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New species and subspecies of *Euxoa* Hübner, 1821 from Asia (Lepidoptera: Noctuidae)

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Abstract

The description of seven new species (*Euxoa exclaviota* nov.sp., *Euxoa nesopatris* nov.sp., *Euxoa pseudolugens* nov.sp., *Euxoa transoxanica* nov.sp., *Euxoa subcognita* nov.sp., *Euxoa transiliensis* nov.sp., *Euxoa stenomelas* nov.sp.) and one new subspecies (*Euxoa dsheiron syriae* nov.ssp.) are given from Asia. A short historical summary on the researches of the Palaearctic *Euxoa*, and a short explanation what the motivation was to describe new species by one – three specimen(s) are given. New taxa and closely related species are illustrated with imagines in colour and male and female genitalia.

Key words: Lepidoptera, Noctuidae, *Euxoa*, nov.sp., nov.ssp., new species, Asia.

Zusammenfassung

In der folgenden Arbeit werden sieben neue Arten (*Euxoa exclaviota* nov.sp., *Euxoa nesopatris* nov.sp., *Euxoa pseudolugens* nov.sp., *Euxoa transoxanica* nov.sp., *Euxoa subcognita* nov.sp., *Euxoa transiliensis* nov.sp., *Euxoa stenomelas* nov.sp.) und eine neue Unterart (*Euxoa dsheiron syriae* nov.ssp.) aus Asien beschrieben. Hinzu kommt eine historische Zusammenfassung über die Forschungen der Paläarktis *Euxoa* und eine kurze Erklärung, was die Motivation war, neue Arten mit einem bzw. drei Exemplar(en) zu beschreiben. Dargestellt werden männliche und weibliche Genitalien sowie neue Taxa und nahe verwandte Arten in farbigen Abbildungen.

Introduction

Euxoa is a large genus of the Noctuidae subfamily Noctuinae; the majority of the species are distributed in the Holarctic. Comprehensive studies have been published on the *Euxoa* of North America including Greenland (Lafontaine 1987) and Europe (Fibiger 1990, 1997).

However, no authentic revision of the Asiatic species is available; although it would be necessary due to the large number of the described species and the disputable taxonomic value and/or interpretation a lot of them. The main first detailed studies on the Asian *Euxoa* with new descriptions are the publications of Walker (1857), Staudinger (1892, 1897), Hampson (1905), Warren (1912), Wagner (1913), Corti (1928, 1931, 1932), Corti & Draudt (1931-1938) and Kozhanchikov (1929, 1937); later Brandt (1938, 1941), Boursin (1940, 1964), Varga (1975, 1979), Kovács & Varga (1973). Due to the extensive researches from the nineteenth of the last century, particularly in the hardly explored high mountain arid-semiarid and monsoon area of Asia, several new taxa have been recognised and immense of faunistical data published by Hacker (1990, 2001), Hacker & Peks (1990, 1992), Hacker & Weigert (1990), Gyulai & Ronkay (1999, 2001), Hreblay & Ronkay (1997, 1998), Hreblay, Ronkay & Plante (1998), Gyulai & Ronkay (2001), Varga & Gyulai (2001, 2002), Ebert & Hacker (2002), Varga, Gyulai & Miatleuski (2002), Volynkin (2012), Kononenko (2005), Gyulai & Varga (2006), Gyulai, Ronkay L., Ronkay G. & Saldaitis (2013), Varga (2014). The recent publication is an addition to the knowledge of the *Euxoa* fauna of Asia with description of new taxa.

The majority of the *Euxoa* species being confined to Asia have a wide range of distribution, a few species are very local and rare and the available material consists of only the holotype and one – three specimen(s) have been found during the past one hundred year. This fact resulted, that some of the new descriptions being provided below, based upon a single specimen, or a large series, however from the same locality, for instance *Euxoa transoxanica*. Both the male and female genitalia of *Euxoa* display remarkable resemblance and the cofiguration is almost the same even in the species being very distinctive in the external characters. Therefore to implement the descriptions was not simple, particularly in the subgenus *Pleonectopoda* Grote, in which the whole known material contains only one – three specimens and no female avaliable from most of the species, even in the largest museums and private collections. The holotypes are generally too olds for DNA examination, for instance the type of *Euxoa puengeleri* (Wagner, 1913) is more than one hundred year old.

Material and methods

The article is based on the private collection of Péter Gyulai (Miskolc, Hungary), however type material documentation was preserved by Gábor Ronkay (Budapest), Isabelle Zürcher (NMB), László Ronkay (HNHM), Sabine Gaal-Haszler (NHMW), Wolfram Mey (ZMHU), and Zoltán Varga (UD, Hungary). The classification of *Euxoa* follows the publications of D. Lafontaine (1987) and M. Fibiger (1990, 1997).

Standard methods and chemicals were used for dissection of the abdomen and preparation of the genitalia (coloured with chlorazol blue, covered in Canada balm) of the specimens, which were photographed using a Nikon D 90 with Nikon 1:4– 5,6 D objective; genitalia slides were photographed by Super Cool–scan 5000 (the name of the scanning programme is VueScan32) and Nikon D 90 with Nikon ED AF Micro Nikkor 200 mm 1:4 D objective and further processed and combined to plates by Adobe Photoshop software.

Abbreviations

HNHM .....Hungarian Natural History Museum, Budapest, Hungary

NHMW.....Naturhistorisches Museum, Wien, Austria

NHRS.....Naturhistoriska riksmuseet, Entomology, Stockholm, Sweden

NMB .....Naturhistorisches Museum Basel, Basel, Switzerland

PGM.....Péter Gyulai Miskolc, Hungary

UD.....University of Debrecen, Hungary

ZMHU.....Museum für Naturkunde (formerly Zoologisches Museum der Humboldt-Universität), Berlin, Germany

GYP.....genitalia slide of Péter Gyulai

VZ .....genitalia slide of Zoltán Varga

Systematic part

***Euxoa exclaviota* nov.sp.** (Figs 2, 53)

Type material: ♂ Holotype: (Fig. 2) Turkey, Kurdistan, prov. Van, Catak, (Kavussahap Dagl.), 8-9.IX.1991, leg. et coll. P. Gyulai, slide No. VZ 9231m (coll. PGM, later to be deposited in the HNHM)

Diagnosis: The new species belongs to the Central Asiatic *Euxoa decorans* (Staudinger, 1897), species group, including seven valid species: *Euxoa flavisignata* (Corti, 1932) (Figs 1, 8, 9, 10, 56), *Euxoa plumbina* (Wagner, 1913) (Figs 6, 7, 55), *Euxoa decorans* (Staudinger, 1897) (Figs 3, 4, 5, 54), *Euxoa fraudulenta* (Corti, 1928), *Euxoa qaidamensis* Gyulai, Ronkay & Varga, 2001, *Euxoa chlorophaia* Gyulai, Ronkay & Varga 2001 and *Euxoa erythrochrysa* Gyulai, Ronkay & Varga, 2001. However, it can be easily distinguished by the narrower, unicolorous dark ochreous forewing without greyish, bluish-grey, yellow, greenish or pinkish suffusion (which are characteristic to one or more of the closely related species) and particularly the darker, almost unicolorous hindwing, and the genitalia features, as well. *Euxoa exclaviota* (Fig. 2) resembles externally rather *Euxoa decorans* (Figs 3, 4, 5), although the distributional range (Altay, Sayan, Mongolia, north-western China) of it is very distant from the known locality (eastern Turkey) of the new species. The vesture of the head and body, the wing pattern are apparently hardly distinctive in colouration, although the specimen is badly worn. The main diagnostic external features for the separation of *Euxoa exclaviota* and the most similar *Euxoa decorans* are as follows: the new species has narrower, more uniformly coloured, dark ochreous forewing ground colour and less conspicuous orbicular and reniform stigmata, more arched postmedial line and darker, brownish, unicolorous hind wing, in which the diffuse marginal field is slightly darker only; while in the *Euxoa decorans* the wings are more variable with conspicuous, yellowish orbicular and reniform stigmata, hardly arched postmedial line and white or whitish large inner area of the hind wing. These characters are more distinctive in comparison to the light and dark forms of the *Euxoa decorans*. Finally, the distribution of the sister-species seem to be strictly allopatric, since the new species is eastern Anatolian, whereas the *Euxoa decorans* southern Siberian – Mongolian, providing a good support to the

correct identification. Last but not least, the differences between the genitalia of the species are remarkably large therefore the study of the genitalia can easily confirm the species identity of the examined specimen(s).

M a l e g e n i t a l i a : *Euxoa exclaviota* (Fig. 53) can be separated from the most related *Euxoa decorans* (Fig. 54) by its less elongated, broader valvae, slenderer juxta with much shallow dorsal depression and tighter vinculum; however the best distinctive key features are the asymmetry in the arm length of the saccular extensions, since the left arm shorter than the right one, which is shorter than in most of the *Euxoa decorans*; furthermore in the vesica, since it is longer, more tubular distally and the subbasal diverticulum globular, while this is rather elongated, foot shaped in the *Euxoa decorans* and in all of the rest species of this group. The globular subbasal diverticulum is distinct character of the new species in this group, while the large asymmetry in the saccular extensions is a shared feature with the *Euxoa decorans* and *Euxoa erythrochrysa* only.

D e s c r i p t i o n : Wingspan 33 mm, length of forewing 16 mm. The main external features of the new species are the dark ochre head and body vesture and forewing ground colour, in which the orbicular and reniform stigmata hardly defined, obsolescent, slightly lighter than the ground colour; the transverse lines fine, dark ochre, the antemedial line double, the postmedial line somewhat arched, finely sinuous, with a slight acute projection outwards in the initial section; the subterminal line sinuous, brownish, obsolescent. The hind wing light brown with diffuse, somewhat darker marginal area, the discal spot not discernible, cilia white. Under side of the wings bright, various shaded whitish – light brown, without pattern. M a l e g e n i t a l i a : The genitalia of the *Euxoa exclaviota* (Fig. 53) resemble the closely allied species with some shared features. The uncus is long, hairy, distally evenly tapering, tegumen narrow, penicular lobes rounded. Juxta deltoid, high with shallow apical medial incision, vinculum rather short and V-shaped. Valva elongated, almost evenly broad, slightly arched; cucullus section not separated, broad, apically somewhat projected forward with broad corona and row of strong setae. Clasper long, almost straight, projecting forward, saccular extensions strong, asymmetric, much longer on the right side, however does not extend until the cucullus. Aedeagus tubular, slightly curved, the vesica recurved dorsad, distally tubular, with a large globular diverticulum in the subbasal section, a further small, finger-like one medially and a tiny one terminally. F e m a l e g e n i t a l i a : Unknown.

B i o l o g y a n d d i s t r i b u t i o n : The new species is known from the type locality in southeastern Turkey only, close to the Iraqi border. The habitat is not very far from the small village named Catak, with rocky hillsides and dwarfed wild Pistacia bushes and typical steppe vegetation on the plateau. The new species is a zoogeography curiosity, as the westernmost, highly isolated member of the central Asiatic-Tibetan species group.

N o t e : The single specimen is rather worn, due to the windy night and an immense of common Noctuidae (especially *Euxoa heringi* (Christoph), *Eugnorisma eminens* (Lederer), etc.) and a few interesting species (*Dichagyris argentea* (Kozhantschikov) *Dichagyris pfeifferi* (Corti & Draudt), etc.) in the portable light trap. The other trap up to the plateau was stolen, thus this single one was found from this curious new species.

E t y m o l o g y : The name of the new species refers to the separated, far distribution pattern from its central Asiatic relatives.

***Euxoa nesopatris* nov.sp.** (Figs 11, 57)

T y p e m a t e r i a l : Holotype: ♂ (Fig. 11) SW Tajikistan, Pjandzh river,"Tigrovaja balka" natural reservation, 5.VIII.2000 leg. V. Perepechaenko, slide No. GYP 2797m (coll. PGM, later to be deposited in the HNHM).

D i a g n o s i s : The new species is one of the most unmistakeable *Euxoa* species. It can be easily recognized by the small size, pale, unicolorous and relatively narrow forewing and whitish hind wing. By its external features and wing pattern, it seems to be rather a *Chersotis nekrasovi* VARGA or *Chersotis zaghros* GYULAI & VARGA and not an *Euxoa*. However, the new species is smaller, the forewing paler, in the white hind wing the marginal field is faint brownish and the genitalia strictly indicates the genus *Euxoa*. The male genitalia is also unique, the somewhat resembling species is *Euxoa eremorealis* VARGA, 1975 (Fig. 12) (described from Afghanistan, Hindukush Mts.), from which the separation very easy by the much narrower wings, pale forewing with *Chersotis*-like wing pattern and white hind wing without cellular spot; while *Euxoa eremorealis* is almost the same sized, but the wings are brown coloured and much broader, with typical *Euxoa* forewing pattern and the cellular spot is present in the brown hind wing.

M a l e g e n i t a l i a : *Euxoa nesopatris* (Fig. 57) can be separated from *Euxoa eremorealis* (Fig. 58) by its weaker uncus, higher juxta with conspicuously deeper dorsal medial incision and the apically rounded U shaped vinculum; additional key characters are the larger asymmetry in the arm length of the saccular processes (the left arm much shorter than in the *Euxoa eremorealis* and straight, whereas the right one also shorter, but slightly outwards terminally; the vesica is remarkable longer basally and less ample subbasally, the subbasal diverticulum larger, foot shaped, while these are tighter in the *Euxoa eremorealis*.

D e s c r i p t i o n : Wingspan 33 mm, length of forewing 16 mm. The main external characters of the new species are the pale ochre head and body vesture and forewing ground colour, in which the orbicular and reniform stigmata hardly defined, faint, slightly lighter than the ground colour; the transverse lines fine, light brown, antemedial line double, the postmedial line somewhat arched, finely sinuous, with a slight acute projection outwards in the fore section; the subterminal line sinuous, brownish, faint. Hind wing whitish – pale brownish with diffuse, somewhat darker marginal area, the discal spot not discernible, fringe white. Under side of the wings bright, various shaded whitish – light brown, without pattern. M a l e g e n i t a l i a : *Euxoa nesopatris* (Fig 57) genitalia resemble the closely allied species. Uncus fine, long, hairy, tegumen narrow, penicular lobes rounded. Juxta deltoid, high with deep apical incision, vinculum rather short and V-shaped. Valvae elongated, almost evenly broad and straight, cucullus not separated, broad, apically projected forward with broad corona and row of strong setae. Clasper long, anteriorly slightly arched, distally almost straight, projecting forward; saccular extensions strong, asymmetric, much longer on the right side, however does not extend until the cucullus. Aedeagus tubular, slightly curved, the vesica recurved dorsad, distally tubular, with a large globular subbasal diverticulum, a further small, finger-like one medially and a tiny one terminally. F e m a l e g e n i t a l i a : Unknown.

B i o l o g y a n d d i s t r i b u t i o n : The new species is known from the type locality only.

E t y m o l o g y : The name of the new species expresses its isolated occurrence.

***Euxoa pseudolugens* nov.sp.** (Figs 13, 63)

T y p e m a t e r i a l : Holotype: ♂ (Fig. 13) Afghanistan, 3500 m, prov. Paktia, Kotar-e-Sirkej, 28.VI.-15.VII.1999, leg. S. Assad, slide no. GYP 4683m (coll. PGM, later to be deposited in the HNHM).

D i a g n o s i s : *Euxoa pseudolugens* differs from the majority of the somewhat similar *Euxoa* species by the unicolorous, chocolate brown thoracic vesture and forewing ground colour with brown cilia and finely, evenly black outlined orbicular and reniform stigmata, unicolorous whitish hind wing with the absence of the wing pattern and with white fringe. Externally rather resembles to the *Euxoa christophi f. lugens* STAUDINGER, 1870, (Figs 14, 23, 24), however *Euxoa pseudolugens* is larger (wingspan 30 mm, versus 24-27 mm), the male antennae are filiform and not finely bipectinated as in the *Euxoa christophi f. lugens*; the forewing pattern more defined, mainly the stigmata and the pale ochreous zigzag subterminal line and the apex less elongated. The correct identification is supported by the very different distribition and ecology of the two species; *Euxoa pseudolugens* is a true high mountain (3500 m) mid-summer species, whereas *Euxoa christophi f. lugens* is an autumnal steppe species. In the male genitalia (Fig. 63), it is very distinctive from the *Euxoa christophi f. lugens* (Figs 61, 62), since the saccular extensions are strictly asymmetrical, the left one is much shorter, while right one longer; the juxta higher, dorsally with much deeper incision; the valvae are more larger, particularly the cucullus section; the subbasal diverticulum is smaller, less prominent, the medial diverticulum less finger-like, the small terminal diverticulum conjectural.

D e s c r i p t i o n : Wingspan 29 mm, length of forewing 15 mm. The male antennae thin, slightly serrated basally, the head and thorax vesture, the forewing ground colour and the cilia unicolorous, chocolate brown, while the costa broadly lighter shaded. The wing pattern discernible, the most conspicuous are the completely finely blackish outlined light brown orbicular and reniform stigmata and the sinuous reddish brown subterminal line with pale ochreous shade in the inner side; whereas the claviform stigmata, the basal dash and the antemedial and postmedial transverse lines faint, obsolescent. The hind wing whitish with the absence of the discal spot, fringe white. M a l e g e n i t a l i a : (Fig. 63). Uncus long, distally evenly tapering; juxta deltoid, high with deep dorso-apical incision, vinculum rather short and V-shaped. Valvae elongated, costa convex, the ventral edge straight, cucullus broad, terminally elongated forward and acute, with broad corona and row of strong setae. Clasper long, falciform; saccular extensions strictly asymmetric, much longer and distally slightly bended on the right side, extending until the angle of cucullus, while much shorter on the left side. Aedeagus tubular, slightly curved, the vesica recurved dorsad, distally tubular, the subbasal diverticulum small, foot shaped, the medial one small, globular, only with a slight prominence of the one terminally. F e m a l e g e n i t a l i a : Unknown.

B i o l o g y a n d d i s t r i b u t i o n : It is a mid-summer high mountain species, known from the type locality only.

E t y m o l o g y : The name of the new species refers to the external similarity with E. christophi f. lugens.

***Euxoa transoxanica* nov.sp.** (Figs 16-19, 59, 81, 82)

T y p e m a t e r i a l : Holotype: ♂ (Fig. 16) SW Tajikistan, "23. IX. [19]48, St. Pristanj, 12 km k. ju. ot Dshilikulja, na r. Vahs, Na svet, [in Russian] male, *Euxoa* sp?" (= old pier on the Vakhsh River, 12 km S of Jilikul, at light), Yu. Shchetkin [leg.] slide No. VZ 8482m (coll. PGM, later to be deposited in the HNHM).

Paratypes: 1 ♀, same data; 31 ♂ ♂ and ♀ ♀, same data, but with the dates as follows: 1 ♀, 8. IX.1948; 2 ♀ ♀, 21.IX.1948; 3 ♀ ♀, 22.IX.1948; 1 ♂ , 1 ♀ , 26.IX.1948; 1 ♀, 29.IX.1948; 1 ♀, 2.X.1948; 2 ♀ ♀, 3.X.1948; 1 ♀, 4.X.1948; 3 ♀ ♀, 6.X.1948; 1 ♀, 10.X.1948; 1 ♀, 11.X. 1948; 2 ♀ ♀, 13.X.1948; 2 ♂ ♂, 2 ♀ ♀, 15.X.948; 1 ♀, 16.X.1948; 3 ♀ ♀, 18.X.1948; 1 ♂, SW Tajikistan, 26.IX.1948, nizovja r. Vahs, zap. k. "Tigrovaja balka" kordon, na svet, [in Russian] male, Euxoa sp? Yu. Shchetkin [leg.], all coll. PGM; 2 ♀ ♀ with the same year and locality coll. Z. Varga, slide Nos.: GYP 1009, 4684 (♂ ♂); GYP 4681, 4716, 4717, 4722 (♀ ♀).

D i a g n o s i s : The new species also belongs to the most unmistakeable *Euxoa* species. The main distinctive external differential characters are the unicolorous, pale fawn coloured or whitish forewing sparsely dispersed by pale brown scales, but mostly by the absence of wing pattern or – in certain specimens of the slightly darker females – with very faint, light brownish traces of the antemedial and postmedial transverse lines and of the reniform stigmata. No very similar species among the Palaearctic *Euxoa* is known, only rare, unicolorous, pale forms or old specimens of other species, particularly among the *Euxoa emolliens* Hampson, 1905 (Figs 20, 21, 22) (synonyms: *Agrotis mollis* Staudinger, 1891 (preocc. *Agrotis mollis* Walker, [1857])) and *Euxoa christophi* Staudinger, 1870 (=*Euxoa amplexa* Corti 1931). It is worth to mention, that these two species have already been synonymised by Fibiger (1997) and the possible synonymy is worth for discussion (see Poole, 1989, Fibiger 1990 and 1997), but restored and figured by Varga, 2014 and Internet, however this is not the aim of this publication; nevertheless, author believes them as two distinct species. *Euxoa transoxanica* (Figs 16-19) is, however, conspicuously larger in average (wingspan 34-42 mm, versus 26-32 mm) and paler coloured. In the external characters and size, more similar species is the *Euxoa emamrezai* Gyulai & Varga, 2002, (Fig. 15), however both the male and female genitalia indicate, that it is not the closest relative of *Euxoa transoxanica*. The new species is somewhat smaller in the average size, the forewing apex less elongated, ground colour not pinkish shaded and the orbicular and reniform stigmata are conjectural. In the male and female genitalia (Figs 59, 81, 82), it also can be associated with the above mentioned two species, particularly with those of the *Euxoa emolliens* (Figs 60, 84), however larger, robust, the saccular extensions are symmetrical, much stronger, somewhat longer and distally straight in the males, while in the females the ovipositor broader, the laminar plate on the wall of the ductus bursae distally broader, the appendix bursae somewhat more laterally positioned and the corpus bursae larger, ample, particularly from the *Euxoa christophi f. lugens* (Fig. 85). From *Euxoa emamrezai* (Figs 64, 83) the new species is more different, the conspicuous distinctive keys are the significantly longer saccular extensions, more diverging harpe and saccular extensions and much smaller, lower juxta in the males, while those are in the females the longer laminar plate in the ductus bursae and more prominent, but smaller, conical appendix bursae.

D e s c r i p t i o n : Wingspan 34-42 mm, length of forewing 16-22 mm. An easily recognizable species; male antennae slightly bipectinated, those of the females fine, thread-like. The head and thorax vesture, the forewing ground colour and its cilia unicolorous, pale fawn coloured or whitish sparsely dispersed by pale brown scales, showing pale brown suffusion in the slightly darker females. The wing pattern conjectural, mostly not

discernible or – in certain specimens of the slightly darker females – faint, obsolescent, defined with light brownish traces of the antemedial and postmedial transverse lines and of the slender reniform stigmata, being the same colour as the ground colour, but slightly darker in the lower area and very finely outlined with pale. The hind wing white or whitish, in the females diffuse light brown in the marginal area; the discal spot not discernible or a tiny conjectural pale brown dot, fringe white. Under side of the wings similar, hind wing bright, white-whitish. M a l e g e n i t a l i a : The main characters of the *Euxoa transoxanica* (Fig. 59) resemble the allied species, bearing symmetrical, very long, robust and straight saccular extensions. The uncus long, hairy, apically evenly tapering, tegumen narrow, penicular lobes elongated. Juxta pentagonal, high with deep apical medial incision, the two dorsal extensions long, fine; vinculum short and V-shaped. Valvae elongated, almost evenly broad, the costa slightly arched; cucullus broad, terminally somewhat projected forward and acute, with broad corona and row of strong setae. Clasper long, finely falciform, projecting forward, saccular extensions robust, symmetric, extending over the angle of cucullus. Aedeagus tubular, slightly curved, vesica recurved dorsad, distally tubular, with a globular diverticulum in the subbasal section, a further small, finger-like one medially, without terminal diverticulum. F e m a l e g e n i t a l i a : (Figs 81, 82). The ovipositor terminally rounded, rather broad, apophyses anteriores short, strong, apophyses posteriores very long, ductus bursae membranous, straight, the laminar plates on its wall long, distally broaden, appendix bursae somewhat postero-laterally positioned, broadly conical, hardly detached, corpus bursae large, saccate.

B i o l o g y a n d d i s t r i b u t i o n : It is a typical late autumnal species, known from the type locality only.

E t y m o l o g y : The name of the new species refers to the distribution (over the historical *Oxania* empire and *Oxon* river).

***Euxoa dsheiron syriae* nov.ssp.** (Figs 30-33, 68, 69, 88)

T y p e m a t e r i a l : Holotype: ♂ (Fig. 30) Syria, prov. Dimashq, Jabal Lubnan ash Sharqi, Dier Atteiah, W of Qarah, 10.-11.X.2004, leg. P. Gyulai & A. Garai, slide No. GYP 4603 (coll. PGM, later to be deposited in the HNHM).
Paratypes: 12 ♂ ♂, same data; 3 ♂ ♂, 2 ♀ ♀, Syria, prov. Dimashq, Jabal Lubnan ash Sharqi, Ma'lula; 11.-12.X.2004, leg. P. Gyulai & A. Garai; 3 ♂ ♂, Syria, prov. As–Suwayda, Jabal al Arab, 8 km SE of As-Suwayda, 12.-13.X.2004, leg. P. Gyulai & A. Garai; 1 ♂, Syria, prov. Dimashq, Jabal Lubnan ash Sharqi, Bloudan, 2000 m, 14.-15.X.2004, leg. P. Gyulai & A. Garai (coll. PGM). slide Nos.: GYP 4015, 4508, 4777 (♂ ♂); GYP 4017, 4509 (♀♀).

D i a g n o s i s : *Euxoa dsheiron syriae* n. ssp. is the westernmost, isolated subspecies of the Iranian *Euxoa dsheiron* BRANDT, 1938 (Figs 25-29, 65-67, 86). HACKER (2001) does not mention the occurrence of this species in his comprehensive study on the Noctuidae fauna of the Levante. The new subspecies is conspicuously smaller (wingspan 26-33 mm, versus 37-41 mm) and paler coloured, without greyish suffusion in the forewing but with lighter, shining, clear white hindwing. Although there are conspicuous differences in size and external features, the distinctives in genitalia are slight and do not support the separation of the Iranian and Syrian populations on specific level. Both in the male and female genitalia, the ssp. *syriae* is smaller, less robust, however no constant differences were found due to the individual variability in both taxa. Confusion with the *Euxoa charlesboursini* VARGA, 2014 (Figs 34, 35, 70, 87) is impossible, since it is endemic in Iran and much larger, the antennae of the males much less, slightly bipectinated, the forewing colouration stronger; in the male

genitalia have much robust valvae, conspicuously deeper apical incision in the juxta, stronger, straight saccular extensions, the subterminal tiny diverticulum absent; while those are in the females the longer ovipositor, sclerotized plate of ductus bursae and corpus bursae.

D e s c r i p t i o n : A rather small subspecies, wingspan 27-33 mm, length of forewing 13-16 mm. The male antennae broadly bipectinated, those of females fine, thread-like. The head and thorax vesture, the forewing ground colour and its fringe unicolorous, pale ochre coloured in the males, but pale brown suffused, slightly darker in the females. The wing pattern fine, brown defined, particularly the basal and cellular dash, the wedge shaped claviform stigma and the 4-7 tiny streaks in the inner side of the subterminal line, while the antemedial and postmedial transverse lines and the partly outlined orbicular and reniform stigmata (being the same colour as the ground colour), are indicated slightly or only with brown traces. The hind wing and cilia brilliant white in the males, but more or less light brown suffused, somewhat darker in the marginal area in the females; the discal spot absent. M a l e g e n i t a l i a (Figs 68, 69): The ground plan of the *Euxoa dsheiron syriae* resemble the nominotypical subspecies (Figs 65-67). The uncus long, rather thin, medially somewhat broader, apically rounded; tegumen narrow, penicular lobes elongate. Juxta pentagonal, high with deep apical medial cleft, vinculum rather short and V-shaped. Valvae elongated, more or less evenly broad, slightly arched; cucullus broad, terminally somewhat projected forward and acute, with broad corona and row of strong setae. Clasper long, slightly evenly curved, projecting forward, saccular extensions strong, slightly asymmetric only, extending to the angle of cucullus on the right side, while somewhat shorter on the left side. Aedeagus tubular, slightly curved, vesica distally tubular, recurved dorsad, with a large globular or foot shaped diverticulum in the subbasal section, a further small, finger-like one medially and with the presence of a tiny one terminally. F e m a l e g e n i t a l i a (Fig. 88): The ovipositor terminally rounded, rather broad, apophyses anteriores long, strong, apophyses posteriores thin but long, ductus bursae long, membranous, straight, the laminar plates on its wall long, distally broaden, appendix bursae broadly conical, hardly detached, the corpus bursae saccular, large.

B i o l o g y a n d d i s t r i b u t i o n : The new subspecies is known from the lower mountains of central Syria, occurring in the warm, bushy-rocky habitats in the middle of October.

E t y m o l o g y : The name of the new species refers to the distribution.

***Euxoa subcognita* nov.sp.** (Figs 37, 38, 72, 93)

T y p e m a t e r i a l : Holotype: ♂ (Fig. 37) Kirgisia, Alai Mts., Dugoba, Alplager, 2000 m, 25.-26. VII.1992 leg. M. Kopp slide No. GYP 4512m (coll. PGM, later to be deposited in the HNHM). Paratype: 1 ♀ (Fig. 38), same data (coll. PGM), slide No. GYP 4830 (♀).

D i a g n o s i s : *Euxoa subcognita* is significantly smaller in size, than the close associated Central Asiatic four species (*Euxoa cognita* Staudinger, 1881 (Fig. 39); *Euxoa puengeleri* (Wagner, 1913) (Fig. 36); *Euxoa uigurica* Gyulai, Ronkay & Varga, 2002 (Fig. 40) and *Euxoa transiliensis* nov.sp., described here below (Figs 41, 42) of the subgenus *Pleonectopoda* Grote; wingspan 27-29 mm, whereas it is 34-39 mm of the four close related species. Additionally, it is easily distinguished from them by the unicolorous chocolate brown colouration of the body vesture and wings; the less arched postmedial transverse line with the absence of the lighter shade and the black dash, initiating between the orbicular and reniform stigmata, then running until the postmedial transverse line; this latter one is

characteristic to this species only, in this group. The male genitalia (Fig. 72) verifies the close relationship, however is significantly smaller in size than of the four related Central Asiatic species of the subgenus *Pleonectopoda* and resemble rather the *Euxoa cognita* and *Euxoa puengeleri* (= *Agrotis puengeleri* WAGNER, 1913). From the *Euxoa cognita* (Fig. 71) it has somewhat longer, finer uncus, much deeper apical medial incision with longer two dorsal extensions in the juxta, distally proportionally weaker valvae, less robust, much weaker saccular extensions. From those of the *Euxoa puengeleri* (Fig. 74) it can be separated by the finer uncus, deeper apical incision with longer two dorsal extensions in the juxta, distally shorter section of valvae with more forward projected terminal section of the cucullus; less robust, finer saccular extensions and differently shaped claspers, being evenly arched outwards, while those are curved forwards distally in the *Euxoa puengeleri*. The vesica configuration can be hardly compared to the two closest related species, since both of the types are very old; the vesica of the *Euxoa cognita* is not everted, while of the *Euxoa puengeleri* somewhat wrinkled, ribbed. The comparison of females is impossible, since no females of the two related species were available.

Description: Wingspan 27-29 mm, length of forewing 13-14 mm. Male antennae slightly bipectinated, those of the females fine, thread-like. The head and thorax vesture, the wing ground colour and cilia unicolorous chocolate brown, only the inner area of the hindwings lighter somewhat and the last joint of the palpi whitish. Wing pattern well discernible, conspicuous, especially the dark brown sinuous antemedial and slightly arched and finely crenulated postmedial transverse lines and the black dash, initiating between the orbicular and reniform stigmata, continuing until the postmedial transverse line. Orbicular and reniform stigmata incompletely outlined with dark brown, subterminal line lighter, wavy, with a few wedge shaped dark brown spots on the inner side. Male genitalia (Fig. 72): The main characteristics of the *Euxoa subcognita* (Fig. 72) are apparently almost the same as in the further species of the Central Asiatic *Pleonectopoda*, but significantly smaller in size. The uncus long, medially somewhat broaden, distally evenly tapering, apically acute; juxta pentagonal, high with deep and wide apical cleft, vinculum rather short and V-shaped. Valvae elongated, costally convex; cucullus broad, terminally somewhat forward projected and acute, with broad corona and row of strong setae. Clasper long, finely arched, apically hooked, diverging outwards, the saccular extensions strong, straight and short, slightly asymmetric, the left one is the shorter. Aedeagus tubular, curved, vesica slightly coiled, recurved dorsad, distally tubular, with a large globular subbasal diverticulum, a further small, finger-like one medially, and with a small flap-like terminal diverticulum. Female genitalia (Fig. 93): The ovipositor terminally tapered, apophyses anteriores short, strong, apophyses posteriores fine, long, ductus bursae membranous, straight, the laminar plates on its wall very long, distally somewhat broaden, appendix bursae broad, ample, oppositely with two tiny conical extensions; corpus bursae elongated, saccular.

Biology and distribution: Single male and female were found in Kirgisia.

Etymology: The name of the new species refers to the relationship with the *Euxoa cognita.*

***Euxoa transiliensis* nov.sp.** (Figs 41, 42, 75, 76)

T y p e m a t e r i a l : Holotype: ♂ (Fig. 42) S-Kazakhstan, 3000 m, N-Thian-Shan Mts., Trans-Ili (Zailiysky) Alatau Mts., prov. Almaty, 150 km S of Aktobe, 6.VII.2012, leg. local collector, N 50°0843', E 54°57.08', slide No. 4860m (coll. PGM, later to be deposited in the HNHM). Paratypes: 1 ♂,same data (coll. PGM),slide No. 4857GYPm; 2 ♂ ♂, South Kazakhstan, N. Tian-Shan mts., Almaty province, Trans-Ili (Zailiysky) Alatau, Almaty city suburbs, Malaja Almaatinka river, 2-3.VII.2012., 3000 m, leg.V. Zurilina (coll. M. Dvorak).

D i a g n o s i s : *Euxoa transiliensis* (Figs 41, 42) is the largest among the close associated Central Asiatic related species (*Euxoa cognita* (Fig. 39); *Euxoa puengeleri* (Fig. 36); *Euxoa uigurica* (Fig. 40) and *Euxoa subcognita* nov.sp. (Figs 37, 38), described here above), of the subgenus *Pleonectopoda*; wingspan 38-39 mm, whereas it is 27-38 mm of the four close related species. In the external features it corresponds mostly to *Euxoa puengeleri*, however larger, the forewing pattern much stronger defined, the lower section of the wavy antemedial lines does not converge outward as in the *Euxoa puengeleri* and the inner side of the reniform stigmata is bordered by a more or less diffuse blackish shade. The other similar species is the *Euxoa uigurica*, from which it can be distinguished by the larger size, brown collar, broader wings, stronger defined wing pattern, in which the light shadow of the transverse lines conjectural, the postmedial line less arched, being perpendicular onto the inner edge and not oblique as in the *Euxoa puengeleri*, furthermore less serrate; in the hindwings the marginal area is much broader and darker. The m a l e g e n i t a l i a (Figs 75, 76) resemble rather the much smaller, externally more different *Euxoa uigurica* (Fig. 73) than the externally less distinctive *Euxoa puengeleri* (Fig. 74). From *Euxoa uigurica* have stronger, broader, elongated, finely lancelet uncus, slightly broader juxta, U shaped vinculum, more asymmetric saccular extensions, which are more divergent from the claspers. In the vesica, the subbasal diverticulum conspicuously prominent, the tube slightly longer, the subterminal diverticulum smaller. From those of the *Euxoa puengeleri* it can be separated easily by the longer uncus, narrower juxta, less robust, finer, however significantly longer and more asymmetric saccular extensions, whereas the claspers and the saccular extensions conspicuously less diverge; the valvae less curved, particularly in the ventral side. The vesica configuration similar, however the subbasal diverticulum larger, more prominent, while the subterminal diverticulum cannot compare, since the vesica of the *Euxoa puengeleri* somewhat wrinkled, ribbed.

D e s c r i p t i o n : A large species, wingspan 38-39 mm, length of forewing 18-20 mm. Male antennae slightly bipectinated, the head and thorax vesture, the forewing ground colour and cilia unicolorous dark brown with slight ochre suffusion in the basal area. The wing pattern strongly defined, black, the transverse lines conspicuous, the subbasal lines and the antemedial lines sinuous but only the first section of the previous one discernible; the postmedial transverse lines slightly arched and serrated, the subterminal transverse lines fine, sinuous. Orbicular stigmata pale, hardly visible, reniform stigmata incompletely dark brown outlined, the inner side is bordered by more or less diffuse blackish patch. Hind wings whitish brown, the marginal area broadly dark brown. M a l e g e n i t a l i a (Figs 75, 76): Basically reveal the same configuration as in the further Central Asiatic species of the subgenus *Pleonectopoda*. The uncus long, subbasally somewhat constricted, medially slightly broaden, distally evenly tapering, apically acute; juxta pentagonal, high with deep and wide apical incision, vinculum rather short and U-shaped. Valvae elongated, costally slightly convex; cucullus broad, terminally projected forward, with broad corona and row of

strong setae. Clasper long, almost straight, apically finely horned, saccular extensions strong, straight and medium long, slightly asymmetric, the left one is the shorter. Aedeagus tubular, slightly curved, vesica coiled subbasally, curved dorsad, distally tubular, with a prominent foot shaped or globular subbasal diverticulum, a further small, finger-like one medially and with a small flap-like terminal diverticulum. F e m a l e g e n i t a l i a : Not known.

B i o l o g y a n d d i s t r i b u t i o n : The four males are known from the Transili region only.

E t y m o l o g y : The name of the new species refers to the locality (over the river Ili).

***Euxoa stenomelas* nov.sp.** (Figs 43, 89)

T y p e m a t e r i a l : Holotype: ♀ (Fig. 43), Mongolia, Bajan Ölgij aimak, Mongol Altai, Bulgan village, 6-7.VIII.1986, leg. P. Gyulai, (coll. PGM, later to be deposited in the HNHM), slide GYP 4773f.

D i a g n o s i s : The new species has been hidden for a long time in a large Mongolian *Euxoa* material collected in 1986. The separation of the new species is very easy, since only few black coloured *Euxoa* species are known apart from the rare blackish forms of certain species. Externally, the only species which can be confused with the new species is *Euxoa (Chorizagrotis) adumbrata* (Eversmann, 1842) (Fig. 44), however, by the genitalia characters, *Euxoa stenome*las belongs to the subgenus *Orosagrotis* Hampson, 1903. From the *Euxoa (Chorizagrotis) adumbrata* it differs by the pale yellowish suffused thoracic collar, while this is blackish or dark brown in the *Euxoa (Chorizagrotis) adumbrata* and the more variegated wings; the apex of forewings is more elongated, the wing pattern is (particularly the yellowish transverse lines) well defined, lighter, the postmedial transverse lines much bended in the first section; the inner area of the hind wings much lighter, whitish brown suffused, the lunular discal spot and particularly the medial line and the broad marginal area more prominent; these features are more characteristic to the underside of the wings. However, the female genitalia (Fig. 89) indicates the exact relationship, that it is obviously belongs to the subgenus *Orosagrotis*, therefore it cannot be associated with the *Euxoa (Chorizagrotis) adumbrata* (Fig. 90). The differences are conspicuous spite of the very similar external characters; the ovipositor broader, since the papillae anales terminally rounded and not acute as in the *Euxoa (Chorizagrotis) adumbrata*, however strongly edged; apophyses anteriores larger, somewhat longer, the apophyses posteriores stronger and significantly longer, the anthrum narrower V-shaped, the laminar plate longer in the wall of the significantly longer ductus bursae; the appendix bursae significantly distinctive, since antero-laterally positioned and the corpus bursae much smaller, less ample. The antero-lateral position of the appendix bursae is typical in the subgenus *Orosagrotis*. Therefore, the closely related species can be the *Euxoa subconspicua* (Staudinger, 1888) (Figs 49, 50, 52), *Euxoa determinata* Corti, 1932 (Figs 45, 46-48) and *Euxoa divulsa* Corti, 1932 (=*Euxoa subvaria* Corti, 1932) (Fig. 51). Volynkin (2012) accepted the synonymy of the *Euxoa cognita* and *Euxoa determinata* by Boursin, while Poole (1989) synonymised the *Euxoa divulsa* to *Euxoa subconspicua* and Internet also believes this idea. During the recent study of the types of the *Euxoa* (*Orosagrotis*) *determinata* (Fig. 45) and *Euxoa* (*Pleonectopoda*) *cognita* (Fig. 39) revealed, that the suggestion of Boursin on the type label was incorrect, the *Euxoa cognita* and *Euxoa determinata* are not only two distinct species, but belong to different subgenus. The type designation of the species *Euxoa determinata* (Figs 45, 77) was correct by Corti and it is really a male, only the abdomen was glued back oppositely. On the

other hand, the recent study confirm, that the statement of POOLE (1989) on the synonymy of *Euxoa subconspicua* (Figs 49, 50, 52, 79, 92) and *Euxoa divulsa* (Figs 51, 78) was correct, no differences can be recognized in the external and genitalia characters. However, it is worth for discussion, if *Euxoa stenomelas* can be only the melanistic form of one of the two close related *Euxoa* species (*Euxoa determinata* and *Euxoa subconspicua*) mentioned above, or not. Although, the wing pattern is variable and the genitalia differences are slight among the species of *Orosagrotis* and the presence of the spermatophors influences the shape of the appendix-and corpus bursae, the strong edge of the ovipositor, the length of apophyses posteriors and particularly the shape and size of the laminar plate on the wall of the ductus bursae and the lighter hindwing are good characters for the separation of the new species. By these features, *Euxoa stenomelas* is a true species, since it has lighter hindwing (whitish in the under side!), relatively the longest apophyses posterioris and broadest anthrum and largest and longest laminar plate in the ductus bursae. Additionally, further differences recognizable in comparison to *Euxoa determinata* (which is the closest related species) and *Euxoa subconspicua* species pair, since in the new species the ductus bursae much broader in the anterior section from those of both, additionally longer from the *Euxoa determinata* and broader from the *Euxoa subconspicua*.

D e s c r i p t i o n : ♀: Wingspan 33 mm, length of forewing 17 mm. Antennae fine, filiform, thread-like; the head and thorax vesture, the forewing ground colour unicolorous blackish with pale yellowish suffusion, particularly in the collar and the inner area of the forewings. The wing pattern well discernible, yellowish, the antemedial line sinuous, the postmedial transverse line slightly arched in the fore section, then oblique, finely serrate and crenulated, the subterminal line also defined; the orbicular and reniform stigmata the same colour as the ground colour, finely but incompletely yellow outlined, the claviform stigmata yellow. The hind wing whitish brown suffused, the fine and relatively long discal spot and the brown medial line conspicuous, well discernible, the marginal area broadly light brown, the fringe whitish. Under side of the wings similarly patterned, however much lighter, whitish and whitish brown suffused. F e m a l e g e n i t a l i a (Fig. 89): Papillae anales terminally rounded, remarkably edged, apophyses anteriores strong, apophyses posteriores very long, the anthrum V-shaped, the laminar plate in the membranous ductus bursae V shaped, beaklike, anteriorly acute; appendix bursae antero-laterally positioned, corpus bursae saccular.

B i o l o g y a n d d i s t r i b u t i o n : The new species is known from the type locality only.

E t y m o l o g y : The name of the new species refers the highly isolated occurrence and the colouration.

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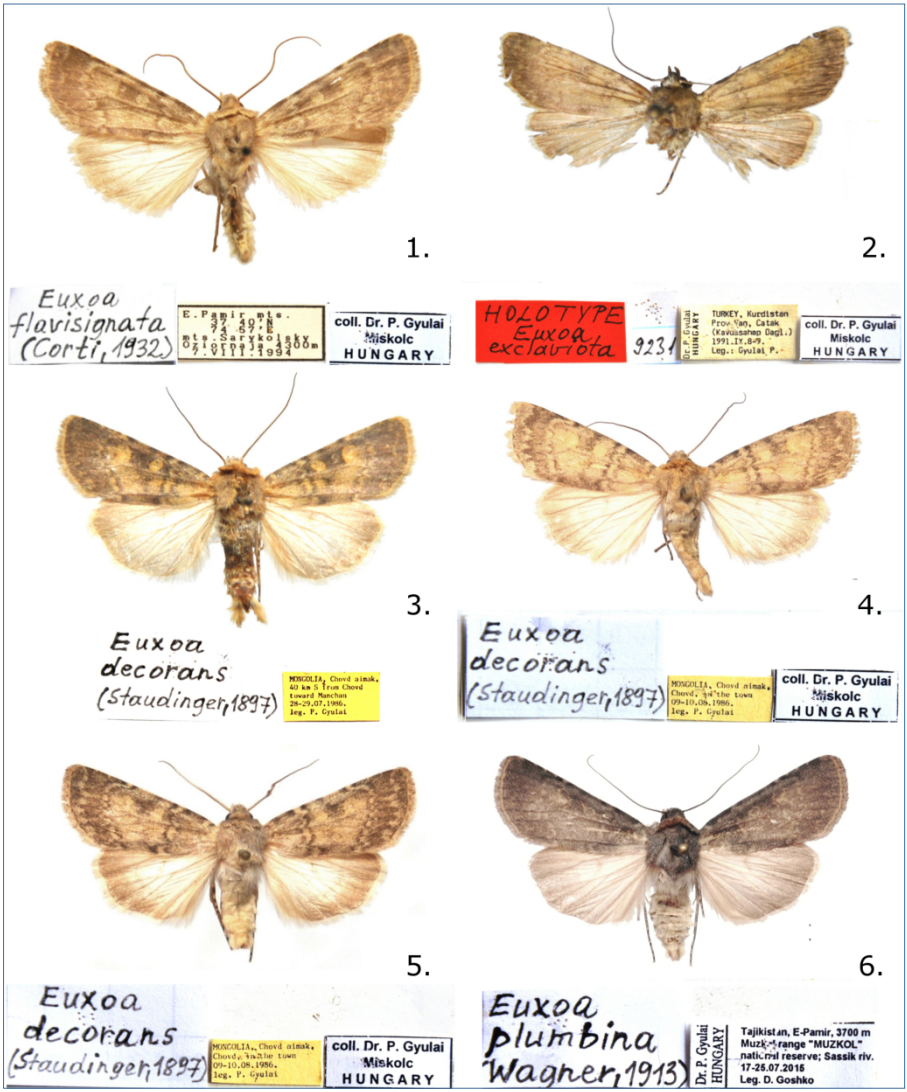
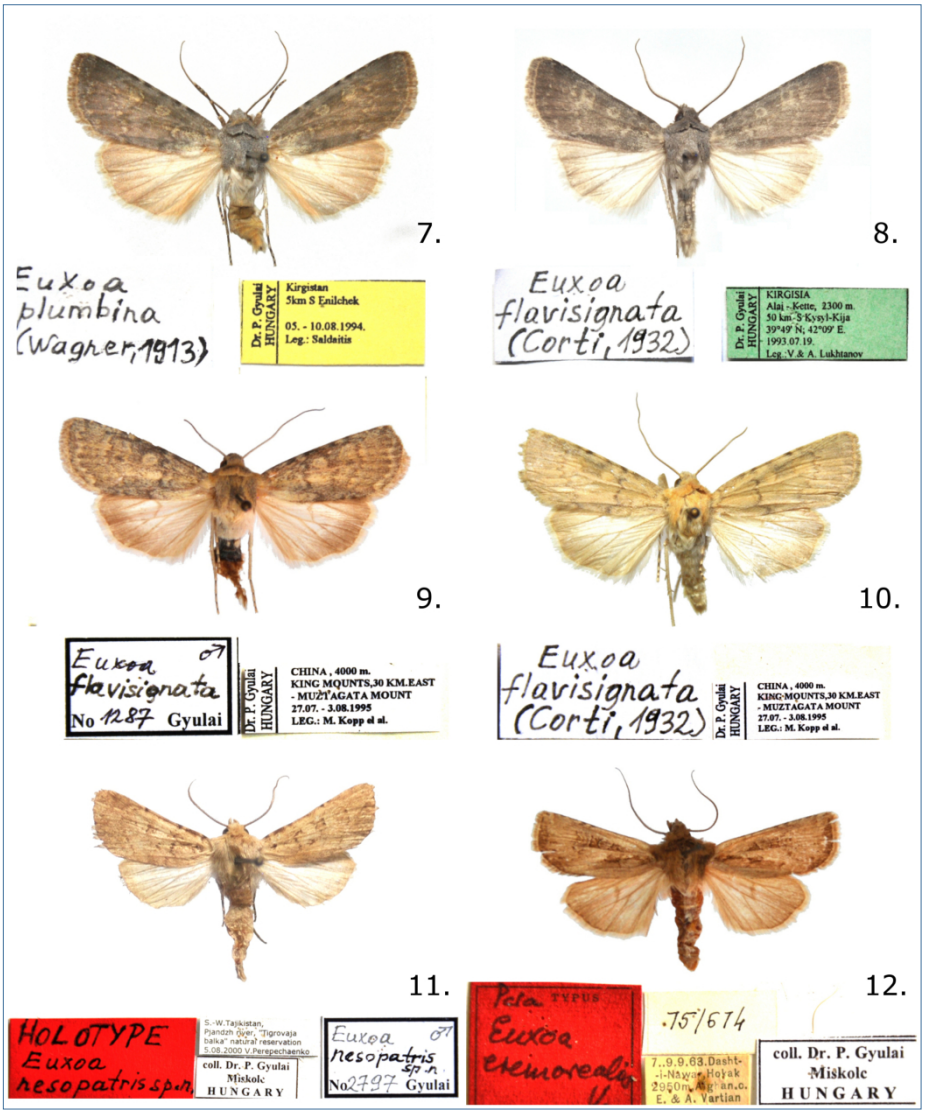
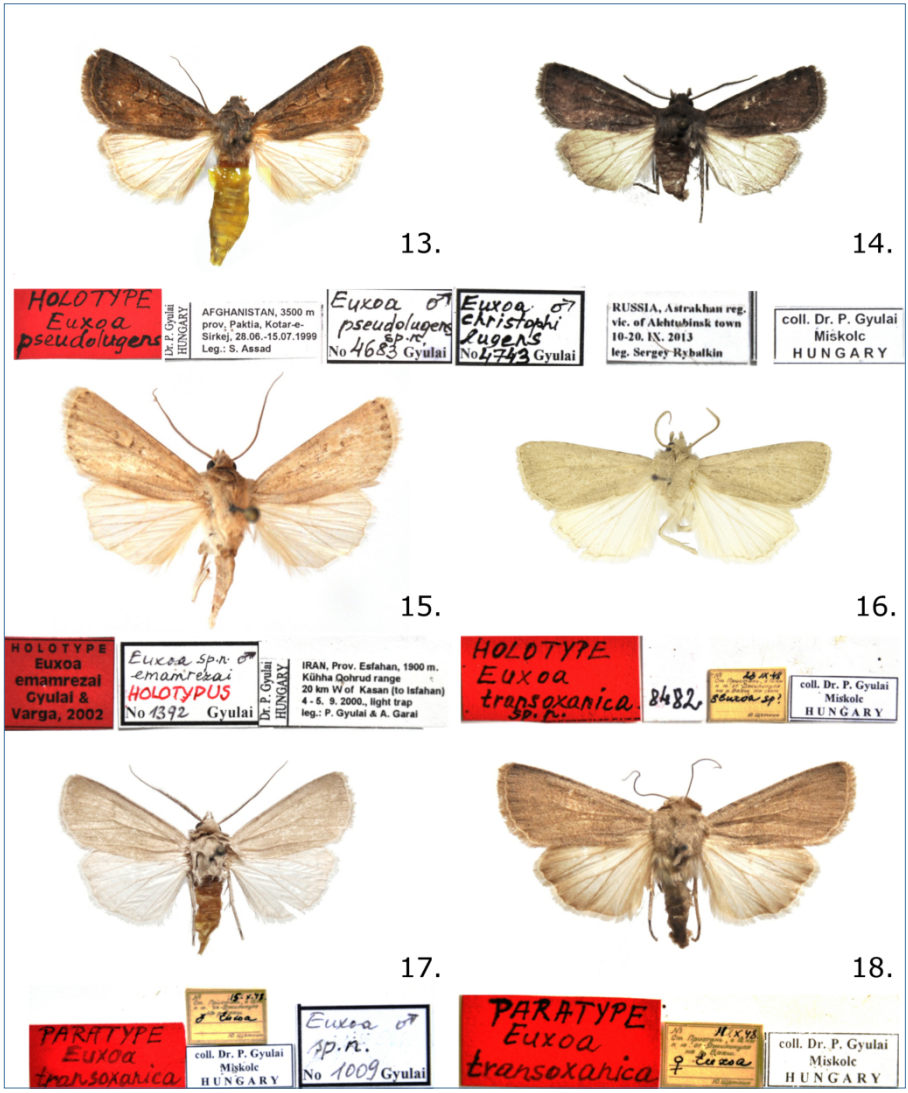


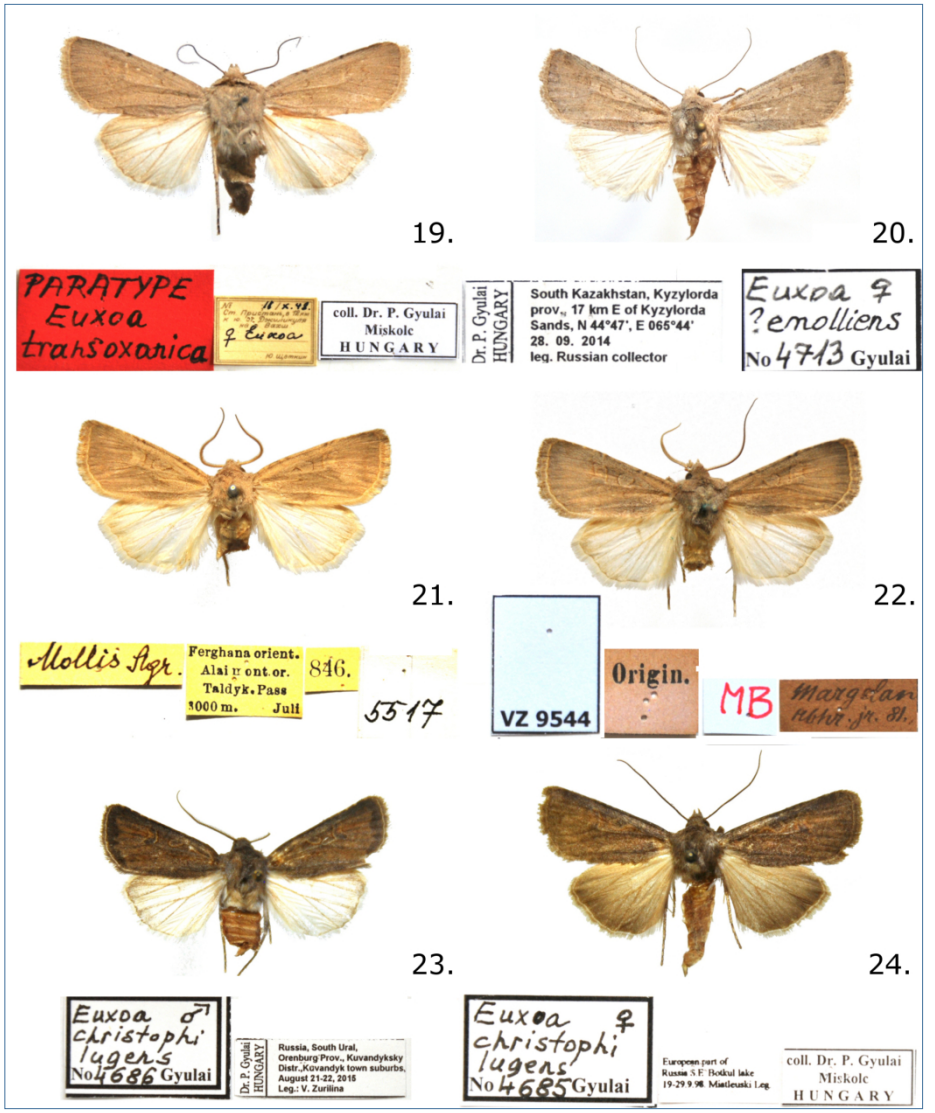
Figs 1-6: *Euxoa* spp. adults. **(1)** *Euxoa flavisignata*, ♂, Tadjikistan, Pamir; **(2)** *Euxoa exclaviota* nov.sp., Holotype, ♂, Turkey, Catak, VZ 9231; **(3)** *Euxoa decorans*, ♂, Mongolia, Chovd; **(4)** *Euxoa decorans*, ♂, Mongolia, Chovd; **(5)** *Euxoa decorans*, ♂, Mongolia, Chovd; **(6)** *Euxoa plumbina*, Tajikistan, Pamir.



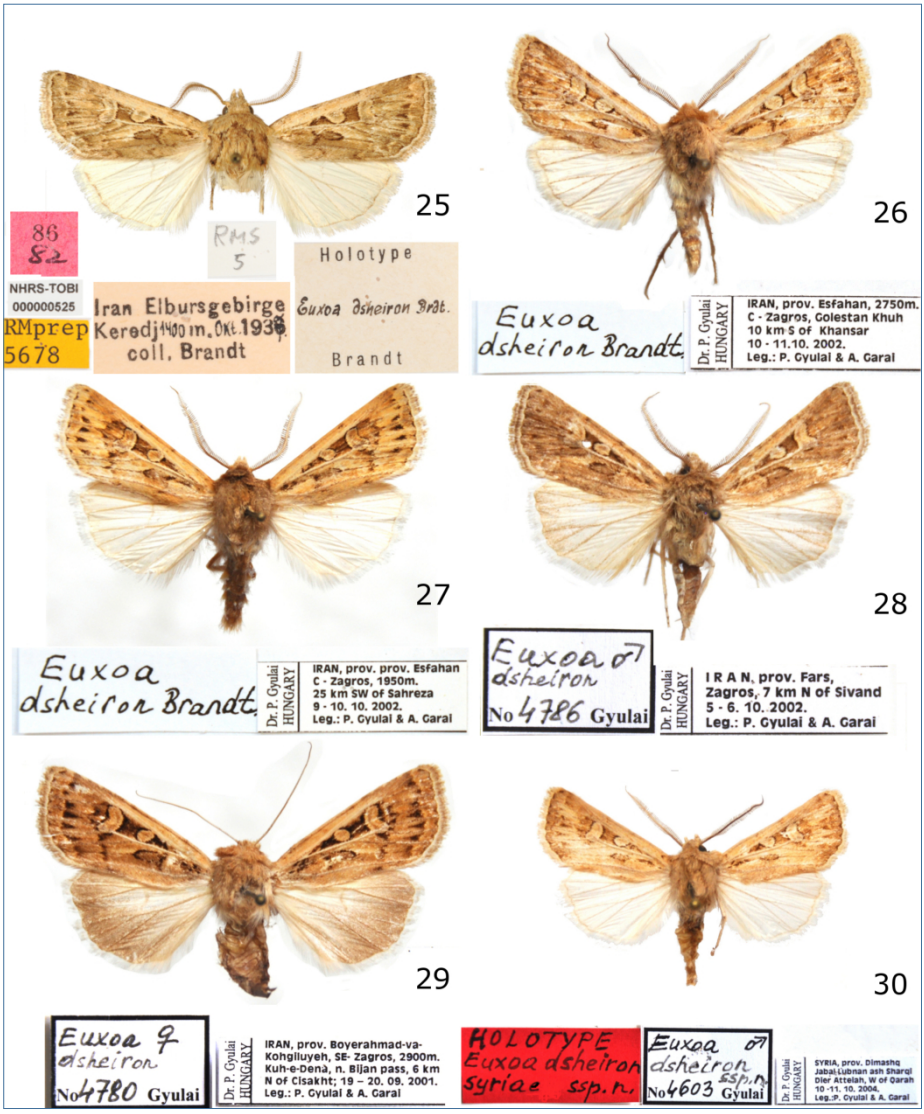
Figs 7-12: *Euxoa* spp. adults. **(7)** *Euxoa plumbina*, ♂, Kirgisia, Enilchek; **(8)** *Euxoa flavisignata*, ♂, Kirgisia, Alai; **(9)** *Euxoa flavisignata*, ♂, China, Mustagata, GYP 1287; **(10)** *Euxoa flavisignata*, ♂, China, Mustagata; **(11)** *Euxoa nesopatris* nov.sp., Holotype, ♂, Tajikistan, Tigrovaja Balka GYP 2797; **(12)** *Euxoa eremorealis*, Paratype, ♂, Afghanistan, Hindukush VZ75/ 674.



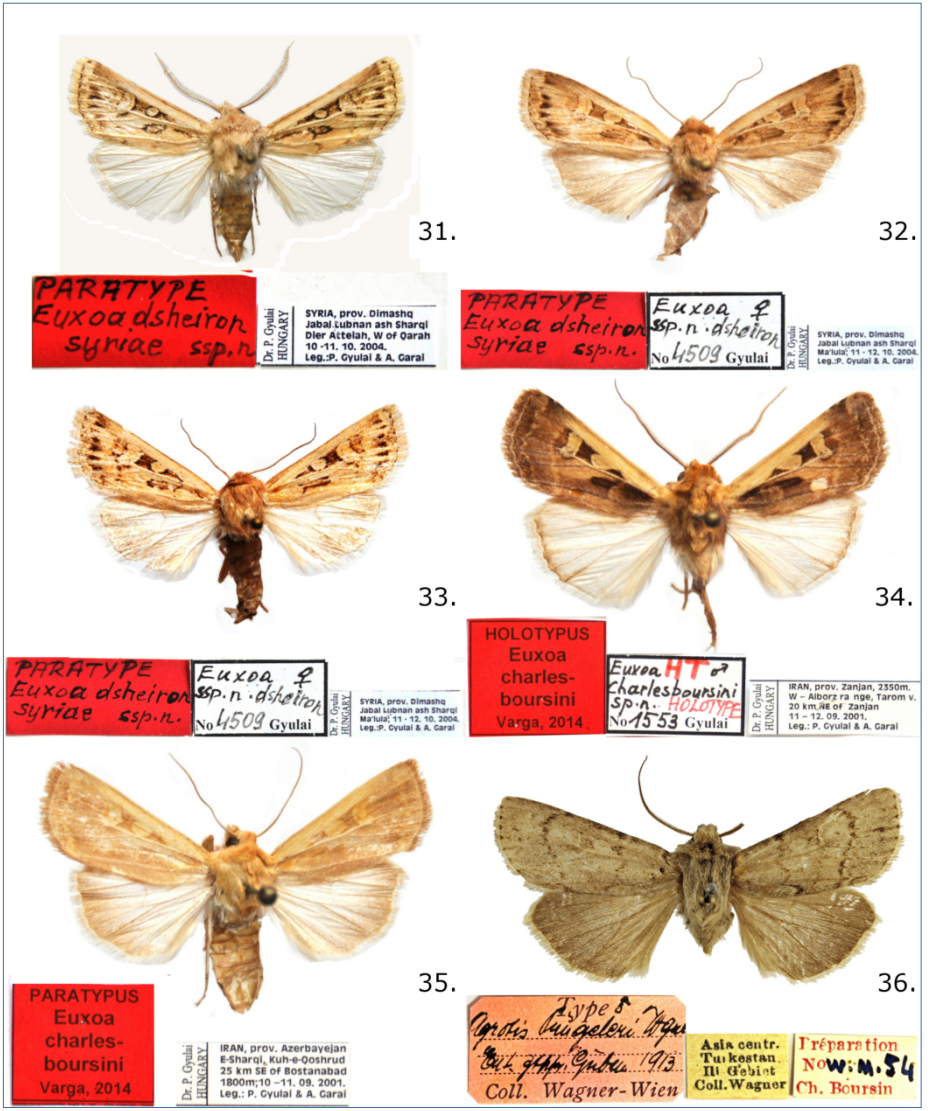
Figs 13-18: *Euxoa* spp. adults. **(13)** *Euxoa pseudolugens* nov.sp., Holotype, ♂, Afghanistan, Paktia, GYP 4683; **(14)** *Euxoa christophi f. lugens*, ♂, Russia, Astrakhan GYP 4743; **(15)** *Euxoa emamrezai*, Holotype, ♂, Iran, Esfahan, Qohrud, GYP 1392; **(16)** *Euxoa transoxanica* nov.sp., Holotype, ♂, Tadjikistan, Pristanj VZ 8482; **(17)** *Euxoa transoxanica* nov.sp., Paratype, ♂, Tadjikistan, Pristanj, GYP 1009; **(18)** *Euxoa transoxanica* nov.sp., Paratype, ♀, Tadjikistan, Pristanj.



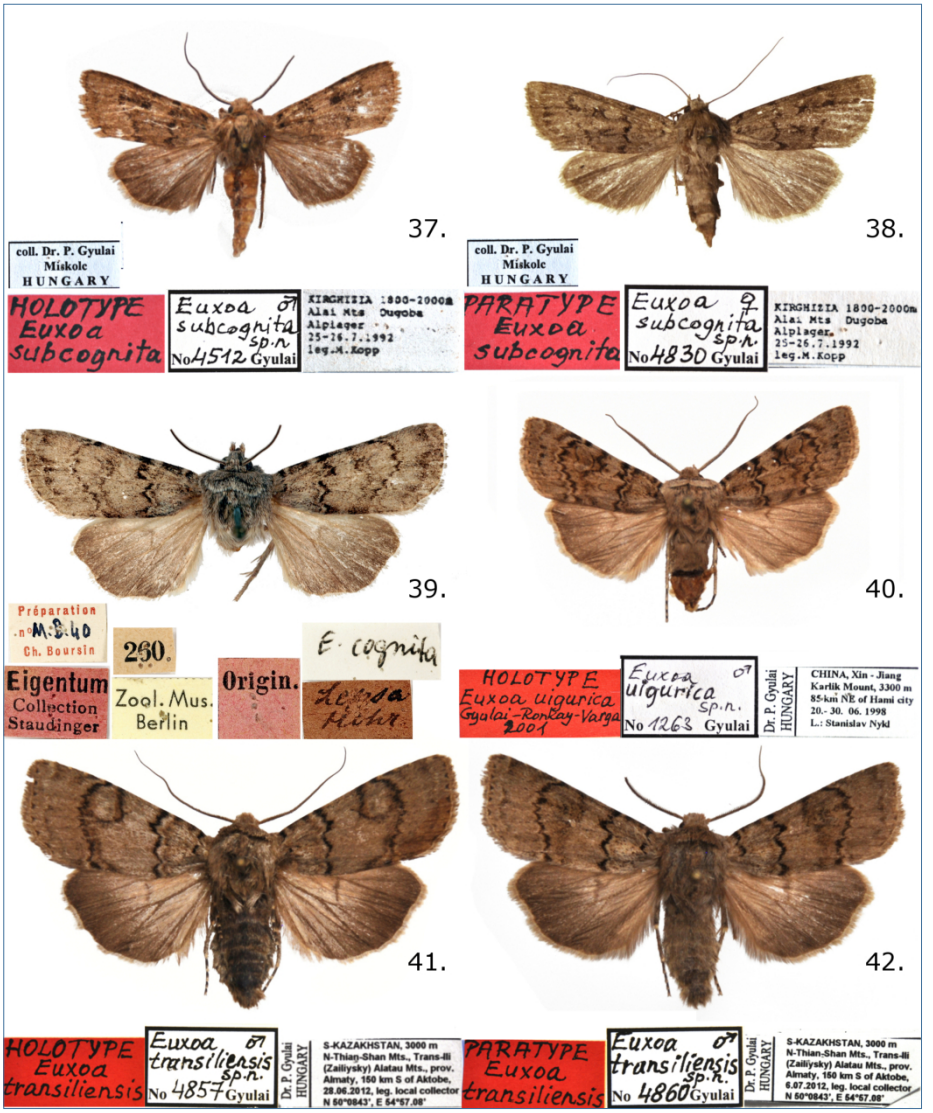
Figs 19-24: *Euxoa* spp. adults. **(19)** *Euxoa transoxanica* nov.sp., Paratype, ♀, Tadjikistan, Pristanj; **(20)** *Euxoa emolliens*, ♀ , S. Kasakhstan, Kyzyl Orda, GYP 4713; **(21)** *Euxoa emolliens*, ♂, Usbekistan, Fergana VZ 5517; **(22)** *Euxoa emolliens*, ♂, Usbekistan, Margelan VZ 9544; **(23)** *Euxoa christophi f. lugens*, ♂, Russia, S. Ural GYP 4686; **(24)** *Euxoa christophi f. lugens*, ♀, Russia, Batkul GYP 4685.



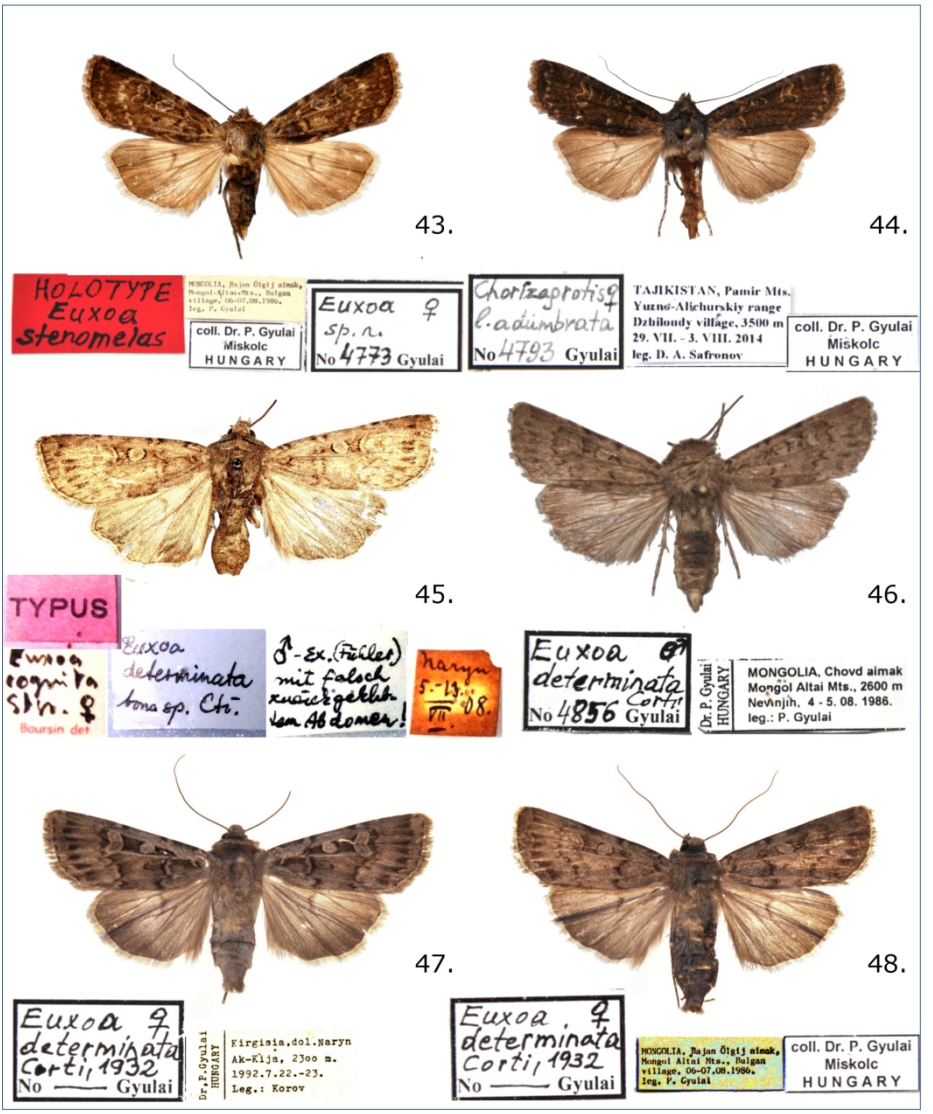
Figs 25-30: *Euxoa* spp. adults. **(25)** *Euxoa dsheiron*, Holotype, ♂, Iran, Keredj, RM 5678; **(26)** *Euxoa dsheiron*, ♂, Iran, Zagros, Khansar; **(27)** *Euxoa dsheiron*, ♂, Iran, Zagros, Sahreza; **(28)** *Euxoa dsheiron*, ♂, Iran, Zagros, Sivand GYP 4786; **(29)** *Euxoa dsheiron*, Iran, Zagros, Dena GYP 4780; **(30)** *Euxoa dsheiron syriae* nov.ssp., Holotype, ♂, Syria, Dimashq GYP 4603.



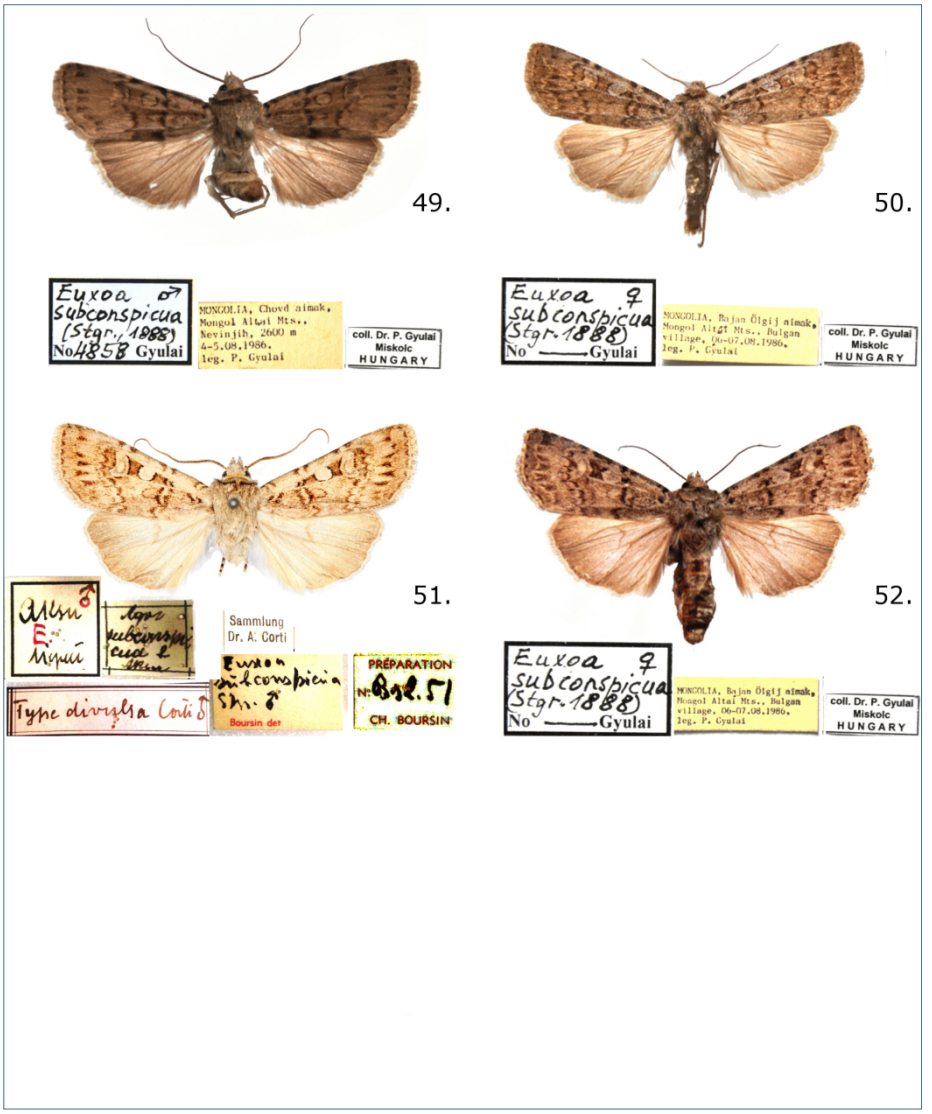
Figs 31-36: *Euxoa* spp. adults. **(31)** *Euxoa dsheiron syriae* nov.ssp., Paratype, ♂, Syria, Qarah; **(32)** *Euxoa dsheiron syriae* nov.ssp., Paratype, ♀, Syria, Ma'lula GYP 4509; **(33)** *Euxoa dsheiron syriae* nov.ssp., Paratype, ♀, Syria, Ma'lula GYP 4017; **(34)** *Euxoa charlesboursini*, Holotype, ♂, Iran, Zanjan GYP 1553; **(35)** *Euxoa charlesboursini*, Paratype, ♀, Iran, Bostanabad; **(36)** *Euxoa puengeleri*, Holotype, ♂, Kirgisia, Ili region, WM 54 Boursin.



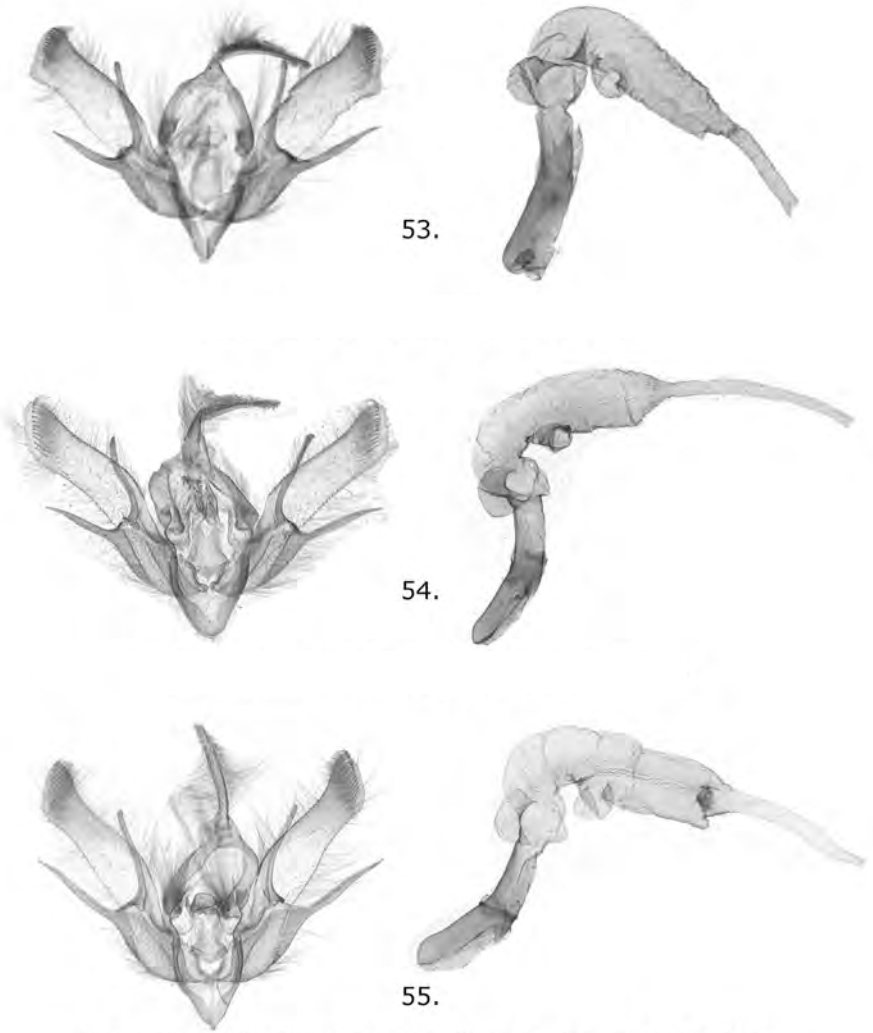
Figs 37-42: *Euxoa* spp. adults. **(37)** *Euxoa subcognita* nov.sp., Holotype, ♂, Kirgisia, Alai, GYP 4512; **(38)** *Euxoa subcognita* nov.sp., Paratype, ♀, Kirgisia, Alai, GYP 4830; **(39)** *Euxoa cognita*, "Cotype", ♂, Kasakhstan, MB 40 Boursin; **(40)** *Euxoa uigurica*, 2001, Holotype, ♂, China, Xinyiang, GYP 1263; **(41)** *Euxoa transiliensis* nov.sp., Paratype, ♂, S. Kazakhstan, GYP 4857; **(42)** *Euxoa transiliensis* nov.sp., Holotype, ♂, S. Kazakhstan, GYP 4860.



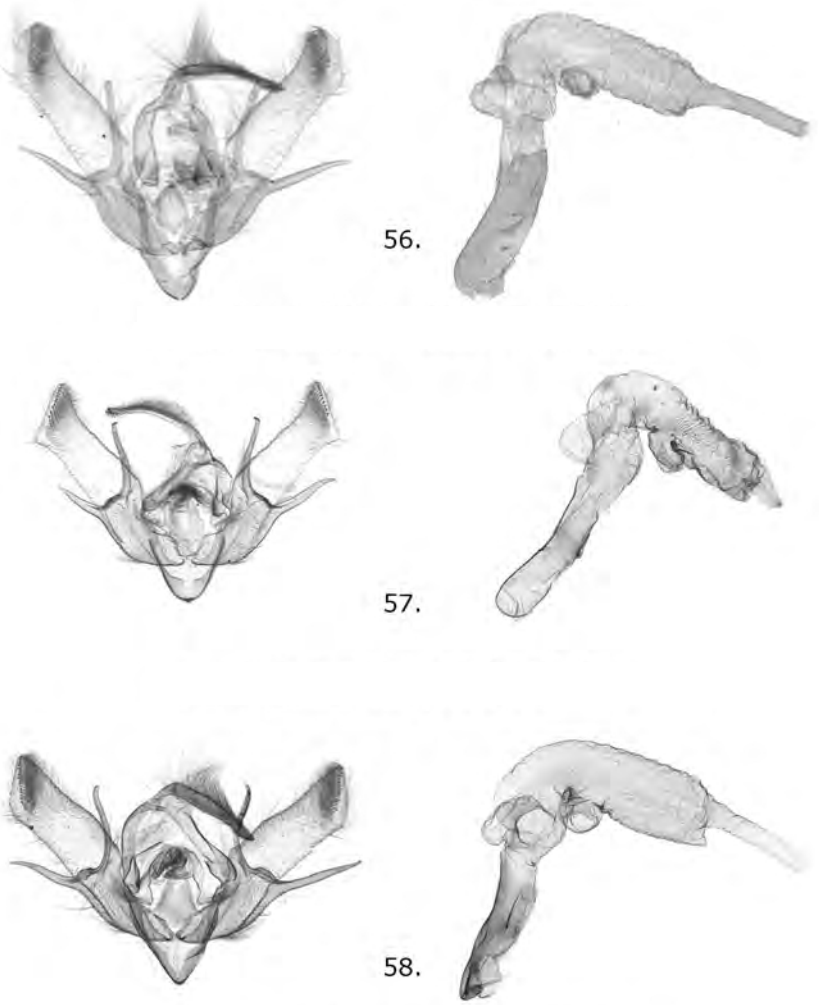
Figs 43-48: *Euxoa and Euxoa (Chorizagrotis)* spp. adults. **(43)** *Euxoa stenomelas* nov.sp., Holotype,♀, Mongolia, Bajan Ölgij, GYP 4773; (44) *Euxoa (Chorizagrotis) adumbrata*, Tadjikistan, Pamir, GYP 4793; **(45)** *Euxoa determinata*, Holotype, ♂, Kirgisia, Naryn, NMB 49; **(46)** *Euxoa determinata*,♂, Mongolia, Nevinjih, GYP 4856; **(47)** *Euxoa determinata*, ♀, Kirgisia, Ak–Kija; **(48)** *Euxoa determinata*, ♀, Mongolia, Bulgan.



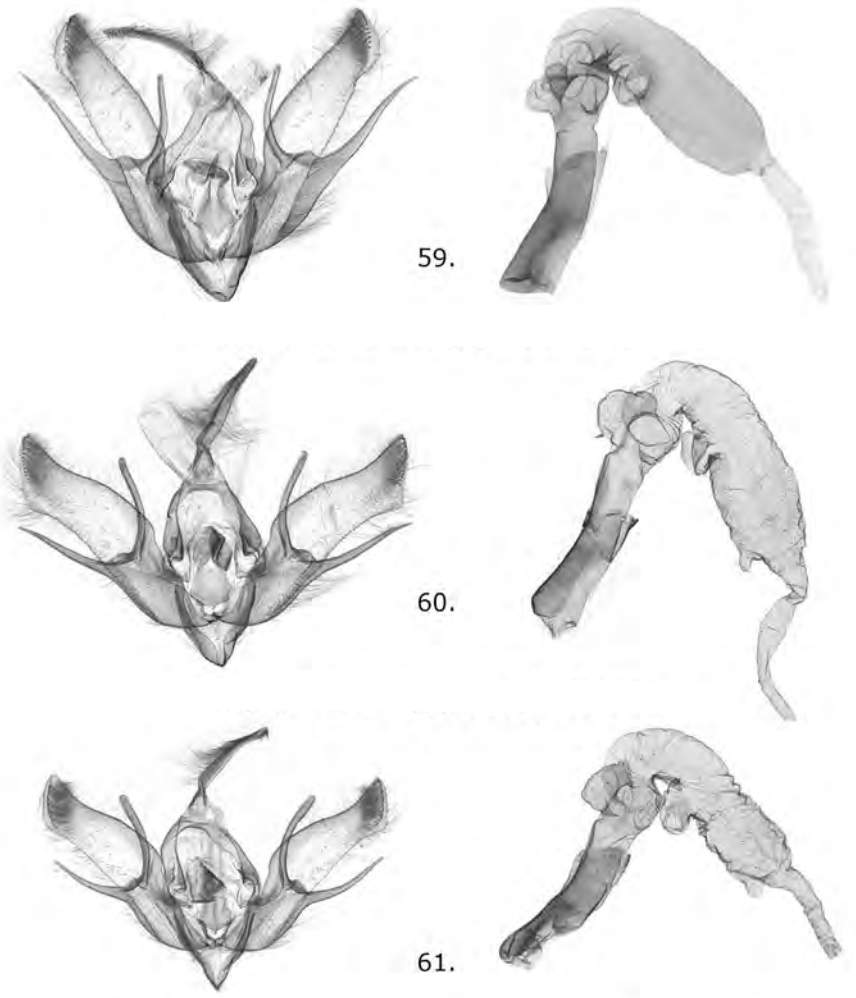
Figs 49-52: *Euxoa* spp. adults. **(49)** *Euxoa subconspicua*, ♂, Mongolia, Nevinjih, GYP 4858; **(50)** *Euxoa subconspicua*, ♂, Mongolia, Bajan Ölgij; **(51)** *Euxoa divulsa*, Holotype, ♂, China, Aksu, Boursin 51 NMB; **(52)** *Euxoa subconspicua*, ♂, Mongolia, Bajan Ölgij.



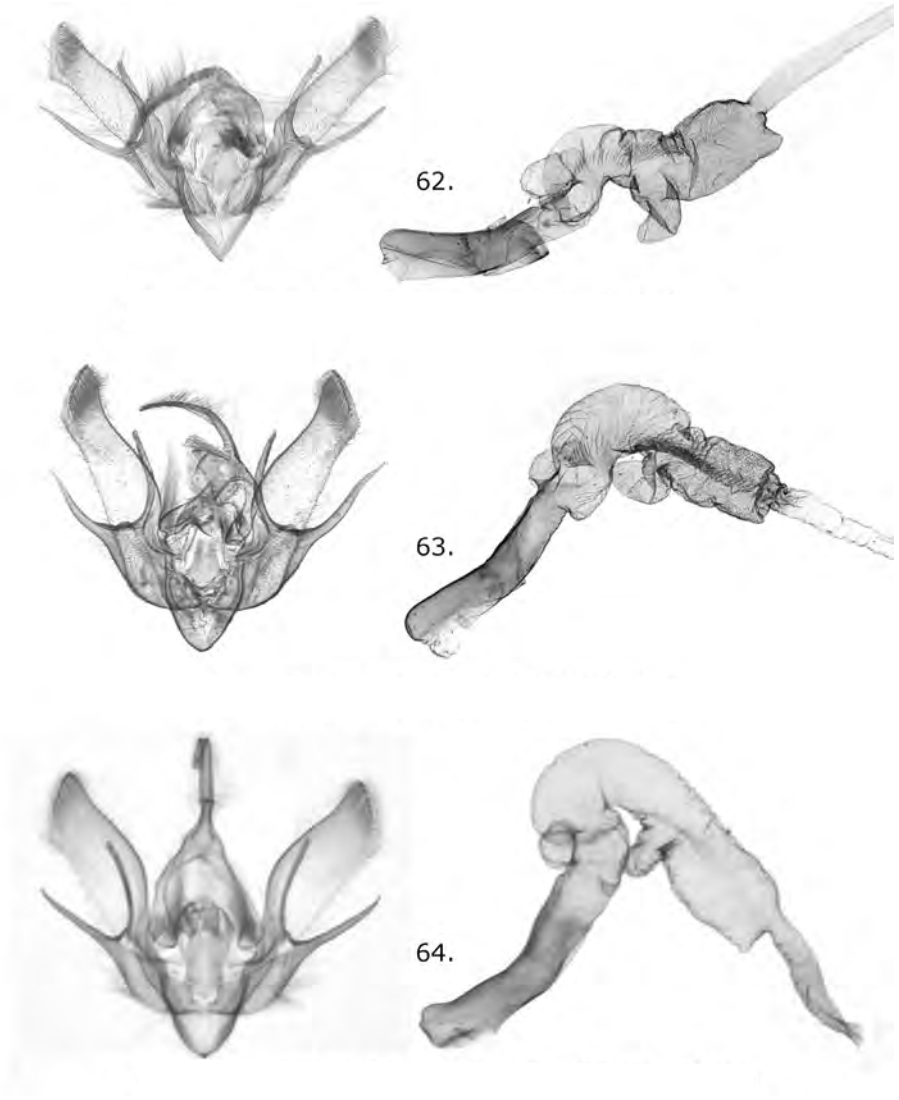
Figs 53-55: *Euxoa* spp., ♂ genitalia; **(53)** *Euxoa exclaviota* nov.sp., Holotype, Turkey, Catak, VZ 9231; **(54)** *Euxoa decorans*, Mongolia, Bajan Ölgij, GYP 4474; **(55)** *Euxoa plumbina* (Tadjikistan, Pamir, GYP 4471.



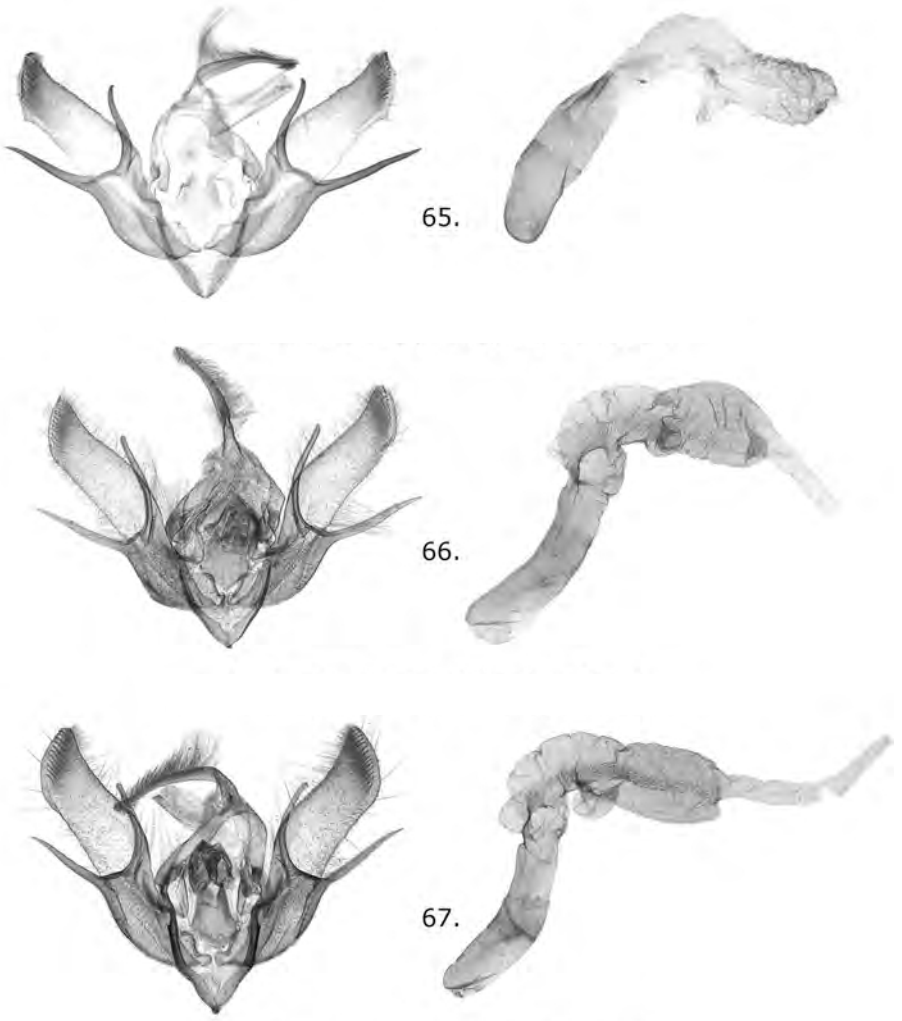
Figs 56-58: *Euxoa* spp. ♂ genitalia. **(56)** *Euxoa flavisignata*, Paratype, Kirgisia, Naryn, VZ 5920; **(57)** *Euxoa nesopatris* nov.sp., Holotype, Tajikistan, Tigrovaja Balka GYP 2797; **(58)** *Euxoa eremorealis*, Paratype, Afghanistan, Hindukush, VZ 9275.



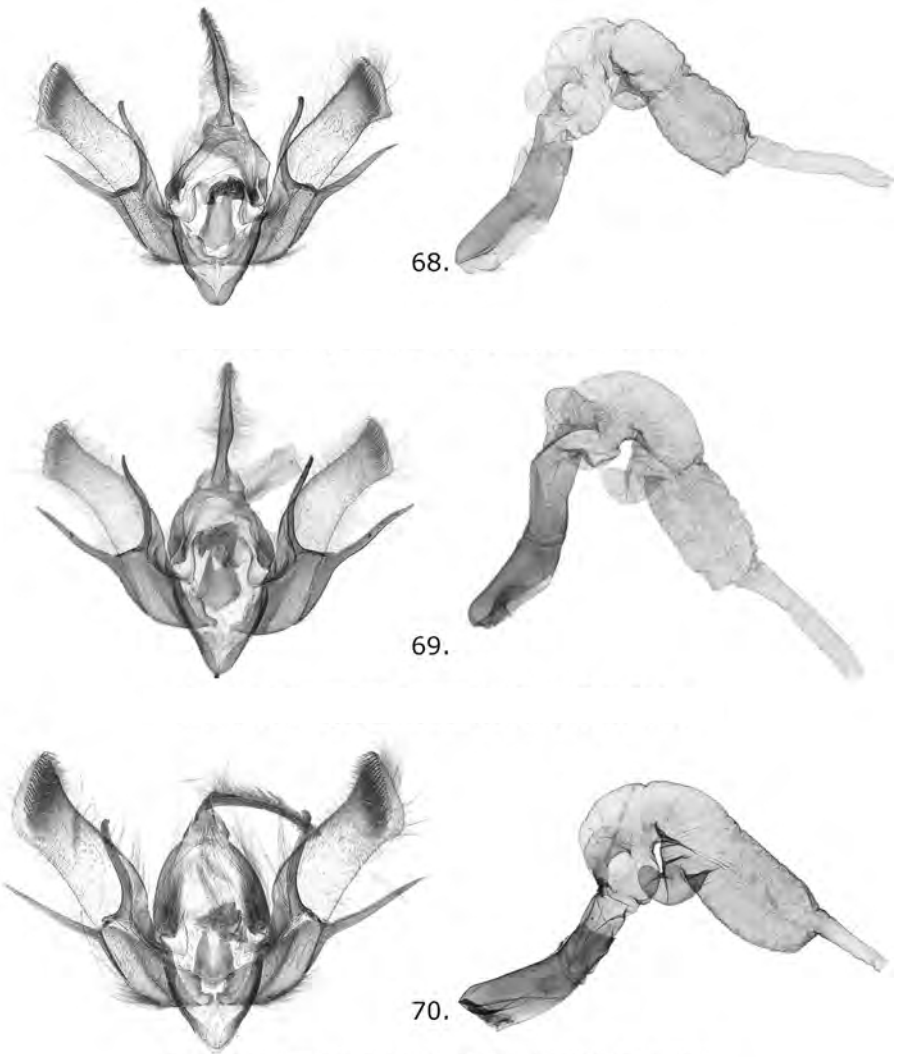
Figs 59-61: *Euxoa* spp. ♂ genitalia. **(59)** *Euxoa transoxanica* nov.sp., Holotype, ♂, Tadjikistan, Pristanj, VZ 8482; **(60)** *Euxoa emolliens*, ♂, Usbekistan, Margelan, VZ 9544; **(61)** *Euxoa christophi f. lugens*, type, Russia, Sarepta, VZ 9542.



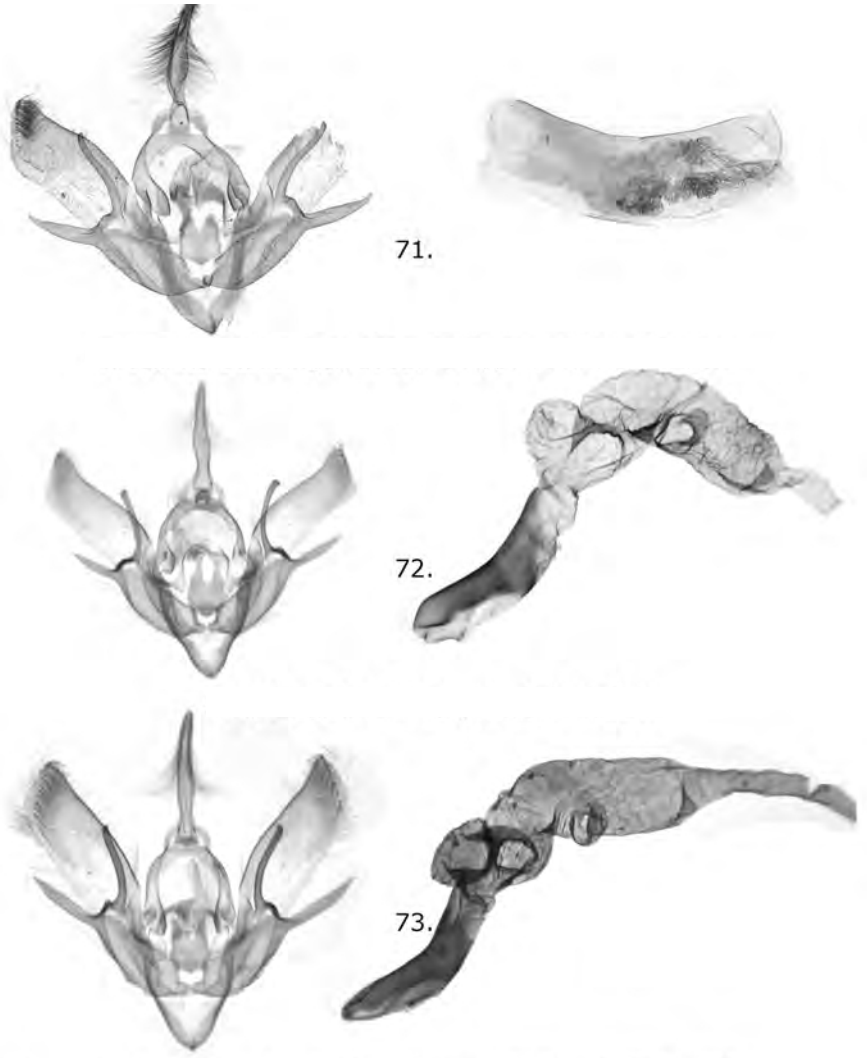
Figs 62-64: *Euxoa* spp. ♂ genitalia. **(62)** *Euxoa christophi f. lugens*, ♂, Russia, S. Ural, GYP 4686; **(63)** *Euxoa pseudolugens* nov.sp., Holotype, ♂, Afghanistan, Paktia, GYP 4683; **(64)** *Euxoa emamrezai*, Holotype, ♂, Iran, Esfahan, Qohrud, GYP 1392.



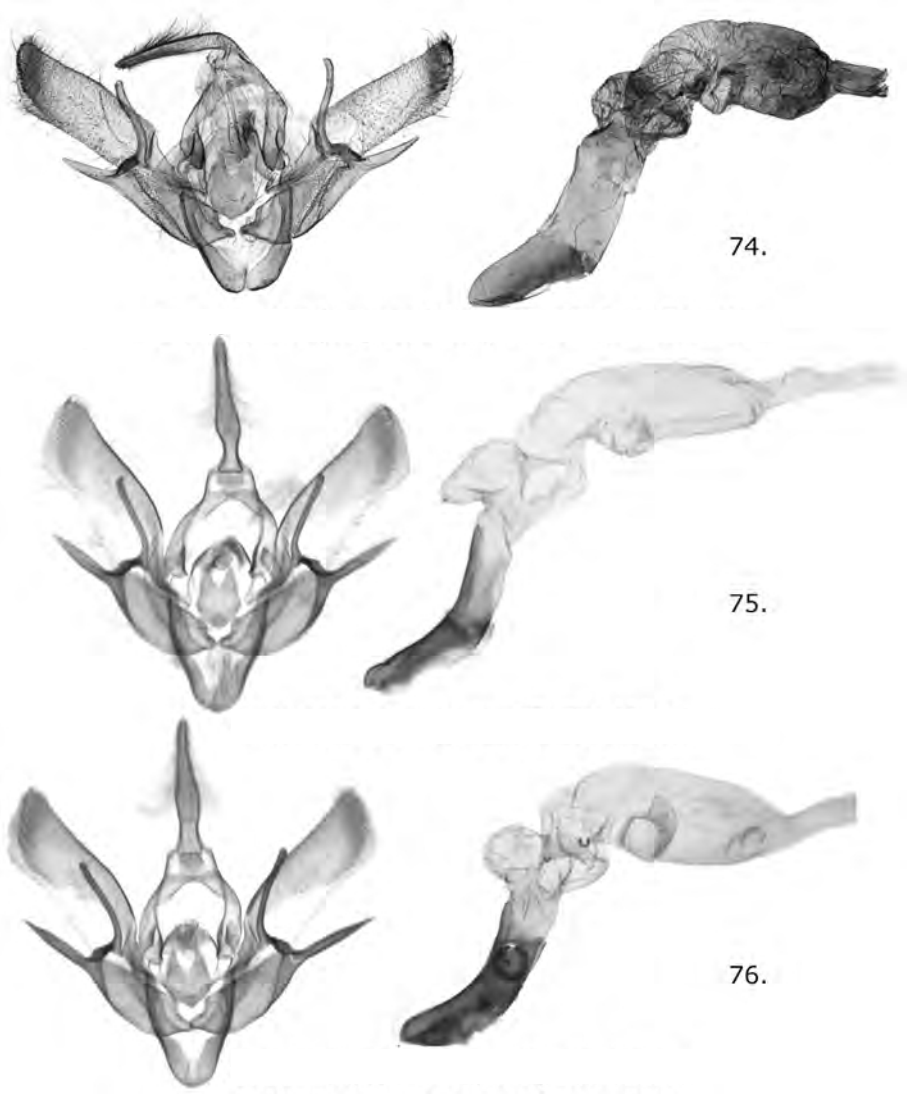
Figs 65-67: *Euxoa* spp. ♂ genitalia. **(65)** *Euxoa dsheiron*, Holotype, Iran, Keredj, RM 5678; **(66)** *Euxoa dsheiron*, Iran, Zagros, Sepidan, GYP 4794; **(67)** *Euxoa dsheiron*, Iran, Zagros, Sivand, GYP 4786.



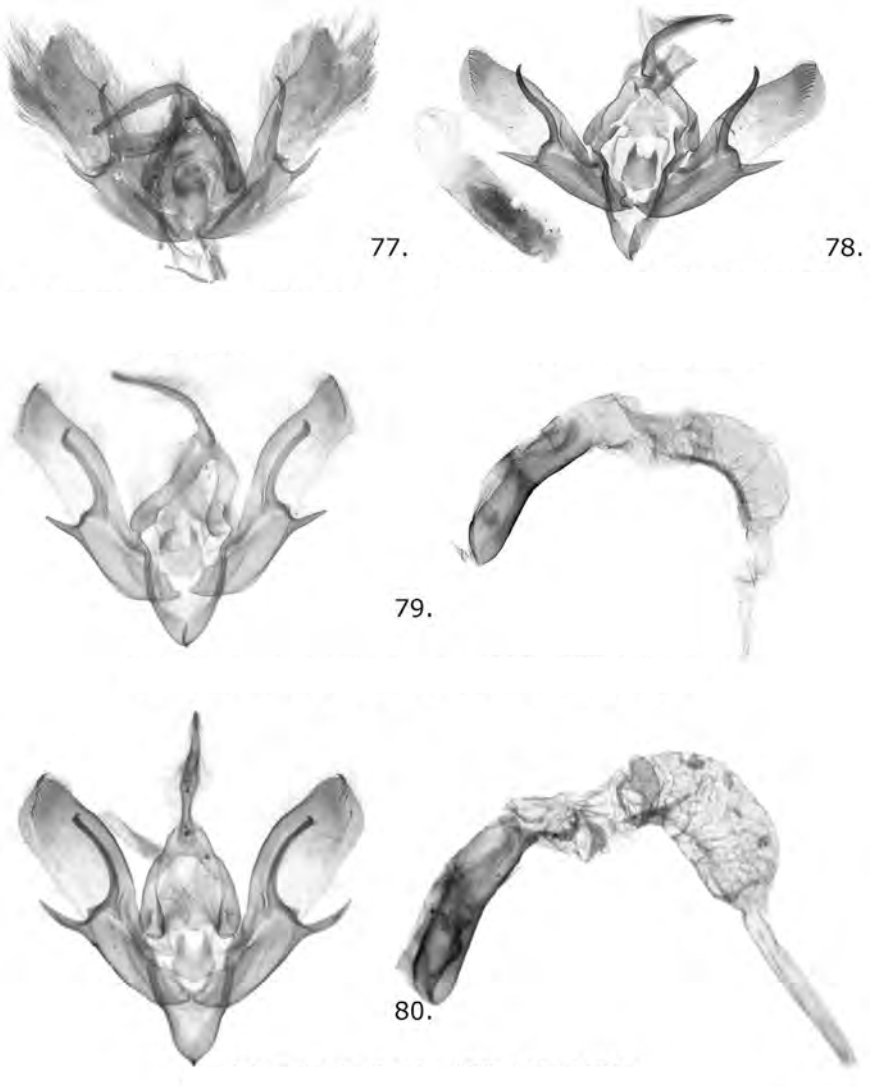
Figs 68-70: *Euxoa* spp. ♂ genitalia. **(68)** *Euxoa dsheiron syriae* nov.ssp., Holotype, Syria, Dimashq GYP 4603; **(69)** *Euxoa dsheiron syriae* nov.ssp., Paratype, Syria, Bloudan, GYP 4777; **(70)** *Euxoa charlesboursini*, Holotype, Iran, Zanjan, GYP 1553.



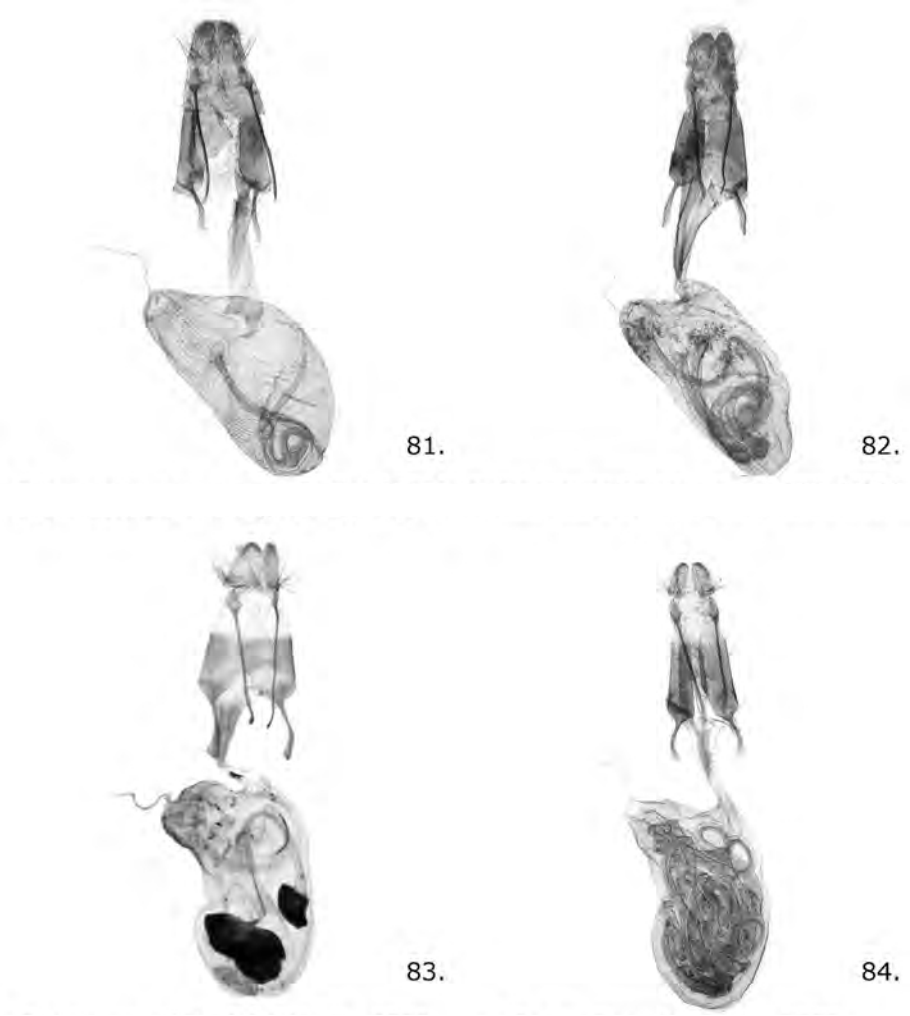
Figs 71-73: *Euxoa* spp. ♂ genitalia. **(71)** *Euxoa cognita*, "Cotype", Kasakhstan, MB 40 Boursin; **(72)** *Euxoa subcognita* nov.sp., Holotype, Kirgisia, Alai, GYP 4512; **(73)** *Euxoa uigurica*, Holotype, China, Xinyiang, GYP 1263.



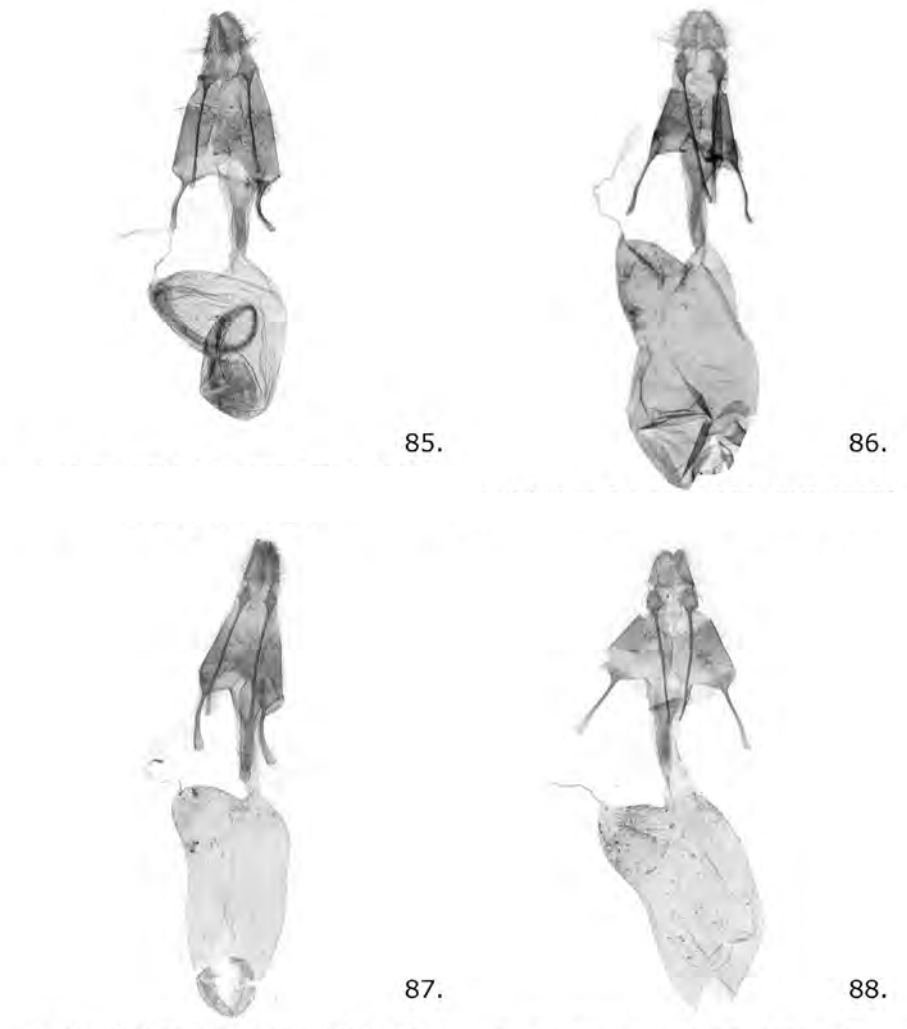
Figs 74-76: *Euxoa* spp. ♂ genitalia. **(74)** *Euxoa puengeleri*, Holotype, Kirgisia, Ili region, WM 54 Boursin; **(75)** *Euxoa transiliensis* nov.sp., Paratype, S. Kazakhstan, GYP 4857; **(76)** *Euxoa transiliensis* nov.sp., Holotype, S. Kazakhstan, GYP 4860.



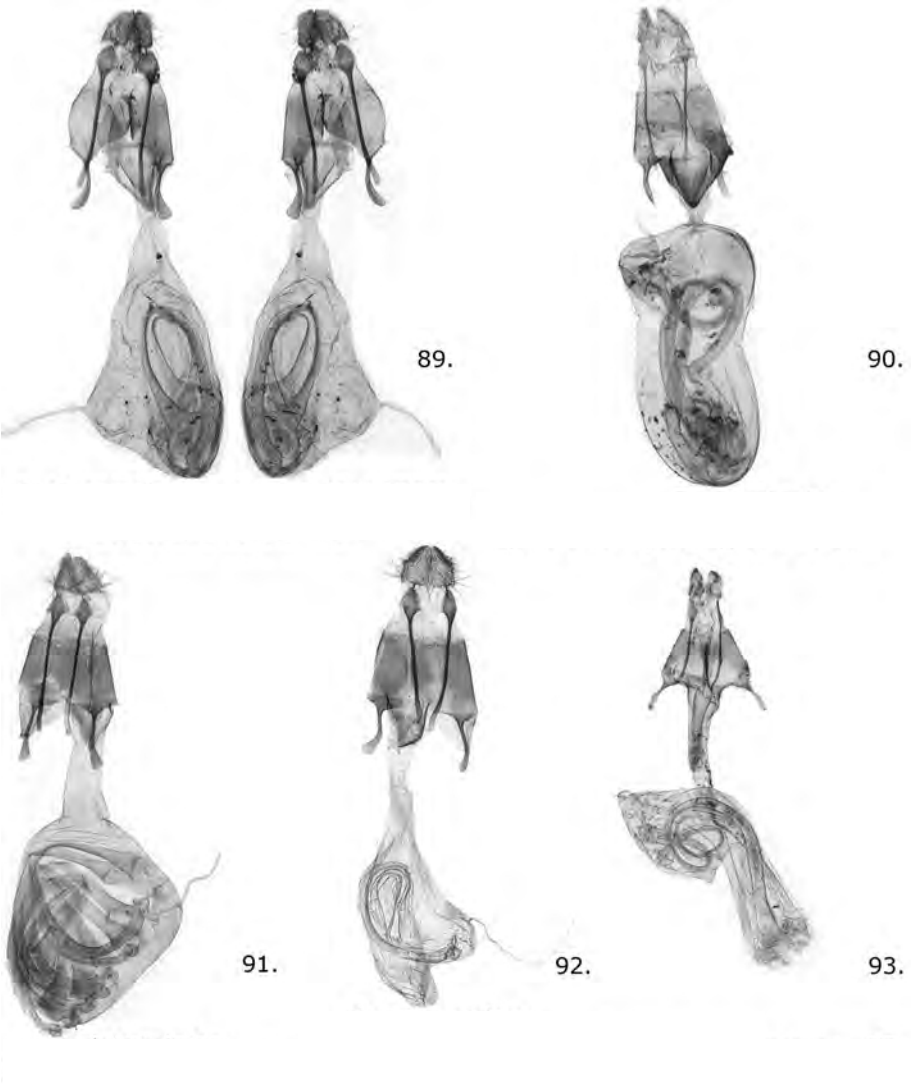
Figs 77-80: *Euxoa* spp. ♂ genitalia. **(77)** *Euxoa determinata*, Holotype, Kirgisia, Naryn, NMB 49; **(78)** *Euxoa divulsa*, Holotype, China, Aksu, Boursin 51 NMB; **(79)** *Euxoa subconspicua*, Mongolia, Nevinjih, GYP 4858; **(80)** *Euxoa determinata*, Mongolia, Nevinjih, GYP 4856.



Figs 81-84: *Euxoa* spp. ♀ genitalia. **(81)** *Euxoa transoxanica* nov.sp., Paratype, Tadjikistan, Pristanj, GYP 4717; **(82)** *Euxoa transoxanica* nov.sp., Paratype, Tadjikistan, Pristanj, GYP 4716; **(83)** *Euxoa emamrezai*, Paratype, Iran, Esfahan, GYP 1393; **(84)** *Euxoa emolliens*, S. Kasakhstan, Kyzyl Orda, GYP 4713.



Figs 85-88: *Euxoa* spp. ♀ genitalia. **(85)** *Euxoa christophi f. lugens*, Russia, Batkul. GYP 4685; **(86)** *Euxoa dsheiron*, Iran, Dena, Bijan pass, GYP 4780; **(87)** *Euxoa charlesboursini*, Paratype, Iran, Bostanabad, GYP 4630; **(88)** *Euxoa dsheiron syriae* nov.ssp., Paratype, Syria, Ma'lula, GYP 4509.



Figs 89-93: *Euxoa and Euxoa (Chorizagrotis)* spp. ♀ genitalia. **(89)** *Euxoa stenomelas* nov.sp., Holotype, Mongolia, Bajan Ölgij, GYP 4773; **(90)** *Euxoa (Chorizagrotis) adumbrata*, Tadjikistan, Pamir, GYP 4793; **(91)** *Euxoa determinata*, Kirgisia, Naryn, GYP 4834; **(92)** *Euxoa subconspicua*, Kirgisia, GYP 4828; **(93)** *Euxoa subcognita* nov.sp., Paratype, Kirgisia, Alai, GYP 4830.