

Entomofauna	39/2	Heft 12: 681-695	Ansfelden, 31. August 2018
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Checklist of the family Noctuidae in great Khorasan province, North-east Iran

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Abstract

The great Khorasan province is a distinct unit with numerous endemic species which are outcome of the unique biogeographic situation of this province. This paper presents a checklist of noctuid species in the great Khorasan province, north-east Iran which are reported until this time. Totally, 293 taxa belonging to 102 genera and 14 subfamilies of family Noctuidae occur in this region. Subfamilies Noctuinae and Xyleninae with 105 and 90 species, respectively, have most recorded species among other subfamilies. Moreover, *Polymixis crinomima diluta* RONKAY, VARGA & HREBLAY, 1998 has been first recorded for the fauna of Iran.

Keywords: noctuid moths, fauna, Lepidoptera, biodiversity, *Polymixis*.

Zusammenfassung

Die Provinz Khorasan im Nordosten des Iran ist ein eigenständiges Gebiet mit zahlreichen endemischen Arten, die sich der einzigartigen biogeografischen Situation dieser Provinz verdanken. Dieser Artikel stellt eine Liste aller Noctuidenarten vor, die in Khorasan bis heute vorgefunden wurden. Insgesamt kommen in dieser Region 293 Taxa aus 102 Gattungen und 14 Unterfamilien der Familie Noctuidae vor. Noctuinae und Xyleninae mit 105 bzw. 90 Spezies umfassen die meisten Arten unter den Unterfamilien. Außerdem wurde *Polymixis crinomima diluta* RONKAY, VARGA & HREBLAY, 1998 erstmals für die Fauna des Iran erwähnt.

Schlagwörter: noctuid moths, fauna, Lepidoptera, biodiversity, *Polymixis*.

Introduction

The great Khorasan province of Iran consists of three provinces Khorasan-e-Shomali (north Khorasan), Khorasan-e-Razavi (Razavi Khorasan) and Khorasan-e-Jonoubi (south Khorasan) and is bordered to the north and east by the southern provinces of Turkmenistan

including Kopet Dag Mts. which extending about 650 kilometers from southwest Turkmenistan to north-east Khorasan. Also, the province bordered to the southeast, by Afghanistan country (Fig. 1).

Most researchers included Khorasan area as a distinct unit because of existence of numerous endemic species which is due to the unique biogeographic situation of this province. Presence of a combination of narrow-range species including the endemics of Khorasan, Southwest Asia, south Touran, mountainous Middle Asia and Iran, and wide-ranging ones containing European-Mediterranean, Ancient Mediterranean and Palearctic, makes a very specific fauna and flora for Khorasan province. This combination has a different property from that which is found at the transition between larger biogeographic categories (FET 1994).

Great Khorasan province has many mountainous areas, most in the north and central parts. Although, it containing lowland areas within and also, it contacts the surrounding lowland biotas including certain famous huge Asian deserts which situated in the south of Turkmenistan, the central of Iran and in some parts of Afghanistan. Two main mountainous area in this province are the Binaloud mountain range and the Kopet Dag mountain range. Due to the remarkable concentrations of endemic species in this area that are experiencing loss of habitat because of the human activities, Kopet Dag Mts. are regarded by the scientists as a biodiversity hotspot (GILLESPIE et al. 2012). This area has Juniper forests and open woodlands which is dominated by various xerophile desert and semi-desert species of animals and plants such as hard grasses of the dry grassland (e.g. *Bromus*), ornamental plants (e.g. *Astragalus*, *Acantholimon*), plants with thorny leaf rosettes (e.g. *Cousinia*, *Orostachys*), aromatic plants which are avoided by cattle (e.g. *Zizyphora*, *Nepeta*) and geophytes (e.g. several species of the genus *Tulipa*) (VARGA 2002). Lowland areas of the province which contain flat semi-desert plains with rocky, limestone hills meet the Touran Protected Area and the Kavir and Lut deserts in the east. This area and the mountain slopes facing it have dry and hot climate with the mean annual temperature ranges from 15 to 18 degrees C., the extreme maximum temperature can reach 42 degrees C. and the extreme minimum temperature can fall to -20 degrees C. In most of the region, annual rainfall does not exceed 200 mm and in much of it rainfall is less than 100 mm (HESHMATI 2007). This part of the province mainly dominated with the species of the genera *Cousinia*, *Astragalus*, *Heliotropium*, *Salsola*, *Calligonum*, *Tamarix*, *Veronica*, *Euphorbia*, *Silene*, *Nepeta* and *Valerianella* (RECHINGER 1977).

The family Noctuidae (Lepidoptera) with more than 25000 species (FIBIGER 1990) not only is the most included species in the order Lepidoptera, but it has also important economic effects on the human life. The larvae of several species (e.g. *Spodoptera exigua* (HÜBNER, 1808), *Helicoverpa armigera* (HÜBNER, 1808), *Agrotis segetum* (DENIS & SCHIFFERMÜLLER, 1775), *Sesamia cretica* LEDERER, 1857 and *Trichoplusia ni* (HÜBNER, 1803) are well known agricultural pests and named as armyworms, cutworms, bollworms and stem borers which cause significant damage to the crops each year (KITCHING 1984). Successful management of these pests needs a complete knowledge of their systematics, biology and ecology.

Numerous sampling programs on Noctuidae fauna of northeast Iran were previously conducted by several authors (e.g. BRANDT 1939-1941; BOURSIN 1940-1942; KALALI 1976; EBERT & HACKER 2002; WIESER & STANGELMAIER 2005; RABIEH et al. 2013a-c; RABIEH et al.

2014; RABIEH et al. 2016). However, there is not a general and complete checklist for species of family Noctuidae (Lepidoptera) which are collected in this region, so far. This paper presents a checklist of noctuid species in the great Khorasan province, northeast Iran which are reported until this time. It is clear that this list of species is not a complete list of the family Noctuidae in the region as some parts of this region are poorly studied. In this list, *Polymixis crinomima diluta* RONKAY, VARGA & HREBLAY, 1998 has been first recorded for the fauna of Iran.

Material & Methods

This study is mainly based on a literature review of numerous published documents regarding systematic and faunistic studies of family Noctuidae from the great Khorasan province (including Khorasan-e-Shomali, Khorasan-e-Razavi and Khorasan-e-Jonoubi provinces) in north-east Iran. Figure 1 showing the situation of this province in the country and the situation of two main mountain ranges in the central and north-east parts of the province. Literatures cover a period 1940 (e.g. BOURSIN 1940) to 2016 (RABIEH et al. 2016). The systematics and nomenclature are according to LÖDL et al. (2012). The material examined of the new record species was collected in late summer 2015 in Khorasan-e-Jonoubi province located in northeastern Iran, using 8-watt black light UVB tubes. The genitalia of the female specimen was dissected, stained, and mounted following the standardised way.

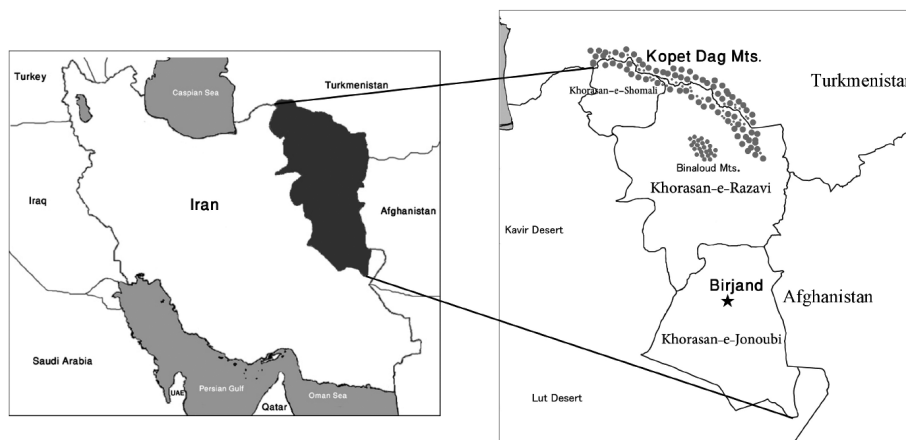


Fig. 1: Situation of the great Khorasan province (including North Khorasan, Razavi Khorasan and South Khorasan provinces) in Iran and its two important mountain ranges.

Results

A checklist of all recorded species in the great Khorasan province is presented. Unlike the subfamilies and genera which are listed according to LÖDL et al. (2012), species in each genus are listed in alphabetic order.

Subfamily Plusiinae BOISDUVAL, 1828

- Abrostola clarissa* (STAUDINGER, 1900) (ZAHIRI & FIBIGER 2008)
Trichoplusia ni (HÜBNER, 1803) (KALALI 1976)
Thysanoplusia orichalcea (FABRICIUS, 1775) (ZAHIRI & FIBIGER 2008)
Chrysodeixis chalcites (ESPER, 1789) (RABIEH et al. 2014)
Macdunnoughia confusa (STEPHENS, 1850) (KALALI 1976)
Desertoplusia bella (CHRISTOPH, 1887) (KALALI 1976)
D. colornata VARGA & L. RONKAY, 1991 (KOÇAK & KEMAL 2014)
Autographa gamma (LINNAEUS, 1758) (KALALI 1976)
Cornutiplusia circumflexa (LINNAEUS, 1758) (KALALI 1976)
Plusia festucae (LINNAEUS, 1758) (KOÇAK & KEMAL 2014)

Subfamily Acronictinae HEINEMANN, 1859

- Acronicta aceris* (LINNAEUS, 1758) (KALALI 1976)
A. megacephala (DENIS & SCHIFFERMÜLLER, 1775) (KALALI 1976)
Craniophora pontica (STAUDINGER, 1879) (KALALI 1976)

Subfamily Metoponinae HERRICH-SCHÄFFER, 1851

- Aegle subflava* (ERSCHOFF, 1874) (KALALI 1976)
Haemerosia albicomma RONKAY, VARGA & HREBLAY, 1998 (RABIEH et al. 2013a)
H. renalis (HÜBNER, 1813) (BRANDT 1941)
Tyta luctuosa (DENIS & SCHIFFERMÜLLER, 1775) (HACKER & MEINEKE 2001; RABIEH et al. 2013a)

Subfamily Acontiinae GUENÉE, 1841

- Acontia lucida* (HUFNAGEL, 1767) (KALALI 1976)
A. titania (ESPER, 1798) (EBERT & HACKER 2002)
Metalopha liturata (CHRISTOPH, 1887) (KALALI 1976)
Metopoceras omar (OBERTHÜR, 1887) (BRANDT 1941)
Tarachephia hueberi (ERSHOV, 1874) (KALALI 1976)
Armada dentata (STAUDINGER 1884) (HACKER 1990)
A. panaceorum (MÉNÉTRIES, 1848) (KALALI 1976)

Subfamily Cuculiinae HERRICH-SCHÄFFER, 1850

- Cucullia argentina ahalina* (PÜNGELER, 1900) (KALALI 1976; RONKAY & RONLAY 1994)
C. boryphora (FISCHER VON WALDHEIM, 1840) (KOÇAK & KEMAL 2014)
C. dracunculi (HÜBNER, 1813) (KOÇAK & KEMAL 2014)
C. hemidiaphana Graeser, 1892 (BRANDT 1941; EBERT & HACKER 2002)
C. khorassana BRANDT 1941 (BRANDT 1941)
C. maracandica STAUDINGER, 1888 (BRANDT 1941; HACKER & MEINEKE 2001)
C. santonici (HÜBNER, 1813) (BRANDT 1941)
C. strigicosta BOURSIN, 1940 (KOÇAK & KEMAL 2014)
C. tecca PÜNGELER, 1906 (KALALI 1976)
Shargacucullia asgharshirvanii RONKAY, RONKAY & GYULAI, 2011 (RONKAY et al. 2011)
S. thapsiphaga anceps (HAMPSON, 1906)
Turanica haeretica (PÜNGELER, 1902) (WIESER & STANGELMAIER 2005)

Subfamily Oncocnemidinae FORBES & FRANCLEMONT, 1954

- Calophasia opalina* (ESPER, 1743) (HACKER & MEINEKE 2001)
Sympistis strioligera (LEDERER, 1853) (BRANDT 1941)
Oncocnemis exacta CHRISTOPH, 1887 (KOÇAK & KEMAL 2014)
O. mongolica iranica SCHWINGENSCHUSS, 1937 (BRANDT 1941)
O. strioligera LEDERER, 1853 (KOÇAK & KEMAL 2014)

Subfamily Amphipyrrinae GUENÉE, 1837

- Amphipyra pyramidea* (LINNAEUS, 1758) (KALALI 1976)
A. tragopoginis (CLERCK, 1759) (BAROU 1967)

Subfamily Psaphidinae GROTE, 1896

- Brachionycha syriaca* WARREN, 1910 (WIESER & STANGELMAIER 2005)
Allophyes sericina RONKAY, VARGA & HREBLAY, 1998 (WIESER & STANGELMAIER 2005)

Subfamily Heliothinae BOISDUVAL, 1828

- Aedophron rhodites* (EVERSMANN, 1851) (MATOV et al. 2008)
A. venosa (CHRISTOPH, 1887) (MATOV et al. 2008)
Schinia scutosa (DENIS & SCHIFFERMÜLLER, 1775) (KALALI 1976)
Heliothis incarnata (FREYER, 1838) (KALALI 1976)
H. maritima GRASLIN, 1855 (MATOV et al. 2008)
H. nubigera (HERRICH-SCHÄFFER, 1851) (BRANDT 1941)
H. peltigera (DENIS & SCHIFFERMÜLLER, 1775) (BRANDT 1941)
H. viriplaca (HUFNAGEL, 1766) (KALALI 1976)
Helicoverpa armigera (HÜBNER, 1808) (KALALI 1976)

Subfamily Eriopinae HERRICH-SCHÄFFER, 1851

Callipistria latreillei (DUPONCHEL, 1827) (KOÇAK & KEMAL 2014)

Subfamily Bryophilinae GUENÉE, 1852

Cryphia algae (FABRICIUS, 1775) (RABIEH et al. 2013a)
C. argentacea (BYTINSKI-SALZ & BRANDT, 1937) (KALALI 1976)
C. duskeimima RONKAY, VARGA & HREBLAY, 1998 (RABIEH et al. 2013a)
C. muralis (FORSTER, 1771) (BRANDT 1941)
C. raptricula (DENIS & SCHIFFERMÜLLER, 1775) (RABIEH et al. 2013a)
C. receptricula (HÜBNER, 1803) (KALALI 1976; RABIEH et al. 2013a)
Bryophila felina (EVERSMANN, 1852) (RABIEH et al. 2013a)
B. Forsteri BRANDT 1941 (BRANDT 1941)
B. maeonis (LEDERER, 1865) (RABIEH et al. 2013a)
Nyctobrya amasina (DRAUDT, 1931) (RABIEH et al. 2013a)
N. muralis (FORSTER, 1771) (KALALI 1976)
Victrix conspersa (CHRISTOPH 1893) (EBERT & HACKER 2002)

Subfamily Xyleninae GUENÉE, 1837

Caradrina abruzzensis rufirena BOURSIN, 1939 (HACKER 2004)
C. adriennea HACKER & GYULAI, 2004 (RABIEH et al. 2013a)
C. albina EVERSMANN, 1848 (WIESER & STANGELMAIER 2005; RABIEH et al. 2013a)
C. armeniaca BOURSIN, 1936 (WIESER & STANGELMAIER 2005)
C. aspersa RAMBUR, 1834 (HACKER 2004)
C. asymmetrica BOURSIN, 1936 (EBERT & HACKER 2002; RABIEH et al. 2013a)
C. belucha SWINHOE, 1885 (RABIEH et al. 2013a)
C. bodenheimeri DRAUDT, 1934 (RABIEH et al. 2013a)
C. Brandti BOURSIN, 1939 (HACKER 2004)
C. didyma BOURSIN, 1939 (HACKER 2004)
C. Draudti (BOURSIN, 1936) (KOÇAK & KEMAL 2014)
C. clavipalpis SCOPOLI, 1763 (EBERT & HACKER 2002)
C. eucrinospila BOURSIN, 1936 (EBERT & HACKER 2002)
C. fergana STAUDINGER, 1892 (HACKER 2004)
C. filipjevi BOURSIN, 1936 (EBERT & HACKER 2002)
C. inopinata HACKER 2004 (HACKER 2004)
C. inumbrata STAUDINGER, 1900 (RABIEH et al. 2013a)
C. khorassana BOURSIN, 1942 (EBERT & HACKER 2002)
C. melanura ALPHÉRAKY, 1897 (HACKER 2004)
C. melanurina STAUDINGER, 1901 (HACKER 2004)
C. montana rougemonti SPULER, 1908 (HACKER 2004)
C. parthica HACKER 2004 (HACKER 2004)
C. pertinax STAUDINGER, 1879 (HACKER 2004)
C. rjabovi (BOURSIN, 1936) (KOÇAK & KEMAL 2014)
C. terrea froitzheimi BOURSIN, 1957 (HACKER 2004)
C. vicina STAUDINGER, 1870 (EBERT & HACKER 2002)
C. warneckei (BOURSIN, 1936) (KOÇAK & KEMAL 2014)

C. wullschlegeli (PÜNGELER, 1903) (KOÇAK & KEMAL 2014)
C. xanthorhoda BOURSIN, 1937 (HACKER & MEINEKE 2001)
C. zernyi BOURSIN, 1936 (RABIEH et al. 2013a)
Hoplodrina ambigua (DENIS & SCHIFFERMÜLLER, 1775) (KALALI 1976)
Spodoptera exigua (HÜBNER, 1808) (KALALI 1976)
S. littoralis (BOISDUVAL, 1833) (WIESER & STANGELMAIER 2005)
Trachea atriplicis (LINNAEUS, 1758) (KOÇAK & KEMAL 2014)
Phoebophilus veteriosa (PÜNGELER, 1908) (BRANDT 1941)
Margelana brunnea FIBIGER, ZAHIRI & KONONENKO, 2007 (KOÇAK & KEMAL 2014)
M. flavidior ochrea BRANDT 1941 (BRANDT 1941)
M. versicolor (STAUDINGER, 1888) (BRANDT 1941)
Chloantha hyperici (DENIS & SCHIFFERMÜLLER, 1775) (BRANDT 1941; EBERT & HACKER 2002)
A. detersa demavendi SCHAWERDA, 1955 (WIESER & STANGELMAIER 2005)
Auchmis peterseni (CHRISTOPH, 1887) (RABIEH et al. 2013a)
Oxytripta orbiculosa (ESPER, 1799) (WIESER & STANGELMAIER 2005)
Gortyna osmana HACKER & KUHNA, 1986 (WIESER & STANGELMAIER 2005)
Rhizedra lutosa (HÜBNER, 1803) (WIESER & STANGELMAIER 2005)
Apamea impedita (CHRISTOPH, 1887) (ZILLI et al. 2009)
A. platinea binaloudi (BRANDT, 1941) (BRANDT 1941)
Mesapamea secalis (LINNAEUS, 1758) (WIESER & STANGELMAIER 2005)
Mesoligia literosa kutchilou BRANDT, 1939 (EBERT & HACKER 2002)
Sesamia cretica LEDERER, 1857 (BASIRI et al. 2007)
Episema glaucina (ESPER, 1789) (EBERT & HACKER 2002)
E. lederi CHRISTOPH, 1885 (KALALI 1976)
Metopodicha antherici CHRISTOPH, 1884 (GYULAI & RONKAY 2008)
Ulochlaena hirta (HÜBNER, 1813) (KALALI 1976)
Cirrhia ocellaris (BORKHAUSEN, 1792) (WIESER & STANGELMAIER 2005)
Agrochola circellaris (HUFNAGEL, 1766) (WIESER & STANGELMAIER 2005)
A. dubatolovi VARGA & RONKAY, 1991 (WIESER & STANGELMAIER 2005)
A. helvola (LINNAEUS, 1758) (WIESER & STANGELMAIER 2005)
A. humilis (DENIS & SCHIFFERMÜLLER, 1775) (WIESER & STANGELMAIER 2005)
A. lychnidis (DENIS & SCHIFFERMÜLLER, 1775) (RABIEH et al. 2013a)
A. schreieri HACKER & WEIGERT, 1986 (WIESER & STANGELMAIER 2005)
A. turcomanica RONKAY, VARGA & HREBLAY, 1998 (WIESER & STANGELMAIER 2005)
Conistra dora HREBLAY, 1992 (WIESER & STANGELMAIER 2005)
C. gabori HREBLAY, 1992 (WIESER & STANGELMAIER 2005)
C. torrida (LEDERER, 1857) (WIESER & STANGELMAIER 2005)
Lithophane alaina BOURSIN, 1957 (FEIZPOOR & SHIRVANI 2011)
L. lapidea (HÜBNER, 1808) (WIESER & STANGELMAIER 2005)
Xylena exsoleta (LINNAEUS, 1758) (WIESER & STANGELMAIER 2005)
Parastichtis corticea (ESPER, 1800) (KOÇAK & KEMAL 2014)
Rhiza commoda STAUDINGER, 1889 (KOÇAK & KEMAL 2014)
R. laciniosa (CHRISTOPH, 1887) (KOÇAK & KEMAL 2014)
Eremohadena coluteae (BIENERT, 1869) (KOÇAK & KEMAL 2014)
E. immunis (STAUDINGER, 1889) (KOÇAK & KEMAL 2014)

E. siri (ERSCHOFF, 1874) (KOÇAK & KEMAL 2014)
E. toerpexa RONKAY & GYULAI, 2006 (RONKAY & GYULAI 2006)
Brandtaxia discalis (BRANDT 1941) (RABIEH et al. 2013a)
Dichonia jahannamah FIBIGER, STANGELMAIER, WIESER & ZAHIRI, 2008 (FIBIGER et al. 2008)
Dasyptolia ferdinandi RÜHLE, 1892 (WIESER & STANGELMAIER 2005)
D. rivandana BENEDEK, SALDAITIS & BABICS, 2014 (BENEDEK et al. 2014)
D. templi (THUNBERG, 1792) (WIESER & STANGELMAIER 2005)
Polymixis apothaina (BRANDT, 1938) (WIESER & STANGELMAIER 2005)
P. atossa (WILTSHIRE, 1941) (FIBIGER & HACKER 2007)
P. crinomima (WILTSHIRE, 1946) (WIESER & STANGELMAIER 2005)

***P. crinomima diluta* RONKAY, VARGA & HREBLAY, 1998 (New record for Iran)**

Material examined: 1 ♀, Khorasan-e-Jonoubi, Birjand, 32°59'59" N 58°44'10" E, 1881m, 16.06.2015.

P. latesco FIBIGER 2001 (WIESER & STANGELMAIER 2005)
P. paradisiacal (WILTSHIRE, 1941) (RABIEH et al. 2013a)
P. rosinae (BOHATSCH, 1908) (WIESER & STANGELMAIER 2005)
P. rufocincta (GEYER, 1828) (WIESER & STANGELMAIER 2005)
P. trisignata (MÉNÉTRIES, 1847) (WIESER & STANGELMAIER 2005)
Pseudohadena pseudamoena (BOURSIN, 1943) (WIESER & STANGELMAIER 2005)

Subfamily Hadeninae GUENÉE, 1837

Perigrapha annau VARGA & RONKAY, 1991 (KOÇAK & KEMAL 2014)
Tholera hilaris (STAUDINGER, 1901) (EBERT & HACKER 2002)
Hadula dianthi (TAUSCHER, 1809) (KALALI 1976)
H. mendica (STAUDINGER, 1895) (KALALI 1976)
H. ptotchica iranica GYULAI, 2002 (GYULAI 2002)
H. trifolii (HUFNAGEL, 1766) (BRANDT 1941)
Cardepija sociabilis (GRASLIN, 1850) (KOÇAK & KEMAL 2014)
Lacanobia blenna (HÜBNER, 1824) (WIESER & STANGELMAIER 2005)
L. oleracea (LINNAEUS, 1758) (BRANDT 1941)
Conisania literata (FISCHER DE WALDHEIM, 1840) (RABIEH et al. 2014)
Hecatera dysodea (DENIS & SCHIFFERMÜLLER, 1775) (KALALI 1976)
H. spinaciae (VIEWEG, 1790) (KOÇAK & KEMAL 2014)
Hadena albimacula (BORKHAUSEN, 1792) (KOÇAK & KEMAL 2014)
H. bactriana HACKER, 1996 (HACKER 1996)
H. compta armeriae (GUENÉE, 1852) (RABIEH et al. 2014)
H. Draudti (BRANDT, 1938) (BRANDT 1941)
H. drenowskii khorassana (HACKER, 1996) (HACKER 1996)
H. elbursica HACKER, 1996 (HACKER 1996)
H. femina HACKER, 1996 (HACKER 1996)
H. gueneei hostilis (PÜNGELER, 1806) (RABIEH et al. 2014)
H. montana (BRANDT 1941) (BRANDT 1941) (RABIEH et al. 2014)
H. magnolii fabiani HACKER, 1996 (HACKER 1996)

H. perplexa (DENIS & SCHIFFERMÜLLER, 1775) (RABIEH et al. 2014)
H. tristis (DRAUDT, 1934) (KOÇAK & KEMAL 2014)
Mythimna ferrago argyristis (RAMBUR, 1858) (RABIEH et al. 2014)
M. l-album (LINNAEUS, 1767) (KALALI 1976)
M. unipuncta (HAWORTH, 1809) (KALALI 1976)
M. vitellina (HÜBNER, 1808) (BRANDT 1941)
Leucania loreyi (DUPONCHEL, 1827) (RABIEH et al. 2014)
L. punctosa (TREITSCHKE, 1825) (RABIEH et al. 2014)
L. zaeae (DUPONCHEL, 1827) (KALALI 1976)
Heptopotamia eustratii ALPHÉRAKY, 1882 (WIESER & STANGELMAIER 2005)
Namangana cretacea (STAUDINGER, 1888) (KOÇAK & KEMAL 2014)

Subfamily Noctuidae LATREILLE, 1809

Peridroma saucia (HÜBNER, 1808) (KALALI 1976)
Actebia opisoleuca (STAUDINGER, 1881) (EBERT & HACKER 2002)
Hemiexarnis berezskii iuguma (BRANDT, 1938) (BRANDT 1941)
Paraxarnis damnata (DRAUDT, 1937) (SHIRVANI 2012)
Dichagyris amoena (STAUDINGER, 1891) (WIESER & STANGELMAIER 2005)
D. anastasia (DRAUDT, 1936) (BRANDT 1941)
D. argentea darius BOURSIN, 1940 (WIESER & STANGELMAIER 2005)
D. candelisequa (DENIS & SCHIFFERMÜLLER, 1775) (RABIEH et al. 2014)
D. celebrata (ALPHÉRAKY, 1897) (KOÇAK & KEMAL 2014)
D. devota (CHRISTOPH, 1884) (KOÇAK & KEMAL 2014)
D. disturbans (PÜNGELER, 1914) (EBERT & HACKER 2002)
D. elbursica (DRAUDT, 1937) (BRANDT 1941)
D. erubescens (STAUDINGER, 1891) (BRANDT 1941)
D. eureteocles (BOURSIN, 1940) (WIESER & STANGELMAIER 2005)
D. flammatra (DENIS & SCHIFFERMÜLLER, 1775) (KALALI 1976)
D. forficula (EVERSMANN, 1851) (KALALI 1976)
D. grisescens STAUDINGER, 1878 (KALALI 1976)
D. humilis (BOURSIN, 1940) (BRANDT 1941; EBERT & HACKER 2002)
D. iranica (KOÇAK, 1980) (KOÇAK & KEMAL 2014)
D. leucomelas BRANDT 1941 (BRANDT 1941)
D. multicuspis (EVERSMANN, 1852) (EBERT & HACKER 2002)
D. melanuroides KOZHANTSHIKOV, 1930 (KOÇAK & KEMAL 2014)
D. orientis (ALPHÉRAKY, 1882) (KOÇAK & KEMAL 2014)
D. psammochroa (BOURSIN, 1940) (RABIEH et al. 2014)
D. romanovi (CHRISTOPH, 1885) (KRAVCHENKO et al. 2007)
D. terminicincta (CORTI, 1933) (EBERT & HACKER 2002)
D. truculenta khorassana BRANDT 1941 (BRANDT 1941)
D. tyrannus (BANG-HAAS, 1912) (HACKER & MEINEKE 2001)
D. tyrannus beluchus BRANDT 1941 (BRANDT 1941)
D. singularis mesopotamica HACKER & WEIGERT, 1986 (WIESER & STANGELMAIER 2005)
D. squalidior (STAUDINGER, 1901) (EBERT & HACKER 2002)
D. squalorum EVERSMANN 1856 (HACKER & MEINEKE 2001)
D. strenua (CORTI, 1926) (EBERT & HACKER 2002)

D. taftana BRANDT, 1941 (KOÇAK & KEMAL 2014)
D. unifica (KOZHANTSHIKOV, 1937) (HACKER & MEINEKE 2001)
D. vallesiaca subsqualorum KOZHANCHIKOV, 1930 (BRANDT 1941)
D. weigerti HACKER & VARGA, 1990 (HACKER & MEINEKE 2001)
Eucoptocnemis benigna (CORTI, 1926) (WIESER & STANGELMAIER 2005)
Euxoa acuminifera (EVERSMANN, 1854) (RABIEH et al. 2016)
E. aquilina (DENIS & SCHIFFERMÜLLER, 1775) (RABIEH et al. 2016)
E. aneucta binaloudica BRANDT 1941 (BRANDT 1941)
E. basigramma hyrcana CORTI, 1932 (RABIEH et al. 2014)
E. cespitis (SWINHOE, 1885) (KOÇAK & KEMAL 2014)
E. clauda PÜNGELER, 1906 (BRANDT 1941; EBERT & HACKER 2002)
E. conspicua (HÜBNER, 1827) (BRANDT 1941)
E. cos (HÜBNER, 1824) (BRANDT 1941; RABIEH et al. 2014)
E. difficillima DRAUDT, 1937 (BRANDT 1941; EBERT & HACKER 2002)
E. fallax (EVERSMANN, 1854) (BRANDT 1941)
E. foeda (LEDERER, 1855) (FIBIGER 1990)
E. homicida (STAUDINGER, 1900) (HACKER 1990)
E. homicida schahkuhensis BARTEL, 1907 (HACKER 1990; HACKER & MEINEKE 2001)
E. mustelina (CHRISTOPH, 1877) (BRANDT 1941; EBERT & HACKER 2002)
E. periera BRANDT, 1938 (EBERT & HACKER 2002)
E. periera dolomedes BOURSIN, 1940 (BRANDT 1941)
E. sayvana VARGA & RONKAY, 1998 (RABIEH et al. 2014)
E. shahabbasi GYULAI & VARGA 2002 (VARGA & GYULAI 2002)
E. sigmata KOZHANCHIKOV, 1928 (EBERT & HACKER 2002)
E. subdecora HAMPSON, 1903 (KOÇAK & KEMAL 2014)
E. temera (HÜBNER, 1808) (KALALI 1976)
E. vanensis DRAUDT, 1937 (BRANDT 1941)
Agrotis bifurca grossi HACKER & KUHN, 1986 (EBERT & HACKER 2002)
A. bigramma (ESPER, 1790) (BRANDT 1941)
A. exclamationis (LINNAEUS, 1758) (KALALI 1976)
A. ipsilon (HUFNAGEL, 1766) (KALALI 1976)
A. lasserei (OBERTHÜR, 1881) (WIESER & STANGELMAIER 2005)
A. lupinus BRANDT 1941 (BRANDT 1941)
A. obesa BOISDUVAL, 1829 (WIESER & STANGELMAIER 2005)
A. segetum (DENIS & SCHIFFERMÜLLER, 1775) (KALALI 1976)
Eicomorpha koeppeni ALPHÉRAKY, 1894 (KOÇAK & KEMAL 2014)
E. firyza RONKAY, VARGA & HREBLAY, 1998 (RABIEH et al. 2014)
Epipsilia latens (HÜBNER, 1809) (BRANDT 1941)
Rhyacia arenacea (HAMPSON, 1907) (KHEYRI, 1989)
Chersotis alpestris ponticola (DRAUDT, 1936) (EBERT & HACKER 2002)
Ch. binaloudi BRANDT, 1941 (BRANDT 1941)
Ch. curvispina BOURSIN, 1961 (RABIEH et al. 2013b)
Ch. fimbriola raddei (CHRISTOPH, 1877) (EBERT & HACKER 2002)
Ch. firdussi SCHWINGENSCHUSS, 1937 (BRANDT 1941; EBERT & HACKER 2002)
Ch. juvenis (STAUDINGER, 1901) (BRANDT 1941)

Ch. kouros VARGA & RONKAY, 1996 (RABIEH et al. 2014)
Ch. larixia erebina (BOURSIN, 1940) (EBERT & HACKER 2002)
Ch. margaritacea (VILLERS, 1789) (WIESER & STANGELMAIER 2005)
Ch. nitiens BRANDT, 1941 (BRANDT 1941)
Ch. sarhada BRANDT, 1941 (BRANDT 1941; EBERT & HACKER 2002)
Ch. semna (PÜNGELER, 1906) (BRANDT 1941)
Standfussiana defessa (LEDERER, 1858) (BRANDT 1941; HACKER, 2001)
S. lucernea elbursica BOURSIN, 1963 (HACKER 2001)
Noctua fimbriata (SCHREBER, 1759) (RABIEH et al. 2014)
N. orbona (HUFNAGEL, 1766) (RABIEH et al. 2014)
Spaelotis demavendi (WAGNER, 1937) (BRANDT 1941; EBERT & HACKER 2002)
S. deplorata (STAUDINGER, 1896) (RABIEH et al. 2014)
S. ravidata (DENIS & SCHIFFERMÜLLER, 1775) (RABIEH et al. 2014)
S. senna (FREYER, 1829) (RABIEH et al. 2014)
Opigena polygona (DENIS & SCHIFFERMÜLLER, 1775) (BRANDT 1941)
Xenophysa cacumena BRANDT, 1938 (BRANDT 1941; EBERT & HACKER 2002)
X. junctimacula (CHRISTOPH, 1887) (HACKER & MEINEKE 2001)
Xestia c-nigrum (LINNAEUS, 1758) (KALALI 1976)
X. xanthographa (DENIS & SCHIFFERMÜLLER, 1775) (EBERT & HACKER 2002)
Goniographa marcida (CHRISTOPH, 1893) (VARGA & RONKAY 2002)
Eugnorisma cuneiferum VARGA & RONKAY, 1994 (RABIEH et al. 2013c)
E. eminens (LEDERER, 1855) (BRANDT 1941; RABIEH et al. 2013c)
E. insignata (LEDERER, 1853) (RABIEH et al. 2013c)
E. insignata pallescens (CHRISTOPH, 1893) (RABIEH et al. 2013c)
E. pontica deserta RONKAY, VARGA & HREBLAY, 1998 (RABIEH et al. 2013c)
E. spodia (PÜNGELER, 1900) (RABIEH et al. 2013c)
Anagrorisma chamrani GYULAI, RABIEH & RONKAY, 2013 (GYULAI et al. 2013)

Discussion

According to our results, 293 species and subspecies of family Noctuidae belonging to 102 genera and 14 subfamilies occur in the great Khorasan province, north-east of Iran. Three subfamilies Noctuinae, Xyleninae and Hadeninae with 105, 88 and 33 taxa, respectively, have most recorded species and subspecies among other subfamilies in the studied region. Subfamilies Amphipyriinae and Psaphidinae with two recorded species and Eriopinae with one species have the least recorded taxa among other subfamilies.

Since some parts in the north and the south of the province despite their unique biogeographic situation are poorly studied, so far, the present specific number of noctuid moths of the great Khorasan province presented is still less than to be expected. Some species of the family Noctuidae which occur in the northern parts of the Kopet Dag Mts. in Turkmenistan may also found in the southern parts in Iran. For example, RONKAY et al. (1998) authored *Cryphia basivittata* RONKAY, VARGA & HREBLAY, 1998, *Dasypolia nebulosa* RONKAY, VARGA & HREBLAY, 1998, *Haemosia ionochlora* RONKAY, VARGA & HREBLAY, 1998 and *Dasypolia ipaykala* RONKAY, VARGA & HREBLAY, 1998 from the Kopet Dag Mts. in Turkmenistan. Interestingly, species *D. ipaykala* is reported from the Alborz Mts. in northern Iran (KOÇAK & KEMAL 2014). Also, *Dichagyris spintheropis* VARGA & RONKAY, 1996, *Eremohadena orias* (RONKAY & VARGA, 1993), *Ostheldera minna* RONKAY & VARGA, 1994 and *D. korshunovi* VARGA, 1996 are reported from the Kopet Dag Mts. in Turkmenistan by other authors which likely to be found in Khorasan. RABIEH et al. (2013a) and RABIEH et al. (2014) reported *C. duskeimima*, *H. albicomma*, *E. sayvana* and *E. firyuza* for first time from Iran which all were collected from Khorasan province. These species were previously reported from Kopet Dag Mts. in Turkmenistan.

Besides the faunistic information, future studies in different parts of the province are needed to provide information on unknown bionomics and distributions of many recorded species.

Acknowledgements

I would like to express my sincere gratitude to Dr. Mehdi Esfandiari for helpful comments on this manuscript. This study was financially supported by the Birjand University, Birjand, Iran.

Summary

A checklist of noctuid species (Lepidoptera, Noctuidae) in the great Khorasan province, north-east Iran which are reported until this time is presented. Totally, 293 taxa belonging to 102 genera and 14 subfamilies of family Noctuidae occur in this region.

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