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A study on *Agrochola* s. l. (Lep.: Noctuidae) of Iran with three new records

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ABSTRACT. The genus *Agrochola* s. l. Hübner, 1821 (Noctuidae, Xyleninae, Xylenini, Xylenina) include more than seventy described species, most of them have a quite typical external habitus. Due to recent revisions on this lineage in the Palaearctic, we decided to update the data of this group in Iran, according to the latest synonymy information and distribution data. A total of 18 taxa belonging to *Agrochola* s. l. of Iran was listed among them, three taxa namely *Agrochola imitata* Ronkay, 1984, *A. consueta* (Herrich-Schäffer, 1852) and *A. helvola pallescens* (Warren, 1911) are newly recorded for the fauna of Iran. A list of *Agrochola* s. l. taxa of Iran with their synonymy and distribution data is given together with some notes and illustrations of genitalia and wing pattern for the new records. It is suggested to do more intensive exploration and study the food plants of Iranian *Agrochola* in their habitats, especially in the Zagros range in western Iran.

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Introduction

The genus *Agrochola* s. l. Hübner, 1821 (Noctuidae, Xyleninae, Xylenini, Xylenina) was first revised by Boursin (1956) according to the genitalia characters of Mediterranean and West Asian species. Studies were deepened in later decades by providing new materials from different parts of Asia (Benedek & Ronkay, 2001). This Holarctic-Oriental genus is supposed to be polyphyletic and including more than seventy described species. Most of the species have a quite typical external habitus. The agrocholoid complex has been split into multiple genera and subgenera (e.g. Beck, 1991, 1999). For example, one of the large lineages is *Anchoscelis* which has been treated as a subgenus (Ronkay et al., 2001) or distinct genus (Ronkay et al., 2017) by several authors. *Agrochola* s. l., as a common generic unit, is diagnosed based on the following characters; small or medium-sized species. Head large, covered with short hair-like scales, male antenna fairly serrate or dentate, cilia of variable length collected into tufts, female antenna filiform, with dispersed cilia. Abdomen usually

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long, slender and cylindrical and often with basal abdominal coremata. Forewing elongate, narrow, with acute apex and an evenly semilunar outer margin. Hindwing relatively broad, rounded or a bit elongate, with sometimes a bit flat outer margin (Ronkay et al., 2001). According to Ronkay et al. (2001) the agrocholoid complex is an originally arboreal group, the oldest members inhabit high mountain forests in the Himalayan area. However, some of the species occupied other habitats and adapted to dry, warm and semi desert-like shrubby or bushy niches. The moths are univoltine and adults appear in autumn. The greater number of species overwinter as egg and larvae are usually polyphagous on herbaceous plants. Although it is a Holarctic-Oriental genus, it is most abundant in the Palaearctic area. Feizpoor & Shirvani (2014) listed 13 species of *Agrochola* from Iran, including a new record for the Iranian fauna. We revised and updated this list according to the latest synonymy information and distribution data. Moreover, we report three new records for *Agrochola* s. l. of Iran with illustrations of their genitalia and wing pattern.

Material and methods

The collecting was carried out in three locations and different altitudes of Zagros mountains in Khuzestan and Ilam provinces during 2018-2019, using light traps powered by 12 Volt batteries and 8 Watt black-light tubes. The Zagros mountain range was dominated by oak forests at the sampling sites. All specimens were mounted and identified using available descriptions and illustrations (e.g. Ronkay et al., 2017). Vouchers of the examined specimens and their genitalia slides were deposited in the Insect and Mite Collection of Ahvaz (IMCA), Plant Protection Department, Shahid Chamran University of Ahvaz. The relevant literature on *Agrochola* of Iran was reviewed, distribution data were revised according to recent synonymy and presented based on Iran's provincial subdivisions. Species sequence and nomenclature used here, follow Ronkay et al. (2001) and Lödl et al. (2012) with some subsequent modifications. The following abbreviations are used for depositories, where the type specimens were addressed: **BIN:** Biological Inistitute, Russian Academy of Science, Novosibirsk, Russia**; BMNH**: British Museum of Natural History, London, UK; **HNHM**: Hungarian Natural History Museum, Budapest, Hungary; **NHMV:** Natural History Museum, Vienna, Austria; **ZSM:** Zoologische Sammlung des Bayerischen Staates, Munich, Germany.

Results

In this study, a total of 18 taxa belonging to *Agrochola* s. l. of Iran were listed among which, three taxa namely *A. imitata* Ronkay, 1984, *A. consueta* (Herrich-Schäffer, 1852) and *A. helvola pallescens* (Warren, 1911) are newly recorded for the fauna of Iran. *A. lychnidis* (Denis & Schiffermüller, 1775) was also a new provincial record for Ilam. A list of *Agrochola* s. l. taxa of Iran with their synonymy and distribution data is given below as well as some notes and illustrations of genitalia and wing pattern for new records.

Family Noctuidae Latreille, 1809

Subfamily Xyleninae Guenée, 1837

Genus *Agrochola* Hübner, 1837

Agrochola lychnidis (Denis & Schiffermüller, 1775)

Noctua lychnidis [Denis & Schiffermüller], 1775, *Ankündung eines systematischen Werkes von den Schmetterlinge der Wienergegend* 1775:76. Type-locality: [Austria] Vienna region. Types destroyed.

Synonyms: *Noctua pistacina* [Denis & Schiffermüller], 1775; *Phalaena Noctua canaria* Esper, 1971; *Phalaena Noctua rubetra* Esper, 1971; *Phalaena Noctua schoenobaena* Esper, 1971; *Phalaena Noctua serina* Esper, 1791; *Phalaena lineola* Donovan, 1801; *Noctua ferrea* Haworth, 1809; *Noctua sphaerulatina* Haworth, 1809; *Noctua venosa* Haworth, 1809; *Orthosia pistacina* var. *silesiaca* Shultz, 1905; *Orthosia haematidea* f. *corsica* Culot, 1914; *Agrochola lychnidis aequalis* Hacker, 1996; *Agrochola occulta* Hacker, 1996.

Material examined. 2♂♂, Khuzestan, Shelal village, 32º19′68″ N, 49º35′06″ E, 1460 m, 27.XII.2018; 1♂, 32º16′83″ N, 49º32′05″ E, 900 m., 28.XII.2018; 1♂, Ilam, Manesht and Ghelarang protected area, 33º34′60″ N, 46º33′37″ E, 1900 m, 14.XI.2018; 1♀, 33º34′74″ N, 46º36′41″ E, 2187 m, 13.XI.2018.

General distribution. It is distributed in Europe, northwestern Africa, western and central Asia, western and central Siberia and western Himalayas (Ronkay et al., 2017).

Distribution in Iran. Tehran (Ebert & Hacker, 2002), North Khorasan (Feizpoor & Shirvani, 2014), Khorasan-e Razavi (Rabieh et al. 2013), Khuzestan (Ravan et al., 2016; Shahreyari-Nejad et al., 2018) and Bushehr (Lehmann et al., 2009). This is a new record for Ilam province.

Agrochola egorovi (O. Bang-Haas, 1934)

Amathes egorovi O. Bang-Haas, 1934, *Entomogische Zeitschrift* 48:56. Type-locality: [Russia, Daghestan] Chodzhal- Machi. Lectotype: male, in coll. NHMV.

Synonym: *Agrochola egorovi laciniatae* Wiltshire, 1958.

General distribution. Turkey, Syria, Caucasus and Iran (Ronkay et al., 2017).

Distribution in Iran. Alborz and Zagros range (e.g. Fars and Esfahan) (Ronkay et al., 2017).

Agrochola azerica Ronkay & Gyulai, 1997

Agrochola azerica Ronkay & Gyulai, 1997, *Acta Zoologica Academiae Scientiarum Hungaricae* 43(2):141. Type-locality: Azerbaijan, Talysh Mts, Massallynski district, Ysti-su. Holotype: male, in coll. P. Gyulai (Miskolc).

General distribution. Azerbaijan and Iran (Ronkay & Gyulai, 1997; Ronkay et al., 2017).

Distribution in Iran. Northwestern of Iran in the Alborz Mts (Ronkay et al., 2017).

Agrochola janhillmanni Hacker & Moberg, 1989

Agrochola janhillmanni Hacker & Moberg, 1989, *Nota Lepidoterologica* 12(2):128. Type-locality: Turkey, Prov. Hakkari, Tanin Tanin Mts, Elkek Pass, 7 km NNE of Uludere, 2200 m. Holotype: male, in coll. ZSM.

General distribution. Turkey and Iran (Hacker & Moberg, 1989; Ronkay et al., 2017).

Distribution in Iran. Kordestan (Ronkay et al., 2017).

Agrochola dubatolovi Varga & Ronkay, 1991

Agrochola dubatolovi Varga & Ronkay, 1991, *Acta Zoologica Academiae Scientiarum Hungaricae* 37(3-4):285. Type-locality: Turkmenistan. Kopet-Dagh, Dushak Mt. 15 km N of Firyuza. Holotype: male, in coll. BIN.

General distribution. Both sides of Kopet-Dagh Mts as well as North Iran (Varga & Ronkay, 1991; Ronkay et al., 2017).

Distribution in Iran. Golestan and North Khorasan (Wieser & Stangelmaier, 2005).

Agrochola elbursica Ronkay & Gyulai, 2006

Agrochola (*Alpichola*) *elbursica* Ronkay & Gyulai, 2006, *Esperiana* 12:215. Type-locality: Iran, Prov. Zanjan, W Elburs Mts. Tarom valley, 20 km NE of Zanjan, 2350 m. Holotype: male, in coll. P. Gyulai (Miskolc).

General distribution. So far, it has only recorded from northern Iran (Ronkay & Gyulai, 2006).

Distribution in Iran. Zanjan (Ronkay & Gyulai, 2006).

Agrochola imitata Ronkay, 1984

Agrochola imitata Ronkay, 1984, *Acta Zoologica Academiae Scientiarum Hungaricae* 38:186. Type-locality: Iraq, "Zawita Dohuk" [=Duhok]. Holotype: male, in coll. HNHM.

Material examined. 1♂, Ilam, Manesht and Ghelarang protected area, 33º34′60″ N, 4633′37″ E, 1900 m, 14.XI.2018; 1♂, Kabir Kooh, 33º03′56″N 47º18′57″ E, 1700 m., 12.XI.2018.

Identification. (Fig. 1), male: wingspan 30-31 mm., antennae ciliate with fasciculate cilia. Head, collar, tegulae, thorax and forewing unicolorous, beige light brown. Forewing short, broad; crosslines not clearly visible, postmedian and subterminal lines marked with darker arrowheads; orbicular and reniform stigmata conspicuous, the former small and narrow, filling of both dark brown; fringes as ground color. Hindwing beige with darker marginal area, discal spot present, fringes as ground color.

Male genitalia: uncus long, hairy, tapering, tegumen narrow and high, penicular lobes ovoid-rectangular, juxta broad, serrate apically, vinculum narrow, V-shaped, valvae long, costal margin convex medially, costal extension double-peaked; sacculus short, clasper thin, very long, sinuous apically, cucullus small, acute, corona present. Aedeagus curved, carina with strong serrate-dentate plate dorsally, vesica long, tubular, recurved ventro-laterally, basal diverticula conical, subterminal diverticulum short, with well-developed spinulose field, distal part of vesica with narrow field of long, fine spicula, terminal cornutus long, fine.

Female genitalia: The female genitalia was figured by Ronkay et al. (2017): ovipositor short, gonapophyses slender, ostium bursae sclerotized, ductus bursae short, broad, sclerotized, corpus bursae globular, signum present.

None of the Iranian *Agrochola* species resembles *A. imitata* however, the closest relative of this species is *A. thurneri* Boursin, 1953. The narrower and darker orbicular and reniform stigmata on the forewing and the paler hindwing of *A. imitata* are differentiating characters between the two species. As explained in Ronkay et al. (2001) the differences between the genitalia structures of the two species are quite diagnostic.

General distribution. South-eastern Turkey and northern Iraq (Ronkay et al., 2017).

Distribution in Iran. This is new for Iranian fauna.

Note. Its flight period is mainly in autumn. It is attracted to the light.

Figure 1. Adult of *Agrochola imitata*: **A.** Male wing pattern; **B.** Male genitalia, armature (up) and aedeagus with everted vesica (down).

Agrochola humilis (Denis & Schiffermüller, 1775)

Noctua humilis Denis & Schiffermüller, 1775, *Ankündung eines systematischen Werkes von den Schmetterlingen der Wienergegend* 1775:76. Type-locality: [Austria], Vienna district. Types destroyed.

Synonym: *Agrochola humilis anatolica* Pinker, 1980.

General distribution. Southern Europe, Asia minor and Armenia (Ronkay et al., 2017).

Distribution in Iran. Golestan and North Khorasan (Wieser & Stangelmaier, 2005).

Agrochola oropotamica oropotamica (Wiltshire, 1941)

Amathes oropotamica Wiltshire, 1941, *Journal of the Bombay Natural History Society*, 42:475. Type-locality: Iran, Prov. Fars, Sineh Sefid. Holotype: female: in coll. BMNH.

Synonyms: *Amathes modesta* Brandt, 1941; *Amathes oropotamica thermopotamica* Wiltshire, 1941.

General distribution. Iran, Uzbekistan, Tadjikistan and Kirghisia (Ronkay et al., 2017).

Distribution in Iran. Fars (Wiltshire, 1941), Bushehr (Lehman et al., 2009), Mazandaran, Markazi, Tehran, Alborz (Ebert & Hacker, 2002) and Sistan-va-Baluchistan (Feizpour & Shirvani, 2014).

Agrochola oropotamica archar Ronkay, Varga & Hreblay, 1998

Agrochola oropotamica archar Ronkay, Varga & Hreblay, 1998; *Acta Zoologica Academiae Scientiarum Hungaricae* 44(3):256. Type-locality: Turkmenistan, 80 km SE of Tedjen, 200-300 m, 36°56′N, 60°53′E. Holotype: male, in coll. G. Ronkay (Budapest).

General distribution. Turkmenian side of Kopet-Dagh Mts (Ronkay et al., 2017).

Distribution in Iran. North Khorasan (Wieser & Stangelmaier, 2005) and South Khorasan (Shahreyari-Nejad et al., 2018).

Agrochola consueta (Herrich-Schäffer, 1852)

Orthosia consueta Herrich-Schäffer, 1852, *Systematische Bearbeitung der Schmetterlinge von Europa*, 6:59. Type-locality: [Turkey] Constantinopole (Istanbul).

Synonym: *Agrochola kindermanni* sensu auctorum, nec Fischer von Röslerstamm, 1838.

Material examined. 4♂♂, 2♀♀, Ilam, Manesht and Ghelarang protected area, 33º34′60″ N, 4633′37″ E, 1900 m., 14.XI.2018, 35♂♂♀♀, 33º34′74″ N, 46º36′41″ E, 2187 m., 13.XI.2018; 3♂♂, 2♀♀, Kabir Kooh, 33º02′70″ N, 47º19′84″E, 1190 m., 11.XI.2018; 3♂♂, 33º03′56″ N, 47º18′57″ E, 1700 m., 12.XI.2018.

Identification. (Fig. 2), male: wingspan 28–30 mm., antennae ciliate with fasciculate cilia. Body robust, head, thorax and forewing ground color ochreous brownish. Forewing narrow; crosslines present, antemedian and postmedian lines double; orbicular and reniform stigmata conspicuous, the later filled with dark; terminal line fine, light brown, fringes as ground color. Hindwing ochreous dark brown. Female, as male, larger in size.

Male genitalia: uncus long, slender, curved, pointed apically, tegumen low and broad, penicular lobes present, vinculum V-shaped, valvae elongate, costal plate heavily sclerotized with two long processes in different sizes; sacculus short, sclerotized, clasper strong, slightly curved, pointed, cucullus small, triangular, corona present. Aedeagus short, thick, slightly curved, carina with broad, sclerotized plates with pyramidal processes, vesica long, tubular, recurved ventro-laterally, two medial diverticula short, conical, subterminal diverticulum large, distal part of vesica with narrow line of short spicula, terminal cornutus long, arcuate.

Female genitalia: ovipositor very long, weak, posterior apophyses more than twice longer than anterior ones, ostium bursae sclerotized, quadrangular, ductus bursae long, tubular, sclerotized, dilated distally, corpus bursae large, globular, signa present, appendix bursae small.

A. consueta is confusingly similar to its allopatric sister species, *A. kindermanni* (Fischer von Röslerstamm, 1838). The taxonomic and nomenclatural problems surrounding these taxa are fully discussed and finally resolved by Ronkay et al. (2017).

General distribution. Lebanon, Iraq and Turkey (Ronkay et al., 2017).

Distribution in Iran. This is new for Iranian fauna.

Note. A xerophilous species which mostly occur in hot and dry oak forests and bushy slops. It attracts to the light and the main flight takes place in autumn.

Agrochola fuscomixta Ronkay & Gyulai, 2006

Agrochola (Anchoscelis) fuscomixta Ronkay and Gyulai, 2006, *Esperiana* 12:216. Type-locality: Iran, Prov. East Azerbaijan, 7 km NW of Miyane. Holotype: Male, in coll. P. Gyulai (Miskolc).

General distribution. Northwest Iran (Ronkay & Gyulai, 2006).

Distribution in Iran. East Azerbaijan (Ronkay & Gyulai, 2006).

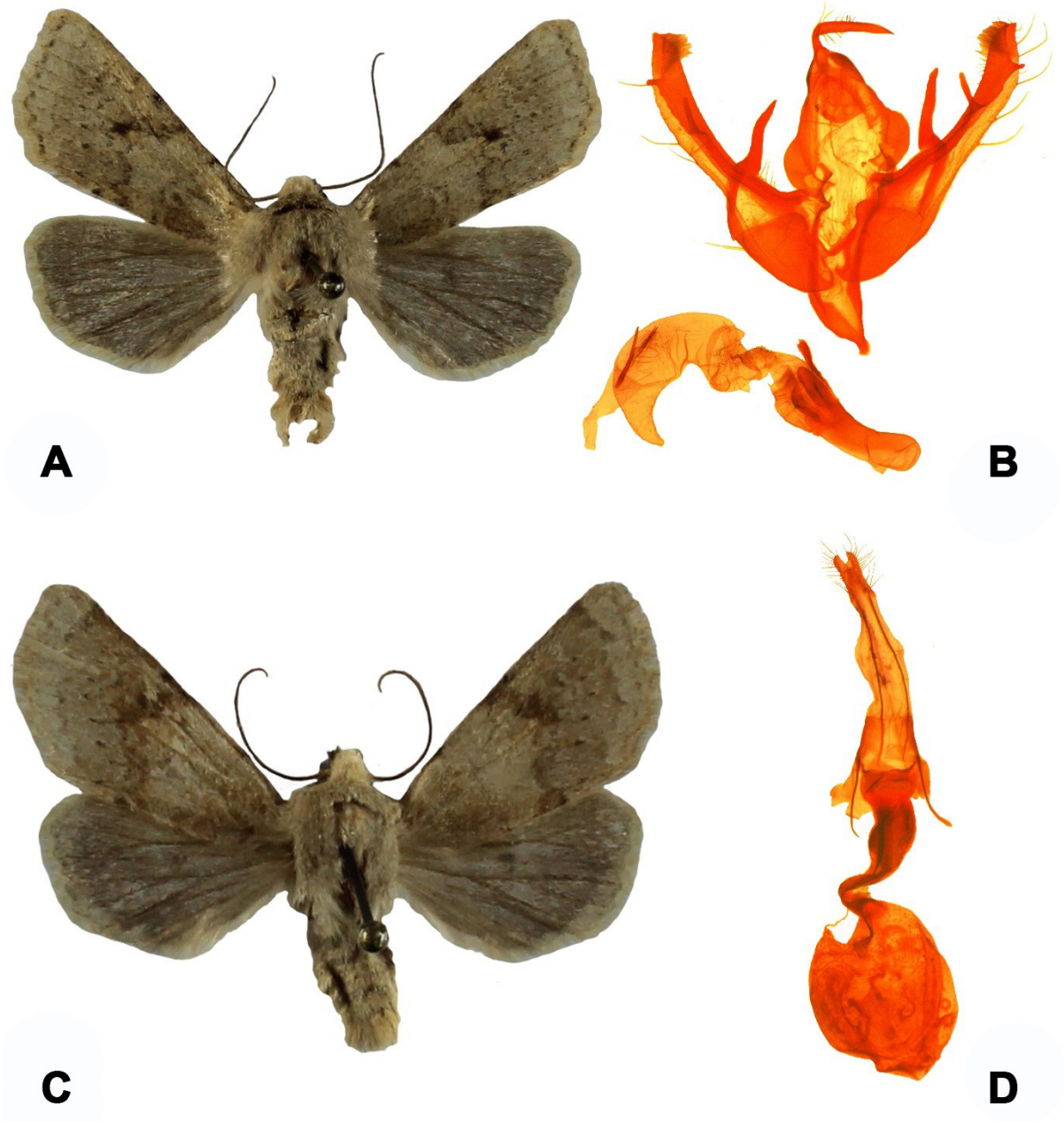

Figure 2. Adults of *Agrochola consueta*: wing patterns of **A.** male & **C.** female; **B.** male genitalia, armature (up) and aedeagus with everted vesica (down); **D.** female genitalia.

Agrochola luteogrisea (Warren, 1911)

Amathes litura ab. *luteogrisea* Warren, 1911, *Die Gross-Schmetterlinge der Erde,* 3:152. Type-locality: Turkey, Amasia. Holotype: Female, in coll. BMNH.

Synonym: *Agrochola sairtana* Derra, 1990.

General distribution. Serbia, Bulgaria, Greece, Turkey, Syria, Armenia, Azerbaijan and NW Iran (Ronkay et al., 2017).

Distribution in Iran. Gilan (Ebert & Hacker, 2002).

Agrochola turcomanica Ronkay, Varga & Hreblay, 1998

Agrochola turcomanica Ronkay, Varga & Hreblay, 1998, *Acta Zoologica Academiae Scientiarum Hungaricae*, 44 (3): 258. Type-locality: Turkmenistan, Kopet-Dagh Mts, Sayvan valley, 10 km N of Sayvan, 1300 m, 38°25′N 56°52′E, Holotype: male, in coll. HNHM.

General distribution. Both sides of Kopet-Dagh in Turkmenistan and Iran (Ronkay et al., 2017).

Distribution in Iran. Golestan and North Khorasan (Wieser & Stangelmaier, 2005; Feizpoor & Shirvani, 2014).

Agrochola helvola pallescens (Warren, 1911)

Amathes helvola ab. *pallescens* Warren, 1911, *in* Seitz, *Die Gross-Schmetterlinge der Erde* 3:152. Type-locality: Turkey, Amasia. Holotype: mal, in coll. BMNH.

Material examined. 1♂, 1♀, Ilam, Manesht and Ghelarang protected area, 33º34′60″ N, 46º33′37″ E, 1900 m., 14.XI.2018.

Identification. (Fig. 3), male: wingspan 33 mm., antennae ciliate with fasciculate cilia. Body robust, head, collar, tegula, thorax and forewing unicolorous pale ochreous-brown. Forewing simple, short, broad; crosslines missing, veins visible; orbicular and reniform stigmata conspicuous, fillings of both pale; fringes as ground color. Hindwing ochreous white. Female, as male, slightly larger.

Male genitalia: uncus short, thick, tapering, tegumen high, broad, penicular lobes large, hairy, quadrangular, vinculum short, V-shaped, valvae elongate, curved apically, costal plate short, narrow, sclerotized with apical processes; sacculus short, quadrangular, sclerotized, clasper very long, slender, cucullus triangular, corona present. Aedeagus short, very thick, slightly curved, vesica long, broadly tubular, everted forward, upturned basally, helicoid medially, basal diverticulum short, medial and distal diverticula conical, the later larger, terminal cornutus long, dilated subapically.

Female genitalia: ovipositor short, gonapophyses slender, ostium bursae sclerotized, quadrate-trapezoidal, ductus bursae long, tubular, posterior third sclerotized, broader anteriorly, appendix bursae globular, corpus bursae large, semi-globular, signum strips present.

Agrochola helvola pallescens differs from the nominotypical subspecies *A. helvola helvola* (Linnaeus, 1758) by its paler forewing and hindwing coloration, missing forewing crosslines and pale stigmata (Ronkay et al. 2017).

General distribution. Lebanon, Turkey, Iraq, Armenia and Azerbaijan (Ronkay et al., 2017). The typical species has a Euro-Siberian distribution.

Distribution in Iran. This is new for Iranian fauna.

Note. Wieser & Stangelmaier (2005) recorded the nominotypical subspecies *A. helvola* (Linnaeus, 1758) from Golestan and North Khorasan, but that report was not confirmed by Ronkay et al. (2017). Hence, here we present a confirmed record of this species as *A. helvola pallescens* from Iran for the first time. This subspecies is on the wing in autumn and attract to the light.

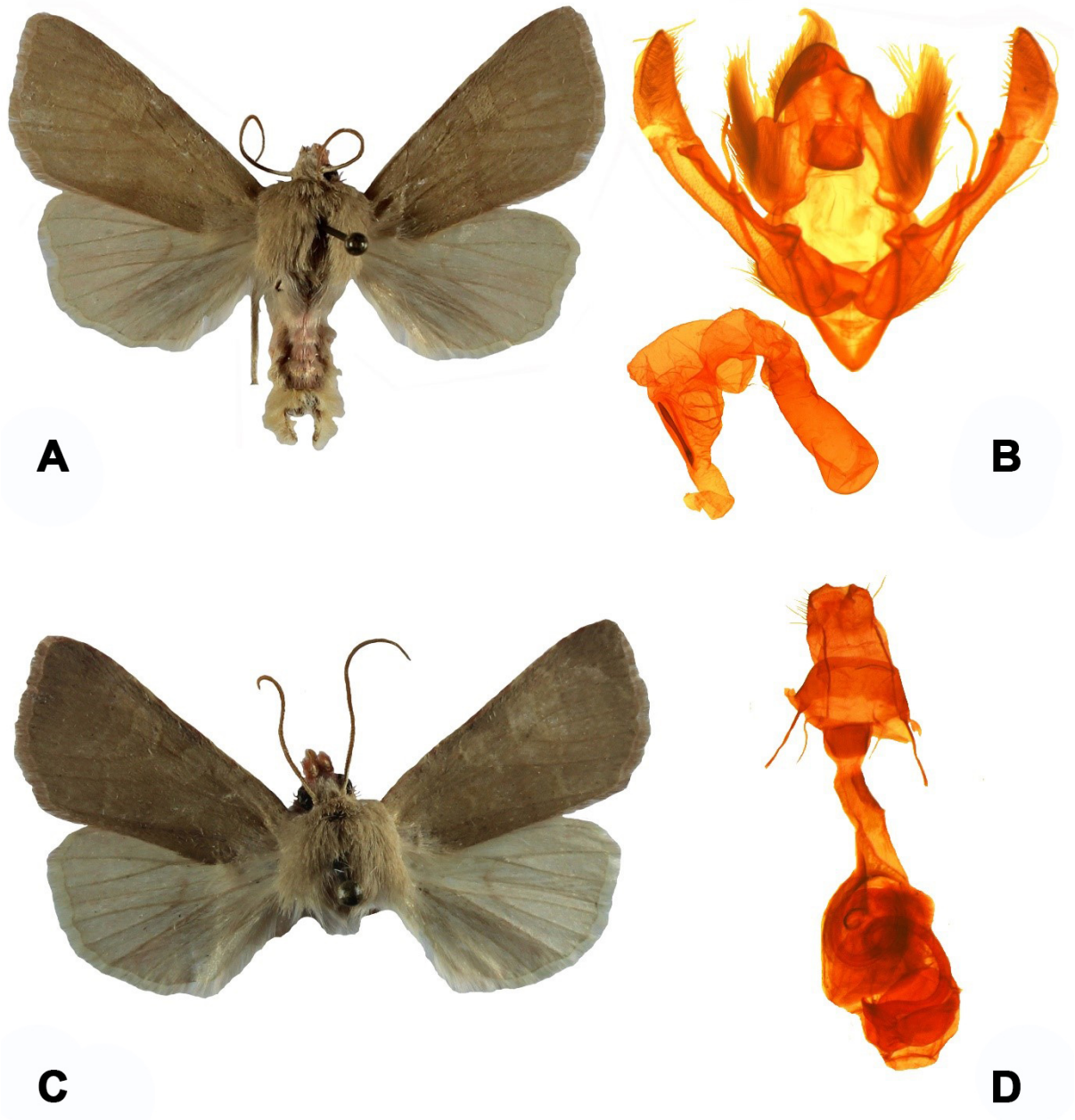

Figure 3. Adults of *Agrochola helvola pallescens*: wing patterns of **A.** male & **C.** female; **B.** male genitalia, armature (up) and aedeagus with everted vesica (down); **D.** female genitalia.

Agrochola lota (Clerck, 1759)

Phalaena lota Clerck, 1759, *Icones Insectorum Rariorum cum Nominibus eorum Trivialibus, Locisque e C. Linnae* 1. Type-locality: not stated (Sweden).

Synonyms: *Phalaena Noctua hyppophaes* Goeze, 1781; *Orthosia americana* Morrison, 1875; *Amathes lota* ab. *subdita* Warren, 1911; *Amathes macilenta plumbea* Wiltshire, 1941; *Anchoscelis plumbea convergens* Wiltshire, 1946; *Agrochola lota schreieri* Hacker & Weigert, 1986.

General distribution. North-eastern part of the Nearctic, north Africa, Europe, western Asia and Siberia (Ronkay et al., 2017).

Distribution in Iran. Alborz, Markazi (Ebert & Hacker, 2002), Fars (Wiltshire, 1941), Golestan (Wieser & Stangelmaier, 2005), Kermanshah (Wiltshire, 1946), Khuzestan (Shahreyari-Nejad et al., 2018) and North Khorasan (Wieser & Stangelmaier, 2005).

Agrochola elami Benedek & Ronkay, 2001

Agrochola (Anchoscelis) elami Benedek & Ronkay, 2001, *Annales Historico-naturales Musei Nationalis Hungarici,* 93:202. Type-locality: Iran, Prov. Lorestan, Zagros Mts, 25 km SE of Nehavand, 1900 m, 38°03′N, 48°23′E. Holotype: Male, in coll. Gy. Fabian (Budapest).

General distribution. SE Turkey and Zagros Mts in Iran (Ronkay et al., 2017).

Distribution in Iran. Lorestan and Khuzestan (Benedek & Ronkay, 2001; Shahreyari-Nejad et al., 2018).

Agrochola circellaris (Hufnagel, 1766)

Phalaena circellaris Hufnagel, 1766, *Berlinisches Magazin* 3(4):404. Type-locality: [Germany] Berlin region.

Synonyms: *Noctua ferruginea* [Denis & Schiffermüller], 1775; *Bombyx fuscago* Esper, 1786; *Phalaena Noctua undata* Borkhausen, 1792.

General distribution. Europe, Ural, W Siberia, Asia minor, Armenia, Iran, Turkmenistan, Kazakhstan and Morocco (Ronkay et al., 2017).

Distribution in Iran. Golestan, Mazandaran, Gilan and Tehran (Ebert & Hacker, 2002; Gutleb & Wieser, 2002; Wieser & Stangelmaier, 2005).

Discussion

Three Anatolian *Agrochola* species, *A. imitata*, *A. consueta* and *A. helvola pallescens*, the autumnal species, inhabiting high Zagros mountain range, are newly recorded for the fauna of Iran. Of the four members of the *deleta*-group (*A. prolai* Berio, 1976; *A. deleta* (Staudinger, 1881); *A. thurneri* Boursin, 1953 and *A. imitata*), the distribution range of the only Iranian member, *A. imitata,* known as Eastern Anatolian species, is reported to be more extended. Likewise, the southeasternmost distribution range of *A. consueta* and *A. helvola pallescens*, based on our results, is west Iran. As Feizpoor & Shirvani (2014) noted, the members of the genus *Agrochola* occured in various kinds of habitats and vegetations including woods, mountainous, semi-mountainous regions, covered by shrubs and grasslands. The species are univoltine with late autumnal flight period, the three newly recorded species inhabit xerophilous shrubby and bushy mountains with oak trees. Ronkay et al. (2017) suggested to split the agrocholoid complex into two large genera (*Anchoscelis* and *Agrocholorta*) and some further mono- or oligobasic genera, apart from *Agrochola* sensu stricto. We suggest the scientific background and validation of splitting *Agrochola* s. l. into different genera should be confirmed by molecular researches. On the other hand, the distribution range of many *Agrochola* species has expanded with their host plants range of distribution (Hacker, 2001). Therefore, it is suggested to study the food plants of Iranian *Agrochola* in their habitats, especially in the Zagros range in western Iran.

By incorporating the new results from the recent taxonomic revisions, five taxa, listed by Feizpoor & Shirvani (2014), were omitted and the updated data were presented. *Agrochola*

disrupta Wiltshire, 1952 is distant from the agrocholoid complex and may belong to Episemini (s.l.), according to Ronkay et al. (2001). Of the 18 taxa, four species, *A. elbursica, A. oropotamica, A. fuscomixta* and *A. elami* have an Iranian type locality. In addition, four synonymized taxa were originally described from Iran as follows: *A. oropotamica thermopotamica, A. macilenta plumbea, A. plumbea convergens* and *A. modesta* (Ronkay et al., 2017). All of these were collected from western parts of Iran. Hacker (1990) recorded *A. macilenta rubrescens* (Wiltshire, 1939) from SW Iran, but later (in Hacker, 2001) he corrected this record and stated that this ssp. extends no further east than east Turkey and the Levante. *A. m. rubrescens* was synonymized by the nominate species *A. macilenta* (Hübner, 1809). Three newly detected taxa for the fauna of Iran in Ilam province, suggesting this province and other parts of Zagros as less explored areas which need more intensive exploration in the future.

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Conflict of Interests

The authors declare that there is no conflict of interest regarding the publication of this paper.

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مطالعه‌ای روی جنس *Agrochola* s. l. (Lep.: Noctuidae) در ایران با معرفی سه گزارش جدید

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چکیده: جنس *Agrochola* s. l. Hünber, 1821 (Noctuidae, Xyleninae, Xylenini, Xylenina) شامل بیش از ۷۰ گونه توصیف شده است که اغلب آنها دارای ظاهری منحصر به فرد هستند. براساس بازنگری‌های اخیر این گروه در منطقه پالئارکتیک، تصمیم بر به روز کردن اطلاعات آنها مبتنی بر آخرین یافته‌ها در مورد پراکنش و اسامی مترادف گرفته شد. درکل ۱۸ آرایه متعلق به گروه‌جنس *Agrochola* s. l. در ایران فهرست شد که در میان آنها سه مورد *Agrochola imitata* Ronkay, 1984، *A. consueta* (Herrich-Schäffer, 1852) و *A. helvola pallescens* (Warren, 1911) برای فون ایران جدید بود. فهرست گونه‌های متعلق به گروه‌جنس *Agrochola* s. l. در ایران همراه با اطلاعات پراکنش و اسامی مترادف آنها و نیز برای گزارش‌های جدید تصاویر اندام تولید مثلی و الگوی بال ارایه شد. پیشنهاد می‌شود که جستجوهای متمرکز بیشتری همراه با مطالعه گیاهان میزبان روی *Agrochola*، به ویژه در کوه‌های زاگرس در غرب ایران انجام شود.

واژگان کلیدی: *Agrochola*، فون، گزارش جدید، خوزستان، ایلام