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Systematics and distribution of the species of the subgenus *Jaxartia* (Lepidoptera: Noctuidae), with description of a new species from the Kyrgyz Republic

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Abstract. The article provides new information on the distribution of noctuid moths of the subgenus *Jaxartia* of the genus *Pseudohadena* in Central Asia. Basing on the genitalia structures of both sexes, the *P. evanida* group is divided into two separate species groups: the *P. evanida* group and the *P. pseudamoena* group; these groups are distributed sympatrically in the Irano-Turanian region. The article lists diagnostic features for each species, and provides images of imago and genitalia. It also reports on the new status: *P. evanida anatine* Pekarsky, 2012, **stat. n.**; describes a new species: *P. nuriyanae* **sp. n.** (type locality: Kyrgyzstan, Transalai Mts., near Shibe vil., 2,530 m a.s.l., 39°27'50.01" N, 71°58'17.71" E); and designates lectotypes for *Jaxarthia* (sic!) *striolata* Filipjev, 1949, *Jaxartia elinguis* Püngeler, 1914, and *Pseudohadena evanida* Püngeler, 1914.

Keywords: *Pseudohadena*, deserts, mountains, Middle Asia, new species

Систематика и распространение видов подрода *Jaxartia* (Lepidoptera: Noctuidae), с описанием нового вида из Республики Кыргызстан

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Аннотация. Приводятся новые сведения о распространении совков подрода *Jaxartia* рода *Pseudohadena* в Казахстане. На основании строения гениталий обоих полов группа видов *Pseudohadena evanida* разделена на две самостоятельные группы видов *evanida* и *pseudamoena*, распространенные симпатрично в ирано-туранском регионе. Обзор сопровождается иллюстрациями генитальных структур и имаго. Для всех видов и видовых групп приводятся ключевые для идентификации признаки. Устанавливается новый статус: *P. evanida anatine* Pekarsky, 2012, **stat. n.** Из Кыргызстана описывается новый вид, *P. nuriyanae* **sp. n.** (типовое местонахождение: Kyrgyzstan, Transalai Mts., near Shibe vil., 2530 m a. s. l., 39°27'50.01" N, 71°58'17.71" E). Обозначены лектотипы *Jaxarthia* (sic!) *striolata* Filipjev, 1949, *Jaxartia elinguis* Püngeler, 1914 и *Pseudohadena evanida* Püngeler, 1914.

Ключевые слова: *Pseudohadena*, пустыни, горы, Средняя Азия, новый вид

Introduction

Pseudohadena Alphéraky, 1889 is an Asian genus of moths in the subfamily Xyleninae. It was redescribed by Ronkay et al. (Ronkay et al. 1995) and divided into three subgenera: *Pseudohadena* Alphéraky, 1889, *Jaxartia* Püngeler, 1914, and *Pseudopseustis* Hampson, 1910. The subgenus *Jaxartia* was further divided into three species groups: the *elinguis* group (with two species), the *jordana* group (with a single species), and the *evanida* group, which included all remaining species of the subgenus. In subsequent publications (Ronkay et al. 1995; 2002; Ebert, Hacker 2002; Fibiger, Hacker 2007; Pekarsky 2012), this division of the subgenus was consistently supported.

However, based on details of genitalia morphology in both sexes, the *evanida* group is heterogeneous and clearly divides into two independent groups.

The first group, the *evanida* group, comprises three Turanian species (*P. evanida* Püngeler, 1914, *P. anatine* Pekarsky, 2012, *P. deserticola* Ronkay, Varga et Fábíán, 1995) and two Iranian species (*P. zahedana* Shirvani et Ronkay, 2008, *P. magnitudinis* Hacker et Ebert, 2002). The male genitalia are characterized by a long, curved harpa that gradually tapers toward the tip, and a vesica

that is not spiraled but curved approximately 180 degrees in its basal half. In the female genitalia, the ductus is short and the bursa is almost spherical.

The second group, the *pseudamoena* group, includes *P. pseudamoena* (Boursin, 1944), *P. gorbunovi* Pekarsky, 2012, *P. moldotoo* Volynkin et Titov, 2025, *P. leucochlora* Ronkay, Varga et Gyulai, 2002, and *P. cymatodes* (Boursin, 1954). It is characterized by a wide harpa with the base narrower than the main paddle-like part; a spirally (more than 360 degrees) twisted vesica in the male genitalia; and in females, a long narrow ductus and a large reniform bursa.

Throughout their Iranian-Turanian ranges, species of the *evanida* and *pseudamoena* groups occur sympatrically.

The distribution of species of the subgenus *Jaxartia* has been studied incompletely, primarily due to the fragmentary nature of collections from the group's range in the autumn period. From 2009 to 2024, the first author accumulated significant additional information on the distribution of *Jaxartia* species in Kazakhstan, which is presented on four maps together with the previously published data (Figs. 1–4). The second author participated in autumn expeditions to Kyrgyzstan in 2023–2025, which led to the discovery of a new species from this subgenus. This paper presents the data we obtained.

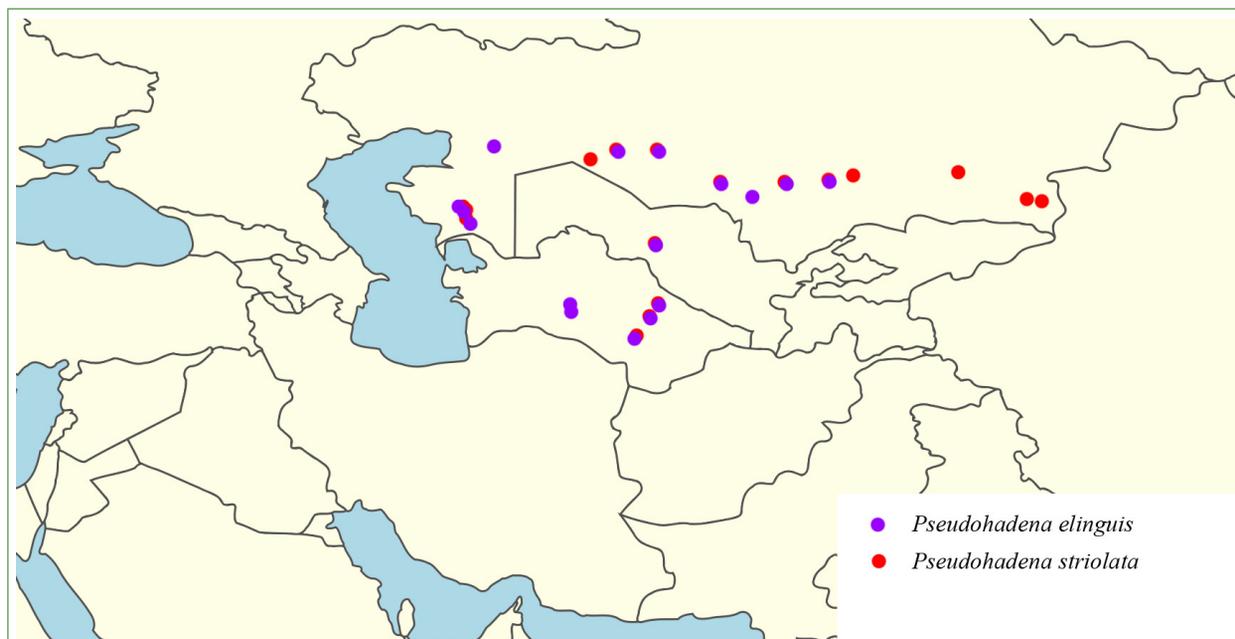
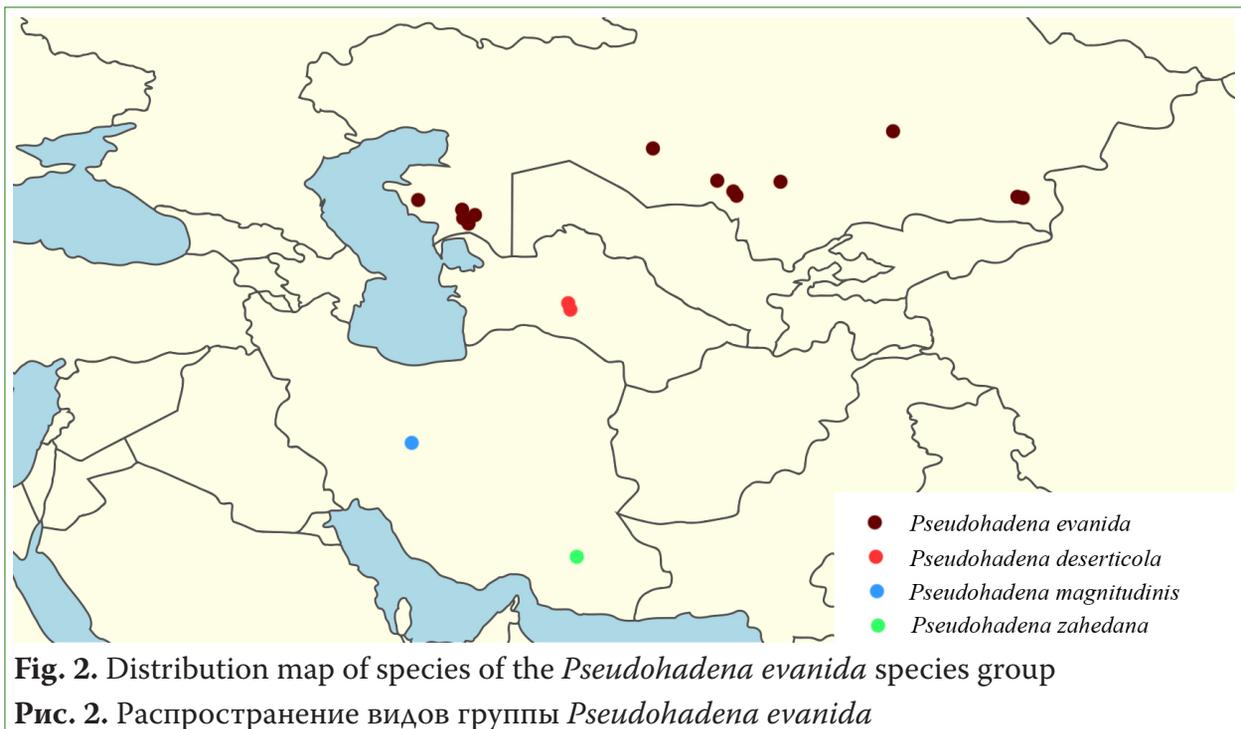


Fig. 1. Distribution map of species of the *Pseudohadena elingius* species group

Рис. 1. Распространение видов группы *Pseudohadena elingius*



Material and methods

The material for this study was collected mainly by the first author and K. T. Nuppenon between 2009 and 2024 during fieldwork in Kazakhstan, and by both authors together during fieldwork in Kyrgyzstan in 2023–2025.

Genitalia were examined using standard methods: the abdomen was boiled in a 10 % KOH solution, followed by separation of the sclerotized parts of the genital apparatus from the soft tissues using dissecting needles. Genital preparations were washed prior to photography, first in water and then in aqueous ethanol solutions of varying concentrations.

Photographs of genital micro-preparations was taken by P. Yu. Gorbunov in water using a Nikon D7100 digital camera with an AF-S Micro Nikkor 60 mm 1:2.8G ED lens and a Sony A6400 camera with an AstrHori 25 mm F2.8 Macro 2.0–5.0x lens. Images were processed using Adobe Photoshop.

Abbreviations used:

ISEA — Institute of Systematics and Ecology of Animals, Novosibirsk, Russia.

ZISP — Institute of Zoology of the Russian Academy of Sciences, Saint Petersburg, Russia.

HNHM — Hungarian Natural History Museum, Budapest, Hungary.

IPAE — Institute of Plant and Animal Ecology, Ekaterinburg, Russia.

MNHN — Muséum National d'Histoire Naturelle, Paris, France.

NHM — Naturhistorischen Museum, Vienna, Austria.

SMNK — Staatliches Museum für Naturkunde, Karlsruhe, Germany.

ZMHU — Museum für Naturkunde - Leibniz-Institut für Evolutions und Biodiversitätsforschung, Berlin, Germany.

ZSM — Zoologisches Staatssammlung, München, Germany.

Result

Family Noctuidae Latreille, 1908

Subfamily Xyleninae Guenée, 1837

Tribus Xylenini Guenée, 1837

Genus *Pseudohadena* Alphéraky, 1889

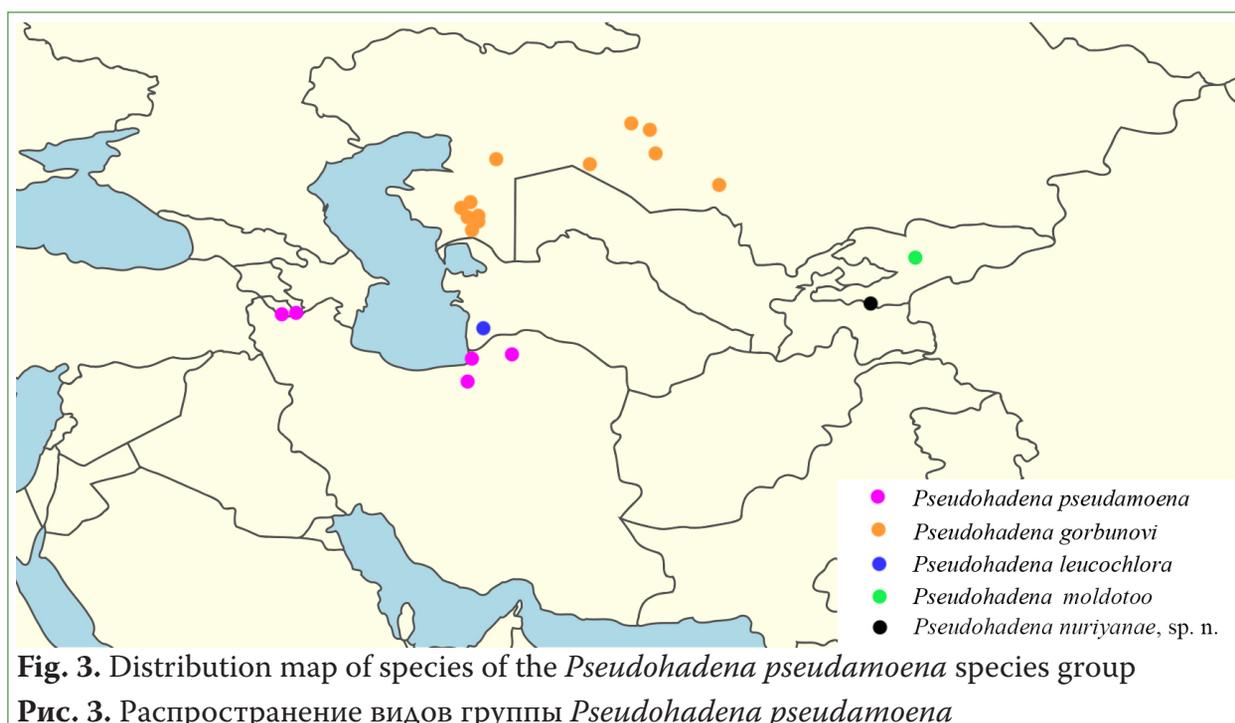
Subgenus *Jaxartia* Püngeler, 1914: 43

Type species: *Jaxartia elinguis* Püngeler, 1914, by original designation.

Diagnostic features. Male antennae bipectinate. Vesica with terminal cornutus in the form of a long straight spine.

Pseudohadena elinguis species group

Diagnostic features. Wing pattern well defined and dark. Male antennae



pectinations very long. In the male genitalia, digitus shifted towards the base of the costa; vesica twisted approximately 180 degrees in its basal half; terminal appendix (opposite the cornutus) weakly developed, cornutus less than 1 mm long. In the female genitalia, anal papillae with specialized enlarged scales; bursa reniform, without signum.

Distributed in the desert regions of Kazakhstan, Uzbekistan, and Turkmenistan (Fig. 1).

Pseudohadena elinguis (Püngeler, 1914) (Figs. 1, 10, 27)

Jaxartia elinguis Püngeler 1914: 44; Taf 2, figs. 6, 7.

Type locality: [S. Kazakhstan]: '...Syr-Daria, Baigacum...'. Baigecum (Kazakhstanian Бәйгеқұм, Russian Байгекум) — a village in the Chiili District of the Kyzyl-Orda Region, Kazakhstan; the type locality is on the shores of the Syr-Darya River valley near this village.

Type series: Syntypes 4♂, 6♀, (ZMHU). Ronkay et al. (Ronkay et al. 1995: 269) listed the following type material: 'Type material examined: Holotype male and paratypes of both sexes...', which is incorrect, since the author of the original description did not designate a holotype: '...es liegen mir 4♂, 6♀ vor, alle frisch, einzelne Stücke mit vetloschener, andere mit stark ausgeprägter

Zeichnung'. A holotype can only be designated in the original description (Art. 73.1.3 ICZN), which, based on the above quotation, was not done; thus, the specimens listed by Ronkay et al. (Ronkay et al. 1995) are syntypes. To clarify the taxonomic status of this species, we hereby **designate** the male specimen from the Püngeler collection (ZMHU) illustrated in the original description (Püngeler 1914: Taf. 2, fig. 6) as the **lectotype**.

Diagnostic features. A highly variable species, with wing background color ranging from sandy gray to dark brown. Wing pattern usually simpler than that of *striolata*, typically reduced to the orbicular or reniform stigmata; subterminal line never as sharply defined and sinuous as in *striolata*. The first segment of the foreleg has 7–8 large spines. A comparison of the genitalia of *elinguis* and *striolata* was provided and illustrated by L. Ronkay et al. (Ronkay et al. 1995: 271, 279). Ductus shorter than in *striolata* (slightly less than 2 mm long), antrum narrower.

Range. Turanian species, described from the Syr-Darya valley. Distributed in SW and S Kazakhstan, Turkmenistan and Uzbekistan.

Literature data: Baigecum (Püngeler 1914; Filipjev 1949); Ayakguzhumdy, Zhamansai [Аякгу́жумды, Жамансай] (Sukhareva 1972); Repetek, Lambe, Mary (Poltavsky et al. 1998);

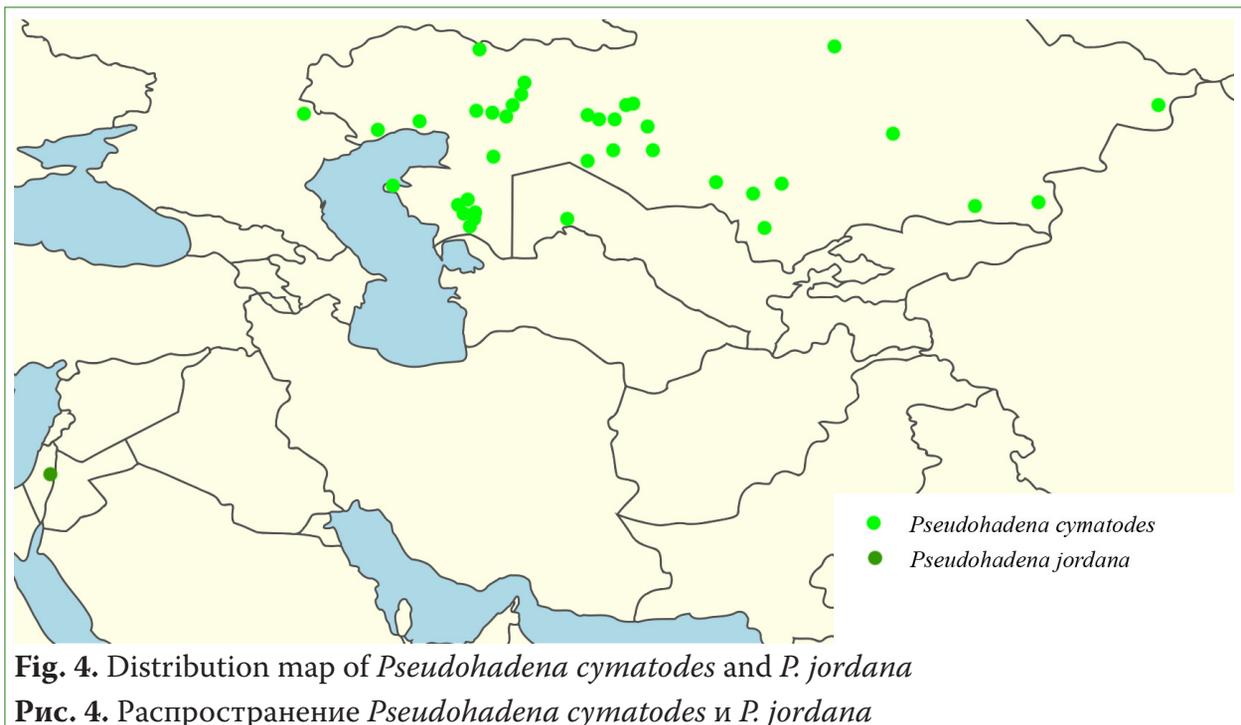


Fig. 4. Distribution map of *Pseudohadena cymatodes* and *P. jordana*

Рис. 4. Распространение *Pseudohadena cymatodes* и *P. jordana*

Karashek, 5.10.10; Tynyshtek boget, 4.10.10; Kyzylsengir, 15.10.09; Saksorka, 13.10.09; Onere, 14.10.09 (Gorbunov 2011; Gorbunov et al. 2011). **New data:** Ustyurt West Chink, 20 km N of Beineu, 45°29' N, 55°13' E, 8.10.2010; 23 km NE of Aiteke-Bi, Aral Kararumes, 45°58' N, 62°24' E, 28.09.2013, 27.09.2014, 23.09.2015, 24.09.2019; 40 km N of Sozak village, Moyinkum Sands, 44°29' N, 68°41' E, 2.10.2014; 17 km E of Kyzyl-Orda, 44°47' N, 65°45' E, 3.10.2013, 28.09.2014; Syr-Darya River Delta, Karateren vicinities, 46°00' N, 61°01' E, 4.10.2013; 25 km S of Ulanbel village, Moyinkum Sands, 44°36' N, 71°02' E, 26.09.2015; Shieli Distr., 11 km NE of Kosuenki village, 44°23' N, 67°07' E, 23.09.2019.

Ecology. Psammophilous, characteristic of saksaul deserts. Flight period from late September to October. The larva feeds on saksaul (*Haloxylon* sp.) (Falkovich 1969).

Pseudohadena striolata (Filipjev, 1949) (Figs. 1, 5, 9, 28)

Jaxarthia (sic!) *striolata* Filipjev, 1949 (Filipjev 1949: 248).

Type locality: 'Репетеке (Туркмения)' [Repetek, Turkmenistan].

Type series: lectotype (**here designated**), male (ZISP), with labels: golden circle;

rectangular label, handwritten on white paper 'Репетек | 30.X.938 г. Виноградов' [Repetek | 30.X.[1]938 | Vinogradov leg.]; a printed rectangular label on red paper will be added: 'LECTOTYPUS | *Jaxarthia striolata* | Filipjev, 1949 | Matov, Gorbunov, Korb des. 2025'. The lectotype is illustrated on the Zoological Institute of the Russian Academy of Sciences website (Research collections... 2025). The remaining specimens (3 males) are paralectotypes and are deposited in the same institution.

Diagnostic features. Wings brown with contrasting light markings characteristic of noctuid moths (orbicular, reniform, and claviform stigmata), sharply broken subterminal band accompanied by dark arrow-shaped spots on the outer margin. The species shows considerable external variability. Differences in the genitalia between *elinguis* and *striolata* minor but consistent. The most noticeable differences in the male genitalia are in the shape of the fultura inferior, its apical part being shorter and wider in *striolata*; shape of the harpa is variable and cannot be used as a diagnostic feature. Female genitalia similar to those of *elinguis*, differing in a longer ductus (slightly more than 2 mm) and a wider antrum. The

first segment of the foreleg has 5–6 large spines. The male genitalia were illustrated by Ronkay et al. (Ronkay et al. 1995: 271); the female genitalia were illustrated in the same work (Ronkay et al. 1995: 267).

Range. Turanian species, described from Turkmenistan. Distributed in SW, S and SE Kazakhstan, Turkmenistan and Uzbekistan.

Literature data: Zhamansai [Жамансай] (Sukhareva 1972); Repetek, Lambe, Bairam-Ali (Poltavsky et al. 1998); Тынштык богет, 4.10.10; Кызылсенгир, 15.10.09; Саксорка, 13.10.09 [Тыныштык богет, 4.10.10; Кызылсенгир, 15.10.09; Саксорка, 13.10.09] (Gorbunov 2011; Gorbunov et al. 2011).

New data: 23 km NE of Aiteke-Bi, Arak Karakumes, 45°58' N, 62°24' E, 28.09.2013, 27.09.2014, 22.09.2015, 7.10.2016, 24.09.2019; 17 km E of Kyzyl-Orda, 44°47' N, 65°45' E, 3.10.2013; Syr-Darya River Delta, Karateren village environs, 46°00' N, 61°01' E, 4.10.2013; 40 km N of Sozak village, Moyinkum Sands, 44°29' N, 68°41' E, 28.09.2014, 2.10.2014; Chu River Valley, 6 km E of Moyinkum village, 44°17' N, 72°48' E, 4.10.2014; 25 km S of Ulanbel village, Moyinkum Sands, 44°36' N, 71°02' E, 26.09.2015; Ili River Valley, 6 km S of Aidarly village, 43°59' N, 79°32' E, 29.09.2015, 3.10.2015; Panfilov Distr., Altyn-Emel National Park, Aktau Mts., 44°01' N, 79°21' E, 30.09.2015; Balkhash Distr., Ili River Valley, 9 km SE of Akzhar village, 44°52' N, 75°53' E, 27.09.2016.

Ecology. Psammophilous. Found together with the preceding species in most localities. Flies in late September and October. Larva feeds on *Haloxylon persicum* (Sukhareva 1972).

Pseudohadena evanida species group

Diagnostic features. Male antennae with long pectinations, except the 2–3 apical segments. In the male genitalia, harpa narrow and curved; vesica not spiraled, but curved approximately 180 degrees in its basal half. In the female genitalia, ductus short, bursa almost spherical in shape.

Remarks on systematics. In the treatment adopted here, the group comprises six allopatric taxa, the species status of which requires further clarification.

The taxon *psammoxantha* Ronkay, Varga et Fábíán, 1995 was described as a separate species, but seven years later (Ronkay et al. 2002) it was recognized as conspecific with *P. evanida* and has subsequently been treated only as its subspecies.

The taxon *anatine* Pekarsky, 2012 was described from southwestern Kazakhstan, also at the species level. In the original description, it was compared not with the nominative *evanida* from southern Kazakhstan, but with the eastern subspecies *psammoxantha*. The distinguishing features cited were broader wings, a longer and curved clasper (Pekarsky 2012), a shorter digitus, and a shorter distal diverticulum of the vesica (Pekarsky 2012). However, according to our data, none of these features reliably differentiate populations of *anatine* from Western Kazakhstan and populations from Southern Kazakhstan (nominative *evanida*). This provides grounds for treating *anatine* as a subspecies of *P. evanida*: *P. evanida anatine* Pekarsky, 2012, **stat. n.**

It should be noted that the three southern taxa (*deserticola*, *magnitudinis*, *zahedana*) probably represent a separate southern subgroup. They differ from *evanida* (and are united among themselves) by darker coloration with a well-defined pattern and a more elongated terminal appendix of the vesica.

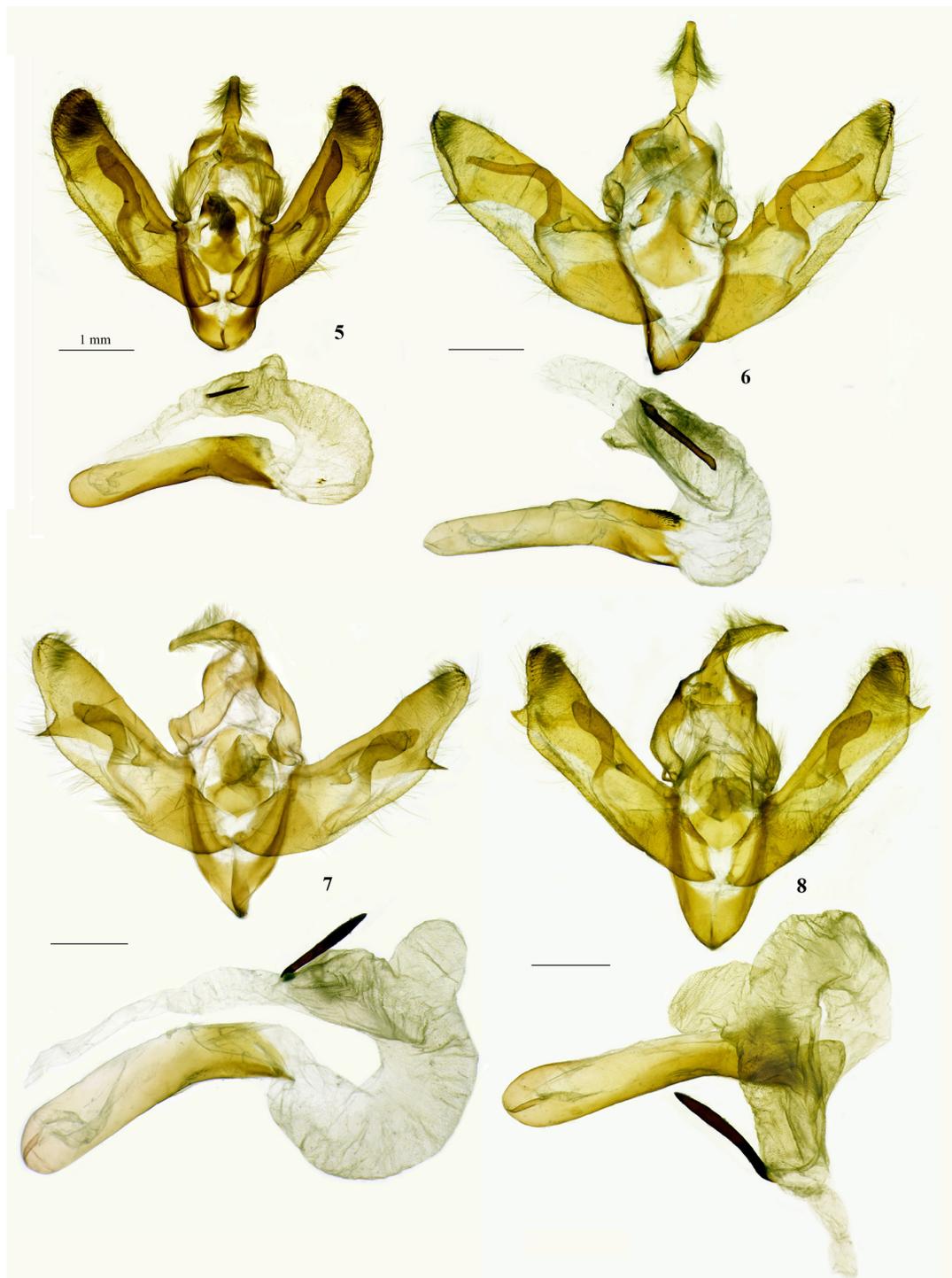
The species of this group are distributed in the desert regions of Kazakhstan, Turkmenistan, and Iran (Fig. 2). The occurrence of species of this group in Uzbekistan, where they have not yet been recorded, is more than likely.

Pseudohadena evanida Püngeler, 1914 (Figs. 2, 6, 11, 29–31)

Pseudohadena evanida Püngeler 1914: 44, Taf 2, fig. 5.

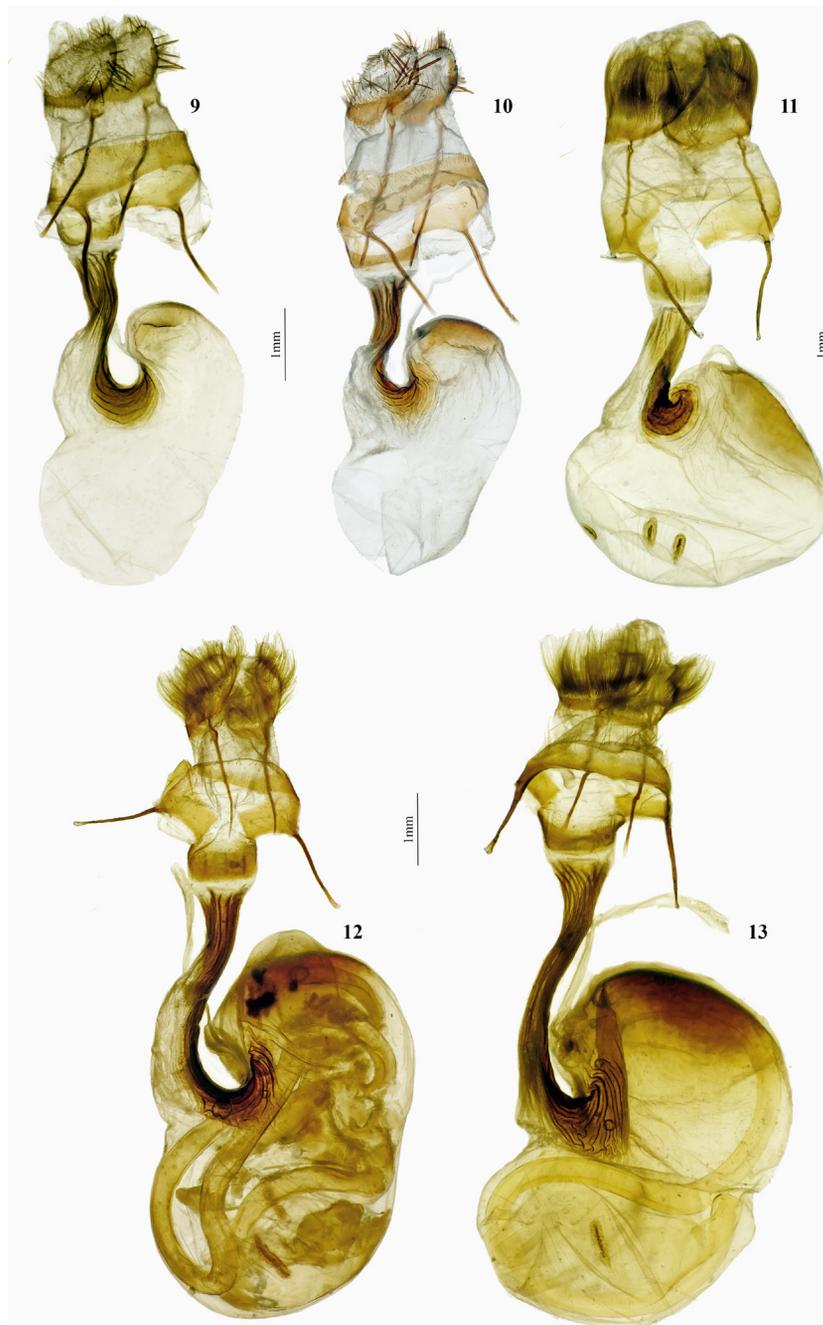
Type locality: 'Syr-Daria, Baigacum' (see *elin-guis* (Püngeler, 1914)).

Type series: lectotype and paralectotype 2 females, (ZMHU). Ronkay et al. (Ronkay et al. 1995: 273) listed the type material of this species as follows: 'Type material examined: Holotype and paratype females (designated by Püngeler as Type and Cotype...'. In



Figs. 5–8. Male genitalia of representatives of the subgenus *Jaxartia* from Kazakhstan: 5 — *Pseudohadena striolata*, SW Kazakhstan, Ustyurt Nature Reserve, Onere, 12 October 2009; 6 — *Pseudohadena evanida psammoxantha*, SE Kazakhstan, Altyn-Emel Nature Reserve, Aktau Mts., 30 September 2015; 7 — *Pseudohadena gorbunovi*, S Kazakhstan, Kyzyl-Orda env., 23 September 2015; 8 — *Pseudohadena cymatodes*, SW Kazakhstan, Ustyurt Nature Reserve, Onere, 12 October 2009

Рис. 5–8. Виды подрода *Jaxartia* фауны Казахстана. Гениталии самцов: 5 — *Pseudohadena striolata*, Ю.-З. Казахстан, Устыуртский з-к, кордон Онере, 12.10.2009; 6 — *Pseudohadena evanida psammoxantha*, Ю.-В. Казахстан, нац. парк Алтын-Эмель, горы Актау, 30.09.2015; 7 — *Pseudohadena gorbunovi*, Ю. Казахстан, окр. г. Кызыл-Орда, 23.09.2015; 8 — *Pseudohadena cymatodes* — Ю.-З. Казахстан, Устыуртский з-к, кордон Онере, 12.10.2009



Figs. 9–13. Female genitalia of representatives of the subgenus *Jaxartia* from Kazakhstan: 9 — *Pseudohadena striolata*, SW Kazakhstan, Ustyurt Nature Reserve, Onere, 12 October 2009; 10 — *Pseudohadena elinguis*, SW Kazakhstan, Ustyurt Nature Reserve, Onere, 9 October 2009; 11 — *Pseudohadena evanida evanida*, SW Kazakhstan, Aral Karakum desert, 7.10.2016; 12 — *Pseudohadena gorbunovi*, SW Kazakhstan, Ustyurt Nature Reserve, Kendyrli, 15 October 2009; 13 — *Pseudohadena cymatodes*; SW Kazakhstan, Ustyurt Nature Reserve, Onere, 12 October 2009

Рис. 9–13. Виды подрода *Jaxartia* фауны Казахстана. Гениталии самок: 9 — *Pseudohadena striolata*, Ю.-З. Казахстан, Устыуртский з-к, кордон Онере, 12.10.2009; 10 — *Pseudohadena elinguis*, Ю.-З. Казахстан, Устыуртский з-к, кордон Онере, 09.10.2009; 11 — *Pseudohadena evanida evanida*, Ю.-З. Казахстан, Приаральские Каракумы, 07.10.2016; 12 — *Pseudohadena gorbunovi* — Ю.-З. Казахстан, Устыуртский з-к, кордон Кендырли, 15.10.2009; 13 — *Pseudohadena cymatodes* — Ю.-З. Казахстан, Устыуртский з-к, кордон Онере, 12.10.2009

the original description, the holotype is not designated: '... 2♀, Ende September 1913...'; a holotype can only be designated in the original publication and only by the author of the description (ICZN, Art. 73.1.3). Thus, the type series of this species consists of a series of syntypes. We **hereby designate** the female specimen labelled as Type in the Püngeler collection (ZMHU) as the lectotype; the second female from the type series, labelled by Püngeler as Cotype, becomes the paralectotype.

Pseudohadena psammoxantha Ronkay, Varga et Fábíán 1995: 273, figs. 9, 10, 18, 37, 38.

Type locality: 'Kazakhstan, Prov. Taldikurgan, Kumkala desert, 15 km W Aktau Mt., 500 m, 43°56' N, 79°07' E'.

Type series: holotype female (HNHM), paratypes 20 specimens (sex not determined), (HNHM and private collections of the authors of the original description).

Pseudohadena anatine Pekarsky 2012: 10–13, figs. 1–4.

Type locality: 'S.W. KAZAKHSTAN, Ustyurt Res., Kendyrli (spring), 128 m, 42°57' N, 54°41' E'.

Type material: holotype male (HNHM), paratypes 13 males, 3 females (private collections of O. Pekarsky, P. Y. Gorbunov, and M. Dvorak).

Diagnostic features. Forewing length 16.0–18.5 mm. Differs from the sympatric *P. gorbunovi* by having slightly wider wings and longer male antennae pectinations, which are present on all segments except the two apical ones. The bursa has three short oval signa (one of which may be slightly longer than the other two).

Range. Turanian species, described from the Syr-Darya valley (S Kazakhstan). It is also found in the deserts of SW and SE Kazakhstan. The following subspecies division is present: nominotypical subspecies (S Kazakhstan, Syr-Darya River Valley), ssp. *psammoxantha* Ronkay, Varga et Fábíán, 1995 (SE Kazakhstan) and ssp. *anatine* Pekarsky, 2012, **stat. n.** (SW Kazakhstan). **Literature data:** Ustyurt Plat., 9–15.10.2009; Kendyrli (spring), 128 m, 42°57' N, 54°41' E, 11.10.2009, 28.09.2010;

Oneri (ranger station & spring), 42°36' N, 54°08' E, 12.10.2009; Sand Tynyshtyk, 43°06'53" N, 054°11'39" E, 5.10.2010; Karynzhar'yk Sands (Pekarsky 2012); Kumkala desert, 15 km W Aktau Mt., 500 m, 43°56' N, 79°07' E (Ronkay et al. 1995). **New data:** 23 km NE of Aiteke-Bi, Aral Karakumes, 45°58' N, 62°24' E, 28.09.2013, 7.10.2016; 17 km E of Kyzyl-Orda, 44°47' N, 65°45' E, 3.10.2013; Panfilov Distr., Altyn-Emel National Park, Aktau Mts., 44°01' N, 79°21' E, 30.09.2015; 40 km N of Sozak village, Moyinkum sands, 44°29' N, 68°41' E, 2.10.2014; 20 km W of Balkhash city, 46°49' N, 74°29' E, 6.10.2014; Balkhash Distr., 2 km W of Zhastar village, 45°32' N, 73°25' E, 26.09.2016.

Ecology. Characteristic of saksaul deserts. In southwestern and southern Kazakhstan, it has been recorded together with *P. gorbunovi* during the same period (late September and October). Quite rare.

Pseudohadena deserticola Ronkay, Varga et Fabian, 1995 (Fig. 2)

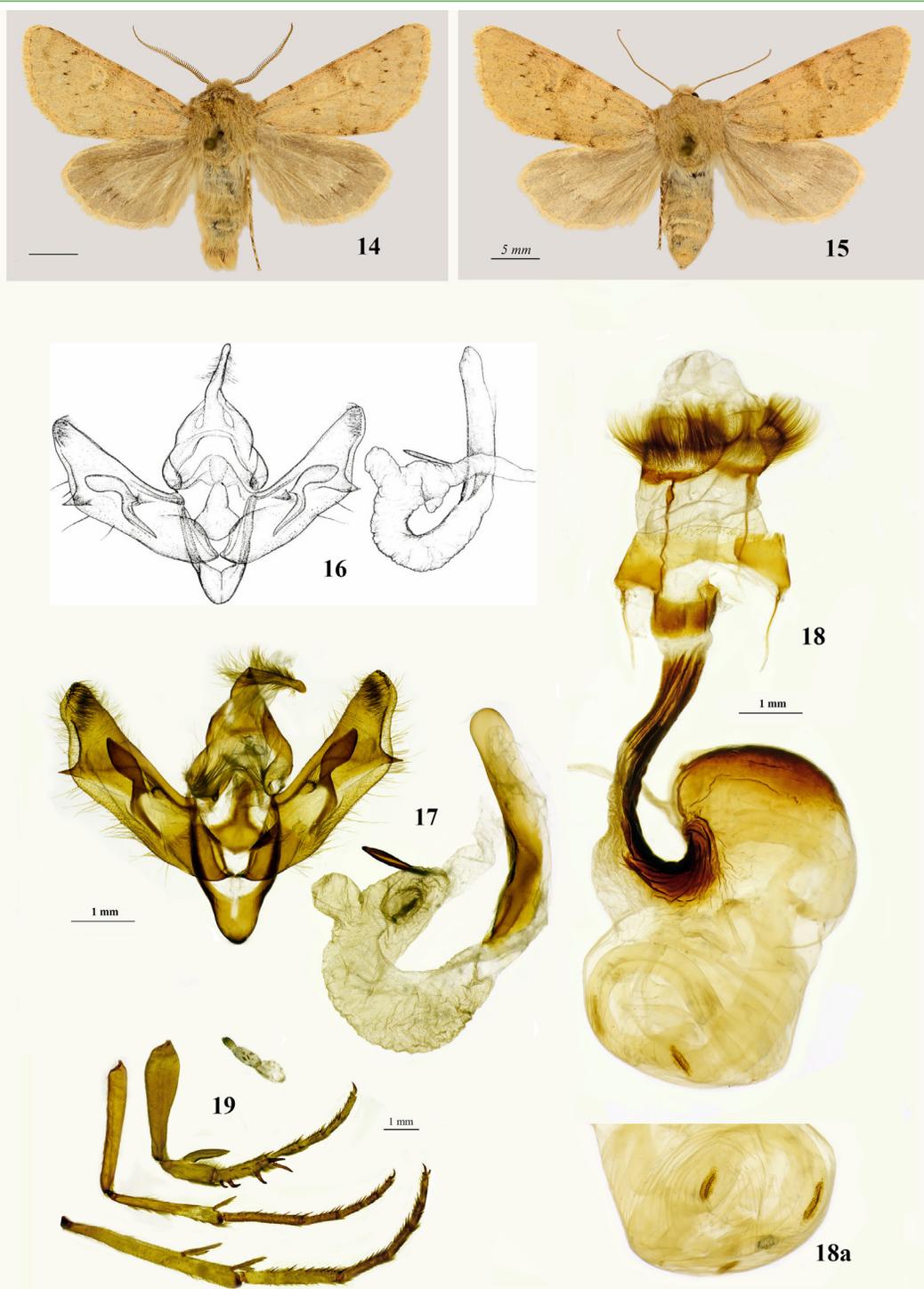
Pseudohadena (Jaxartia) deserticola Ronkay et al. 1995: 275, figs. 13, 14, 19.

Type locality: 'Turkmenistan, Kara-Kum desert, 100 m, 42 km N of Ashkhabad, 58°33' E, 38°21' N'.

Type material: holotype female (HNHM), paratype female (ISEA).

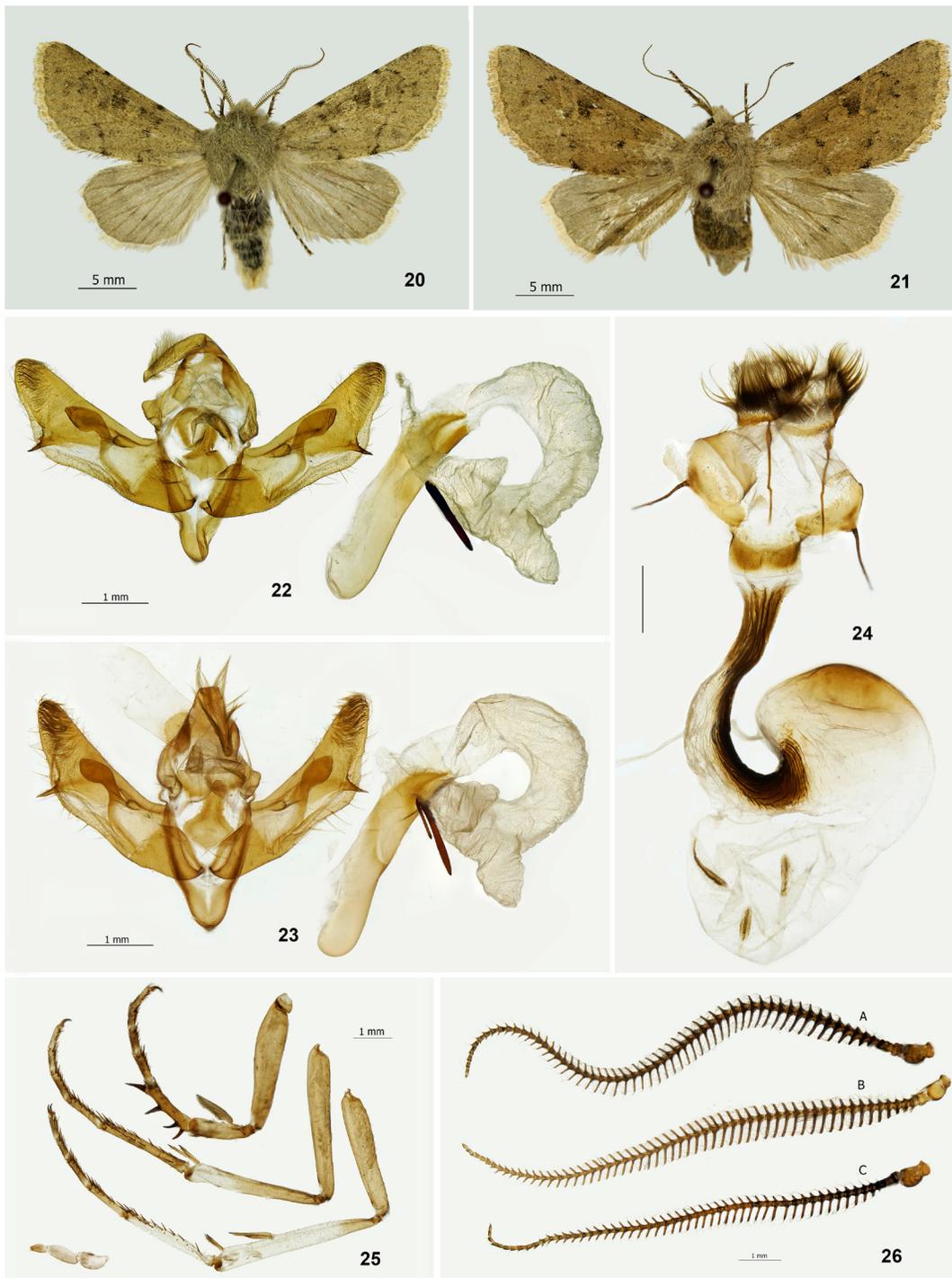
Diagnostic features. *P. deserticola* differs from other representatives of the subgenus by its monochromatic, pale orange-brown forewings, which are almost patternless. It differs from the most closely related *P. evanida* in details of the female genitalia: the ductus and its lateral sclerotized ridges are longer and more sclerotized in *evanida*, and the apical sclerotization of the bursa is also more pronounced in *evanida*. The bursa is more spherical in *deserticola*, with unequal signa — two short, broad ones and one long, narrow one — whereas in *evanida* the bursa is more elliptical, with signa that are almost identical, relatively long and broad. Female genitalia were illustrated in the original description.

Range. Turkmenistan (Kara-Kum Desert). Known from two localities: the type locality 42 km north of Ashgabat, and from the



Figs. 14–19. *Pseudohadena moldotoo* and *Pseudohadena leucochlora*: 14 — *Pseudohadena moldotoo*, male; 15 — *Pseudohadena moldotoo*, female; 16 — *Pseudohadena leucochlora*, male genitalia (by Ronkay et al. 2002); 17 — *Pseudohadena moldotoo*, male genitalia; 18 — *Pseudohadena moldotoo*, female genitalia; 18a — left side of anterior part of bursa; 19 — *Pseudohadena moldotoo*, legs (from top to bottom: foreleg, midleg, hindleg) and labial palpi

Рис. 14–19. *Pseudohadena moldotoo* и *Pseudohadena leucochlora*: 14 — *Pseudohadena moldotoo*, топотип, самец; 15 — *Pseudohadena moldotoo*, топотип, самка; 16 — *Pseudohadena leucochlora*, гениталии самца (по: Ronkay et al. 2002); 17 — *Pseudohadena moldotoo*, паратип, гениталии самца; 18 — *Pseudohadena moldotoo*, паратип, гениталии самки; 18a — то же, левая сторона передней части бурсы; 19 — *Pseudohadena moldotoo*, ноги (сверху вниз: передняя, средняя, задняя) и губной щупик



Figs. 20–26. *Pseudohadena nuriyanae* sp. n.: 20 — holotype, male; 21 — paratype, female; 22 — paratype, male genitalia; 23 — paratype, male genitalia; 24 — paratype, female genitalia; 25 — paratype, legs (from top to bottom: foreleg, midleg, hindleg) and labial palpi; 26 — male antenna: A — *Pseudohadena moldotoo*; B — *P. gorbunovi*; C — *P. nuriyanae* sp. n., paratype, legs (from top to bottom: foreleg, midleg, hindleg) and labial palpi

Рис. 20–26. *Pseudohadena nuriyanae* sp. n.: 20 — голотип, самец; 21 — паратип, самка; 22 — паратип, гениталии самца; 23 — паратип, гениталии самца; 24 — гениталии самки; 25 — паратип, ноги (сверху вниз: передняя, средняя, задняя) и губной щупик; 26 — усик самца. A — *Pseudohadena moldotoo*; B — *P. gorbunovi*; C — *P. nuriyanae* sp. n., паратип, ноги (сверху вниз: передняя, средняя, задняя) и губной щупик

vicinity of Teke, based on a single male (Shirvani et al. 2008).

Ecology. Apart from the flight period (second and third decades of October) and habitat altitude (around 100 m a.s.l.), nothing else is known.

Pseudohadena magnitudinis Hacker et Ebert, 2002
Pseudohadena magnitudinis Hacker et Ebert 2002: 256, Taf. 16, fig. 13, Abb. 107.

Type locality: 'Iran, Isfahan'.

Type material: holotype male (SMNK), paratypes 6 males (SMNK, ZSM).

Diagnostic features. Large species (forewing length 22.0–24.5 mm). Male genitalia were illustrated in the original description (Ebert, Hacker 2002: 409), female genitalia were illustrated by O. Pekarsky (Pekarsky 2012: 26).

Range. N Iran (Isfahan Province).

Ecology. Only the flight time is known for this species: October.

Pseudohadena zahedana Shirvani et Ronkay, 2008
Pseudohadena (Jaxartia) zahedana Shirvani et Ronkay 2008: 578, figs. 1, 2, 4, 5.

Type locality: 'Iran, Prov. Sistan & Baluchestan, 10 km S of Zahedan, 1,400 m, 29°24'207" N, 60°54'690" E.

Type material: holotype male (HNHM), paratype male (Shahid Bahonar University of Kerman, Iran).

Diagnostic features. Relatively small species: forewing length approximately 17 mm. Wings dark in color, with a well-defined dark noctuid pattern. Male genitalia were illustrated in the original description (Shirvani et al. 2008: figs 4, 5). Female unknown.

Range. S Iran (Sistan and Baluchistan Provinces).

Ecology. The species was collected in November at altitudes of 1,400–1,600 m a.s.l.

Pseudohadena pseudamoena species group

Diagnostic features. In males, the genitalia are broad and paddle-shaped; the vesica is twisted spirally by 360 degrees or more.

The group has an Irano-Turanian distribution (Figs. 3–4).

Pseudohadena pseudamoena (Boursin, 1944)

Pseudopseustis pseudamoena Boursin 1944: 81, pl. 2, f. 12.

Type locality: 'Dzhuga, près Dzhulfa (Arménie)'.

Type material: holotype male (NHM), paratype male (MNHN).

Diagnostic features. Forewing length 16–18 mm. This species is most closely related to *P. gorbunovi*, from which it is quite difficult to distinguish based on wing pattern alone. However, it differs in the genitalia structure of both sexes. The male *P. pseudamoena* has a larger harpa that is medially expanded with a sharp tip compared to *P. gorbunovi* with a slightly shorter and broader distal digit, and a longer cucullus.

Range. S Armenia, SW Azerbaijan, N Iran (Golestan, Khorasan-e Shomali, Semnan Provinces) (Wieser, Stangelmaier 2005; Pekarsky 2012).

Pseudohadena gorbunovi Pekarsky, 2012 (Figs. 3, 7, 12, 26, 32)

Pseudohadena gorbunovi Pekarsky 2012: 13, figs. 64–67.

Type locality: 'SW Kazakhstan, Ustyurt Res., 4 km S of Kokesem ranger station, 316 m, 43°08' N, 54°54' E'.

Type material: holotype male (HNHM), paratypes 180 males, 10 females (ZISP, HNHM, private collections of P. Y. Gorbunov and O. Pekarsky).

Diagnostic features. Forewing length 15.0–17.5 mm. Most closely related to *P. pseudamoena*, from which it differs mainly by male genitalia structure (Pekarsky 2012) (see diagnosis of *P. pseudamoena*). It differs from *P. leucochlora*, described from S Turkmenistan (Ronkay et al. 2002), by smaller size, gray forewing coloration without beige tint, more developed pattern, and structure of male and female genitalia. Male antennae bipectinate, with last 10–13 segments serrate.

Range. Turanian species. Known from the Ustyurt Plateau, Mangyshlak Peninsula, Syr-Darya River Valley, and the Aral Sea area.

Literature data: Karashek, 5.10.10; Tynyshtyk boget, 4.10.10; Kokesem, 9.10.09, 1.–2.10.10; Kendirli, 11.10.09, 3.10.10; Zhaman-Kendirli, 29.09.10; Kyzylsengir, 15.10.09; Saksorka, 13.10.09; Onere, 12.10.09, 14.10.09 [Карашек, 5.10.10; Тыныштык боget, 4.10.10; Кокесем, 9.10.09, 1.–2.10.10; Кендирили, 11.10.09, 3.10.10; Жаман-Кендирили, 29.09.10; Кызылсенгир, 15.10.09; Саксорка, 13.10.09; Онере,

12.10.09, 14.10.09] (Gorbunov et al. 2011); 4 km S of Kokesem ranger station, 1–2.10.2010; 30 km S Sai-Utes, Syndy, 19.09.2010; Kokesem ranger station, 1–2.10.2010, 12.10.2010; Ustyurt Plat., 9–15.10.2009; Kenderly ranger station, 3.10.2010; Kendyrli (spring), 29.09.2010, 3.10.2010; 10.10.2010; Sand Tynyshtyk, 4–5.10.2010; 19 km N of Beineu, 8.10.2010; Tynyshtyk Boget at Karashek Mt., 4.10.2010; Beket-Ata 20 km S, 7.10.2010; Ustyurt Plat., 9–15.10.2009; Kokesem ranger station, 2.10.2010 (Pekarsky 2012). **New data:** Ustyurt West Chink, 20 km N of Beineu, 45°29' N, 55°13' E, 8.10.2010; Aralsk (20 km W), 21.09.2011; 23 km NE of Aiteke-Bi, Aral Karakumes, 45°58' N, 62°24' E, 28.09.2013, 7.10.2016, 22.09.2015; 17 km E of Kyzyl-Orda, 44°47' N, 65°45' E, 3.10.2013; Aralsk Distr., 3.7 km NE of Saksaulsky village, Altynchokysy massif, 47°06' N, 61°11' E, 6.10.2013.

Ecology. Characteristic of shrubby deserts. Most common in salt marshes. Moths fly from late September to early November.

Pseudohadena leucochlora Ronkay, Varga et Gyulai, 2002 (Fig. 3, 16)

Pseudohadena leucochlora Ronkay et al. 2002: 53, figs. 5, 20.

Type locality: 'Turkmenistan, Kopetdag mt., Garrygala [Kara-Kala] env.'

Type material: holotype male, collection of J. Stumpf (Lauda, Germany), paratype male, collection of A. Becher (Freudenberg, Germany).

Diagnostic features. The closest relatives of this species are *P. pseudamoena* and *P. gorbunovi*. *P. leucochlora* differs from them by its larger size (forewing length 21 mm), almost completely reduced forewing pattern, and characteristic pale greenish-whitish slate-gray coloration of the body and forewings.

Range. Known only from the type locality.

Ecology. A late autumn species, flying in November and possibly December.

Pseudohadena moldotoo Volynkin et Titov, 2025 (Figs. 3, 14–15, 17–19, 26, 35)

Pseudohadena moldotoo Titov et al. 2025: 163, figs. 13, 14, 33, 34.

Type locality: 'Kyrgyzstan, | Moldo-Too Range, | 6.5 km E of Kyzyl-Korgon, | 41°42'53" N | 74°16'34" E, | 1,550 m'.

Type material: holotype male (studied), deposited in the A. Volynkin private collection (Leominster, UK), paratypes 9 males (studied), same depository.

Diagnostic features. Forewing length 18–23 mm. Differs from *P. leucochlora*, *P. pseudamoena*, and *P. gorbunovi* by the beige coloration of the wings, elongated hindlegs, and details of genitalia structure in both sexes: males possess a rounded editum; females exhibit breaks in the middle part of the apophyses posteriores and relatively long signa in the bursa.

The taxon was originally established based solely on males with a brief diagnosis. Here we provide a detailed description of both sexes based on more than 100 specimens (including the type series collected by us, but apparently by mistake, the data on which were published with errors in collection dates and without indication of collectors).

Male (Fig. 14). Forewing length 18.0–22.5 mm. Antennae with 60–61 segments, with a pair of unequal pectinations (up to 0.45 mm long) on each segment, except the first four and approximately eight apical segments (which are triangular); underside covered with fairly long light-colored cilia. Labial palpi 1.9 mm long, composed of three oval segments, the apical one half the length of the others (Fig. 19). Forelegs, midlegs, and hindlegs varying greatly in length, primarily due to differences in tibial length (Fig. 19). Forefemora swollen in basal half. Foretibia 1.5 mm long, with a petal-shaped tibial spine 1.1–1.3 mm long. First segment of foreleg modified (characteristic of all representatives of the genus *Pseudohadena*) bearing five big spines, three of which are curved. Midtibia 3.4 mm long, with a pair of unequal apical spines. Hindtibia 5.4 mm long, with two pairs of unequal apical spines. Head, thorax, abdomen, and forewings beige, without the greenish tinge characteristic of *P. leucochlora* and the gray tinge characteristic of *P. pseudamoena*, *P. gorbunovi*, and *P. evanida*. Forewing pattern consisting of a series of dark postmedial spots, the largest adjacent to the anal margin; these spots may be connected by

a blurred wavy line. Traces of antemedial and discal dark bands present, with distinct dark spots on them. Orbicular and reniform spots small and faint; dark scales often concentrated in the lower part of the reniform stigma. Hindwing grayish with slight lightening in the central part; some specimens have dark postmedial elongate stripes on the veins.

Male genitalia (Fig. 16). Uncus with blunt, dorsoventrally flattened apex. Tegumen ribbon-like. Juxta shield-shaped with a rounded basal (ventral) side and elongated (dorsal) extension; vinculum V-shaped. Valves symmetrical, broad, with parallel sides. Sacculus short, triangular, with dorsal bristly sector. Costa straight from base to cucullus. Tip of triangular digitus near apex of valva triangular, without small teeth along anterior margin. Editum rounded, bristly. Harpa broad, paddle-shaped, approximately 1 mm long. Corona short, represented by approximately 20–25 bristles arranged in two uneven rows. Aedeagus cylindrical, 3.8 mm long, approximately 0.7 mm in diameter. Vesica twisted into a spiral; in its widest middle part (up to 1.1–1.2 mm) bearing two diverticula (medial and distal, following Pekarsky's terminology (Pekarsky 2012)) and a long (approximately 1.2 mm) thin rod-shaped terminal cornutus.

Female (Fig. 15). Forewing length 21.0–22.5 mm. No obvious differences from males in wing shape or pattern. Clearly distinguished by antennal structure (lacking pectinations). Hindwing frenulum consisting of three spines (each 2.5 mm long), whereas males possess one thicker spine of similar length.

Female genitalia (Fig. 18). Similar to *P. pseudamoena* and *P. gorbunovi* (Pekarsky 2012: figs. 107–110). Anal papillae large (approximately 1.6 mm wide), oval, densely covered with hairs. Anterior apophyses 1.3 mm long, thin, with small spatulate tips. Posterior apophyses slightly longer than the anterior ones (1.5 mm), with basal expansion, several breaks in the middle, and slightly expanded pin-shaped tips. Ostium wide; ventral plate sclerotized, quadrangular, with

rounded lower corners, its sides bracket-shaped. Ductus long (4.5 mm), sinuous, with sclerotization ribs. Bursa reniform. Appendix of bursa equal in size to corpus, strongly sclerotized in the posterior part; bursa corpus elliptical-hemispherical with three short (approximately 0.6 mm) signa located in its anterior part (Fig. 18). In *P. pseudamoena* and *P. gorbunovi*, the bursa is significantly smaller, while the signa are longer (1.0–1.2 mm).

Range. A narrow endemic of the Naryn River valley, currently known only from two closely spaced localities in the Sary-Bulun Gorge.

Literature data: 6.5 km E of Kyzyl-Korgon (Titov et al. 2025). **New data:** Dyungereme River Valley, 1,490 m, 11–12.10.2023, 2–3.10.2024.

Ecology. The biotope of *P. moldotoo* is sandy-gravel conglomerate slopes with sparse xerophytic vegetation at altitudes of approximately 1,500 m a.s.l. (Fig. 36). Shrubs on these slopes include *Caragana leucophloea*, *Rhamnus songorica*, *Prunus prostrata*, *Zygophyllum atriplicoides*, *Helianthemum songaricum*, *Atraphaxis virgata*, *Spiraea hypericifolia*, and *Oreosalsola pachyphylla* (Fig. 37). The latter species (Salsoleae) is a probable larval food plant. The distribution of *Oreosalsola pachyphylla*, endemic to the lower part of the Naryn River basin, is probably related to the disjunction of this *Pseudohadena* population. Adults fly from late September to October.

***Pseudohadena nuriyanae* sp. nov.** (Fig. 3, 20–26)

<https://zoobank.org/>

References/98C188DE-824B-46FE-A67F-CE6E6EC8D5F9

Material: holotype male, Kyrgyzstan, Zaalaiskii Mt. Range, 4.5 km E of Shibeer vill., 2,530 m, carbonate slope, 39°27'51" N, 71°58'17" E, 21–22.09.2025, leg. P. Gorbunov, S. Korb (ZISP). Paratypes 44 males, 3 females, same locality and date (authors' private collections and ZISP).

Male (Fig. 20). Forewing length 15.5–18.5 mm (holotype 17 mm). Antennae with 54–55 segments, with a pair of unequal pectinations (up to 0.35 mm long) on each segment except the first three and approximately ten apical

segments; underside covered with rather long light-colored cilia. Labial palpi 2 mm long, composed of three elongate segments, the apical one half the length of the others (Fig. 25). Proboscis reduced. Forelegs much shorter than the mid- and hindlegs, mainly due to the differences in tibial length (Fig. 25). Forefemora less swollen in basal half than in *P. moldotoo* and *P. gorbunovi*. Foretibia 1.7 mm long, with petal-shaped tibial spine 1.1–1.3 mm long. First segment of foreleg modified (characteristic of all representatives of the genus) bearing five powerful, slightly curved spines. Midtibia 3.5 mm long, with a pair of unequal apical spines. Hindtibia 4.3 mm long, with two pairs of unequal apical spines.

Head, thorax, abdomen, and wings gray. Forewing of most specimens with slight brownish tint, darker and lacking the beige tint characteristic of *P. moldotoo*. Forewing pattern consisting of indistinct dark gray spots between orbicular and reniform stigmata, within the reniform stigma and below it. Antemedial and postmedial rows of dark spots present, in many cases partially connected by thin dark lines forming interrupted bands. Hindwings gray, without brownish tint. Underside of wings gray with faintly visible darker discal spot and postmedial stripe. In some specimens, basal half of forewing underside darkened (dark gray).

Male genitalia (Figs. 22–23). Uncus with blunt, dorsoventrally flattened apex. Tegumen ribbon-like. Juxta with rounded basal (ventral) side and elongate (dorsal) extension; vinculum V-shaped. Valvae symmetrical (occasionally with slight asymmetry of cucullus), broad, with parallel sides. Sacculus short, triangular, with dorsal bristly sector. Costa straight from base to cucullus. Tip of triangular digitus near apex of valva thin, with small teeth at the base of its anterior edge. Editum rather large (base approximately 0.4 mm), rounded, bristly. Harpa broad, oval or rhombic; corona short, represented by approximately 20–25 bristles arranged in several rows. Aedeagus cylindrical, 3.3 mm long, approximately 0.7 mm in diameter. Vesica spirally twisted; in the middle part bearing two diverticula

(medial and distal, following Pekarsky's terminology (Pekarsky 2012)) and long (1.25 mm) rod-shaped terminal cornutus. One male has a second terminal cornutus (Fig. 23) — likely an aberration, similar to those known in many Noctuidae.

Female (Fig. 21). Forewing length 18.5–19.0 mm. No obvious differences from males in wing shape, coloration, or pattern. Clearly distinguished by antennal structure (lacking pectinations). Hindwings frenulum consisting of three spines (2.5 mm long), whereas males have one thicker spine of similar length.

Female genitalia (Fig. 24). Similar to *P. moldotoo*, *P. pseudamoena*, and *P. gorbunovi* (Pekarsky 2012: figs. 107–110). Anal papillae approximately 1.2 mm wide, oval, densely covered with hairs. Anterior apophyses 1 mm long, thin, with small spatulate tips. Posterior apophyses significantly longer than anterior ones (1.5 mm), with basal expansion and z-shaped break in the middle. Ostium wide; ventral plate sclerotized, quadrangular with rounded lower corners, its sides bracket-shaped. Ductus long (3.6 mm), sinuous, with sclerotized ribs. Bursa reniform. Appendix of bursa equal in size to corpus, more heavily sclerotized in posterior part. Corpus bursae with three signa: two approximately 0.5 mm long, one approximately 1 mm long.

Diagnostic features. Differs from the closely related *P. gorbunovi* by broader wings (forewing length/maximum width ratio averaging 2.1, hindwing length/maximum width ratio 1.5; in *P. gorbunovi* these ratios are 2.5 and 1.7, respectively), darker coloration with brownish tint on forewing upperside, faint dark submarginal spots, dark interrupted postmedial lines on forewing upperside, and postmedial bands on wing underside.

Differs from *P. moldotoo* (found in the Inner Tien Shan) by smaller size, significantly darker coloration without beige tint, and markedly shorter hindlegs.

Differs from both aforementioned species by the shortest male antennal pectinations (no longer than 0.35 mm; in *P. gorbunovi* and *P. moldotoo* reaching 0.45 mm; see Fig. 26). Also differs in details of male genitalia: thin

distal process of digitus with small teeth along its anterior edge, rounded editum, and relatively short harpa.

Range. Found in the far west of the Alai Valley in Kyrgyzstan, where the valley reaches its lowest elevation. The main part of the range of *P. nuriyanae* **sp. n.** may lie in Darvaz area of Tajikistan.

Ecology. The biotope of *P. nuriyanae* **sp. n.** is carbonate slopes with distinctive sparse xerophytic vegetation at approximately 2,500 m a.s.l. (Fig. 29). Among plants on such slopes, *Climacoptera* sp. and *Camphorosma monspeliaca* (Chenopodiaceae) are abundant and may serve as larval food plants.

Etymology. The species is named after the wife of the second author, Nuriyana Korb, whose invaluable assistance in organizing his scientific work — including the expedition during which the new species was discovered — is deeply appreciated.

Pseudohadena cymatodes (Boursin, 1954) (Figs. 4, 8, 13, 33, 34)

Pseudopseustis cymatodes Boursin 1954: 185.

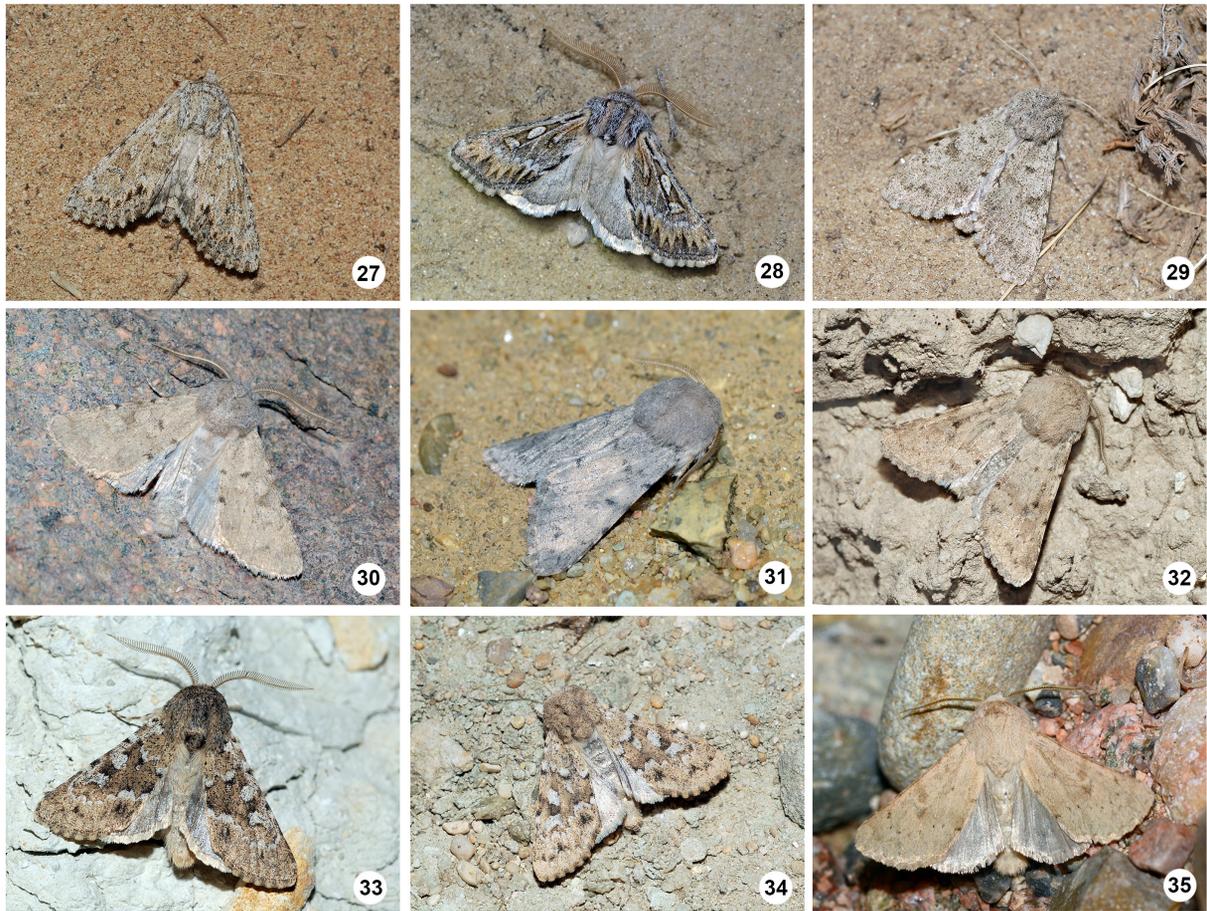
Type locality: 'Emba-Fluß (Nordost-Kaspien)'.

Type material: holotype male, ZMHU.

Diagnostic features. Occupies a separate position in the *pseudamoena* group, differing from other species by its well-defined wing pattern and long male antennae. The medial and terminal appendices of the vesica are large; the terminal cornutus (spine) is the longest among species of the subgenus *Jaxartia*, approximately 1.6 mm long (Fig. 8).

Range. Turanian species, firstly described from the Emba River. It is widely distributed in Kazakhstan, northwards to the middle steppe subzone (S of Orenburg Province in Russia (Nupponen, Fibiger 2006), Astana), eastwards to Zaisan Depression. It is also known from Astrakhan Oblast of Russia (Bolkhuny) and from Uzbekistan (Kungrad). Can be found in NW China. **Literature data:** Syugeti Mt. 8 km NW Kok-Pek, 08.10.1994; 15 km W Aktau Mt., 06.10.1994 (Ronkay et al. 1995); Sibendy, 30.09.2005 (Nupponen, Fibiger 2006); Miyaly (8 km SW), 9–10.10.10; Kolenkely Hills, 20.09.09; Barsakelmes, 9.10.82, 30.09.80;

Beineu (20 km N), 8.10.10; Beket-Ata, 7.10.10; Karashek, 5.10.10; Tynyshtyk boget, 4.10.10; Kokesem, 9.10.09, 30.09.–2.10.10; Kendirli, 28.09.10, 3.10.10; Zhaman-Kendirli, 29.09.10; Kyzylsengir, 15.10.09; Onere, 12.10.09, 14.10.09, 26.09.10 [8.10.10; Бекет-Ата, 7.10.10; Карашек, 5.10.10; Тыныштык богет, 4.10.10; Кокесем, 9.10.09, 30.09.–2.10.10; Кендирили, 28.09.10, 3.10.10; Жаман-Кендирили, 29.09.10; Кызылсенгир, 15.10.09; Онере, 12.10.09, 14.10.09, 26.09.10] (Gorbunov 2011; Gorbunov et al. 2011); [Kolenkely] (Shovkoon, Trofimova 2016); Astana, 29.09.2024 (*Pseudohadena cymatodes*... 2024). **New data:** 25 km W of Aralsk, 46°46' N, 61°21' E, 21.09.2011; Malye Barsuki Sands near Karachokat station, 47°26' N, 60°48' E, 22–23.09.2011, 14.09.2013, 27.09.2013, 25.09.2014, 17.09.2017; Bolshie Barsuki Sands, Shalkar vicinity, 47°49' N, 59°37' E, 24.09.2011; chalk hills 14 km NE of Emba, 48°55' N, 58°18' E, 26.09.2011; Mangyshlak, Tyub-Karagan Peninsula, 44°24' N, 51°08' E, 17.09.2012; chalk massif Akkeregessen, 47°07' N, 54°40' E, 20.09.2012; Isataisky Distr., 17 km SW of Akkystau village, 47°08' N, 50°48' E, 21.09.2012; Ural River Valley, 20 km N of Atyrau, 47°15' N, 51°55' E, 23.09.2012; chalk massif Aktologay, 47°29' N, 55°11' E, 24.09.2012; Emba River Valley near Zharkomy village, 48°33' N, 57°36' E, 26.09.2012; 23 km NE of Aiteke-Bi, Aral Karakumes, 45°58' N, 62°24' E, 28.09.2013, 27.09.2014, 22.09.2015; 17 km E of Kyzyl-Orda, 44°47' N, 65°45' E 3.10.2013, 28.09.2014; Syr-Darya River Delta, Karateren village environs, 46°00' N, 61°01' E, 4.10.2013, 18.09.2017; Aksumbe, 29.09.2014; 40 km N of Sozak village, Moyinkum Sands, 44°29' N, 68°41' E, 2.10.2014; Moiynkum, 4.10.2014; Ili River Valley, 6 km S of Aidarly, 43°59' N, 79°32' E, 4.10.2015; Balkhash area, 2 km W of Zhastar station, 45°32' N, 73°25' E, 26.09.2016; Shalkar Distr., chalk hills near Zhylan station, 47°40' N, 60°22' E, 16.09.2017; Kurchum Distr., chalk plateau Kiin-Kerish, 48°02' N, 84°36' E, 2.10.2018; Irgiz River Valley near Zhanys-Bi village, 48°37' N, 60°23' E, 21–22.09.2022; Irgiz River Valley, Ayirkyzyl Sands, 48°35' N, 60°54' E, 8.10.2022.



Figs. 27–35. Representatives of the subgenus *Jaxartia*, imago in nature: 27 — *Pseudohadena elinguis*, female, SW Kazakhstan, Ustyurt Nature Reserve, Kyzylsengir, 15 October 2009; 28 — *Pseudohadena striolata*, male, S Kazakhstan, Aral Karakum desert, 27 September 2014; 29 — *Pseudohadena evanida evanida*, male, S Kazakhstan, Aral Karakum desert, 28 September 2014; 30 — *Pseudohadena evanida psammoxantha*, male, SE Kazakhstan, near Balkhash Sea, Jostar, 26 September 2016; 31 — *Pseudohadena evanida psammoxantha*, male, SE Kazakhstan, Altyn-Emel Nature Reserve, Aktau Mts., 30 September 2015; 32 — *Pseudohadena gorbunovi*, male, SW Kazakhstan, Ustyurt Nature Reserve, Kyzylsengir, 15 October 2009; 33 — *Pseudohadena cymatodes*, male — SW Kazakhstan, Aktologai, 25 September 2012; 34 — *Pseudohadena cymatodes*, female, SW Kazakhstan, Ustyurt Nature Reserve, Onere, 12 October 2009; 35 — *Pseudohadena moldotoo*, male, Kyrgyzstan, Dyungereme River valley, 12 October 2023

Рис. 27–35. Виды подрода *Jaxartia*, имаго в природе: 27 — *Pseudohadena elinguis*, самка, Ю.-З. Казахстан, Устыуртский з-к, Кызылсенгир, 15.10.2009; 28 — *Pseudohadena striolata*, самец, Ю. Казахстан, Приаральские Каракумы, 27.09.2014; 29 — *Pseudohadena evanida evanida*, самец, Ю. Казахстан, Приаральские Каракумы, 28.09.2014; 30 — *Pseudohadena evanida psammoxantha*, самец, Ю.-В. Казахстан, Прибалхашье, Жостар, 26.09.2016; 31 — *Pseudohadena evanida psammoxantha*, самец, Ю.-В. Казахстан, нац. парк Алтын-Эмель, горы Актау, 30.09.2015; 32 — *Pseudohadena gorbunovi*, самец, Ю.-З. Казахстан, Устыуртский з-к, Кызылсенгир, 15.10.2009; 33 — *Pseudohadena cymatodes*, самец, Ю.-З. Казахстан, Актолагай, 25.09.2012; 34 — *Pseudohadena cymatodes*, самка, Ю.-З. Казахстан, Устыуртский з-к, Онере, 12.10.2009; 35 — *Pseudohadena moldotoo*, самец, Кыргызстан, долина р. Дюнгереме, 12.10.2023



Fig. 36–39. 36 — Habitat of *Pseudohadena moldotoo*, Kyrgyzstan, Dyungereme River Valley, 3 October 2024; 37 — *Oreosalsola pachyphylla* — possible food plant of *Pseudohadena moldotoo*, Kyrgyzstan, Dyungereme River valley, 3 October 2024; 38 — Habitat of *Pseudohadena nuriyanae*, sp.n., Kyrgyzstan, Shabee village environs, 22 September 2025; 39 — *Pseudohadena nuriyanae*, sp.n., male, Kyrgyzstan, Shabee village environs, 22 September 2025

Рис. 36–39. 36 — Биотоп *Pseudohadena moldotoo*, Кыргызстан, долина р. Дюngerеме, 03.10.2024; 37 — Солянка *Oreosalsola pachyphylla* — предположительное кормовое растение *Pseudohadena moldotoo*, Кыргызстан, долина р. Дюngerеме, 03.10.2024; 38 — Биотоп *Pseudohadena nuriyanae*, sp. n., Кыргызстан, окр. с. Шибее, 22.09.2025; 39 — *Pseudohadena nuriyanae*, sp. n., самец, Кыргызстан, окр. с. Шибее, 22.09.2025

Ecology. A numerous polytopic species in desert areas. In the southern steppe subzone found locally, mainly on chalk outcrops. Moths fly in late September and October.

Pseudohadena jordana species group

Diagnostic features. This group contains only one species, which differs from all other representatives of the subgenus by the short male antennal pectination and significantly longer corona (bristles) on the distal edge of the valva.

Distribution: Near East (Fig. 4).

Pseudohadena jordana (Staudinger, 1900)

Orthosia jordana Staudinger 1900: 376, Taf. V, fig. 12

Type locality: '...im unteren Jordanthal'.

Type material: syntypes 2 males (ZMHU).

Male genitalia were illustrated by C. Boursin (Boursin 1954: fig. 5).

Conclusion

The subgenus *Jaxartia* currently comprises 13 species representing four species groups. The range of the subgenus extends across Asia Minor and Central Asia, the Transcaucasus, and the Near East.

During expeditions in the autumn of 2023 and 2024 on the northern slopes of the Moldo-Too Range under mid-montane conditions, we discovered a new species of *Pseudohadena* from the *P. pseudamoena* group, recently

described as *P. moldotoo*. The new locality of this species is unusual for two reasons. First, its geographical location is a considerable distance from the nearest known population of representatives of the *P. pseudamoena* group (*P. cymatodes* in the vicinity of Almaty): more than 250 km in a straight line, in fact in the very heart of the Tien Shan mountains. Second, the altitude at which the population was found is noteworthy. As indicated by Ronkay et al. (Ronkay et al. 1995), species of this group typically inhabit flat deserts, rarely occurring in desert lowlands; habitation in mid-montane conditions is not characteristic of the subgenus *Jaxartia*. The biotope in which *P. moldotoo* populations were found is highly unusual for representatives of this subgenus: sandy-pebble conglomerate slopes within the mountain-steppe belt supporting relatively rich vegetation (according to Ronkay et al. (Ronkay et al. 1995), Gorbunov (Gorbunov 2011), Titov, Volynkin (Titov, Volynkin 2016), species of this group prefer deserts and semi-deserts). Downstream of the Naryn River, during a three-year survey of the autumn Lepidoptera fauna, this species (like other representatives of the subgenus *Jaxartia*) has not yet been found.

During expedition work in the autumn of 2025, another species of this group, described herein as *P. nuriyanae* **sp. n.**, was discovered under even more unusual conditions for the subgenus: at an altitude of 2530 m.

Thus, species of this subgenus locally inhabit mid-montane areas within the mountain-steppe belt and are not exclusively representatives of desert fauna. It should be

noted that this distribution pattern has so far only been identified in the *P. pseudamoena* group, which does not preclude the future discovery of local mid-montane or even high-montane species from the *P. evanida* group. In any case, even under mid-montane conditions, moths inhabit arid biotopes (*P. nuriyanae* **sp. n.** was found on a south-facing carbonate slope, *P. moldotoo* on sandstone-pebble conglomerates); it is precisely in such habitats that they should be sought when planning further surveys of the autumn Lepidoptera fauna in Central Asia.

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