swept on weeds in palm orchards, 07.ix.2014, leg.: F.P.R.

Distribution in Iran: North and northwest of Iran (Dlabola 1981; Abdollahi *et al.* 2015; Mozaffarian and Wilson 2016).

***Balclutharosea* (Scott 1876)**

Material examined: Bagh-e Malek, 4♂, 5♀, swept on grasslands, 15.v.2015, leg.: F.P.R.

Distribution in Iran: Kerman, Khuzestan and Tehran provinces; center, southwest and southeast of Iran (Mirzayans 1995; Pakarpour *et al.* 2011b; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Cicadulina (Cicadulina) mbila* (Naudé, 1924)

Material examined: Ahvaz, 3♂, swept on weeds in palm orchards, 07.ix.2014, leg.: F.P.R.; Ahvaz, 1♂, 1♀, collected with Malaise trap, 25.vii.2015, leg.: F.P.R.

Distribution in Iran: Kerman, Sistan-o Baluchestan provinces; south and southeast of Iran (Dlabola 1960, 1981; Pakarpour *et al.* 2011a; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

***Macrosteles* sp.**

Material examined: Dezful, 1♂, swept on grasslands, 12.ix.2014, leg.: F.P.R.; Ahvaz, 1♂, 1♀, collected with Malaise trap, 25.vii.2015, leg.: F.P.R.

***Macrosteles laevis* (Ribaut, 1927)**

Material examined: Dezful, 1♂, 2♀, swept on grasslands and weeds, 27.iv.2015, leg.: F.P.R.

Distribution in Iran: Ardebil, Azarbaijan-e Sharghi, Fars, Guilan, Golestan, Isfahan, Kerman, Khorasan-e Jonubi, Kordestan, Khuzestan and Tehran provinces; north, northwest, west, southwest, south and center of Iran (Kheyri and Alimoradi 1969; Kheyri 1989; Dlabola 1971, 1981; Mirzayans *et al.* 1976; Modarres Awal 1994; Mirzayans 1995; Karimzadeh *et al.* 1998; Haghshenas and Khajehali 2000; Nematollahi and Khajehali 2000; Khajehali *et al.* 2001; Saeidi and Azura Adam 2011; Rezaei *et al.* 2014; Abdollahi *et al.* 2015; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

***Macrosteles ossiannilssoni* Lindberg, 1954**

Material examined: Ahvaz, 2♂, 2♀, swept on weeds in palm orchards, 07.ix.2014, leg.: F.P.R.; Dezful, 2♂, 1♀, swept on weeds in citrus orchards, 12.ix.2014, leg.: F.P.R.; Dezful, 2♂, swept on grasslands and weeds, 27.iv.2015, leg.: F.P.R.

Distribution in Iran: Golestan, Khuzestan provinces; north and south of Iran (Dlabola 1971, 1981; Mirzayans 1995; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

***Macrosteles quadripunctulatus* (Kirschbaum, 1868)**

Material examined: Dezful, 1♀, swept on weeds in citrus orchards, 12.ix.2014, leg.: F.P.R.; Dezful, 1♂, 1♀, swept on grasslands and weeds, 27.iv.2015, leg.: F.P.R.; Ahvaz, 1♂, 1♀, collected with Malaise trap, 25.vii.2015, leg.: F.P.R.

Distribution in Iran: Azarbaijan-e Gharbi, Hormozgan, Kerman, Kermanshah, Khuzestan and Tehran provinces; northeast, north, northwest, west, southwest, south and center of Iran (Dlabola 1981; Kheyri 1989; Modarres Awal 1994; Mirzayans 1995; Moosavi Mahvelati and Modarres Awal 2011; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Tribe Opsiini

31 species belonging nine genera have been recorded from Iran (Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Hishimonus phycitis* (Distant, 1908)

Material examined: Ahvaz, 1♂, 3♀, swept on weeds in palm orchards, 07.ix.2014, leg.: F.P.R.; Bagh-e Malek, 3♀, collected with Malaise trap, 28.vii.2015, leg.: F.P.R.

Distribution in Iran: Hormozgan, Fars, Kerman, Sistan-o Baluchestan provinces; south of Iran (Salehi *et al.* 2000; Bagheri *et al.* 2008; 2009; Faghihi *et al.* 2011; Zohdi *et al.*

2012; Samavi *et al.* 2012; Mozaffarian and Wilson 2016).

Neoaliturus alboflavovittatus* (Lindberg, 1954)

Material examined: Ahvaz, 1♂, 2♀, swept on weeds in Shahid Chamran University of Ahvaz, 13.iii.2014, leg.: F.P.R.; Dezful, 3♂, 1♀, swept on weeds in citrus orchards, 14.iii.2014, leg.: F.P.R.

Distribution in Iran: Kerman province; south of Iran (Pakarpour *et al.* 2011a; 2014a; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Neoaliturus pulcher* (Haupt, 1927)

Material examined: Ahvaz, 4♂, 5♀, swept on weeds in palm orchards, 07.ix.2014, leg.: F.P.R.; Dezful, 3♂, 7♀, collected with Malaise trap, 27.vii.2015, leg.: F.P.R.

Distribution in Iran: Azarbaijan-e Sharghi, Hormozgan, Kerman, Sistan-o Baluchestan and Tehran provinces; northwest, centre, south and southeast of Iran (Dlabola 1960, 1961, 1972, 1981; Nast 1972; Kheyri 1989; Modarres Awal 1994; Mirzayans 1995; Abdollahi *et al.* 2015; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Neoaliturus (Neoaliturus) fenestratus* (Herrich-Schäffer, 1834)

Material examined: Ahvaz, 1♂, swept on weeds in palm orchards at Shahid Chamran University of Ahvaz, 13.iii.2014, leg.: F.P.R.; Dezful, 1♂, 1♀, swept on weeds in citrus orchards, 14.iii.2014, leg.: F.P.R.; Bagh-e Malek, 2♂, swept on *Medicago sativa*, 09.Ix.2014, leg.: F.P.R.; Dezful, 1♂, swept on grasslands, 12.ix.2014, leg.: F.P.R.; Bagh-e Malek, 1♂, swept on grasslands, 15.v.2015, leg.: F.P.R.

Distribution in Iran: Alborz, Azarbaijan-e Sharghi, Kerman, Khorasan-e Razavi and Tehran provinces; northeast, north, northwest, center and south of Iran (Dlabola 1960; 1972; 1981; Kheyri 1989; Mirzayans *et al.* 1976; Behdad 1992; Modarres Awal 1994; Mirzayans 1995; Moosavi Mahvelati and Modarres Awal 2011; Pakarpour *et al.* 2011c; Saeidi and Azura Adam 2011; Dehghan *et al.* 2012; Pakarpour *et al.* 2014a; Abdollahi *et al.* 2015; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Material examined: Dezful, 2♂, 5♀, swept on weeds in citrus orchards, 14.iii.2014, leg.: F.P.R.

Neoaliturus (Neoaliturus) guttulatus* (Kirschbaum, 1868)

Material examined: Dezful, 2♂, 5♀, swept on weeds in citrus orchards, 14.iii.2014, leg.: F.P.R.

Distribution in Iran: Chaharmahal-o Bakhtiari, Isfahan, Kerman and Khorasan-e Razavi provinces; center, northeast and southeast of Iran (Dlabola 1972; Behdad 1992; Modarres Awal 1994; Haghshenas and Khajehali 2000; Khajehali *et al.* 2001; Moosavi Mahvelati and Modarres Awal 2011; Pakarpour *et al.* 2014a; Pakarpour Rayeni *et al.* 2015; Mozaffarian and Wilson 2016).

Neoaliturus (Circulifer) dubiosus* (Matsumura, 1908)

Material examined: Ahvaz, 1♂, 3♀, swept on weeds in palm orchards, 07.ix.2014, leg.: F.P.R.; Bagh-e Malek, 3♂, 5♀, collected with Malaise trap, 28.vii.2015, leg.: F.P.R.

Distribution in Iran: Isfahan and Tehran provinces; center of Iran (Mirzayans, 1995; Karimzadeh *et al.* 1998; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

***Neoaliturus (Circulifer) haematoceps* (Mulsant and Rey, 1855)**

Material examined: Dezful, 1♂, 6♀, swept on weeds in citrus orchards, 14.iii.2014, leg.: F.P.R.; Ahvaz, 3♂, 11♀, swept on weeds in palm orchards, 07.ix.2014, leg.: F.P.R.; Bagh-e Malek, 5♂, 6♀, collected with Malaise trap, 28.vii.2015, leg.: F.P.R.

Distribution in Iran: Alborz, Azarbaijan-e Gharbi, Fars, Hormozgan, Isfahan, Kerman, Kermanshah, Khorasan-e Razavi, Khuzestan,

Kohgiluyeh and Boyerahmad, Kordestan, Qom, Sistan-o Baluchestan and Tehran provinces; nearly all of Iran (Nast, 1972; Mirzayans *et al.* 1976; Dlabola 1981; Kheyri 1989; Salehi and Izadpanah 1992; Modarres Awal 1994; Mirzayans 1995; Karimzadeh *et al.* 1998; Saeidi and Azura Adam 2011; Omid *et al.* 2011; Pakarpour *et al.* 2011a; Pakarpour *et al.* 2014a; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

***Neoliturus (Circulifer) opacipennis* (Lethierry, 1876)**

Material examined: Dezful, 4♂, 10♀, swept on weeds in citrus orchards, 14.iii.2014, leg.: F.P.R.

Distribution in Iran: Azarbaijan-e Sharghi, Chaharmahal-o Bakhtiari, Golestan, Isfahan, Kerman, Khorasan-e Razavi, Khorasan-e Shomali, Khuzestan, Mazandaran, Qazvin, Sistan-o Baluchestan and Zanzan provinces; northwest, north, northeast, center, south and southeast of Iran (Farahbakhsh 1961; Dlabola 1960; 1961; 1965 1972; Kheyri and Alimoradi 1969; Modarres Awal 1994; Karimzadeh *et al.* 1998; Haghshenas and Khajehali 2000; Khajehali *et al.* 2001; Pakarpour *et al.* 2011c; 2014; Khormali 2013; Pakarpour *et al.* 2014a; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

***Neoliturus (Circulifer) tenellus* (Baker, 1896)**

Material examined: Dezful, 14♂, 22♀, swept on weeds in citrus orchards, 14.iii.2014, leg.: F.P.R.; Bagh-e Malek, 22♂♀, swept on grasslands, 16.Mar.2014, leg.: F.P.R.; Bagh-e Malek, 30♂♀, swept on grasslands, 09.ix.2014, leg.: F.P.R.; Dezful, 55♂♀, swept on weeds in citrus orchards, 12.ix.2014, leg.: F.P.R.; Ahvaz, 13♂, 18♀, swept on weeds in palm orchards, 26.iv.2015, leg.: F.P.R.; Dezful, 11♂, 30♀, swept on grasslands and weeds, 27.iv.2015, leg.: F.P.R.; Bagh-e Malek, 8♂, 11♀, swept on grasslands, 15.v.2015, leg.: F.P.R.; Ahvaz, 45♂♀, collected with Malaise trap, 25.vii.2015, leg.: F.P.R.; Dezful, 5♂, 12♀, collected with Malaise trap, 27.vii.2015, leg.:

F.P.R.; Bagh-e Malek, 24♂♀, collected with Malaise trap, 28.vii.2015, leg.: F.P.R.

Distribution in Iran: Fars, Isfahan, Kerman, Khuzestan, Lorestan, Sistan-o Baluchestan and Tehran provinces; center, south, southwest and southeast of Iran (Dlabola 1960; 1964; 1972; 1981; Nast 1972; Mirzayans *et al.* 1976; Kheyri 1989; Behdad 1992; Modarres Awal 1994; Mirzayans 1995; Karimzadeh *et al.* 1998; Khajehali *et al.* 2001; Pakarpour *et al.* 2011a; 2014a; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

***Opsius* sp.**

Material examined: Dezful, 1♂, 3♀, collected with Malaise trap, 27.vii.2015, leg.: F.P.R.

***Orosius albicinctus* Distant, 1918**

Material examined: Ahvaz, 1♂, swept on weeds in palm orchards at Shahid Chamran University of Ahvaz, 13.iii.2014, leg.: F.P.R.; Ahvaz, 7♂, 2♀, swept on weeds in palm orchards, 07.ix.2014, leg.: F.P.R.; Bagh-e Malek, 5♀, swept on grasslands, 15.v.2015, leg.: F.P.R.; Bagh-e Malek, 4♂, 2♀, collected with Malaise trap, 28.vii.2015, leg.: F.P.R.

Distribution in Iran: Bushehr, Hormozgan, Isfahan, Kerman and Khuzestan provinces; center, southwest, south and southeast of Iran (Farahbakhsh 1961; Dlabola 1960; 1981; Modarres Awal 1994; Mirzayans 1995; Karimzadeh *et al.* 1998; Shamszadeh 2002; Esmailzadeh-Hosseini *et al.* 2007; Omid *et al.* 2011; Pakarpour *et al.* 2011a; Nourbakhsh *et al.* 2012; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

***Orosius minuscus* Dlabola, 1979**

Material examined: Ahvaz, 1♂, swept on *Medicago sativa* in palm orchards, 26.iv.2015, leg.: F.P.R.; Ahvaz, 5♂, 9♀, collected with Malaise trap, 25.vii.2015, leg.: F.P.R.

Distribution in Iran: Khuzestan province; southwest of Iran (Dlabola 1979; Pakarpour

Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

***Pseudophlepsius binotatus* (Signoret, 1880)**

Material examined: Ahvaz, 1♂, collected with Malaise trap, 25.vii.2015, leg.: F.P.R.

Distribution in Iran: Azarbaijan-e Sharghi, Kerman, Khorasan-e Razavi, Khuzestan, Kohgiluyeh and Boyerahmad, Qom and Tehran provinces; northeast, center, northwest, southwest and south of Iran (Dlabola 1961; 1972; 1981; Mirzayans 1995; Olyaei Torshiz *et al.* 2011; Abdollahi *et al.* 2015; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Tribe Paralimnini

30 species belonging to 19 genera have been recorded from Iran (Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

***Paralimnellus cingulatus* (Dlabola, 1960)**

Material examined: Dezful, 2♂, 10♀, collected with Malaise trap, 27.vii.2015, leg.: F.P.R.; Bagh-e Malek, 5♂, 11♀, collected with Malaise trap, 28.vii.2015, leg.: F.P.R.

Distribution in Iran: Kerman and Khuzestan provinces; south and southwest of Iran (Dlabola 1960; 1981; Mirzayans 1995; Pakarpour *et al.* 2011a; 2011c; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

***Psammotettix alienus* (Dahlbom, 1850)**

Material examined: Ahvaz, 2♂, 7♀, swept on weeds in Shahid Chamran University of Ahvaz, 13.iii.2014, leg.: F.P.R.; Bagh-e Malek, 73♂♀, swept on grasslands, 16.iii.2014, leg.: F.P.R.; Bagh-e Malek, 2♂, 11♀, swept on grasslands, 15.v.2015, leg.: F.P.R.; Ahvaz, 7♂, 10♀, swept on weeds in palm orchards, 26.iv.2015, leg.: F.P.R.; Ahvaz, 30♂♀, collected with Malaise trap, 25.vii.2015, leg.: F.P.R.; Dezful, 11♂, 6♀, collected with Malaise trap, 27.vii.2015, leg.:

F.P.R.; Bagh-e Malek, 13♂, 21♀, collected with Malaise trap, 28.vii.2015, leg.: F.P.R.

Distribution in Iran: Alborz, Ardebil, Azarbaijan-e Gharbi, Azarbaijan-e Sharghi, Chaharmahal-o Bakhtiari, Guilan, Golestan, Isfahan, Kerman, Kermanshah, Khorasan-e Razavi, Khuzestan, Kohgiluyeh and Boyerahmad, Kordestan, Lorestan, Mazandaran and Tehran, provinces; northeast, north, northwest, southwest, center of Iran (Kheyri 1989; Dlabola 1971; 1981; Modarres Awal 1994; Mirzayans 1995; Karimzadeh *et al.* 1998; Nematollahi and Khajehali 2000; Haghshenas and Khajehali 2000; Khajehali *et al.* 2001; Darvish-Mojeni and Taghizadeh 2008; Pakarpour *et al.* 2011a; 2011c; Zohdi *et al.* 2012; Rezaei *et al.* 2014; Abdollahi *et al.* 2015; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

***Psammotettix emarginatus* Singh, 1969** (Fig. 2e)**

Material examined: Ahvaz, 3♂, 7♀, swept on weeds in palm orchards, 26.iv.2015, leg.: F.P.R.; Dezful, 2♂, 4♀, swept on grasslands and weeds, 27.iv.2015, leg.: F.P.R.

Distribution in Iran: This species is a new record for the Iranian leafhoppers fauna.

Remarks: Male: Length, 3.4 mm.; Base color light to dirty yellow, dark coloring partly distinct, vertex rectangular and as long as pronotum, fore wings with brownish spots and streaks; in male shaft of aedeagus mostly straight and evenly slender, aperture spoon-shaped, upper margin of aedeagus rounded, aedeagus shaft has straight margins in lateral view (Fig. 3e).

Tribe Penthimiini

Two species belonging to one genus have been recorded from Iran (Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Penthimia nigra* (Goeze, 1778)

Material examined: Bagh-e Malek, 1♂, swept on grasslands, 15.v.2015, leg.: F.P.R.

Distribution in Iran: South and central region of Alborz mountains (Dlabola 1971; Mozaffarian and Wilson 2016).

***Penthimia* sp.**

Material examined: Bagh-e Malek, 1♀, swept on grasslands, 09.ix.2014, leg.: F.P.R.

Tribe Phlepsiini

Seven species belonging to one genus have been recorded from Iran (Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Phlepsius intricatus* (Herrich-Schäffer, 1838)

Material examined: Ahvaz, 2♂, swept on weeds in Shahid Chamran University of Ahvaz, 13.iii.2014, leg.: F.P.R.; Dezful, 3♂, 4♀, swept on weeds in citrus orchards, 14.iii.2014, leg.: F.P.R.; Bagh-e Malek, 4♀, swept on grasslands, 09.ix.2014, leg.: F.P.R.; Dezful, 6♂, 4♀, swept on weeds in citrus orchards, 12.ix.2014, leg.: F.P.R.; Ahvaz, 1♂, 3♀, swept on *Medicago sativa* in palm orchards, 26.iv.2015, leg.: F.P.R.; Bagh-e Malek, 3♂, 3♀, swept on grasslands, 15.v.2015, leg.: F.P.R.; Bagh-e Malek, 2♀, collected with Malaise trap, 28.vii.2015, leg.: F.P.R.

Distribution in Iran: Azarbaijan-e Gharbi, Azarbaijan-e Sharghi, Chaharmahal-o Bakhtiari, Fars, Isfahan, Kerman, Kermanshah, Kordestan, Qom and Tehran provinces; northeast, north, northwest, west, south-west, south and center of Iran (Nast 1972; Dlabola 1974; 1981; Mirzayans *et al.* 1976; Modarres Awal 1994; Mirzayans 1995; Karimzadeh *et al.* 1998; Haghshenas and Khajehali 2000; Khajehali *et al.* 2001; Pakarpour *et al.* 2011a; 2011c; Moosavi Mahvelati and Modarres Awal 2011; Abdollahi *et al.* 2015; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Phlepsius kambyyesi* Dlabola, 1984

Material examined: Bagh-e Malek, 1♂, collected with Malaise trap, 28.vii.2015, leg.: F.P.R.

Distribution in Iran: Fars and Kohgiluyeh and Boyerahmad provinces; southwest of Iran (Dlabola 1984; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Tribe Scaphoideini

21 species belonging to nine genera have been recorded from Iran (Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Grammacephalus genoicus* Dlabola, 1984

Material examined: Dezful, 1♂, 2♀, collected with Malaise trap, 27.vii.2015, leg.: F.P.R.

Distribution in Iran: Hormozgan province; south and southeast of Iran (Dlabola 1984; Mirzayans 1995; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

***Grammacephalus pallidus* (Linnavuori, 1978)** (Fig. 2f)**

Material examined: Ahvaz, 1♂, 1♀ collected with sticky yellow trap in Shahid Chamran University of Ahvaz, 26.iv.2015, leg.: F.P.R.

Distribution in Iran: This species is a new record for the Iranian leafhoppers fauna.

Remarks: Male: Length, 6.1 mm.; Base color light to dirty yellow, head strongly produced, vertex brown with a stripe along midline, vertex markings are similar to *G. genoicus* and *G. minabicus*, face creamy white with narrow brown band along anterior margin; in male, aedeagus simple, shaft slender, curved dorsally and rounded apically (Fig. 3f).

Grammacephalus pugio* (Noualhier, 1895)

Material examined: Dezful, 4♂, 3♀, swept on weeds in citrus orchards, 14.iii.2014, leg.: F.P.R.; Ahvaz, 3♂, 2♀, collected with Malaise trap, 25.vii.2015, leg.: F.P.R.; Dezful, 1♂, 3♀, collected with Malaise trap, 27.vii.2015, leg.: F.P.R.

Distribution in Iran: Hormozgan and Kerman provinces; south and southeast of Iran (Dlabola 1960; 1965; 1977; 1981; Nast 1972; Mirzayans 1995; Pakarpour *et al.* 2011a; 2011c; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Neolimmus (Neolimmus) egyptiacus (Matsumura, 1908)*

Material examined: Dezful, 1♀, swept on weeds in citrus orchards, 14.iii.2014, leg.: F.P.R.; Ahvaz, 5♂, 3♀, swept on weeds in palm orchards, 07.ix.2014, leg.: F.P.R.; Dezful, 2♂, swept on gramineae, 12.ix.2014, leg.: F.P.R.; Ahvaz, 4♂, 5♀, swept on *Medicago sativa* in palm orchards, 26.iv.2015, leg.: F.P.R.; Ahvaz, 3♂, 6♀, collected with Malaise trap, 25.vii.2015, leg.: F.P.R.

Distribution in Iran: Hormozgan, Kerman and Sistan-o Baluchestan provinces; south and southeast of Iran (Dlabola 1960; 1965; 1981; Kheyri 1989; Modarres Awal 1994; Mirzayans 1995; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Tribe Stenometopiini

Six species belonging two genera have been recorded from Iran (Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Doratulina lahorensis (Distant, 1918)*

Material examined: Ahvaz, 4♂, 4♀, swept on weeds in palm orchards, 13.iii.2014, leg.: F.P.R.; Dezful, 5♂, 7♀, swept on weeds in citrus orchards, 14.iii.2014, leg.: F.P.R.; Bagh-e Malek, 1♂, 3♀, swept on grasslands, 16.iii.2014, leg.: F.P.R.; Ahvaz, 6♀, swept on weeds in palm orchards, 26.iv.2015, leg.: F.P.R.; Ahvaz, 6♂, 13♀, collected with Malaise trap, 25.vii.2015, leg.: F.P.R.

Distribution in Iran: Sistan-o Baluchestan province; southeast of Iran (Pakarpour and Nozari 2011; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Doratulina (Doratulina) pallida Dlabola, 1994*

Material examined: Bagh-e Malek, 1♂, 2♀, swept on grasslands, 16.iii.2014, leg.: F.P.R.; Dezful, 5♂, 1♀, swept on gramineae, 12.ix.2014, leg.: F.P.R.; Ahvaz, 1♂, 1♀, swept on weeds in palm orchards, 26.iv.2015, leg.: F.P.R.; Ahvaz, 1♀, collected with Malaise trap, 25.vii.2015, leg.: F.P.R.

Distribution in Iran: Hormozgan, Kerman and Sistan-o Baluchestan provinces; south of Iran (Dlabola 1994; Pakarpour *et al.* 2011c; Pakarpour Rayeni *et al.* 2015a; Mozaffarian and Wilson 2016).

Subfamily Iassinæ

Four species belonging two genera have been recorded from Iran (Mozaffarian and Wilson 2016).

Batracomorphus irroratus Lewis, 1834

Material examined: Ahvaz, 1♂, collected with Malaise trap, 25.vii.2015, leg.: F.P.R.

Distribution in Iran: Alborz, Azarbaijan-e Sharghi, Bushehr, Hormozgan, Khorasan-e Razavi, Khuzestan, Kohgiluyeh and Boyer-ahmad, Kordestan, Lorestan and Tehran provinces; northwest, west, southwest, south, southeast, east and center of Iran (Dlabola 1960; 1963; 1972; Mirzayans *et al.* 1976; Modarres Awal 1994; Moosavi Mahvelati and Modarres Awal 2011; Abdollahi *et al.* 2015; Mozaffarian and Wilson 2016).

Subfamily Idiocerinae

24 species belonging to 10 genera have been recorded from Iran (Mozaffarian and Wilson 2016).

***Viridicerus* sp.**

Material examined: Dezful, 8♂, 16♀, swept on grasslands, 12.ix.2014, leg.: F.P.R.

Remark: These specimens have deep differences with other species of the genus *Viridicerus*, maybe a new species.

Subfamily Macropsinae

Nine species belonging to four genera have been recorded from Iran (Mozaffarian and Wilson 2016).

Macropsis graminea (Fabricius, 1798)*

Material examined: Dezful, 1♂, 1♀, swept on gramineae, 12.ix.2014, leg.: F.P.R.

Distribution in Iran: Alborz, Azarbaijan-e Gharbi, Azarbaijan-e Sharghi, Hormozgan, Kerman, Kordestan, and Tehran provinces; northwest, west and center of Iran (Dlabola 1974; 1981; Mirzayans 1995; Mozaffarian and Wilson 2016).

Subfamily Megophthalminae

27 species belonging 10 genera have been recorded from Iran (Mozaffarian and Wilson 2016).

Tribe Agalliini

15 species belonging to four genera have been recorded from Iran (Mozaffarian and Wilson 2016).

Agallia harrarensis Melichar, 1911

Material examined: Ahvaz, 5♂, 8♀, swept on weeds in palm orchards, 07.ix.2014, leg.: F.P.R.; Ahvaz, 1♂, 3♀, collected with Malaise trap, 25.vii.2015, leg.: F.P.R.; Bagh-e Malek, 3♂, 8♀, collected with Malaise trap, 28.vii.2015, leg.: F.P.R.

Distribution in Iran: Fars, Hormozgan, Kerman, Khuzestan and Tehran provinces; south of central region of Alborz Mountains, southwest, south and southeast of Iran (Dlabola 1960; 1972; 1981; Kheyri 1989; Nast 1972; Modarres Awal 1994; Mirzayans 1995; Mozaffarian and Wilson 2016).

Anaceratagallia aciculata (Horváth, 1894)*

Material examined: Ahvaz, 4♂, 4♀, swept on weeds in palm orchards, 26.iv.2015, leg.: F.P.R.; Ahvaz, 3♂, collected with Malaise trap, 25.vii.2015, leg.: F.P.R.

Distribution in Iran: Fars, Kerman and Tehran provinces; north, southwest and southeast (Dlabola 1981; Mirzayans 1995; Babaei and Izadpanah 2003; Pakarpour *et al.* 2011b; Mozaffarian and Wilson 2016).

Anaceratagallia laevis (Ribaut, 1935)*

Material examined: Bagh-e Malek, 2♂, 10♀, swept on grasslands, 16.iii.2014, leg.: F.P.R.; Bagh-e-Malek, 3♂, 8♀, collected with Malaise trap, 28.vii.2015, leg.: F.P.R.

Distribution in Iran: Alborz, Azarbaijan-e Sharghi, Chaharmahal-o Bakhtiari, Guilan, Isfahan, Kordestan, Lorestan and Tehran provinces; north, northwest, west and center of Iran (Dlabola 1981; Kheyri 1989; Modarres Awal 1994; Mirzayans 1995; Karimzadeh *et al.* 1998; Haghshenas and Khajehali 2000; Khajehali *et al.* 2001; Bagheri and Nasr Isfahani 2008; Abdollahi *et al.* 2015; Mozaffarian and Wilson 2016).

Anaceratagallia venosa (Fourcroy, 1785)*

Material examined: Ahvaz, 4♀, swept on weeds in palm orchards at Shahid Chamran University of Ahvaz, 13.iii.2014, leg.: F.P.R.; Dezful, 1♂, 3♀, swept on weeds in citrus orchards, 14.iii.2014, leg.: F.P.R.; Ahvaz, 2♂, 5♀, swept on *Medicago sativa* in palm orchards, 26.iv.2015, leg.: F.P.R.

Distribution in Iran: North of Iran (Nast 1972; Dlabola 1981; Mozaffarian and Wilson 2016).

Austroagallia sinuata (Mulsant and Rey, 1855)

Material examined: Ahvaz, 3♂, 11♀, swept on weeds in palm orchards at Shahid Chamran University of Ahvaz, 13.iii.2014, leg.: F.P.R.; Bagh-e Malek, 1♂, 5♀, swept on grasslands, 16.iii.2014, leg.: F.P.R.; Ahvaz, 1♂, 3♀, collected with Malaise trap, 25.vii.2015, leg.: F.P.R.; Bagh-e Malek, 1♂, 6♀, collected with Malaise trap, 28.Vii.2015, leg.: F.P.R.

Distribution in Iran: Alborz, Azarbaijan-e Sharghi, Bushehr, Chaharmahal-o Bakhtiari, Fars, Golestan, Hormozgan, Isfahan,

Kerman, Khorasan-e Jonubi, Khuzestan, Lorestan, and Tehran provinces; north, northwest, southwest, south, center and northeast of Iran (Farahbakhsh 1961; Dlabola 1963; 1964; 1971; 1972; 1981; Mirzayans *et al.* 1976; Kheyri 1989; Modarres Awal 1994; Mirzayans 1995; Karimzadeh *et al.* 1998; Haghshenas and Khajehali 2000; Khajehali *et al.* 2001; Yarmand *et al.* 2006; Bagheri and Nasr Isfahani 2008; Pakarpour *et al.* 2011a; 2011c; Khormali 2013; Abdollahi *et al.* 2015; Mozaffarian and Wilson 2016).

Subfamily Typhlocybinae

Typhlocybinae is the second largest subfamily of Cicadellidae comprising 84 valid species in Iran (Mozaffarian and Wilson 2016).

Tribe Empoascini

16 species belonging seven genera have been recorded from Iran (Mozaffarian and Wilson 2016).

Asymmetrasca decedens (Paoli, 1932)*

Material examined: Ahvaz, 12♂, 18♀, swept on *Medicago sativa* in palm orchards, 07.ix.2014, leg.: F.P.R.; Ahvaz, 7♂, 15♀, swept on *Medicago sativa*, 26.iv.2015, leg.: F.P.R.; Bagh-e Malek, 5♂, 11♀, swept on *Medicago sativa*, 09.ix.2014, leg.: F.P.R.; Dezful, 15♂, 17♀, swept on grasslands, 12.ix.2014, leg.: F.P.R.; Ahvaz, 45♂♀, collected with Malaise trap, 25.vii.2015, leg.: F.P.R.; Dezful, 55♂♀, collected with aspirator from *Vitis venifera*, 27.vii.2015, leg.: F.P.R.; Bagh-e-Malek, 50♂♀, collected with Malaise trap, 28.vii.2015, leg.: F.P.R.

Distribution in Iran: Alborz, Chaharmahal-o Bakhtiari, Fars, Golestan, Kerman, Khorasan-e Razavi provinces; northeast, north, center and southwest of Iran (Haghighian and Sadeghi 2001; Taghizadeh and Salehi 2002; Darvish-Mojeni and Taghizadeh 2008; Haghighian *et al.* 2003; 2008; Olyaei Torshiz *et al.* 2001; Tahrir adabi *et al.* 2013; Mozaffarian and Wilson 2016).

Empoasca (Empoasca) decipiens Paoli, 1930

Material examined: This species has a widespread distribution in Khuzestan province and has been collected from all the sampling areas with high population.

Distribution in Iran: Alborz, Azarbaijan-e Gharbi, Azarbaijan-e Sharghi, Chaharmahal-o Bakhtiari, Fars, Golestan, Isfahan, Kerman, Kordestan, Khorasan-e Razavi, Khuzestan, Mazandaran, Semnan, Sistan-o Baluchestan and Tehran provinces; nearly all Iran (Nast 1972; Mirzayans 1976; Dlabola 1981; Kheyri 1989; Behdad 1992; Modarres Awal 1994; Mirzayans 1995; Karimzadeh *et al.* 1998; Noori and Javan Moghaddam 1998; Nematollahi and Khajehali 2000; Haghshenas and Khajehali 2000; Khajehali *et al.* 2001; Naseri *et al.* 2007a; 2007b; Kianpour *et al.* 2008; 2009; Izadpanah *et al.* 2008; Darvish-Mojeni and Taghizadeh 2008; Karimzadeh and Dworakowska 2011; Pakarpour *et al.* 2011a; 2011c; Sirjani 2012; Nourbakhsh *et al.* 2012; Rezaei *et al.* 2014; Mozaffarian and Wilson 2016).

Empoasca (Empoasca) punjabensis Singh-Pruthi, 1940

Material examined: Bagh-e Malek, 5♂, 3♀, swept on grasslands, 15.v.2015, leg.: F.P.R.; Ahvaz, 1♂, 2♀, collected with Malaise trap, 25.vii.2015, leg.: F.P.R.; Bagh-e Malek, 7♂, 11♀, collected with Malaise trap, 28.vii.2015, leg.: F.P.R.

Distribution in Iran: Alborz, Azarbaijan-e Gharbi, Azarbaijan-e Sharghi, Fars, Golestan, Isfahan, Kerman, Kermanshah, Khorasan-e Razavi, Khuzestan, Mazandaran, Qazvin, Tehran and Zanzan provinces; nearly all Iran (Zachvatkin 1945; Dlabola 1960; 1971; 1972; 1981; Kheyri and Alimoradi 1969; Kheyri 1989; Modarres Awal 1994; Mirzayans 1995; Karimzade and Dworakowska 2011; Moosavi Mahvelati and Modarres Awal 2011; Khormali 2013; Abdollahi *et al.* 2015; Mozaffarian and Wilson 2016).

Tribe Erythroneurini

33 species belonging to 14 genera have been recorded from Iran (Mozaffarian and Wilson 2016).

Arboridia* (*Arboridia*) *Kermanshah* (Dlabola, 1963)

Material examined: Dezful, 29♂♀, collected with aspirator from *Vitis venifera*, 27.vii.2015, leg.: F.P.R.

Distribution in Iran: Isfahan, Khorasan-e Razavi and Tehran provinces; northeast, center and west of Iran (Dlabola 1963; 1981; Nast 1972; Mirzayans 1995; Hesami *et al.* 2002; Latifian *et al.* 2008; Olyaei Torshiz *et al.* 2011; Mozaffarian and Wilson 2016).

Helionidia biplagiata* (Haupt, 1927)

Material examined: Ahvaz, 3♂, collected with Malaise trap, 25.vii.2015, leg.: F.P.R.

Distribution in Iran: Fars, Kerman and Tehran provinces; south of central region of Alborz Mountains, southwest and south of Iran (Dlabola 1960; 1981; Mirzayans 1995; Mozaffarian and Wilson 2016).

***Helionidia punctulata* (Ramakrishnan & Menon, 1974)** (Fig. 2g)**

Material examined: Bagh-e Malek, 6♂, 2♀, swept on grasslands, 09.ix.2014, leg.: F.P.R.

Distribution in Iran: This species is a new record for the Iranian leafhoppers fauna.

Remarks: Male: Length, 2.6 mm.; Base color yellowish green, vertex yellow with a pair of dark spots, pronotum greenish in anterior pale with 6 distinct dots, macropterous and forewings much longer than abdomen; in male, aedeagus distinct, apically branched with two pairs of short appendages (Fig. 3g).

***Negoneura* sp.**

Material examined: Dezful, 1♀, swept on grasslands and weeds, 27.iv.2015, leg.: F.P.R.

Distribution in Iran: Hormozgan province; south of Iran (Dlabola 1994; Mozaffarian and Wilson 2016).

Remarks: Dlabola (1994) described this genus as *Genoneura* in 1994 but McKamey (2006) changed this genus name to *Negoneura* comb.nov.

***Tamaricella* sp.**

Material examined: Bagh-e Malek, 2♀, swept on grasslands, 09.ix.2014, leg.: F.P.R.

Zygina* (*Zygina*) *ordinaria* (Ribaut, 1936)

Material examined: Dezful, 2♂, 5♀, swept on grasslands and weeds, 27.iv.2015, leg.: F.P.R.

Distribution in Iran: North of Iran (Mozaffarian and Wilson 2016).

Tribe Typhlocybini

27 species belonging to nine genera have been recorded from Iran (Mozaffarian and Wilson 2016).

***Edwardsiana rosae* (Linnaeus, 1758)**

Material examined: Bagh-e Malek, 45♂♀, collected with aspirator from *Rosa* sp. 28.vii.2015, leg.: F.P.R.

Distribution in Iran: Alborz, Azarbaijan-e Sharghi, Fars, Kerman and Tehran provinces; northeast, north, northwest, center, southwest and south (Dlabola 1971; 1981; Esmaili 1984; Rajabi 1991; Behdad 1991; 1992; Mirzayans 1995; Abaii 2000; Pakarpour *et al.* 2011a; 2011c; Nourbakhsh *et al.* 2012; Abdollahi *et al.* 2015; Mozaffarian and Wilson 2016).

Eupteryx* (*Eupteryx*) *pavlovskii* Zachvatkin, 1947

Material examined: Ahvaz, 2♂, 3♀, swept on weeds in palm orchards, 07.ix.2014, leg.: F.P.R.; Ahvaz, 1♀, collected with Malaise trap, 25.vii.2015, leg.: F.P.R.

Distribution in Iran: Fars, Kohgiluyeh and Boyer-Ahmad, Mazandaran and Tehran

provinces; north, northwest and southwest (Nast 1972; Dlabola 1974; 1981; Mirzayans 1995; Mozaffarian and Wilson 2016).

Remarks: Dlabola (1974) described a new species as *Eupteryx tochalica*; then he (1981) and Mirzayans (1995) reported *E. tochalica* from different parts of Iran but now *E. tochalica* is a synonym of *Eupteryx (Eupteryx) pavlovskii*.

Eupteryx (Eupteryx) kaghanensis* Ahmed, 1969 * (Fig. 2h)

Material examined: Dezful, 5♂, 8♀, collected with Malaise trap, 27.vii.2015, leg.: F.P.R.

Distribution in Iran: This species is a new record for the Iranian leafhoppers fauna.

Remarks: Male: Length, 3.2 mm.; Base color yellowish green, fore margin of vertex with two spots, hind margin with one variable

spot, pronotum and scutellum with numerous spots, fore wings with yellowish green and partly with brown pattern; in male shaft of aedeagus more or less straight in lateral view, apex with two pairs of recurrent appendages (Fig. 3h).

Zyginella pulchra* Löw, 1885

Material examined: Bagh-e Malek, 1♂, 2♀, swept on grasslands, 09.ix.2014, leg.: F.P.R.; Dezful, 2♂, 2♀, collected with Malaise trap, 27.vii.2015, leg.: F.P.R.

Distribution in Iran: Fars, Khorasan-e Razavi, Markazi, Qazvin, Semnan and Tehran provinces; northeast, center and southwest of Iran (Rajabi and Mirzayans 1989; Rajabi 1991; Mirzayans 1995; Taghizadeh and Salehi 2002; Moosavi Mahvelati and Modarres Awal 2011; Mozaffarian and Wilson 2016).



Figure 1. Map of the study area; sampling sites consist of Ahvaz, Bagh-e Malek and Dezful in Khuzestan province (southwest of Iran)



Figure 2. Habitus figures of new records to Iranian fauna (scale bar = 1mm), **a.** *Euscelidius schenckii* (Kirschbaum); **b.** *Hardya* (*Hardya*) *melanopsis* (Hardy); **c.** *Paradorydium* (*Paradorydium*) *lanceolatum* (Burmeister); **d.** *Hecalus prasinus* (Matsumura); **e.** *Psammotettix emarginatus* Singh; **f.** *Grammacephalus pallidus* (Linnavuori); **g.** *Helionidia punctulata* (Ramakrishnan & Menon); **h.** *Eupteryx* (*Eupteryx*) *kaghanensis* Ahmed.

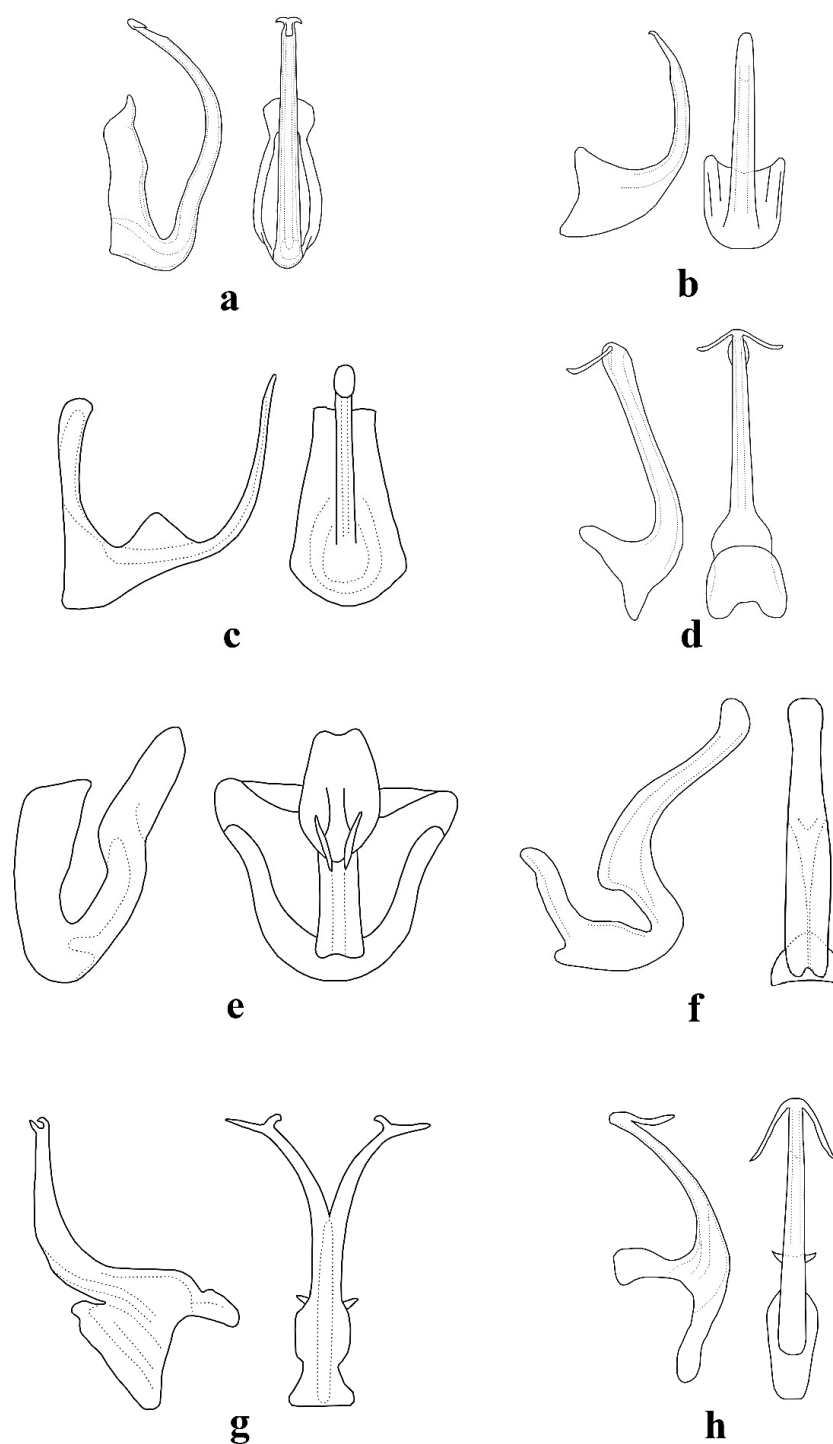


Figure 3. Aedeagus in lateral and dorsal view, **a.** *Euscelidius schenckii* (Kirschbaum); **b.** *Hardya* (*Hardya*) *melanopsis* (Hardy); **c.** *Paradorydium* (*Paradorydium*) *lanceolatum* (Burmeister); **d.** *Hecalus prasinus* (Matsumura); **e.** *Psammotettix emarginatus* Singh; **f.** *Grammacephalus pallidus* (Linnavuori); **g.** *Helionidia punctulata* (Ramakrishnan & Menon); **h.** *Eupteryx* (*Eupteryx*) *kaghanensis* Ahmed.

Discussion

Insect fauna of Iran are affected by elements from Oriental, Africa, Mediterranean area and Palaearctic, so remarkable difficulties have risen in studying any single group (Minaei 2013). However, many species of the family Cicadellidae have economic importance but the knowledge of the leafhoppers fauna and their distribution in Iran is far from complete and extensive field work is needed for a reasonable evaluation of the leafhoppers biodiversity in this region. Pakarpour Rayeni (2011) investigated leafhoppers fauna in Kerman province and reported 57 species from 42 genera in six subfamilies.

A faunistic study on the leafhoppers of northwestern Iran was carried out by Abdollahi *et al.* (2015) and they reported 69 species which collected by themselves or other specimens deposited in Hayk Mirzayans Museum. In the course of this study 90 species belonging to 49 genera and seven subfamilies were found and identified on the fauna of Khuzestan province, of which 33 species are those also collected by Pakarpour Rayeni (2011) in Kerman province and 20 species are those collected with Abdollahi *et al.* (2015) in Ardebil, Azarbaijan-e Gharbi and Azarbaijan-e Sharghi provinces. The results revealed are more similar between Khuzestan and Kerman provinces probably due to similar climatic conditions (especially with south of Kerman province).

In addition 47 species are reported from Khuzestan province for the first time and eight species are newly recorded for Iranian leafhoppers fauna. The result of this study can be helpful for completing the checklist of leafhoppers in Iran and the data will help other researcher in ongoing faunistic works. Finally it is expected that a large number of leafhoppers species remain to be found out in different parts of this region and other

parts of Iran, so future studies are highly recommended.

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مطالعه زنجبرک‌های خانواده (Auchenorrhyncha) Cicadellidae استان خوزستان، جنوب

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چکیده: در پژوهش حاضر، فون زنجبرک‌های خانواده Cicadellidae (Auchenorrhyncha) در مناطقی از استان خوزستان (جنوب غربی ایران)، طی سال‌های ۱۳۹۳ و ۱۳۹۴ مورد بررسی قرار گرفت. در مجموع ۹۰ گونه متعلق به ۴۹ جنس و ۷ زیر خانواده جمع‌آوری و شناسایی شد. اغلب نمونه‌برداری‌ها با استفاده از تور حشره‌گیری و تله مالایز انجام شد و در برخی موارد نمونه‌ها با استفاده از اسپیراتور و تله زرد چسبنده جمع‌آوری شدند. در نتیجه این تحقیق مشخص شد که از این تعداد نمونه ۴۷ گونه آن برای اولین بار از استان خوزستان گزارش می‌شوند و همچنین ۸ گونه نیز گزارش‌های جدیدی برای فون حشرات ایران هستند؛ که عبارتند از: *Euscelidius Hardya (Hardya) melanopsis (Hardy, schenckii (Kirschbaum, 1868) Paradorydium (Paradorydium) lanceolatum (Burmeister, 1850) Psammotettix Hecalus prasinus (Matsumura, 1905) 1839) Grammacephalus pallidus (Linnavuori, emarginatus Singh, 1969) Helionidia punctulata (Ramakrishnan & Menon, 1974) 1978) و Eupteryx (Eupteryx) kaghanensis Ahmed, 1969. پراکنش جغرافیایی تمامی گونه‌ها در ایران به تفصیل ارائه شده و همچنین برای هر یک از ۸ گزارش جدید، ویژگی‌های شکل‌شناسی به همراه تصاویر اصلی افراد بالغ و ترسیم‌های اصلی اندام نرینه ارائه شده است.*

واژگان کلیدی: زنجبرک‌ها، فون، خوزستان، پراکنش، گزارش‌های جدید، ایران.