

Identification of the butterflies (Lepidoptera, Papilionoidea) in the IMCA (Insect and Mite Collection of Ahvaz) at Shahid Chamran University of Ahvaz, Khuzestan, Iran.

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Abstract. Butterflies are with about 19,000 species one of the best-known groups of insects and include five families in Iran. In the present work, we studied the butterflies of the "Insect and Mite Collection of Ahvaz" located at the Department of Plant Protection, Shahid Chamran University of Ahvaz which dates back to 55 years ago. All butterfly species deposited in the collection were studied and identified. We examined wing patterns, genitalia, and in a few cases used DNA barcoding by means of standard primers (LepF1 & LepR1) for species identification. As a result, 82 species and subspecies belonging to Papilionidae (5 taxa), Hesperiidae (11 taxa), Lycaenidae (15 taxa), Pieridae (17 taxa) and Nymphalidae (34 taxa) were identified from 21 Iranian Provinces. Among them, 24 new provincial records were registered for the Provinces of Khuzestan (11), Ilam (4), Esfahan (3), Yazd (2), Lorestan, Bushehr, Khorasan-e Razavi and Kohgiluyeh-va Boyerahmad (1 each). Our results indicate that despite well-known information about butterflies in Iran, their local distribution maps and taxonomic status can be further supplemented and revised by conducting more research into explicit species diversity in each area.

Samenvatting. Een van de bekendste insectengroepen zijn de dagvlinders, waartoe zo'n 19 000 soorten behoren. In Iran komen vijf dagvlinderfamilies voor. In dit artikel bespreken we de studie van de dagvlinders uit de "insecten en mijten collectie van Ahvaz". Deze collectie, gehuisvest in het departement gewasbescherming van de "Shahid Chamran universiteit te Ahvaz" dateert van 55 jaar geleden en bevat specimens uit 21 Iraanse provincies. Alle vlinders in de collectie werden bestudeerd en gedetermineerd. Hiertoe werden de vleugelpatronen en genitalia onderzocht en in enkele gevallen maakten we gebruik van DNA barcoding met behulp van de standaard primers (LepF1 & LepR1). In totaal werden 82 soorten en ondersoorten gedetermineerd: Papilionidae (5 taxa), Hesperiidae (11 taxa), Lycaenidae (15 taxa), Pieridae (17 taxa) en Nymphalidae (34 taxa), waarvan 24 nieuwe provinciewaarnemingen waren: Khuzestan (11), Ilam (4), Esfahan (3), Yazd (2), Lorestan, Bushehr, Khorasan-e Razavi en Kohgiluyeh-va Boyerahmad (elk 1). Ondanks de beschikbare informatie over dagvlinders in Iran, is verder onderzoek naar de soortendiversiteit in alle gebieden nodig om de lokale verspreidingskaarten en taxonomische indeling van dagvlinders in Iran te evalueren

Résumé. Des papillons diurnes, avec environ 19 000, espèces, sont l'un des groupes d'insectes les plus connus et appartiennent à cinq familles en Iran. Dans cet article, nous discutons de l'étude des papillons de la "Collection d'insectes et d'acariens d'Ahvaz". Située dans le département de la protection des plantes de l'université Shahid Chamran d'Ahvaz, cette collection de 55 ans contient des spécimens provenant de 21 provinces iraniennes. Toutes les papillons dans la collection ont été étudiées et identifiées. À cette fin, les motifs des ailes et des organes génitaux ont été étudiés et, dans certains cas, nous avons utilisé codage à barres de l'ADN utilisant les amorces standards (LepF1 & LepR1). Au total, 82 espèces et sous-espèces ont été identifiées: Papilionidae (5 taxons), Hesperiidae (11 taxons), Lycaenidae (15 taxons), Pieridae (17 taxons) et Nymphalidae (34 taxons), dont 24 nouvelles observations provinciales: Khuzestan (11), Ilam (4), Isfahan (3), Yazd (2), Lorestan, Bushehr, Khorasan-e Razavi et Kohgiluyeh-va Boyerahmad (1 chacun). En dépit des informations connues sur les papillons en Iran, des recherches supplémentaires sur la diversité des espèces dans toutes les régions sont nécessaires pour évaluer les cartes de distribution locale et la disposition taxonomique des papillons en Iran.

Key words: Lepidoptera – insect collection – taxonomy – sugarcane – Khuzestan.

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Introduction

With close to 19,000 described species, the butterflies presumably represent the largest invertebrate clade for which the species inventory is almost complete (Kristensen *et al.* 2007, van Nieukerken *et al.* 2011). The first reliable document concerning the Lepidoptera of Iran was published by the French zoologist, Édouard Ménétriès (1832) who recorded butterflies of the northwestern borders of Iran. Since then, other explorers made expeditions to different parts of Iran and published many papers on Iranian Lepidoptera describing many new taxa. Some of these which were published in the Journal of Entomological Society of Iran during 1973–1975, are

among the most important published documents on the Iranian Rhopalocera. During 1980–1994 the study of Iranian Lepidoptera went through a period of recession. Nevertheless, since the mid-90 intensive research activity has been started again by European lepidopterists.

The Butterflies of Iran (Nazari 2003) was the first synthesis on Iranian butterflies and listed 379 taxa of Iranian butterflies known at that time including data on their distribution, descriptions, flight behavior, host plants as well as their photos in Persian. Before that, there was no reference book on Iranian butterflies and related information was scattered in papers and notes of mostly amateur lepidopterists.



Fig. 1. Provinces of Iran / Iraanse provincies: 1. Azarbaijan-e Gharbi (AZG) 2. Azarbaijan-e Sharghi (AZS) 3. Ardabil (ARD) 4. Kordestan (KRD) 5. Zanjan (ZNJ) 6. Gilan (GIL) 7. Kermanshah (KRS) 8. Hamedan (HMD) 9. Qazvin (QZV) 10. Mazandaran (MAZ) 11. Alborz (ALB) 12. Markazi (MRK) 13. Lorestan (LOR) 14. Ilam (ILM) 15. Golestan (GLS) 16. Khorasan-e Shomali (KHS) 17. Khorasan-e Razavi (KHR) 18. Semnan (SMN) 19. Qom (QOM) 20. Esfahan (ESF) 21. Chaharmahal-va-Bakhtiari (CHB) 22. Khuzestan (KHZ) 23. Kohgiluyeh-va-Boyerahmad (KGB) 24. Khorasan-e Jonubi (KJH) 25. Yazd (YZD) 26. Sistan-va-Baluchestan (SIB) 27. Kerman (KRM) 28. Fars (FRS) 29. Bushehr (BUS) 30. Hormozgan (HRM) 31. Tehran (THR).

Naderi (2012) tried to present the most important and interesting data on Iranian butterflies for nearly 200 taxa including endemic ones, most frequent or rare taxa. The field guide of butterflies of Iran was accomplished with perfect photographs which captured the behaviour of the species in nature. Furthermore, Naderi (2012) listed 406 taxa of Iranian butterflies in this book. Thereafter, Tshikolovets *et al.* (2014) covered the 412 taxa currently known in Iran. Specimens of almost all species were shown on the plates including many type specimens, historical and very rare specimens.

Because of its diverse climate, geological formations and soils, Iran is home to outstanding biodiversity. Nevertheless, increased population and human activity, climate change, drought, desertification, agriculture, poaching and economic sanctions have created a biodiversity crisis (Jowkar *et al.* 2016). Hence, monitoring of threats is necessary for the conservation of such fragile biodiversity. Butterflies are useful habitat indicators in temperate and tropical regions and changes in their diversity are likely to indicate changes in a broad variety of invertebrates (Scoble 1992). Despite such important role of butterflies in nature and their interesting diversity in Iran, there is no expert of butterflies in Iranian universities so that research on Rhopalocera is rare among

publications from universities. Therefore, we aimed to study the butterflies of the Insect and Mite Collection of Ahvaz (IMCA) located at the Shahid Chamran University of Ahvaz. This collection dates back to about 55 years ago.

Material and Methods

Butterfly specimens have been collected by many students of the Department of Plant Protection from different Provinces in Iran (fig. 1) during the last 5 decades and were deposited in the IMCA located at the Shahid Chamran University of Ahvaz, Khuzestan Province, Iran. Identifications of this material were made according to Nazari (2003), Naderi (2012) and Tshikolovets *et al.* (2014). Final confirmation was done by the third author. Daily sampling was carried out with a collecting net during 2017–2018 in some parts of Khuzestan. Since longitude and latitude was not provided for the majority of the specimens by the student collectors, the data of the examined material do not contain such information. We have not included the name of the collectors in the examined material. As there is no agreement on the taxonomical status of some described subspecies, we therefore did not include them in the list of the butterflies of Khuzestan. For example, the subspecies *Argynnis niobe*

khusestana Gross & Ebert, 1975, *Argynnis pandora deserticola* Gross & Ebert, 1975 and *Limenitis reducta mirzayani* Gross & Ebert, 1975 were previously reported from Khuzestan (Modarres Awal 2002) but are considered as synonym taxa according to some authors like Tshikolovets *et al.* (2014). Eight species (15 specimens) which were collected by students from Iranian provinces were found in the collection without detailed data labels.

Systematics and nomenclature are according to the checklist of Wiemers *et al.* (2018), and for those which were not in this checklist we followed Tshikolovets *et al.* (2014).

Results

In total, 82 taxa belonging to Papilionidae (5), Hesperiidae (11), Lycaenidae (15), Pieridae (17) and Nymphalidae (34) were identified from 21 different Iranian provinces, among the butterflies in the IMCA collection. The total results include 24 new provincial records as follows: Khuzestan (11), Ilam (4), Esfahan (3), Yazd (2), Lorestan, Bushehr, Khorasan-e Razavi and Kohgiluyeh-va Boyerahmad (1 each).

New records for Khuzestan fauna according to the current study are Hesperiidae: *Gegenes nostrodamus* (Fabricius, 1793) and *Carcharodus stauderi* Reverdin, 1913; Lycaenidae: *Zizeeria karsandra* (Moore, 1865) and *Lachides galba* (Lederer, 1855); Pieridae: *Pieris krueperi* Staudinger, 1860 and *Pieris persis* (Verity, 1908); Nymphalidae: *Hypolimnas misippus* (Linnaeus, 1764), *Melitaea gina* Higgins, 1941, *Kirinia climene* (Esper, 1783), *Melanargia larissa lorestanensis* Carbonell & Naderi, 2007 and *Hyponephele wagneri* (Herrich & Schäffer, [1846]).

All the studied material is presented here together with notes on the provincial distribution of the species in Iran, their bionomics and identification.

Superfamily Papilioidea Latreille, [1802]

Family Papilionidae Latreille, [1802]

***Iphiclus podalirius* (Linnaeus, 1758).** Semnan Province: Shahrood, 1♂ 1♀ 19.vii.1966, 1♀ 1.ix.1966; Tehran Province: Tehran, 1♀ 2.vii.1986; Chaharmahal-va Bakhtiari Province: Shahrekord, 1♂ 5.iv.2013; Lorestan Province: Borujerd, 2♀ 17.vi.1388; Mazandaran Province: Ramsar, 1♀ 15. vii.1995; Qazvin Province: Qazvin, 1♀ 11.x.2011.

Note. It damages citrus trees in southern Iran (Farahbakhsh 1961).

***Papilio machaon* Linnaeus, 1758.** Khuzestan Province: Ahvaz, 1♂ 28.xi.2005, 1♂ 26.v.2006, 1♂ 11.iv.2014; Dezful, 1♂ 29.xii.2005; Baghmalek, 1♀ 4.vi.2016, 1♂ 15.iii.2017, 3♀ 1♂ 17.iii.2017; Shushtar, 1♀ 9.iv.2005; Esfahan Province: Khomeyni Shahr, 1♂ 22.iii.2010.

***Papilio demoleus* Linnaeus, 1764.** Khuzestan Province: Ahvaz, 1♂ 24.iii.1973, 1♂ 17.xii.1974, 1♀ 1.xii.1974, 1♂ 17.xii.1974, 1♂ 30.iii.1983, 1♂ 8.iv.1984, 1♀ 2.v.1984, 1♂ 10.v.1984, 1♀ 29.v.1984, 1♀ 27.vi.1984, 1♀ 20.iv.1985, 2♂ 22.v.1985, 1♂ 26.v.1985, 1♂ 14.vi.1985, 1♂

17.vi.1985, 3♂ 26.x.1985, 1♂ 1♀ 31.x.1989, 1♂ 4.xi.1985, 1♀ 14.xi.1985, 1♂ 23.xi.1985, 1♂ 24.xi.1985, 1♂ 1♀ 28.xi.1985, 1♀ 20.iii.1987, 1♂ 25.iv.1988, 1♂ 29.vii.1989, 1♂ 21.x.1989, 2♂ 25.x.1989, 1♀ 17.x.1990, 1♂ 11.xi.1990, 1♂ 25.iv.1991, 1♂ 10.v.1995, 2♂ 17.xii.1995, 1♀ 29.xi.2002, 1♀ 6.v.2003, 1♂ 24.iv.2004, 1♀ 1.i.2005, 1♂ 27.ii.2006, 1♂ 18.iv.2007, 1♂ 10.v.2007, 2♀ 2.vi.2007, 1♀ 6.vi.2007, 1♀ 24.iii.2008, 1♂ 23.iv.2008, 1♂ 3.xi.2009, 1♀ 23.iv.2010, 1♀ 25.iv.2010, 1♀ 10.v.2010, 1♂ 22.v.2010, 1♀ 23.v.2010, 1♀ 2.vi.2010, 1♂ 4.vi.2010, 1♀ 27.xi.2010, 1♂ 17.ix.2012, 1♂ 26.x.2013, 2♂ 3.xii.2013, 1♂ 14.iv.2016, 1♀ 23.iv.2016, 1♀ 26.iv.2016, 1♂ 23.iii.2017; Haft Tappeh, 1♂ 25.v.1991; Mollasani, 1♂ 22.iii.1968, 1♂ 14.v.2008, 1♀ 20.iv.2011; Dezful, 1♀ 25.viii.1993, 1♀ 10.ii.2003, 1♂ 22.iv.2004, 1♂ 7.v.2007, 1♀ 23.iii.2009, 1♂ 21.ix.2009; Baghmalek, 1♀ 10.xi.2015, 1♂ 14.iii.2016, 1♂ 4.vi.2016, 2♀ 1♂ 17.iii.2017; Lali, 1♂ 17.iii.2016, 2♀ 1♂ 14.iv.2017; Gotvand, 1♂ 28.xi.1985, 1♀ 21.xi.1990; Shush, 1♂ 5.iv.2017, 2♂ 6.iv.2017, 2♂ 7.iv.2017; Shushtar, 1♂ 17.ix.2004, 1♀ 30.xii.2005; Andimeshk, 1♂ 26.xii.2002, Ramhormoz, 1♀ 2.v.2001; Fars Province: Shiraz, 4♀ 23.iii.2001, 1♀ 15.iv.2001, 1♀ 26.iii.2001, 1♀ 1.iv.2001, 1♂ 26.v.2002, 2♂ 26.xi.2004, 3♀ 1♂ 25.3.2005, 1♂ 16.vi.2007, 1♀ 4.vii.2009, 1♀ 4.x.2009, 1♀ 28.vii.2012, 1♀ 29.vii.2012, 1♂ 30.viii.2012, 1♂ 5.ix.2012, 1♂ 10.ix.2012, 1♀ 15.ix.2012; Fasa, 1♂ 25.viii.2005; Marvdasht, 1♀ 30.viii.2012; Esfahan Province: Esfahan, 1♀ 25.vii.2009, 1♀ 3.viii.2009, 1♀ 13.viii.2009, 1♂ 8.v.2010, 1♀ 21.vii.2013; Bushehr Province: Borazjan, 1♂ 28.iii.2006; Kerman Province: Sirjan, 1♂ 24.iii.2007, 1♀ 11.xii.2012; Hormozgan Province: Bandar Abbas, 1♂ 25.iii.2010; Tehran Province: Tehran, 1♂ 1.xii.1990; Yazd Province, 1♂ 24.iii.2012.

***Archon apollinaris* (Staudinger, 1892).** Tehran Province: Tehran, 1♂ 15.viii.2012; Lorestan Province: Khorramabad, 1♀ 25.iii.2015; Kermanshah Province: Kermanshah, 1♀ 24.iii.2015.

Note. Some larvae were intentionally introduced years ago to Tehran and at present a small population can be found there.

***Zerynthia deyrollei* (Oberthür, 1869).** Hamedan Province: Hamedan, 1♀ 21.v.2000.

Family Hesperiidae Latreille, 1809

***Pelopidas thrax* (Hübner, [1821]).** Khuzestan Province: Ahvaz, 1♀ 30.x.1984, 1♀ 11.x.1985, 1♀ 23.x.1985, 1♀ 26.x.1985, 2♂ 14.xi.1985, 1♂ 3.v.1995, 1♂ 25.v.1995, 1♂ 1♀ 25.iii.2001, 1♀ 8.iv.2001, 1♂ 9.iv.2001, 1♀ 19.iv.2001, 1♂ 25.ii.2001, 1♂ 23.x.2002, 1♀ 9.xi.2013, 1♀ 12.xi.2002, 1♀ 3.xii.2002, 1♂ 25.iv.2003, 2♀ 26.iv.2003, 1♂ 8.v.2003, 2♂ 17.v.2003, 1♀ 9.xi.2003, 1♂ 2.iii.2004, 1♀ 23.iii.2004, 1♀ 14.x.2004, 1♂ 17.v.2004, 2♂ 1♀ 28.xi.2005, 2♂ 1♀ 9.iv.2007, 1♂ 18.iv.2007, 1♀ 25.iv.2007, 1♂ 27.iv.2007, 1♂ 22.v.2009, 1♂ 10.x.2009, 1♀ 13.x.2009, 1♂ 15.xi.2009, 2♂ 30.v.2010, 1♂ 8.iv.2009, 1♀ 11.iv.2010, 1♂ 23.iv.2010, 2♂ 1♀ 5.v.2010, 1♂ 6.v.2010, 1♂ 6.xii.2010, 1♀ 22.ix.2012, 1♀ 14.x.2012, 1♀ 28.x.2012, 1♂ 21.iii.2013, 1♀ 28.iii.2013, 1♀ 5.v.2013, 1♂

17.v.2013, 2♀ 26.x.2013, 1♀ 11.xi.2013, 1♂ 18.xi.2013, 2♀ 1♂ 20.xi.2013, 1♀ 21.xi.2013, 1♀ 22.xi.2013, 2♂ 25.xi.2013, 1♂ 29.xi.2013, 1♂ 3.xii.2013, 3♂ 7.xii.2013, 1♀ 3.x.2014, 1♀ 15.ii.2016, 1♀ 27.iii.2016, 1♀ 17.v.2017; 40 Kms. SW Ahvaz, Amir-Kabir Sugarcane Co., 25♀ 55♂ 8.ix.2015; Debal-Khozaii Sugarcane Co., 52♀ 46♂ 8.ix.2015; Dezful, 1♂ 2.xi.1985, 1♂ 26.ix.2011, 1♂ 16.vi.2012; Shushtar, 1♂ 19.x.2005, 1♀ 25.x.2005, 2♀ 22.iv.2007; Baghmalek, 1♀ 10.xi.2015, 1♀ 20.xi.2015, Khorramshahr, 1♀ 1♂ 7.x.2012; Haft Taapeh, 1♀ 1.viii.2011, 1♀ 15.viii.2012, 1♀ 12.x.2013; Mollasani, 1♂ 27.iv.1991, 1♂ 14.v.2003; Shush, 1♂ 31.iii.2017; a lot of males and females from Ahvaz, Mollasani and Lali collected during 2017–2018; Fars Province: Shiraz, 1♀ 23.iii.2005, 2♀ 23.iii.2007, 1♂ 17.iv.2007, 1♂ 27.iv.2007; Lorestan Province: Khorramabad, 1♀ 6.ix.2015; Aligudarz, 1♂ 6.xii.2011; Hormozgan Province: Bandar Abbas, 1♀ 23.ix.2009.

Note. Specimens of this species were collected from sugarcane fields in the Khuzestan Province. It was previously identified and reported as *Parnara* sp. in the sugarcane fields (Taherkhani 2016). Green larvae of this species feed on sugarcane leaves and roll these using white silk. Additional material was also studied from neighbouring areas in Khuzestan such as Ahvaz, Khorramshahr, Mollasani, Shushtar, Dezful, Shush and Lali. We examined wing patterns, genitalia, and also performed DNA barcoding using standard primers (LepF1 & LepR1) for the identification of this species. Results revealed that it is actually *Pelopidas thrax*, despite its similar habitus to members of the genus *Parnara*. Outside Iran, it is known as the millet skipper and occurs from the eastern Mediterranean islands to North Africa, the Middle East, India and Pakistan. It feeds on *Saccharum kajkaiense* in Oman (Cock 2009). It has at least two generations in Khuzestan and is frequently seen on shrub verbenas and reed species. This taxon is new to the Lorestan Province.

***Eogenes alcides* (Herrich-Schäffer, [1852]).** Ilam Province: Eyvan, 1♂ 1.ix.2013.

Note. This species is new to the Ilam Province.

***Gegenes nostrodamus* (Fabricius, 1793)** (fig. 2). Khuzestan Province: Ahvaz, 1♀ 12.v.2011, 1♂ 25.iv.2014, 1♂ 23.iv.2017; Shushtar, 1♀ 1.ix.2005; Dezful, 1♂ 11.viii.1995; Ilam Province: Eyvan, 1♂ 1♀ 1.ix.2013.

Note. This taxon is new to the Khuzestan and Ilam Provinces.

***Ochlodes hyrcana* (Christoph, 1893).** 1♂ no data label.

***Thymelicus sylvestris* (Poda, 1761).** Lorestan Province: Aligudarz, 1♀ 2.xi.2013.

***Thymelicus lineola* (Ochsenheimer, 1808).** Fars Province: Shiraz, 1♂ 15.v.2005.

***Spialia orbifer* (Hübner, [1823]).** Khuzestan Province: Ahvaz, 1♀ 22.iv.2015; Esfahan Province: Semiroom, 1♂ 3.vii.2013.

***Carcharodus alceae* (Esper, [1780]).** Fars Province: Shiraz, 1♀ 9.viii.2003, 1♀ 30.vii.2009, 1♀ 9.viii.2009; Kerman Province: Sirjan, 1♂ 6.ix.2012, 1♂ 21.x.2012; Lorestan Province: Khorramabad, 1♀ 6.ix.2015, 1♂ 7.ix.2015; Khuzestan Province: Baghmalek, 1♂ 11.x.2015, 1♀ 1.vii.2017; Chaharmahal-va Bakhtiari Province: Borujen, 1♂ 3.v.2012.

***Carcharodus stauderi* Reverdin, 1913.** Khuzestan Province: Ahvaz, 1♂ 30.xi.2013; Esfahan Province: Esfahan, 1♀ 19.vii.2009.

Note. This taxon is new to the Khuzestan Province.

***Erynnis marloyi* (Boisduval, 1834).** Fars Province: Shiraz, 1♂ 6.v.2001.

***Pyrgus armoricanus* (Oberthür, 1910).** Lorestan Province: Khorramabad, 1♂ 5.ix.2015.

Family Pieridae Swainson, 1820

***Genopteryx rhamni* (Linnaeus, 1758).** Kermanshah Province: Kermanshah, 1♀ 15.viii.1994; Fars Province: Shiraz, 1♂ 15.viii.2003; Golestan Province: Azadshahr, 1♂ 25.iv.1997.

***Colias croceus* (Geoffroy, 1785).** Khuzestan Province: Ahvaz, 1♂ 24.x.1994, 1♀ 20.i.1995, 1♂ 16.iv.1995, 1♂ 20.iv.1995, 1♀ 30.iv.1995, 1♂ 12.v.1995, 2♂ 17.v.1995, 1♂ 25.v.1995, 1♀ 27.iii.1998, 1♂ 8.iii.2001, 1♂ 9.iv.2001, 1♀ 10.v.2001, 1♂ 7.v.2002, 1♀ 6.iii.2003, 1♂ 7.iii.2003, 1♂ 6.v.2004, 2♀ 1♂ 3.viii.2005, 1♂ 27.ix.2006, 2♂ 2.iv.2008, 1♂ 29.iv.2008, 2♂ 4.v.2008, 2♂ 25.v.2008, 1♂ 30.v.2008, 1♂ 22.iv.2009, 1♂ 25.iv.2009, 1♂ 29.iv.2009, 1♂ 30.i.2010, 2♂ 24.ii.2010, 1♀ 1.v.2011, 1♂ 8.iv.2012, 1♂ 9.iv.2013, 1♂ 12.iv.2013, 1♂ 2.ii.2015, 1♀ 6.iv.2015, 1♂ 1♀ 25.iv.2015, 1♂ 15.iii.2017; Haft Tappeh, 1♂ 29.iv.1991; Ramhormoz, 1♀ 30.iv.2001, 1♂ 24.iii.2013; Andimeshk, 1♀ 25.x.2005, 1♀ 1♂ 26.iv.2012; Dezful, 1♂ 15.v.1995, 1♀ 4.v.2008, 1♀ 13.iii.2006, 1♂ 15.iii.2013; Baghmalek, 1♀ 4.v.2016, 1♀ 18.iii.2017; Mollasani, 1♂ 3.iv.1967, 1♂ 10.v.1967, 1♂ 16.xi.1967, 1♂ 11.v.1968; Behbahan, 1♂ 13.vi.1985; Kerman Province: Jiroft, 1♂ 24.iii.2012, 1♀ 23.vii.2012, 1♀ 27.vii.2012, 1♂ 2.viii.2012, 1♂ 20.ix.2012; Sirjan, 2♀ 3.iv.2008; Lorestan Province: Khorramabad, 1♂ 6.vii.2011, 1♂ 1♀ 15.v.2015; Borujerd, 1♂ 22.iii.2004, 1♂ 6.v.2004, 1♀ 14.viii.2004, 2♂ 23.viii.2004; Aligudarz, 1♂ 22.iii.1966, 1♂ 15.v.2011; Fars Province: Shiraz, 1♀ 13.v.2002, 1♀ 9.viii.2009, 1♂ 14.vii.2011; Marvdasht, 1♂ 31.vii.2012; Chaharmahal-va Bakhtiari Province: Shahrekord, 1♂ 26.iii.2013, 1♂ 26.vi.2014, 1♂ 11.vii.2014; Borujen, 1♂ 15.viii.2012, 1♀ 7.ix.2012; Bushehr Province: Bushehr, 1♀ 22.iii.2014; Esfahan Province: Esfahan, 1♂ 8.v.2009, 1♀ 1.ix.2009, 1♂ 2.ix.2010, 1♀ 6.vii.2011; Hamedan Province: Hamedan, 1♀ 30.viii.2012; Kohgiluyeh-va Boyerahmad Province: Yasuj, 1♂ 22.viii.2012; Kermanshah Province: Kermanshah, 1♂ 15.viii.1994, 1♂ 19.viii.1994; Ilam Province: Eyvan, 2♂ 1♀ 22.v.1998; Yazd Province: Yazd, 1♂ 30.iv.2012, 4♂ 2♀ 15.ix.2012; Mazandaran Province: Ramsar, 1♂ 15.i.1995; Khorasan-e Razavi Province: Mashhad, 1♂ 4.iv.2001.

***Colotis fausta* (Olivier, [1804])** (fig. 2). Khuzestan Province: Ahvaz, 1♂ 27.vii.1964, 1♀ 26.xi.1964, 1♀ 2.xii.1964, 1♀ 26.x.1985, 1♀ 29.ix.1985, 1♂ 17.x.1985, 1♂ 12.xi.1985, 1♂ 29.x.1985, 1♂ 25.xi.1985, 1♂ 27.xi.1985, 1♀ 7.i.1986, 1♀ 24.viii.2009, 1♂ 24.x.1989, 1♂ 29.vi.1991, 1♀ 25.x.1990, 1♀ 4.xii.1990, 1♂ 29.v.1991, 3♂ 26.vi.1991, 1♀ 23.v.1992, 1♂ 11.iv.1995, 1♂ 21.v.1995, 1♀ 12.x.1999, 1♂ 12.x.2002, 1♂ 14.v.2004, 1♂ 5.xi.2002, 1♀ 1♂ 13.x.2002, 1♂ 30.xi.2002, 1♂ 14.i.2003, 1♀ 30.i.2003, 1♀ 8.v.2003, 2♀ 7.xi.2003, 1♀ 8.v.2003, 2♀ 7.xi.2003, 1♀ 21.iv.2004, 1♂ 24.iv.2004, 1♀ 3.v.2004, 5♀ 8.v.2004, 1♂ 9.v.2004, 1♂ 14.v.2004, 1♂ 25.iv.2005, 5♀ 2♂ 7.xi.2005, 1♀ 10.v.2006, 2♀ 22.iv.2008, 1♂ 29.iv.2008, 1♀ 11.x.2008, 1♂ 10.ix.2009, 1♀ 10.x.2009, 1♀ 1♂ 23.ii.2010, 1♀ 1.iv.2010, 2♀ 5.v.2010, 1♂ 21.ii.2011, 1♂ 1♀ 1.v.2012, 1♂ 2.ix.2012, 3♂ 3♀ 26.ix.2012, 3♂ 22.xi.2013, 1♀ 30.xi.2013, 1♀ 7.xi.2015; Gotvand, 1♀ 26.xi.1990; Dezful, 1♀ 3.xi.1994; Baghmalek, 1♀ 10.xi.2015, 1♀ 1♂ 20.xi.2015; Haft Tappeh, 2♂ 3.v.2012, 1♂ 2.viii.2012, 1♂ 15.viii.2012; Mollasani, 1♀ 25.ii.1944, 1♀ 28.x.1964, 1♂ 11.xi.1964, 1♀ 18.xi.1964, 1♂ 10.iv.1965, 1♀ 11.iv.1965, 1♂ 29.iv.1965, 1♂ 24.i.1968, 1♂ 15.iv.1985, 1♀ 10.v.1968, 1♂ 20.iv.2011; Fars Province: Shiraz, 1♀ 7.xi.2005; Nurabad, 1♂ 15.viii.2012; Kohgiluyeh-va Boyerahmad Province: Yasuj, 1♀ 25.viii.2012; Esfahan Province: Esfahan, 1♂ 5.v.2010; Ilam Province: Eyvan, 3♂ 2♀ 1.ix.2013; Kermanshah Province: Sarpol-e Zahab, 1♀ 19.vii.1990; Lorestan Province: Aligudarz, 1♂ 24.iii.1966.

Note. This taxon is new to the Kohgiluyeh-va Boyerahmad Province.

***Anaphaeis aurota* (Fabricius, 1793).** Khuzestan Province: Ahvaz, 1♀ 2.xii.1964, 1♂ 30.x.1987, 1♀ 25.ii.1995, 1♀ 1♂ 30.ix.2002, 1♀ 16.xii.2002, 1♀ 17.v.2003, 1♀ 28.x.2003, 2♀ 20.iv.2004, 1♀ 25.iv.2004, 1♀ 3.v.2004, 1♂ 5.v.2004, 3♂ 2♀ 6.v.2004, 1♂ 9.v.2004, 1♀ 22.v.2004, 1♀ 7.iii.2008, 2♀ 22.iv.2008, 1♀ 29.iv.2008, 1♀ 2.v.2008, 1♂ 5.v.2008, 1♀ 6.v.2008, 1♂ 9.v.2008, 1♀ 26.v.2008, 1♀ 5.v.2013, 1♂ 19.x.2013, 2♀ 26.x.2013, 1♀ 28.x.2013, 1♀ 16.xi.2013, 1♀ 18.xi.2013, 1♀ 19.xi.2013, 3♂ 2♀ 22.xi.2013, 2♂ 25.xi.2013, 1♂ 26.v.2013, 3♀ 27.xi.2013, 3♂ 1♀ 30.xi.2013, 3♂ 3♀ 7.xii.2013, 1♂ 30.xi.2014, 1♂ 23.iv.2016, 1♂ 15.vi.2016; Dezful, 1♂ 6.xi.2011, 1♀ 8.xi.2011; Susangerd, 1♂ 7.x.2015; Mollasani, 1♂ 5.iv.1965, 1♂ 24.iv.1965, 1♂ 16.iii.1966, 1♂ 11.xi.2002, 1♀ 25.ii.1999; Baghmalek, 2♂ 5.x.2015, 1♂ 11.x.2015, 1♂ 4.xi.2015, 4♂ 1♀ 10.xi.2015; Ramhormoz, 1♂ 9.iv.1998, 1♂ 29.iv.2002; Fars Province: Marvdash, 1♂ 25.vii.2012, 1♂ 31.vii.2012; Shiraz, 1♀ 9.v.2003, 1♂ 9.ix.2005, 1♂ 9.ix.2009; Esfahan Province: Esfahan, 1♀ 23.vii.2009; Lorestan Province: Aligudarz, 1♂ 10.v.2011.

***Aporia crataegi* (Linnaeus, 1758).** Khuzestan Province: Ahvaz, 1♀ 25.iv.2010, 1♂ 22.v.2010, 1♀ 6.iv.2015, 1♀ 25.iv.2015; Fars Province: Shiraz, 1♀ 21.iv.2002, 1♀ 21.iv.2006; Kerman Province: Sirjan, 1♂ 25.iii.2007; Yazd Province: Yazd, 1♂ 24.iii.2012; Esfahan Province: Esfahan, 1♂ 21.vii.2013.

Note. This taxon is new to the Esfahan Province.

***Pontia chloridice* (Hübner, [1813]).** Lorestan Province: Aligudarz, 1♂ 22.iii.1966, 1♂ 25.iii.1966.

***Pontia callidice* (Hübner, [1800]).** Esfahan Province: Esfahan, 1♂ 12.viii.2013.

***Pontia daplidice* (Linnaeus, 1758).** Khuzestan Province: Ahvaz, 1♀ 9.v.1965, 1♂ 28.ii.1995, 1♀ 27.iii.1997, 1♀ 10.v.2001, 1♀ 25.iv.2007, 1♂ 9.v.2008, 1♀ 31.x.2013; Mollasani, 1♂ 31.vii.1964, 1♂ 1.xi.1964, 1♀ 23.iii.1968, 1♀ 1.v.1968; Dezful, 1♂ 11.v.1991; Izeh, 1♀ 26.x.2015; Lorestan Province: Aligudarz, 1♂ 7.ix.2011, 1♂ 23.vii.2013; Azna, 1♂ 22.vii.2000; Khorramabad, 1♀ 15.v.2015, 1♂ 5.ix.2015, 1♀ 6.ix.2015; Chaharmahal-va Bakhtiari Province: Borujen, 1♀ 12.viii.2012, 1♀ 16.viii.2012, 1♂ 7.xi.2012; Kerman Province: Sirjan, 1♂ 24.iii.2007, 2♂ 27.iv.2007.

***Pieris krueperi* Staudinger, 1860** (fig. 2). Khuzestan Province: Ahvaz, 1♀ 22.iii.2007.

Note. This taxon is new to the Khuzestan Province.

***Pieris brassicae* (Linnaeus, 1758).** Esfahan Province: Esfahan, 1♀ 6.viii.2009.

Note. This taxon is new to the Esfahan Province. It is a pest on Brassicaceae in northern Iran (Khanjani 2005).

***Pieris rapae* (Linnaeus, 1758).** Khuzestan Province: Dezful, more than 120 specimens which were collected from 1946 to 2017; Mollasani, 1♀ 1♂ 15.ii.1964, 1♂ 3.iii.1964, 1♂ 5.iii.1964, 1♂ 7.ii.1965, 1♀ 24.iii.1965, 1♀ 5.iv.1965, 1♂ 12.iv.1965, 1♀ 9.iv.1966, 1♂ 30.iv.1966, 1♂ 7.iv.1968, 1♂ 10.v.1968, 1♂ 20.iv.1966, 1♂ 23.iv.1968, 1♂ 4.v.1968, 1♀ 20.xii.1968, 1♀ 20.ii.1995, 1♀ 24.x.2001, 1♀ 6.x.2002, 1♀ 20.iv.2011; Haft Tappeh, 1♀ 4.ix.2011, 8♀ 3.v.2012, 1♀ 18.ix.2012; Bostan, 1♀ 20.iii.2017, 1♀ 21.iii.2017, 1♀ 22.iii.2017, 1♀ 23.iii.2017; Andimeshk, 1♀ 25.iii.2016, 5♀ 1♂ 1.iv.2016, Shush, 1♀ 23.iii.2017, 1♀ 28.xi.2017, 1♂ 1♀ 6.iv.2017, 3♀ 12.iv.2017, 1♂ 18.iv.2017, 2♀ 9.v.2017; Gotvand, 1♂ 26.xi.1990, Shushtar, 1♂ 21.i.2006, 1♀ 28.iii.2016; Fars Province: Shiraz, 1♀ 5.vi.1987, 1♀ 11.ix.1994, 1♂ 24.iv.2000, 1♂ 5.vi.2005, 1♂ 2.v.2007, 1♀ 2.vii.2011, 1♂ 18.viii.2012; Marvdash, 1♀ 5.ix.2017; Yazd Province: Yazd, 1♂ 24.iii.2012; Kerman Province: Sirjan, 3♀ 2.iv.2008; Jiroft, 1♀ 9.viii.2012, 1♂ 13.viii.2012; Mazandaran Province: Abbasabad, 2♀ 2.xi.2012, Lorestan Province: Borujerd, 1♀ 14.viii.2005; Khorramabad, 1♂ 2.ii.2015, 1♀ 11.ii.2015, 1♀ 15.v.2015, 4♂ 1♀ 5.ix.2015, 6♀ 6.ix.2015, 3♀ 7.ix.2015; Chaharmahal-va Bakhtiari Province: Shahrekord, 1♀ 31.iii.2013; Borujen, 1♂ 6.viii.2014; Ilam Province: Dehloran, 1♂ 14.iv.2014; Khorasan-e Razavi Province: Mashhad, 1♂ 4.iv.2001, 1♀ 5.v.2000; Kermanshah Province: Kermanshah, 1♀ 19.viii.1994; Esfahan Province: Esfahan, 1♀ 25.vii.2001, 1♀ 1.iv.2009, 1♀ 25.vii.2009, 1♂ 11.vii.2011, 1♀ 14.iv.2013; Tehran Province: Tehran, 1♀ 11.xi.2012.

Note. This species damages Brassicaceae in Iran (Khanjani 2005).

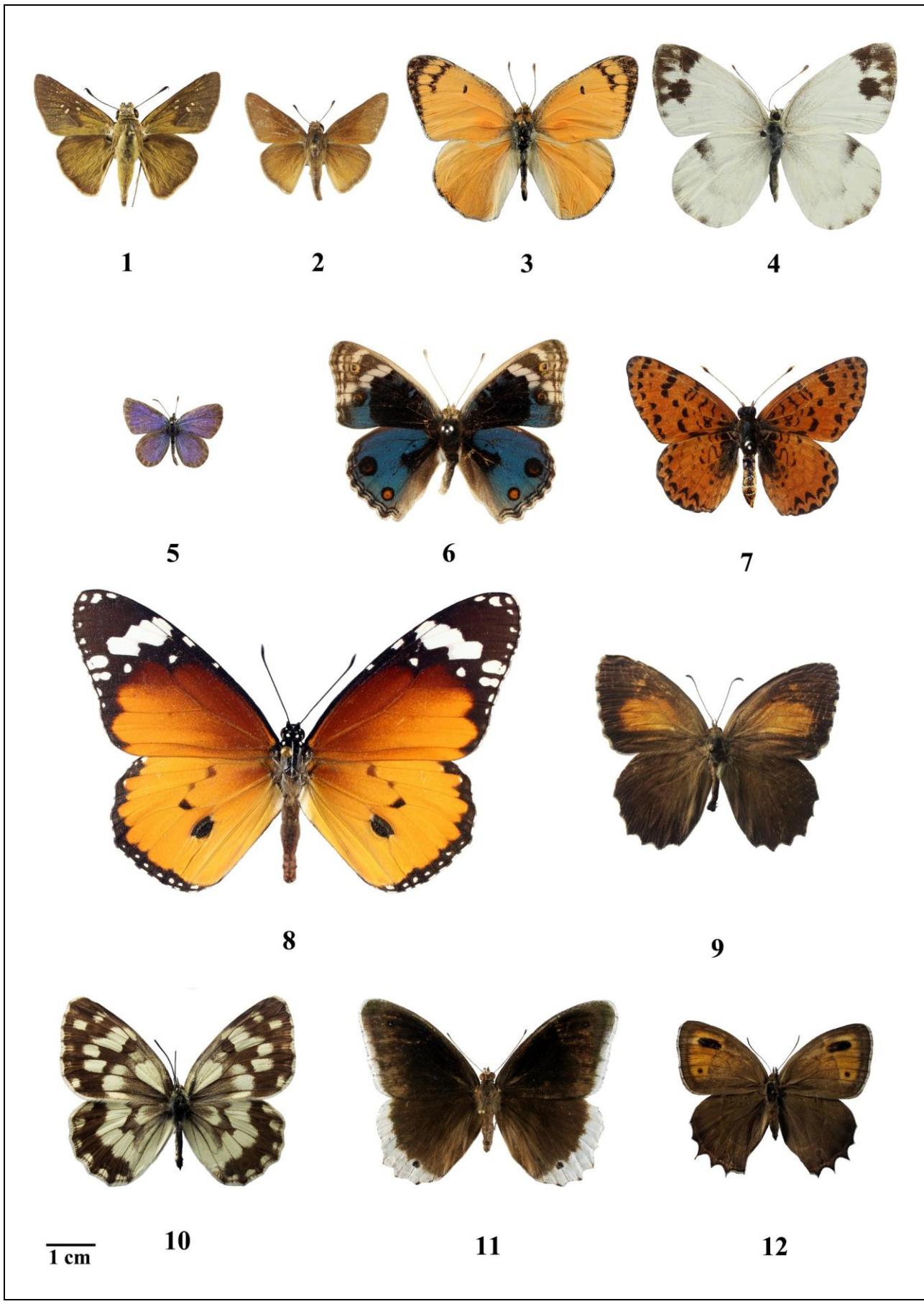


Fig. 2. Voucher specimens of some new provincial records. Photo: © A. Zerganipour / Bewijsexemplaar van enkele nieuwe provinciewaarnemingen Foto: © A. Zerganipour: 1- *Pelopidas thrax* (Khuzestan, Ahvaz, 14.x.2017) 2- *Gegenes nos trodamus* (Khuzestan, Ahvaz, 23.iv.2017) 3- *Colotis fausta* (Khuzestan, Ahvaz, 29.x.2002) 4- *Pieris krueperi* (Khuzestan, Ahvaz, 22.iii.2007) 5- *Zizeeria karsandra* (Khuzestan, Ahvaz, 06.xii.2013) 6- *Junonia orithya* (Khuzestan, Shush, 05.iv.2017) 7- *Melitaea gina* (Lorestan, Ali gudarz, 15.v.2011) 8- *Danaus chrysippus* (Khuzestan, Ahvaz, 28.xi.1971) 9- *Kirinia climene* (Hamedan, 05.vi.2000) 10- *Melanargia larissa lorestanensis* (Fars, Shiraz, 8.v.2000) 11- *Hipparchia parisatis* (Yazd, Herat, 24.iii.2012) 12- *Hyponephele wagneri* (Khuzestan, Izeh, 30.viii.2010).

Pieris napi pseudorapae (Verity, [1908]). Khuzestan Province: Ahvaz, 1♂ 11.xi.1990, 1♂ 12.iii.1995, 1♂ 2.v.1998, 1♀ 9.v.2001, 1♀ 4.v.2002, 1♂ 9.iii.2003, 1♂ 21.iv.2003, 1♂ 8.iii.2004, 1♂ 20.iv.2004, 1♂ 22.iv.2004, 1♀ 31.vii.2004, 1♂ 2.v.2004, 1♂ 25.iv.2005, 1♀ 7.iv.2007, 1♀ 14.iv.2007, 4♀ 1♂ 8.iv.2008, 1♂ 4.v.2008, 1♂ 25.iv.2009, 1♂ 4.vi.2009, 1♂ 23.iv.2010, 1♂ 10.v.2010, 1♀ 7.ii.2011, 1♀ 14.v.2011, 1♂ 10.iv.2013, 1♀ 26.ix.2012, 1♂ 1.iii.2014, 1♂ 23.iv.2014, 1♀ 6.iv.2015, 1♀ 15.iv.2015, 1♀ 7.ix.2015, 1♂ 1.iv.2016, 1♂ 4.ii.2017, 4♀ 23.iv.2017, 1♀ 24.iv.2017, 1♂ 14.v.2017, 1♀ 5.v.2018; Dezful, 1♂ 24.ii.2006, 1♂ 26.vi.2007, 1♀ 31.iii.2012, 1♀ 1♂ 15.iii.2013, 1♂ 7.viii.2014, 1♀ 12.i.2015; Shush, 1♂ 12.iv.2017, 1♂ 13.iv.2017, 1♂ 1♀ 9.v.2017; Andimeshk, 1♂ 26.iv.2012, 1♂ 31.iii.2016; Mollasani, 1♀ 2.v.1964, 1♂ 23.v.1964, 1♂ 30.iii.1965, 1♂ 4.iv.1967, 1♀ 6.iv.1968, 1♂ 3.vi.1969; Haft Tappeh, 1♀ 4.ix.2011, 1♂ 3.v.2012; Baghmalek, 1♂ 9.xi.2015, Bostan, 1♀ 15.iii.2017, 1♀ 21.iii.2017; Masjed Soleyman, 1♀ 17.viii.2008; Shushtar, 1♂ 4.iv.2005, 1♀ 22.iii.2016; Khorasan-e Razavi Province: Mashhad, 1♂ 4.iv.2001; Lorestan Province: Borujerd, 1♂ 4.v.2009; Khorramabad, 1♂ 5.ii.2015, 1♂ 6.ii.2015, 1♂ 7.ii.2015; Chaharmahal-va Bakhtiari Province: Shahrekord, 1♂ 29.iii.2007, 1♀ 11.viii.2014; Fars Province: Shiraz, 1♂ 24.iv.2000, 1♂ 9.iv.2001, 1♂ 4.ix.2008, 1♂ 12.xi.2009, 1♂ 30.viii.2012; Kerman Province: Jiroft, 1♂ 28.vii.2012, 1♂ 2.viii.2012, 1♂ 6.viii.2012; Esfahan Province: Esfahan, 1♀ 3.vii.2009.

Note. It is also a pest on Brassicaceae in Northern Iran (Khanjani 2005).

Pieris persis (Verity, 1908). Khuzestan Province: Ahvaz, 1♂ 15.v.2003; Kerman Province: Jiroft, 1♂ 22.viii.2012, 1♂ 28.viii.2012; Lorestan Province: Khorramabad, 1♂ 7.ix.2015.

Note. This species is new to the Khuzestan Province. Perhaps some records of *P. napi pseudorapae* from Khuzestan in literature are actually *P. persis*. However, checking those material is necessary for confirmation.

Euchloe belemia (Esper, 1800). Khuzestan Province: Dezful, 1♀ 28.iv.2007, 1♀ 30.iii.2012, 5♀ 1♂ 31.iii.2012, 1♀ 19.iv.2013; Ahvaz, 1♀ 15.xii.1996, 3♀ 1♂ 14.ii.2007, 1♂ 26.ii.2007, 1♀ 14.iv.2010, 1♂ 11.ii.2011, 1♀ 3.ii.2016, 1♀ 26.ii.2015, 1♂ 15.iii.2016, 1♀ 16.iv.2016, 1♀ 1♂ 1.iii.2016, 1♀ 1♂ 30.iii.2016, 1♂ 31.iii.2016, 1♂ 1♀ 3.iv.2016, 1♀ 5.iv.2016, 1♀ 8.iv.2016, 2♀ 12.iv.2016, 1♂ 14.ii.2017, 1♂ 23.ii.2015, 1♂ 23.iii.2016; Mollasani, 1♀ 1.iii.1965, 1♂ 5.iv.1965, 1♀ 1.v.1966; Shushtar, 1♀ 1.vi.2005; Ilam Province: Eyvan, 1♂ 22.v.1998; Dehloran, 1♂ 22.iii.2014; Kerman Province: Sirjan, 1♂ 25.iii.2007; Kohgiluyeh-va Boyerahmad Province: Yasuj, 1♂ 25.iv.2012.

Euchloe persica (Verity, 1908). Khuzestan Province: Mollasani, 1♀ 29.iv.1967.

Euchloe transcaspica (Staudinger, 1892). Khuzestan Province: Dezful, 1♀ 10.iii.2013.

Zegris eupheme (Esper, [1804]). Khuzestan Province: Masjed Soleyman, 1♂ 23.iii.2014; Dezful, 1♂ 23.iii.2014.

Family Lycaenidae [Leach], [1815]

Lycaena thersamon (Esper, 1784). Kurdistan Province: Sanandaj, 1♂ 13.v.1996.

Lycaena phlaeas (Linnaeus, [1760]). Kerman Province: Konarestan, 1♀ 15.iii.2013; Esfahan Province: Esfahan, 1♀ 23.vii.2009; Khuzestan Province: Ahvaz, 1♂ 22.iv.1985, 1♀ 28.iv.2016; Andimeshk, 1♀ 25.iii.2015; Dezful, 1♀ 13.iv.2012, 1♀ 5.iii.2013, 1♂ 5.iii.2013, Shushtar, 1♀ 4.v.2008; Baghmalek, 1♀ 24.iii.2016, 1♀ 4.vi.2016, 1♀ 29.iii.2016; Fars Province: Shiraz, 1♀ 12.iv.2007; Lorestan Province: Khorramabad, 1♀ 24.vii.1984, 1♀ 2.viii.1984, 1♀ 16.viii.1984, 4♀ 1♂ 19.v.2015, 1♀ 6.ix.2015, 1♀ 7.ix.2015; Yazd Province: Yazd, 1♀ 30.iv.2011.

Note. This taxon is new to the Yazd Province.

Lampides boeticus (Linnaeus, 1767). Khuzestan Province: Ahvaz, 1♂ 3.xi.1990, 1♀ 24.iv.2003, 1♀ 2.v.2003, 1♂ 20.iv.2004, 1♀ 29.iii.2008, 1♀ 30.i.2010, 1♀ 23.v.2010, 1♂ 9.xii.2012, 2♂ 18.xi.2013, 1♂ 22.xi.2017, 1♂ 1♀ 7.xii.2013; Shushtar, 1♀ 3.ix.2013, 1♀ 7.ix.2013; Mollasani, 1♂ 2.xi.1964, 3♀ 8.xii.1964, 1♀ 25.iii.1965, 1♂ 9.xii.1965, 1♀ 10.xi.2002; Dezful, 1♀ 10.xii.2005; Kermanshah Province, 1♀ 24.iii.2015.

Note. It has been recorded as a pest on legumes in Iran (Khanjani 2009).

Celastrina argiolus (Linnaeus, 1758). Fars Province: Shiraz, 1♀ 24.iii.2003; Khuzestan Province: Ahvaz, 1♀ 1♂ 2.v.2001, 1♀ 2.iv.2003.

Tarucus balkanicus (Freyer, 1844). Khuzestan Province: Bostan, 2♂ 1♀ 16.iii.2017, 1♀ 20.iii.2017, 2♀ 1♂ 23.iii.2017, 2♂ 24.iii.2017, 2♀ 26.iii.2017; Ahvaz, 1♂ 18.iii.1995, 1♀ 17.v.1995, 2♀ 1.vi.1995, 1♀ 30.v.2008, 1♀ 1.ii.2001, 1♂ 4.iv.2001, 1♂ 1♀ 2.v.2001, 1♀ 9.xi.2003, 1♀ 5.iv.2005, 1♂ 1.v.2005, 1♀ 11.iv.2006, 1♀ 4.iv.2007, 1♀ 1♂ 3.iv.2008, 2♀ 10.iv.2008, 2♂ 13.ii.2010, 1♀ 17.iv.2010, 1♂ 14.iii.2011, 1♂ 27.iii.2011, 1♀ 11.iv.2011, 1♀ 15.vi.2011, 1♀ 31.i.2012, 3♀ 1♂ 12.iv.2012, 1♂ 26.ix.2012, 1♂ 12.iv.2013, 1♂ 17.x.2013, 1♀ 26.x.2013, 1♀ 5.xi.2013, 1♀ 1♂ 18.xi.2013, 1♀ 30.xi.2013, 1♂ 7.xii.2013, 4♀ 1♂ 5.iv.2014, 1♀ 12.iv.2014, 1♂ 5.iii.2015, 1♀ 18.iv.2015, 1♂ 7.x.2015, 1♀ 1.iii.2016, 1♂ 8.iv.2016, 1♀ 17.iv.2017, 1♂ 24.iv.2017, 1♀ 6.v.2017, 1♀ 13.v.2017, 2♀ 21.x.2017; Shushtar, 2♀ 23.v.2005, 1♀ 9.iii.2016; Dezful, 1♂ 21.xi.2011, 2♀ 26.iii.2012, 1♀ 9.iv.2012, 1♂ 18.vi.2012; Susangerd, 1♂ 5.iv.2007; Haft Taapeh, 1♂ 21.viii.2012, 1♀ 4.v.2013; Mollasani, 1♀ 18.v.2008; Ramhormoz, 1♂ 7.iii.2013; Izeh, 1♂ 22.x.2013; Ilam Province: Dehloran, 1♀ 27.iv.2014; Eyvan, 2♂ 1.x.2013; Tehran Province: Tehran, 2♂ 2♀ 15.x.2002, 1♂ 21.iv.2008, 3♂ 2♀ 14.x.2012; Lorestan Province: Borujerd, 1♂ 16.iv.2008; Mazandaran Province: Ramsar, 1♂ 3.i.1995; Kerman Province: Kerman, 1♂ 18.ix.2012.

Tarucus rosaceus (Austaut, 1885). Khuzestan Province: Gotvand, 1♀ 28.iv.2011; Ahvaz, 1♀ 8.iv.2001, 1♂ 11.v.2001, 1♂ 10.xi.2002, 1♂ 5.v.2003, 1♀ 11.v.2006, 1♀ 1.xi.2006, 1♂ 1♀ 3.iv.2008, 1♂ 6.v.2008, 1♀

22.iv.2008, 1♂ 28.iii.2013, 1♂ 9.iv.2013, 1♀ 13.vi. 1♀ 23.iii.2017, 1♀ 24.iii.2017; Susangerd, 1♀ 5.iv.2007, 1♂ 8.iv.2007; Dezful, 1♀ 26.iii.2012, 1♀ 31.iii.2012; Mollasani, 1♀ 9.v.2003; Haft Tappeh, 1♀ 9.viii.2010, 1♀ 2.iii.2012.

Zizeeria karsandra (Moore, 1865) (fig. 2). Khuzestan Province: Ahvaz, 1♀ 16.xi.1990, 1♂ 4.v.1995, 1♂ 27.iv.2003, 1♂ 1♀ 7.xi.2003, 1♂ 13.ii.2010, 1♂ 27.iv.2012, 4♂ 1♀ 30.xi.2013, 1♀ 1♂ 6.xii.2013, 1♂ 1♀ 7.xii.2013, 1♂ 24.ix.2016, 1♀ 14.iii.2017; Haft Tappeh: 1♂ 2.iv.2012, 1♀ 21.viii.2012; Andimeshk, 1♂ 26.iv.2012; Fars Province: Shiraz, 1♀ 9.ix.2009; Ilam Province: Eyvan, 1♂ 1.ix.2013.

Note. This taxon is new to the Khuzestan and Ilam Provinces.

Luthrodes galba (Lederer, 1855). Khuzestan Province: Ahvaz, 1♂ 26.iv.1995, 1♂ 31.x.2002, 1♂ 26.iv.2012, 1♀ 1.iv.2013, 1♀ 3.vi.2013, 2♀ 17.vi.2014; Haft Tappeh, 1♀ 3.v.2012.

Note. This taxon is new to the Khuzestan Province.

Luthrodes contracta (Butler, 1880). Chaharmahal-va Bakhtiari Province: Lordegan, 1♀ 17.v.2012; Lorestan Province: Borujerd, 1♀ 17.iv.2007.

Plebejus loewii (Zeller, 1847). Khuzestan Province: Dezful, 1♂ 4.v.2012; Ahvaz, 1♂ 4.v.2000.

Plebejus agestis ([Denis & Schiffermüller], 1775). Lorestan Province: Khorramabad, 1♂ 5.ix.2015, 1♀ 6.ix.2015.

Polymmatus daphnis ([Denis & Schiffermüller], 1775). Khuzestan Province: Ahvaz, 1♂ 10.i.2011, 1♂ 14.viii.2011; Lorestan Province: Aligudarz, 1♀ 20.v.2011, 1♀ 17.vi.2011, 1♂ 23.vi.2011, 1♀ 12.viii.2011.

Polymmatus icarus (Rottemburg, 1775). Khuzestan Province: Ahvaz, 1♂ 15.ii.1995, 1♂ 6.iv.2008, 1♂ 26.xi.2010, 1♂ 15.vi.2011, 1♂ 25.iv.2015, 1♂ 15.x.2017; Baghmalek, 1♂ 11.x.2015; Lorestan Province: Khorramabad, 1♂ 26.vii.1984, 3♂ 4.ix.2015, 3♂ 6.ix.2015, 2♂ 7.ix.2015; Aligudarz, 1♂ 17.ix.2013, 1♀ 12.viii.2011, 1♂ 17.ix.2013; Borujerd, 1♂ 9.v.2008, 2♂ 7.v.2004, 1♂ 1.vi.2004, 1♂ 7.vi.2004, 1♂ 7.ix.2008; Yazd Province: Yazd, 10♂ 1♀ 9.viii.2011; Chaharmahal-va Bakhtiari Province: Shahrekord, 1♂ 14.vi.2014, 1♂ 18.vi.2014; Lordegan, 2♂ 18.viii.2015; Boldaji, 1♂ 7.ix.2012; Fars Province: Shiraz, 2♂ 26.vi.2009, 1♂ 28.vi.2009, 1♂ 15.viii.2012; Esfahan Province: Esfahan, 1♂ 12.viii.2009, 1♂ 3.xi.2009; Kerman Province: Jiroft, 1♂ 7.viii.2012; Hamedan Province: Hamedan, 1♂ 30.viii.2012.

Polyommatus hamadanensis (de Lesse, 1959). Chaharmahal-va Bakhtiari Province: Shahrekord, 1♂ 8.vii.2014, 1♂ 20.vii.2014.

Polymmatus cyaneus (Staudinger, 1899). Chaharmahal-va Bakhtiari Province: Shahrekord, 1♂ 8.vii.2014; Esfahan Province: Esfahan, 1♀ 16.ix.2013.

Family Nymphalidae Rafinesque, 1815

Limenitis reducta Staudinger, 1901. 3♀ 1♂ no data label.

Issoria lathonia (Linnaeus, 1758). Golestan Province: Azadshahr, 1♂ 7.ix.1997.

Argynnис paphia (Linnaeus, 1758). 1♂ no data label.

Argynnис pandora ([Denis & Schiffermüller], 1775).

Khuzestan Province: Ramhormoz, 1♀ 22.ii.2003; Ahvaz, 1♀ 23.v.1985, 1♂ 1♀ 24.v.1994; Mollasani, 1♀ 9.iv.1968; Alborz Province: Karaj, 4♀ 24.iv.2001; Lorestan Province: Borujerd, 1♀ 31.vii.1984, 1♀ 21.viii.1885; Khorramabad, 1♀ 24.vii.1984, 1♀ 30.vii.1984, 1♀ 24.viii.1984; Aligudarz, 1♀ 16.v.2011; Fars Province: Shiraz, 2♀ 24.iii.2003; Nurabad, 1♀ 19.i.2012; Kordestan Province: Sanandaj, 1♀ 1♂ 13.v.1966; Esfahan Province: Esfahan, 1♀ 8.v.2010; Kermanshah Province: Kermanshah, 2♂ 15.viii.1995; Golestan Province: Gorgan, 1♀ 11.ix.2014; Tehran Province: Lavasan, 1♀ 5.i.1977, 1♀ 26.viii.1966; Hamedan Province: Hamedan, 1♀ 24.v.2000; Chaharmahal-va Bakhtiari Province: Shahrekord, 1♀ 25.v.2010; Lordegan, 1♀ 21.vii.2015, 1♀ 16.viii.2015.

Argynnис niobe (Linnaeus, 1758). Khuzestan Province: Ahvaz, 1♀ 1♂ 25.iv.2015; Golestan Province: Azadshahr, 1♂ 6.viii.1997; Hamedan Province: Hamedan, 1♀ 1♂ 4.vi.2000.

Junonia orithya (Linnaeus, 1758) (fig. 2). Khuzestan Province: Ahvaz, more than 130 specimens which were collected from 1985 to 2017; Shushtar, 1♀ 4.iv.2016, Mollasani, 1♀ 28.viii.1967, 2♀ 23.x.2002, 1♀ 2.xi.2002, 1♂ 3.xi.2002, 1♀ 17.xi.2002, 1♀ 1.v.2003, 1♂ 25.iv.2004; Khorramshahr, 1♀ 10.ix.2013, Dezful, 1♀ 23.x.1985, 1♀ 26.iii.2012, 1♂ 1.xi.2013; Andimeshk, 1♂ 15.x.2002; Behbahan, 1♀ 17.xi.2002; Haft Tappeh, 1♂ 2.viii.2011, 1♀ 2.iv.2011, 1♂ 3.v.2012, 1♀ 11.x.2012; Gotvand, 1♀ 31.x.1990; Shush, 2♀ 5.iv.2017, 1♀ 15.iv.2017; Baghmalek, 1♀ 4.xi.2015, Ramhormoz, 1♀ 6.xi.1990; Fars Province: Shiraz, 1♂ 12.iv.2007; Kerman Province: Sirjan, 1♂ 1♀ 21.ix.2012, 1♀ 23.ix.2012; Rafsanjan, 1♀ 10.v.2017; Esfahan Province: Esfahan, 1♀ 5.vi.2009, 1♀ 1.ii.2010; Chaharmahal-va Bakhtiari Province: Shahrekord, 1♀ 25.v.2010, 1♂ 21.i.2014; Yazd Province: Yazd, 13♀ 1♂ 15.ix.2012; Khorasan-e Razavi Province: Mashhad, 1♂ 21.iii.1968, 1♀ 9.iv.2001, 1♀ 10.v.2010; Mazandaran Province: Ramsar, 1♂ 17.iii.1965, 1♀ 14.i.1995.

Note. This taxon is new to the Yazd and Khorasan-e Razavi Provinces.

Vanessa atalanta (Linnaeus, 1758). Khuzestan Province: Ahvaz, 1♂ 11.iv.1968, 1♀ 1.xi.2002, 1♀ 1♂ 10.v.2003, 1♀ 2.iii.2004, 1♀ 1♂ 27.vii.2004, 1♂ 31.i.2013, 2♂ 2.iii.2013, 1♂ 17.iv.2013, 1♂ 5.iv.2016, 1♂ 6.iv.2017; Dezful, 1♂ 26.iii.2012; Mazandaran Province: Ramsar, 1♂ 16.iii.1965, 1♂ 14.i.1995.

***Vanessa cardui* (Linnaeus, 1758).** Khuzestan Province: Ahvaz, more than 400 specimens which were collected from 1964 to 2017; Dezful, 1♀ 29.i.1968, 1♂ 28.ii.1988, 1♂ 26.xi.1987, 1♀ 27.v.1991, 1♀ 11.xi.1994; Ramhormoz, 1♀ 1♂ 24.iii.2013; Mollasani, 1♀ 1♂ 27.x.1964, 1♂ 16.iii.1965, 1♀ 29.iii.1965, 1♂ 29.iii.1965, 1♂ 1.iv.1965, 1♀ 5.iv.1965, 1♂ 25.i.1966, 1♀ 11.iv.1966, 1♀ 7.iv.1966, 1♂ 5.v.1966, 1♀ 1♂ 1.iv.1967, 1♀ 1♂ 17.iv.1967, 1♀ 6.vii.1967, 1♀ 22.iii.1968, 1♂ 2.iv.1968, 1♀ 6.iv.1968, 1♀ 9.iv.1968, 1♂ 19.iv.1968, 2♀ 20.iv.1968, 1♀ 1♂ 23.iv.1968, 1♂ 17.v.1968, 1♀ 1.vi.1968, 1♀ 15.x.1969, 1♀ 12.iv.1970, 2♀ 28.xi.1971, 2♀ 1.xi.1985, 1♂ 9.iv.1987, 1♂ 20.iv.2011; Masjed Soleyman, 2♂ 23.iii.2014, 1♂ 1♀ 24.iii.2014; Baghmalek, 1♀ 3.v.2013; Andimeshk, 1♀ 23.iv.2013; Shushtar, 1♂ 1.iv.2005, 1♂ 1♀ 24.v.2005, 1♀ 22.iii.2016; Shush, 1♂ 28.xi.1986; Khorramshahr, 1♂ 1.v.2013, 3♂ 6.v.2013; Behbahan, 1♂ 11.vii.1985; Khorasan-e Razavi Province: Mashhad, 3♀ 1♂ 4.iv.2001; Esfahan Province: Esfahan, 1♂ 6.ix.1966, 1♀ 3.viii.2009, 1♂ 1.iv.2010, 1♂ 2.iv.2010, 1♀ 21.vii.2013; Fars Province: Shiraz, 1♂ 23.v.2005, 1♀ 29.v.2011; Marvdasht, 1♀ 5.viii.2012; Lorestan Province: Aligudarz, 1♂ 14.v.2011; Kerman Province: Sirjan, 1♀ 19.ii.2011, 1♂ 21.ix.2012; Ilam Province: Dehloran, 1♂ 18.iv.2014, 1♂ 25.iv.2014, 1♂ 28.iv.2014, 1♂ 4.v.2014, 1♂ 7.v.2014; Chaharmahal-va Bakhtiari Province: Shahrekord, 1♂ 27.iii.2013, 2♂ 1♀ 31.iii.2013; Lordegan, 1♂ 18.viii.2015, 1♂ 26.viii.2015.

***Hypolimnas misippus* (Linnaeus, 1764).** Khuzestan Province, 1♂ 24.vii.1988.

Note. This taxon is new to the Khuzestan Province.

***Aglais io* (Linnaeus, 1758).** 2♂ no data label.

***Aglais urticae* (Linnaeus, 1758).** Mazandaran Province: Ramsar, 1♀ 15.i.1995.

***Polygonia c-album* (Linnaeus, 1758).** 1♀ no data label.

***Nymphalis xanthomelas* ([Denis & Schiffermüller], 1775).** Tehran Province: Lavasan, 1♀ 20.i.1965.

***Melitaea gina* Higgins, 1941** (fig. 2). Lorestan Province: Aligudarz, 2♂ 15.v.2012; Khuzestan Province: 1♀ 7.vii.2011.

Note. This taxon is new to the Khuzestan Province.

***Melitaea perseae* Kollar, 1849.** Khuzestan Province: Ahvaz, 1♂ 27.x.2013.

***Melitaea robertsi* Butler, 1880.** Fars Province: Shiraz, 2♀ 1♂ 5.v.2002.

***Danaus chrysippus* (Linnaeus, 1758)** (fig. 2). Khuzestan Province: Ahvaz, 1♀ 16.viii.1974, 3♀ 6.xii.1974, 1♂ 15.x.1984, 1♂ 6.xii.1984, 1♂ 19.v.1985, 1♂ 24.viii.1985, 1♂ 17.x.1985, 1♂ 31.x.1985, 1♂ 1.xi.1985, 1♀ 10.xi.1985, 1♀ 13.xi.1985, 1♂ 25.iv.1988, 1♂ 24.x.1988, 1♀ 8.x.1989, 1♀ 6.x.1990, 1♀ 5.vi.1990, 1♂ 14.x.1990, 1♀ 11.xi.1990, 2♀ 14.xi.1990, 1♂ 19.v.1995, 1♀ 24.v.1999, 1♂ 27.v.1999, 1♂ 2.xi.2002, 1♂ 8.xi.2002,

1♂ 11.xi.2002, 1♀ 22.iv.2003, 2♂ 29.iv.2003, 1♂ 8.v.2003, 1♂ 10.xi.2003, 1♀ 9.iv.2004, 1♀ 1♂ 24.ix.2004, 1♀ 12.x.2004, 1♀ 16.xi.2005, 1♀ 1♂ 24.xi.2005, 1♀ 22.iv.2006, 1♂ 24.iii.2007, 1♂ 3.vi.2007, 1♂ 22.iv.2008, 1♂ 1.v.2008, 2♂ 22.v.2008, 1♂ 2.x.2009, 1♀ 23.iv.2010, 2♀ 10.v.2010, 1♀ 1♂ 13.v.2010, 1♂ 26.v.2010, 1♀ 11.iv.2011, 1♂ 20.ix.2012, 1♂ 2.v.2013, 1♂ 26.x.2013, 1♂ 18.iv.2016; Khorramshahr, 1♂ 30.v.2013, 1♂ 9.vi.2013; Hendijan, 1♂ 11.xii.1987; Haft Tappeh, 1♀ 1.viii.2011; Dezful, 1♀ 31.iii.2008, 1♂ 20.x.2011, 1♂ 10.vi.2012; Mollasani, 1♂ 11.xi.1964, 1♂ 14.iii.1965, 1♀ 10.iv.1965, 3♀ 30.iii.1971, 1♂ 29.ix.1971, 1♀ 1♂ 22.x.1971, 1♂ 11.xi.1971, 1♀ 28.xi.1971, 1♂ 31.xii.1971, 1♂ 2.i.1972, 1♀ 22.x.1972, 1♂ 21.xii.1972, 1♂ 29.xii.2000, 1♂ 2.xii.2002, 1♀ 31.iii.2008; Abadan, 1♂ 21.xi.1990, 2♂ 16.xi.2013; Shushtar, 1♀ 11.xi.1964, 1♂ 24.v.2005, 2♀ 10.v.2006; Kerman Province: Sirjan, 2♀ 5.v.2007, 1♂ 8.iv.2008, 1♂ 2.ix.2012; Jiroft, 1♂ 30.ix.2002; Esfahan Province: Esfahan, 1♀ 21.vii.2013; Kohgiluyeh-va Boyerahmad Province: Yasuj, 1♀ 24.vii.2012.

Note. This taxon is new to the Esfahan Province. Golestaneh *et al.* (2009) studied the life cycle of this species which damages *Calotropis procera* (Ait.) in the Bushehr Province, southern Iran.

***Coenonympha saadi* (Kollar, 1848).** Khuzestan Province: Baghmalek (Malagha), 1♀ 5.vi.2010; Izeh, 1♂ 2.vi.2010, Fars Province: Shiraz, 1♂ 5.v.2007.

***Kirinia climene* (Esper, 1783)** (fig. 2). Hamedan Province: Hamedan, 1♂ 25.v.2000; Khuzestan Province: Mollasani, 1♀ 16.v.1966; Tehran Province: Lavasan, 1♀ 1♂ 16.i.1965.

Note. This taxon is new to the Khuzestan Province.

***Lasiommata megera* (Linnaeus, 1767).** Khuzestan Province: Ahvaz, 1♀ 30.iv.2002, 1♀ 29.iv.2004, 1♀ 16.vi.2007, 1♀ 14.x.2016; Mollasani, 1♂ 5.v.2011; Fars Province: Shiraz, 1♂ 25.iv.2012; Lorestan Province: Aligudarz, 1♂ 12.viii.2011, 1♂ 1.ix.2013.

***Melanargia transcaspica* Staudinger, 1901.** 3♀ 1♂ no data label.

***Melanargia larissa lorestanensis* Carbonell & Naderi, 2007** (fig. 2). Khuzestan Province: Ahvaz, 1♂ 6.vii.2010, 3♀ 25.iv.2015.

Note. This taxon is new to the Khuzestan Province.

***Hipparchia turcmenica* (Heydemann, 1942).** 1♂ no data label.

***Hipparchia parisatis* (Kollar, 1849)** (fig. 2). Bushehr Province: Borazjan, 1♂ 26.xii.2006; Esfahan Province: Esfahan, 1♀ 12.vii.2009, 1♂ 19.vii.2009; Fars Province: Shiraz, 2♂ 25.xii.2004; Khuzestan Province: Izeh, 1♀ 22.x.2013, 1♀ 24.x.2013, 1♀ 1♂ 25.x.2013; Yazd Province: Yazd, 1♀ 24.iii.2012.

Note. This taxon is new to the Bushehr Province.

***Hyponephele wagneri* (Herrich & Schäffer, [1846])** (fig. 2). Khuzestan Province: Ahvaz, 1♂ 29.iv.2003; Izeh, 1♂ 30.viii.2010; Fars Province: Shiraz, 1♀ 30.vii.2009; Yazd Province: Yazd, 1♀ 29.iii.2013; Kerman Province: Sirjan, 1♂ 21.ix.2012.

Note. This taxon is new to the Khuzestan Province.

***Hyponephele lupina* (Costa, 1836).** Khuzestan Province: Ahvaz, 2♀ 2.v.2001, 1♂ 30.vii.2004; Kerman Province: Jiroft, 1♂ 4.v.2012, 2♂ 17.vii.2012, 1♂ 27.vii.2012; Alborz Province: Karaj, 3♂ 29.iv.2001; Dezful, 1♀ 16.vii.1994, 1♀ 13.v.2007; Mollasani, 1♀ 3.v.1968; Shush, 1♂ 26.iv.2012; Fars Province: Fasa, 1♂ 28.vii.2004; Esfahan Province: Esfahan, 1♀ 6.vii.2011; Khorasan-e Razavi Province: Mashhad, 3♀ 10.v.2001; Lorestan Province: Kuhdasht, 1♀ 6.viii.1984, 1♂ 7.viii.1984; Khorramabad, 1♂ 29.vii.1984, 2♀ 8.viii.1984, 2♀ 17.viii.1984, 1♀ 27.ii.2014.

***Brintesia circe* (Fabricius, 1775).** 1♂ no data label.

***Chazara briseis* (Linnaeus, 1764).** Khuzestan Province: Ahvaz, 1♀ 13.iii.2011, 1♂ 1.ix.2013, 1♂ 24.vii.2015; Lorestan Province: Khorramabad, 1♂ 28.iii.2015; Borujerd, 1♀ 2.viii.1984; Aliqadarz, 2♀ 15.v.2012, 1♀ 3.vii.2013; Kuhdasht, 1♂ 13.viii.1984; Fars Province: Shiraz, 1♂ 1♀ 25.viii.2009, 1♂ 29.vi.2011, 1♀ 19.vii.2014; Khorasan-e Razavi Province: Mashhad, 2♀ 10.v.2001; Esfahan Province: Esfahan, 1♀ 11.iv.2006, 1♂ 24.v.2009; Chaharmahal-va Bakhtiari Province: Shahrekord, 1♀ 31.iii.2013, 1♂ 27.vii.2013; Lordegan, 1♂ 24.vii.2015, 1♂ 18.viii.2015.

***Chazara persephone* (Hübner, [1805]).** Fars Province: Shiraz, 1♀ 1♂ 1.viii.2001; Kerman Province: Sirjan, 1♂ 9.ix.2012.

***Chazara enervata* (Staudinger, 1881).** Khorasan-e Razavi Province: Mashhad, 2♀ 10.v.2001.

***Pseudochazara pelopea* (Klug, 1832).** Khuzestan Province: Ahvaz, 1♀ 25.v.1968, 1♂ 25.iv.2015.

***Pseudochazara thelephassa* (Geyer, [1827]).** Khuzestan Province: Ahvaz, 1♀ 19.x.2017; Lorestan Province: Khorramabad, 1♂ 28.iii.2015; Aliqadarz, 1♀ 27.viii.2015; Fars Province: Shiraz, 1♀ 5.v.1988, 1♀ 2.iv.2001, 1♀ 10.ii.2005; Tehran Province: Tehran, 1♂

25.v.1967; Kermanshah Province: Kermanshah, 1♂ 24.iii.2015; Kohgiluyeh-va Boyerahmad Province: Yasuj, 1♀ 3.ix.2012; Hamedan Province: Hamedan, 1♀ 25.v.2000.

***Maniola jurtina* (Linnaeus, 1758).** Hamedan Province: Hamedan, 1♂ 29.iv.2000; Alborz Province: Karaj, 1♂ 30.iv.2001; Golestan Province: Gorgan, 1♀ 30.iv.1964.

***Maniola telmessia* (Zeller, 1847).** Khuzestan Province: Andimeshk, 1♀ 1♂ 3.v.2007, 7♂ 27.iv.2018.

Discussion

Among the identified taxa in our study, 49 taxa were recorded from the Khuzestan Province, from which 11 taxa were new to the fauna of this province. According to the present study and review of the available literature (e.g. Modarres Awal 2002, Nazari 2003, Mossadegh & Kocheili 2003, Naderi 2012), 87 taxa of butterflies have been recorded from the Khuzestan province.

Apart from the interesting books of Nazari (2003) and Naderi (2012), most of the researches on butterflies in Iran have been performed by agricultural entomologists who usually investigate economic aspects of this insect group (Afshar 1946, 1947, Davatchi 1949 and Golestaneh et al. 2009). Meanwhile, the third author (A. Naderi) is publishing a field guide in Persian which will contain 438 species of Iranian butterflies including their photographs.

Our results indicate that, despite quite well-known information about the butterflies in Iran, their detailed distribution and taxonomic status may be further supplemented and revised by conducting more research into the explicit species diversity in each region. Research on the larval foodplant, early stages and life cycle of the taxa is needed as well. For this purpose, there is a good potential for research on butterflies at Iranian universities by postgraduate students which must be considered.

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