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Faunistic records of Noctuidae from Iran, with two new records for the country (Insecta: Lepidoptera)

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Abstract

Noctuidae species are mostly plant feeding as caterpillars and nectar feeding as adults, functioning as herbivores, pollinators and prey, as well as include many species of economic importance. Here we intended to contribute to the fauna of seven Noctuidae subfamilies Metoponinae, Eustriotinae, Acontiinae, Cuculliinae, Oncocnemidinae, Psaphidinae and Eriopinae in some Iranian provinces. Numerous samplings were carried out in Khuzestan, Ilam, Fars, Kerman, and Khorasan-e Razavi provinces. A total of 31 Noctuidae taxa were collected and identified, among which there are 22 new provincial records from Kerman, Khuzestan, Fars and Ilam provinces. The species *Oncocnemis rhodophaea* Ebert, 1978 and nominotypical subspecies *Asteroscopus syriaca* (Warren, 1910) are newly reported for the fauna of Iran. Furthermore, three taxa *Cucullia cineracea argyllacea* Hacker, Ronkay & Ronkay, 1990, *Pseudozarba bipartita* (Herrich-Schäffer, 1850) and *Pamparama acuta* (Freyer, 1838) were recorded for the second time from Iran. Adults and genitalia of new records for Iran are illustrated with notes on distribution of the species.
KEY WORDS: Insecta, Lepidoptera, Noctuidae, new record, *Oncocnemis*, *Asteroscopus*, distribution, Iran.

Registros faunísticos de Noctuidae de Irán, con dos nuevos registros para el país (Insecta: Lepidoptera)

Resumen

Las especies de Noctuidae alimentándose de platas como oruga y de néctar como adulto, funcionando como herbívoros, polinizadores y presa, también podemos incluir muchas especies de importancia económica. Aquí aportamos una contribución a la fauna de siete subfamilias de Noctuidae: Metoponinae, Eustriotinae, Acontiinae, Cuculliinae, Oncocnemidinae, Psaphidinae y Eriopinae presentes en algunas provincias iraníes. Las numerosas muestras efectuadas fueron realizadas en las provincias de Khuzestan, Ilam, Fars, Kerman, Khorasan y Razavi. Fueron recogidas e identificadas un total de 31 taxas de Noctuidae, entre las cuales 22 son nuevos registros provinciales para Kerman, Khuzestan, Fars e Ilam. Las especies *Oncocnemis rhodophaea* Ebert, 1978 y *Asteroscopus syriaca* (Warren, 1910) la subespecie nominotíca, se indican como nuevos para la fauna de Irán. Además, tres taxas *Cucullia cineracea argyllacea* Ronkay & Ronkay, 1990, *Pseudozarba bipartita* (Herrich-Schäffer, 1850) y *Pamparama acuta* (Freyer, 1838) son citados por segunda vez de Irán. Se ilustran el adulto y la genitalia de los nuevos registros para Irán, con notas sobre la distribución de las especies.
PALABRAS CLAVE: Insecta, Lepidoptera, Noctuidae, nuevos registros, *Oncocnemis*, *Asteroscopus*, distribución, Irán.

Introduction

Noctuidae are a strongly supported clade containing what are informally known as the ‘trifine’ subfamilies, as well as some groups that have a so-called quadrifine hindwing venation (ZAHIRI *et al.*,

2013). They are a prominent characteristic of terrestrial insect faunas and food webs and exhibit great heterogeneity in hostplant specificity and other life history features affecting their ecological roles and impact (MITCHEL *et al.*, 2006). Larvae of many species feed on different parts of plants and have a massive economic impact annually (KITCHING, 1984).

New generation of Iranian lepidopterists started to publish faunistic and taxonomic reports on Noctuidae in Iran since last decade (e.g. ZAHIRI & FIBIGER, 2006; SHIRVANI *et al.*, 2008; ESFANDIARI *et al.*, 2010). Since then, many publications dealt with Noctuidae and were reported new taxa, new distributional records and local revisions. However, some of subfamilies were less explored by native lepidopterists. Here we contribute to the fauna of seven subfamilies in some Iranian provinces, viz. Metoponinae, Eustriotinae, Acontiinae, Cuculliinae, Oncocnemidinae, Psaphidinae and Eriopinae. Nevertheless, there are recent records of these subfamilies by Iranian lepidopterists. For example, two Acontiinae, one Oncocnemidinae and one Eustriotinae species by SHIRVANI *et al.* (2008), two records of Acontiinae by ESFANDIARI *et al*. (2011), two records of Metoponinae by RABIEH *et al.* (2013) and one record of Psaphidinae by FEIZPOOR & SHIRVANI (2014) are available among publications.

Material and methods

Multiple sampling was done during recent years to study Noctuidae fauna. Sampling was carried out at different altitudes and vegetation types of the sampling localities including Ilam, Khuzestan, Fars, Kerman, and Khorasan-e Razavi provinces. However, the mountainous regions in Khuzestan and Kerman provinces were focused. Sampling was carried out by light traps powered by 12 volt batteries and 8 watt UVB light tubes. The specimens and slides of their genitalia were deposited in the Insect and Mite Collection of Ahvaz (IMCA), Plant Protection Department, Shahid Chamran University of Ahvaz. Genitalia slides of the specimens were prepared following FIBIGER (1997). Identifications were done according to available literatures such as LÖDL *et al.* (2012) and by studying museum materials at Hungarian Natural History Museum, Budapest by the second author. Systematics and nomenclature are according to LÖDL *et al.* (2012), RONKAY & RONKAY (2009) and RONKAY *et al.* (2011).

Results and discussion

A total of 31 Noctuidae taxa belonging to seven subfamilies namely, Metoponinae, Eustriotinae, Acontiinae, Cuculliinae, Oncocnemidinae, Psaphidinae and Eriopinae were collected and identified. Among them, there are 22 new provincial records from Kerman, Khuzestan, Fars and Ilam. The species *Oncocnemis rhodophaea* Ebert, 1978 and nominotypical subspecies *Asteroscopus syriaca* (Warren, 1910) are newly reported for the fauna of Iran. Furthermore, three taxa *Cucullia cineracea argyllacea* Hacker, Ronkay & Ronkay, 1990, *Pseudozarba bipartita* (Herrich-Schäffer, 1850) and *Pamparama acuta* (Freyer, 1838) were recorded for the second time from Iran. Studied materials are listed here, together with adults and genitalia of new records for Iran as well as provincial distribution for each taxon.

Subfamily Cuculliinae Herrich-Schäffer, 1850

The phylogenetic concept of the subfamily Cuculliinae has markedly changed since 1990's. The subfamily Cuculliinae s. str. contains, as a large and phylogenetically compact group, only the tribe Cuculliini. This tribe contains three separate clades. One of the clades contains two genera, the Palaearctic *Calocucullia* and *Shargacucullia* (the "yellow *Cucullia*" species). In these genera the ductus ejaculatorius is the direct continuation of the main tube of the vesica, and the female genitalia has the ductus seminalis arising from the caudal end of the bursa copulatrix. They have well-developed and most often basally bulbed cornuti in the vesica. The most developed clade comprises the species-groups of *Cucullia* s. str.. Members of this clade are characterized by the ductus ejaculatorius originating from the lateral side of the large sac of the vesica and the ductus seminalis from the bottom (the cephalic

end) of the bursa copulatrix. The corpus bursae is fully reduced and the appendix bursae took over its role (RONKAY & RONKAY, 2009).

Genus *Cucullia* Schrank, 1802

Cucullia hemidiaphana Graeser, 1892

General distribution: It is distributed from Morocco, the Near East and Arabia throughout the western and Central Asiatic arid regions (Turkey, Azerbaijan, Iran, Turkmenistan, Tajikistan and Afghanistan) to the eastern Hindukush Mts in Pakistan and the eastern parts of the Tien Shan massif in Kazakhstan and China (RONKAY & RONKAY, 2009).

Distribution in Iran: Khorasan-e Razavi (Kouh-Binaloud) (EBERT & HACKER, 2002), Fars (KOÇAK & KEMAL, 2014) and Kerman (SHIRVANI, 2012).

Material examined: Kerman Prov., Jiroft, Sangdan, 2966 m, 29º 06' 06" N 57º 33' 12" E, 1 ♂, 03-IX-2015.

Cucullia cineracea argyllacea Hacker, Ronkay & Ronkay, 1990

General distribution: The nominate subspecies occurs in Europe, Caucasus and northeast Turkey. The subspecies *argyllacea* is distributed in Iran, Afghanistan, Uzbekistan, Tajikistan, and southwestern Mongolia (RONKAY & RONKAY, 2009).

Distribution in Iran: Kerman (SHIRVANI, 2012). This is the second report of this taxon from Iran.

Material examined: Kerman Prov., Jiroft, Omrudoieh, 2971 m, 29º 05' 55" N 57º 33' 13" E, 1 ♂, 18-VI-2015; Sangdan, 2966 m, 29º 06' 06" N 57º 33' 12" E, 1 ♂, 05-VIII-2016.

Cucullia achalina Püngeler, 1901

General distribution: The species is distributed in Turkmenistan (Kopet-Dagh), Iran (Aborz and Zaghros Mts), Afghanistan (Ghazni, Paghman) and Pakistan (Ziarat, Baluchistan) (RONKAY & RONKAY, 2009).

Distribution in Iran: Alborz and Zagros Mts (RONKAY & RONKAY, 2009). This species is newly reported from Kerman province.

Material examined: Kerman Prov., Jiroft, Omrudoieh, 2971 m, 29º 05' 55" N 57º 33' 13" E, 2 ♂♂, 23-IV-2015.

Cucullia tecca Püngeler, 1906

General distribution: The nominate subspecies occurs from the southeastern Caucasus throughout the northern Iranian high mountains to the Kopet-Dagh Mts (RONKAY & RONKAY, 2009).

Distribution in Iran: South and southwestern Iran (HACKER, 1990) including Fars (KOÇAK & KEMAL, 2014). This species is newly reported from Kerman province.

Material examined: Kerman Prov., Baft, Dehsard, 1811 m, 28º 40' 39" N 56º 33' 02" E, 1 ♀, 03-II-2016.

Cucullia calendulae Treitschke, 1835

General distribution: It occurs in the entire Mediterranean basin in Europe and North Africa, in Asia Minor (Syria, Iraq, and Turkey), Transcaucasia, Iran, Turkmenistan and Afghanistan (RONKAY & RONKAY, 2009).

Distribution in Iran: Khuzestan (KOÇAK & KEMAL, 2014).

Material examined: Khuzestan Prov., Baghmalek, Malaqa, 1100 m, 31º 35' 57" N 50º 00' 50" E, 1 ♀, 24-III-2016; 1 ♀, 11-III-2016.

Cucullia santonici (Hübner, [1813])

General distribution: A widespread Palaearctic species, its range extending from the Alpes Maritimes to the Tien Shan and the Pamir (RONKAY & RONKAY, 2009).

Distribution in Iran: Tehran, Mazandaran (Alborz Mts) (EBERT & HACKER, 2002), Fars, Khorasan, Sistan-va Baluchestan and Kerman (SHIRVANI, 2012).

Material examined: Kerman Prov., Jiroft, Omrudoieh, 2971 m, 29º 05' 55" N 57º 33' 13" E, 1 ♂, 1 ♀, 08-VII-2015; Sangdan, 2966 m, 29º 06' 06" N 57º 33' 12" E, 1 ♂, 05-VII-2016.

Subfamily Psaphidinae Grote, 1896

The recognizable common diagnostic feature of the majority (but far not all) of the Psaphidinae tribes is the distinctive transverse row of pits along the anterior margin of the pupal segment 10, and with larvae that feed on tree foliage (FIBIGER & LAFONTAINE, 2005; RONKAY & RONKAY, 2009).

This generally Holarctic subfamily contains a few Palaearctic genera occurring in the high mountainous areas along the border zone of the Palaearctic and the Oriental regions (RONKAY & RONKAY, 2009).

Genus *Asteroscopus* Boisduval, 1828

Asteroscopus syriaca (Warren, 1910)

Identification adult female and its genitalia (fig. 1): Wingspan 28 mm. Pubescence of head and thorax dark grey, abdomen brownish yellow; antennae finely bipectinate, covered with white scales; forewings elongate, triangular, with acute apex, ground color dark ashy-grey, black basal dash present, antemedial and postmedial lines obsolescence, wedge shaped, arrowheads of the subterminal line suffused with blackish scales, terminal line well defined, dark. Hindwing rounded, whitish with brown-grey scales, discal spot present, terminal line present, brownish, fringes grey.

The diagnostic characteristics of *A. syriaca* in the male genitalia are the much smaller, lobe-like, densely setose ampulla, the much smaller number of shorter fine cornuti of the vesica which are arranged into two-subbasal and terminal groups and also the terminal group of cornuti is consisted of a single, comparatively large spine (RONKAY *et al.,* 2011).

In the female genitalia, the ovipositor is remarkably long, thin, with slenderer papillae anales and long apophyses, the ostium bursae is membranous and more or less funnel-like, the ductus bursae is short, thick and its anterior two-thirds strongly sclerotized-wrinkled, the appendix bursae is proportionally considerably large, semiglobular and densely ribbed-wrinkled, and the corpus bursae is smaller, elliptical-ovoid, without signa (RONKAY *et al.,* 2011).

The female genitalia of *A. syriaca* differ from those of *A. sphinx* (Hufnagel, 1766) by the presence of a sclerotized antero-lateral plate at junction of ductus bursae to corpus bursae directed towards appendix bursae which is absent in *A. sphinx*; the ductus bursae is somewhat narrower and the sclerotized ribs are mentionable weaker than in *A. sphinx* (RONKAY *et al.,* 2011).

General distribution. *A. syriaca* has three geographic subspecies. The nominotypical subspecies of this Ponto-Mediterranean-Iranian species occurs in the central and eastern parts of Turkey and in most areas of Armenia. The ssp. *decipulae* (Kovács, 1966) occurs very locally in the Carpathian Basin and the Balkan Peninsula. The ssp. *wieseri* Ronkay, Ronkay & Gyulain, 2011 occurs in the Golestan province of Iran (RONKAY *et al*., 2011).

Distribution in Iran: This taxon is **new to the Iranian fauna**.

Material examined: Khuzestan Prov., Baghmalek, Malaqa, 1100 m, 31º 35' 57" N 50º 00' 50" E, 1 ♀, 15-VII-2011, slide No. 3230 Peter Gyulai (deposited in the IMCA).

Genus *Ostheldera* Nye, 1975

Ostheldera persa Ronkay & Varga, 1994

General distribution: It is rather widespread in the western and southwestern mountainous areas of Iran (RONKAY *et al*., 2011).

Distribution in Iran: It is more frequent in the western parts of the Alborz Mts and the southern half of the Zaghros Mts (in the provinces Kordestan, Esfahan, Fars and Kohgiluyeh-va Boyerahmad), while it

is recorded as rare and more sporadic in the other mountains (RONKAY *et al*., 2011). This species is newly reported to the Kerman province.

Material examined: Kerman Prov., Jiroft, Dochar, 3223 m, 29º 04' 40" N 57º 37' 01" E, 1 ♂, 10-IX-2015; Sangdan, 2966 m, 29º 06' 06" N 57º 33' 12" E, 1 ♂, 30-IX-2015, 1 ♂, 01-X-2015.

Genus *Valeria* Stephens, 1829

Valeria schreieri Hacker & Ebert, 2002

General distribution: It is known from the southern and southwestern parts of Iran (EBERT & HACKER, 2002; RONKAY *et al.*, 2011).

Distribution in Iran: Fars and Bushehr (EBERT & HACKER, 2002; LEHMANN & ZAHIRI, 2011). This species is newly reported to the Kerman and Khuzestan provinces.

Material examined: Kerman Prov., Jiroft, Dochar, 3223 m, 29º 04' 40" N 57º 37' 01" E, 1 ♂, 10-IX-2015; Sangdan, 2966 m, 29º 06' 06" N 57º 33' 12" E, 1 ♂, 30-IX-2015, 1 ♂, 01-X-2015; Khuzestan Prov., Baghmalek, Malaqa, 1100 m, 31º 35' 57" N 50º 00' 50" E, 1 ♂, 4 ♀♀, 26-XII-2011.

Valeria carducha (Wiltshire, 1957)

General distribution: Iran and Iraq (Kurdistan) (RONKAY *et al*., 2011).

Distribution in Iran: It has been recorded from western half of Iran, from the Alborz range to the Central Zaghros (Fars) (RONKAY *et al*., 2011). This species is newly reported from Ilam, Khuzestan and Kerman provinces, and from Khorasan.

Material examined: Fars Prov., Neyriz, 1800 m, 29º 07' 27" N 54º 22' 10" E, 1 ♂, 21-III-2017; Kerman, Prov., Baft, Dehsard,1811 m, 28º 40' 39" N 56º 33' 02" E, 1 ♀, 1 ♂, 02- II-2016; Ilam, Chavar, Banvizeh, 600 m, 33º 36' 02" N 46º 07' 08" E, 19 ♂♂, ♀♀, 21-III-2017.

Genus *Allophyes* Tams, 1942

Allophyes renalis (Wiltshire, 1941)

General distribution: The species has reported from the southeastern Turkey, northern Iraq, Armenia, Azerbaijan and Iran (RONKAY *et al.*, 2011).

Distribution in Iran: It is distributed from the northwestern parts throughout the Zaghros Mts to the SE chains of the mountain, in provinces such as Markazi, Lorestan, Fars, Hormozgan and Bushehr (EBERT & HACKER, 2002; LEHMANN *et al.*, 2009; RONKAY *et al.*, 2011; DEHLAGHI *et al.*, 2012; KOÇAK & KEMAL, 2014).

Material examined: Fars Prov., Nurabad, 1100 m, 29º 55' 56" N 51º 35' 52" E, 1 ♂, 03-VI-2011; Fars Prov., Nurabad, Babameidan, 1000 m, 2 ♂♂, 1 ♀, 30º 11' 36" N 51º 31' 27" E, 15-V-2011; Fars Prov., Kazerun, Dasht-e Barm, 1050 m, 29º 44' 09" N 51º 44' 27" E, 1 ♀, 10-XI-2016.

Subfamily Metoponinae Herrich-Schäffer, 1851

The majority of species are small sized, the general lack the foretibial claw and the field of enlarged cornuti in the vesica. The larvae do not specialize on seeds of Asteraceae. They differ from the Acontiinae in having a raised nodular sclerite on the tympanic membrane, quadrifine hindwing venation; and by lacking setae on the scaphium, the enlarged alula and reduced hood of the ear, and the saccular dorsal crest. This is an exclusively Old World subfamily (FIBIGER *et al.*, 2009).

Genus *Haemerosia* Boisduval, 1840

Haemerosia renalis (Hübner, [1813])

General distribution: Southern Europe, Near East, Turkey, Iraq and western Iran (FIBIGER *et al*., 2009).

Distribution in Iran: Tehran, Kordestan, Fars (EBERT & HACKER, 2002) Lorestan, Kohgiluyeh-va Boyerahmad, Khorasan and Sistan-va Baluchestan (KOÇAK & KEMAL, 2014). This species is newly reported from Kerman province.

Material examined: Kerman, Prov., Jiroft, Omrudoieh, 2971 m, 29º 05' 55" N 57º 33' 13" E, 1 ♂, 1 ♀, 08-VII-2015.

Subfamily Eustrotiinae Grote, 1882

Relatively small moths with slender bodies, labial palpi short, slightly upturned, second segment two to three times longer than third; tibia without spurs. Forewing with rounded apex, usually colorful, well patterned and the white patches are often rosy tined in fresh specimens, usually all lines and stigmata present, veins R3 and R4 of similar length. Hindwing usually unicolorous, greyish, vein M2 often present, though slightly reduced than M3 and it meets the cell at about fl of the way down the cell. Abdomen usually with 1-4 dorsal crests on 1st -5th segments (FIBIGER *et al.*, 2009). The larvae of most Eustrotiinae possess seta SV2 on the first abdominal segment (FIBIGER & LAFONTAINE, 2005).

Genus *Deltote* Reichenbach, 1817

Deltote iranica (Kotzsch, 1940)

General distribution: Iran (HACKER, 1990).

Distribution in Iran: Central and Eastern Iran (HACKER, 1990).

Material examined: Khorasan-e Razavi Prov., Binaloud, Dolat Abad, 1558 m 36º 25' 56" N 59º 09' 41" E, 1 ♂, 27-V-2011.

Genus *Pseudozarba* Warren, 1913

Pseudozarba bipartita (Herrich-Schäffer, 1850)

General distribution: The Mediterranean area, Israel, Turkey and Iran (FIBIGER *et al*., 2009).

Distribution in Iran: Hormozgan (SHIRVANI *et al.*, 2008). This is the second report of this species from Iran and is a new record for the Kerman province.

Material examined: Kerman, Baft, Khabr National Park, 1920 m, 28º 39' 19" N 56º 26' 46" E, 1 ♂, 1 ♀, 20-VIII-2015.

Subfamily Oncocnemidinae Forbes & Franclemont, 1954

This subfamily was formerly considered as a tribe of the Cuculliinae because of the biordinal larval crochets, but the association based on this character is weak. For this reason, and because molecular results based on two nuclear genes fail to recover the Cuculliinae and Oncocnemidinae as sister groups, Oncocnemidinae should be treated as a separate subfamily. The subfamily is characterised by the long vesica with an elongated field of spines on the apical half of the vesica. The spinneret is long and tubular (unlike the Stiriinae) and the apical seta on the labial palpus is usually long (unlike the Cuculliinae) (FIBIGER & LAFONTAINE, 2005).

Genus *Pamparama* Ronkay & Ronkay, 1995

Pamparama acuta (Freyer, 1838)

General distribution: Levante area, Asia Minor, Turkey, north Iraq and Iran (HACKER, 2001).

Distribution in Iran: Alborz and Hormozgan (EBERT & HACKER, 2002). This is the second report of this species from Iran and is a new record for the Kerman province.

Material examined: Kerman Prov., Jiroft, Hishin, 1341 m, 28º 38' 23" N 57º 56' 43" E, 1 ♂, 05-II-2016.

Genus *Oncocnemis* Lederer, 1853

Oncocnemis erythropsis Brandt, 1938

General distribution: Afghanistan and Iran (HACKER, 1990).

Distribution in Iran: Fars, Tehran, Kermanshah (BRANDT, 1938; KOÇAK & KEMAL, 2014) and Kerman (SHIRVANI, 2012).

Material examined: Fars Prov., Sivand, 1700 m, 30º 05' 17" N 52º 54' 58" E, 1 ♂, 18-VIII-2011.

Oncocnemis rhodophaea Ebert, 1978

Adult female and its genitalia (fig. 2): Wingspan 30 mm. Head, thorax and abdomen light brown; head small, eyes globular, palpi upright; antennae ciliate; forewing ground color grayish light brown, spotted with reddish scales, crosslines well developed, postmedial and terminal areas covered with blackish scales; Orbicular and reniform stigmata present outlined with bright, terminal line present, fringes light brown. Hindwing whitish, outer half margin with blackish brown scales, veins covered with brown, fringes as forewing.

As described by EBERT (1978), valvae almost simple, costal margin straight, ventral margin slightly convex. Cucullus gently rounded, corona present. Harpe long, finger-shaped, set off from the sacculus at a right angle, terminated in hook-like curved tip. Full length aedeagus filled with closely spaced cornuti, which open distally into a spiky pad, and into a split chitin plate proximally.

In the female genitalia, ovipositor short, apophyses very long. Ductus bursae membranous; cervix bursae long; corpus bursae long, elliptical, signum-fields missing. Ductus seminalis branching off at the apex of the bursa copulatrix.

Members of *O. rhodophaea* species-group (*O. confusa* (Freyer, [1839]) and *O. nigricula* (Eversmann, 1847)) have slightly developed and less prominent appendix bursae and hence their corpus bursae seem to be one-piece. In other congener species, appendix bursae is well developed and saccate, therefore corpus bursae seems to be bipartite. *O. rhodophaea* differs from its close relatives by lacking a projection in distal part of the corpus bursae.

General distribution: Afghanistan (type locality: Kabul) (EBERT, 1978).

Distribution in Iran: **This species is new to the Iranian fauna**. It has already been found in Iran (Fars and Kerman), but never published.

Material examined: Kerman Prov., Baft, Dehsard, 1811 m, 28º 40' 39" N 56º 33' 02" E, 1 ♀, 15-X-2015, slide No. 959 S. Shahreyari-Nejad (deposited in the IMCA).

Oncocnemis strioligera anatolica Hacker, 1986

General distribution: It ranges from Asia Minor throughout Iran to Afghanistan and Turkestan (HACKER, 2001).

Distribution in Iran: Lorestan, Khorasan, central and south Iran (HACKER, 2001; EBERT & HACKER, 2002; KOÇAK & KEMAL, 2014). This species is newly reported from Fars province.

Material examined: Fars Prov., Kamfiruz, 1700 m, 30º 20' 28" N 52º 13' 13" E, 1 ♀, 25- VIII-2011.

Oncocnemis exacta Christoph, 1887

General distribution: It ranges in xerothermic mountain of Near and Middle East and central and inner Asia (HACKER, 2001).

Distribution in Iran: North Iran and southwest Iran in provinces of Khorasan, Tehran, Kermanshah, Kordestan, Lorestan, Fars and Kohgiluyeh-va Boyerahmad (HACKER, 2001; KOÇAK & KEMAL, 2014). This species is newly reported from Kerman province.

Material examined: Kerman Prov., Jiroft, Omrudoieh, 2971 m, 29º 05' 55" N 57º 33' 13" E, 1 ♀, 08-VII-2015.

Genus: *Stilbina* Staudinger, 1892

Stilbina hypaenides Staudinger, 1892

General distribution: Levante area, Turkey, Iraq and southwest Iran (HACKER, 2001).

Distribution in Iran: Gilan, Mazandaran and Lorestan (EBERT & HACKER, 2002). This species is newly reported from Khuzestan and Fars provinces.

Material examined: Khuzestan Prov., Baghmalek, Malaqa, 1100 m, 31º 35' 57" N 50º 00' 50" E, 1 ♂, 14-VI-2015; Fars Prov., Sivand, 1770 m, 30º 07' 29" N 52º 54' 30" E, 1 ♂, 13-V-2016.

Genus *Cleonymia* Berio, 1966

Cleonymia baetica klapperichi Hacker, 2001

General distribution: It occurs in SE Turkey, Iraq, SW Iran, Syria, Jordan, Israel, Saudi Arabia and E. Africa (SALDAITIS & IVINSKIS, 2006).

Distribution in Iran: Hormozgan, Fars and Khuzestan (EBERT & HACKER, 2002).

Material examined: Fars Prov., Neyriz, 1800 m, 29º 07' 27" N 54º 22' 15" E, 1 ♂, 06-IV-2016.

Cleonymia chabordis (Oberthür, 1876)

General distribution: Widely distributed in North Africa, Near and Middle East (HACKER, 2001).

Distribution in Iran: Fars, Sistan-va Baluchestan, Bushehr and Hormozgan (EBERT & HACKER, 2002; KOÇAK & KEMAL, 2014). This species is newly reported from Kerman province.

Material examined: Kerman, Jiroft, Hishin, 1341 m, 28º 38' 23" N 57º 56' 43" E, 1 ♂, 05-II-2016.

Subfamily Eriopinae Herrich-Schäffer, 1851

Some characters which shed light on the relationships of Eriopinae are the highly modified valve and clasper, the presence of a basal brush on the abdomen that appears to be independent in origin from that of other Noctuidae, and the aedeagus which is heavily sclerotized only apically and ventrally with the sides and dorsum very lightly sclerotized. There are also peculiar characters such as eversible coremata on the sacculus and the spinneret which has an apical pair of flaps that cover the opening of the spinneret (FIBIGER & LAFONTAINE, 2005).

Characteristics of the Eriopinae that suggest closeness with the Erebidae are the rod-like posterior apophyses (without the posterior rectangular or diamond-shaped plates characteristic of the Noctuidae), absence of a free pleural sclerite in the male genitalia, enlarged apical setae on the tarsi of the larvae, and the heavily sclerotized scaphium (FIBIGER & LAFONTAINE, 2005).

On the other hand, characters that suggest affinities with the Noctuidae include 1) SD1 seta on A9 of the larva is hair-like and in an enlarged sclerotized pocket, and 2) the spinneret has a dorsal groove. These are characteristics of a group of subfamilies that includes Condicinae, Xyleninae, Hadeninae, and Noctuinae. The Eriopinae are distinguished from these subfamilies in that the pale lateral line extends across the posterior part of the abdomen (but not the anal shield as in the Cuculliinae s. l.) rather than extending down the hind proleg (FIBIGER & LAFONTAINE, 2005).

Genus *Callopistria* Hübner, [1821]

Callopistria latreillei (Duponchel, 1827)

General distribution: Europe, northern Africa, Arabian Peninsula, Turkey, Armenia, Iran, Afghanistan and Turkestan (FIBIGER & HACKER, 2007).

Distribution in Iran: Fars, Kerman (HACKER & KAUTT, 1999), Gilan, Sistan-va Baluchestan

(EBERT & HACKER, 2002), Golestan (WIESER & STANGELMAIER, 2005), Mazandaran (LEHMANN & ZAHIRI, 2011), Hormozgan and Khorasan (KOÇAK & KEMAL, 2014). This species is newly reported from Khuzestan province.

Material examined. Kerman, Jiroft, Hishin, 1341 m, 28º 38' 23" N 57º 56' 43" E, 1 ♀, 15-II-2016; Khuzestan Prov., Baghmalek, Malaqa, 1100 m, 31º 35' 57" N 50º 00' 50" E, 1 ♂, 14-VI-2015; 1 ♂, 11-V-2012; Khuzestan Prov., Izeh, Karun3 Dam, 900 m, 31º 46' 54" N 50º 06' 13" E, 1 ♂, 04-VI-2011.

Subfamily Acontiinae Guenée, 1841

The family Acontiinae is characterized by the following character states, 1) relatively small and color full species which many of them are bird-dropping mimics, a feature which has arisen independently in many groups of Lepidoptera; 2) tympanum with alula enlarged and made a flap which covers the tympanic opening to some extent; 3) tympanum with the hood reduced or absent; 4) scaphium membranous, with hair-like setae apomorphic arranged in each of the four tribes (lost in Aediini); 5) two SV setae on first abdominal segment of larvae (in this regard differing from those in Eustrotiinae and Bagisarinae) (FIBIGER *et al.*, 2009).

Other features are the cylindrical, smoothly curved uncus, which tapers to pointed tip; valvae which are broadest medially or subapically; the more or less asymmetrical sacculi and their processes; the sacculi most often with a heavily sclerotized dorsal crest or lobe; the asymmetrical clasper and ampullae; the rather short medial part of transtilla; and the short aedeagus, widened at ductus ejaculatorius (FIBIGER *et al.*, 2009).

Genus *Acontia* Ochsenheimer, 1816

Acontia lucida (Hufnagel, 1766)

General distribution: The whole Palearctic (HACKER *et al.*, 2008).

Distribution in Iran: Tehran, Fars, Hormozgan (EBERT & HACKER, 2002), Golestan, Khorasan (GUTLEB & WIESER 2002; WIESER & STANGELMAIER, 2005), Khuzestan (ESFANDIARI *et al.*, 2011), Mazandaran (LEHMANN & ZAHIRI, 2011), Gilan and Sistan-va Baluchestan (KOÇAK & KEMAL, 2014). This species is new to the Kerman province.

Material examined: Kerman Prov., Jiroft, Alaadin-Olia, 581 m, 28º 31' 16.5" N 57º 45' 04.9" E, 1 ♂, 21-IX-2015; Hishin, 1341 m, 28º 38' 23" N 57º 56' 43" E, 2 ♂♂, 05-II-2015.

Acontia trabealis (Scopoli, 1763)

General distribution: From Europe to Japan and Korea, also in North Africa, Arabian Peninsula and Iran (HACKER *et al.*, 2008).

Distribution in Iran: Azarbayejan-e Gharbi, Mazandaran, Tehran, Kordestan, Lorestan, Khuzestan (EBERT & HACKER, 2002; ESFANDIARI *et al.*, 2011), Kermanshah, Chaharmahal-va Bakhtiari, Fars, Hormozgan, Kohgiluyeh-va Boyerahmad (HACKER *et al.*, 2008), Sistan-va Baluchestan, Zanjan (KOÇAK & KEMAL, 2014) and Golestan (GUTLEB & WIESER, 2002). This species is new to the Kerman province.

Material examined: Kerman Prov., Jiroft, Ali-Abad, 656 m, 28º 32' 56" N 57º 51' 39" E, 1 ♂, 11-IX-2015.

Genus *Metalopha* Staudinger, 1892

Metalopha liturata (Christoph, 1887)

General distribution: Irano-Turanian. Near and Middle East, Central Asia, and western Himalaya (KRAVCHENKO *et al.*, 2007).

Distribution in Iran: Azarbayejan-e Gharbi, Azarbayejan-e Sharghi, Alborz, Tehran, Khorasan-e

Razavi, Fars, Hamadan, Hormozgan and Sistan-va Baluchestan (KALALI, 1976; EBERT & HACKER, 2002; KOÇAK & KEMAL, 2014).

Material examined: Khorasan-e Razavi Prov., Shirahmad, 985 m, 36º 07' 09" N 57º 51' 08" E, 1 ♀, 02-V-2011.

Metalopha sp.

This species differs from those *Metalopha* species which have yet recorded in Iran. However, its identification needs more examination of the material.

Material examined: Khuzestan Prov., Baghmalek, Malaqa, 1100 m, 31º 35' 57" N 50º 00' 50" E, 2 ♂♂, 21-IV-2016.

Genus *Metopoceras* Guenée, 1892

Metopoceras omar (Oberthür, 1887)

General distribution: From northwestern Africa to the Levante area, south Italy, the Arabian Peninsula, coasts of the Caspian Sea, Turkmenistan, the Near and Middle East (KRAVCHENKO *et al.*, 2007).

Distribution in Iran: Fars, Mazandaran, Bushehr, Hormozgan (EBERT & HACKER, 2002), Golestan and Sistan-va Baluchestan (KOÇAK & KEMAL, 2014). This species is newly reported from Kerman province.

Material examined: Kerman Prov., Jiroft, Hishin, 1341 m, 28º 38' 23" N 57º 56' 43" E, 2 ♂♂, 05-II-2015.

Metopoceras solituda (Brandt, 1938)

General distribution: Saudi Arabia, southwestern Iran and Levante area (KRAVCHENKO *et al.*, 2007).

Distribution in Iran: Bushehr, Hormozgan and Sistan-va Baluchestan (EBERT & HACKER, 2002; KRAVCHENKO, 2007; KOÇAK & KEMAL, 2014). This species is newly reported from Kerman province.

Material examined: Kerman Prov., Baft, Sohan Darreh, 1920 m, 28º 39' 43" N 56º 26' 50" E, 1 ♂, 20-VII-2015.

Genus *Tarachephia* Hampson, 1926

Tarachephia panaceorum (Ménétriés, 1848)

General distribution: North Africa, Near and Middle East, Kazakhstan, Afghanistan, Mongolia and Tibet (HACKER, 2001).

Distribution in Iran: Tehran, Azarbayjan-e Gharbi, Azarbayjan-e Sharghi, Khorasan-e Razavi, Qom, Sistan-va Baluchestan and Hormozgan (KALALI, 1976; EBERT & HACKER, 2002). This species is newly reported from Khuzestan province.

Material examined: Khuzestan Prov., Ahvaz, 1975 m, 1 ♂, with no more data; Khorasan-e Razavi Prov., Shirahmad, 958 m, 36º 07' 09" N 57º 51' 08" E, 2 ♂♂, 1 ♀, 02-V-2011.

Genus *Armada* Staudinger, 1884

Armada dentata Staudinger, 1884

General distribution: Egypt, Arabian Peninsula, Caucasia, southern Iran and Afghanistan (HACKER, 1990).

Distribution in Iran: Fars, Sistan-va Baluchestan and Khorasan-e Razavi (KALALI, 1976; EBERT & HACKER, 2002).

Material examined: Khorasan-e Razavi Prov., Shirahmad, 985 m, 36º 07' 09" N 57º 51' 08" E, 1 ♂, 2 ♀♀, 02-V-2011.

Conclusion

In this research seven species with Iranian type locality, *Ostheldera persa*, *Valeria schreieri*, *Allophyes renalis*, *Deltote iranica*, *Oncocnemis erythropsis*, *Metalopha liturata* and *Metopoceras solituda* are reported, of those, five species were discovered in Fars province and adjacent areas. Furthermore, two new records for the fauna of Iran and 22 new provincial records are reported. Our results indicate that there are still many unexplored regions and species, in spite of the huge Noctuidae records from Iran, that require more intensive local faunal surveys. The less explored areas of southern Iran which are affected by Afrotropical and Oriental climate, have diverse vegetation than other parts of the country and are the subject of faunistic and biogeographical interest.

The presence of *O. rhodophaea* in Khabr National Park of Kerman province (fig. 3) emphasis on conducting more investigations in south and southeastern parts of Iran to discover more species connected to Afghanistan and Pakistan fauna. As the same way, the faunistic surveys in southwest Iran, where *A. syriaca* was collected (fig. 3), will uncover species connected to fauna of western areas of Iran.

Most of the collected species have a wide range of distributed in Europe, Mediterranean area, and Central Asia but a species like *Valeria schreieri* is so far locally distributed in south and southwest Iran. As like other Noctuidae moths there is still poor information on the bionomics of the most known species in Iran. Studies on the distribution, larval food plants, biology and ecology of the Noctuidae species must be considered as an priority by Iranian biologists and entomologists.

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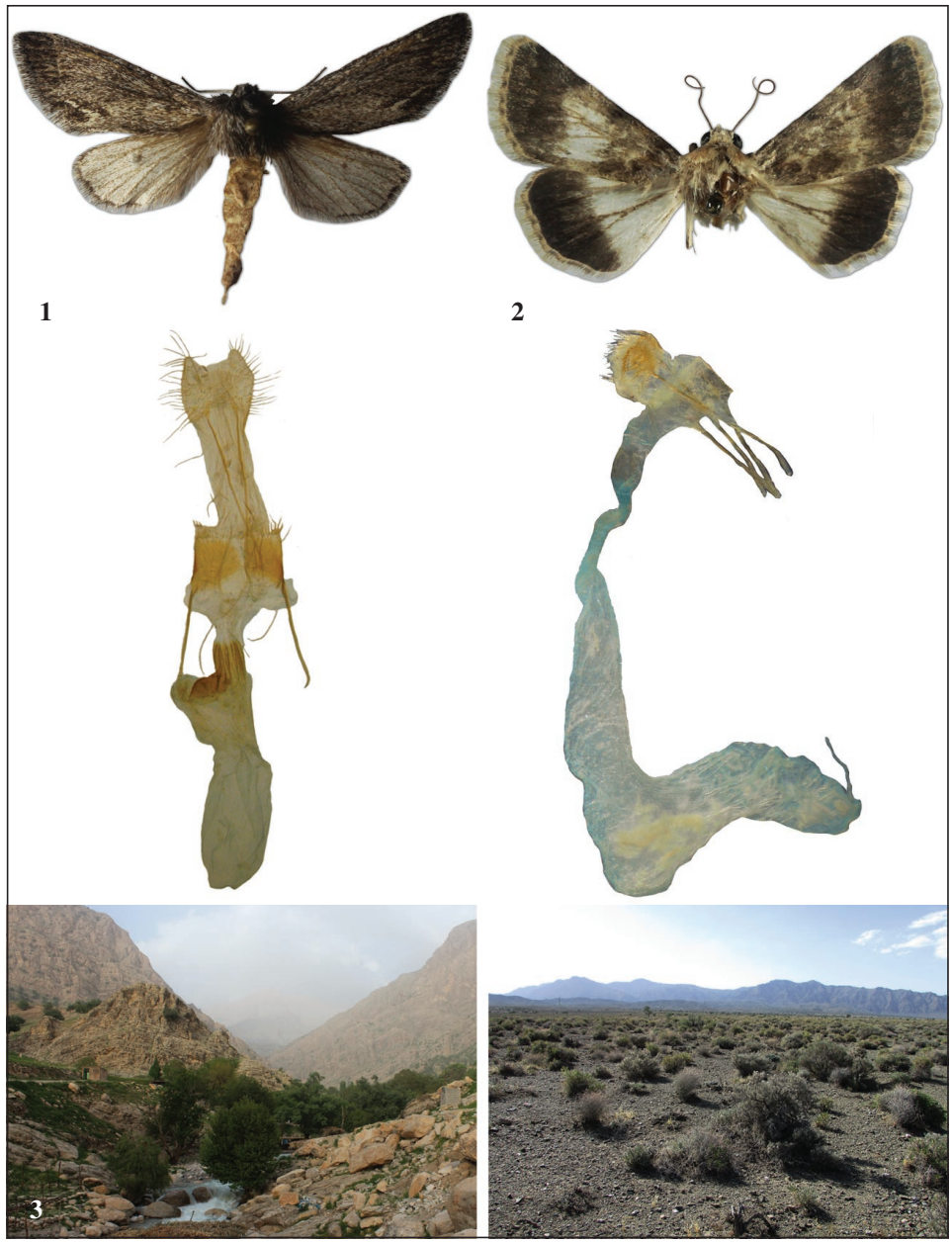

Figs. 1-3.– 1. Adult wing pattern (up) and female genitalia (down) of *Asteroscopus syriaca* (Warren, 1910); **2.** Adult wing pattern (up) and female genitalia (down) of *Oncocnemis rhodophaea* Ebert, 1978; **3.** Habitats of *Asteroscopus syriaca* in the Malaqa region in Khuzestan province, southwest Iran (left) and *Oncocnemis rhodophaea* in Dehsard region of Baft in Kerman province, south Iran (right).