Eight new taxa of the genera *Epipsilia* Hübner, [1821] 1816, *Rhyacia* Hübner, 1821 and *Standfussiana* Boursin, 1946 from Asia (Lepidoptera, Noctuidae)

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Abstract. Descriptions of four new species: *Rhyacia* (*Rhyacia*) *latebrosa* sp. n., *Rhyacia* (*Standfussrhyacia*) *kumluna* sp. n., *Rhyacia* (*Standfussrhyacia*) *miranda* sp. n. and *Standfussiana benedeki* sp. n. and four new subspecies: *Epipsilia grisescens caucasica* ssp. n., *Rhyacia* (*Rhyacia*) *ledereri tibetana* ssp. n., *Rhyacia* (*Anchorrhyacia*) *evartianae turkestanophasma* ssp. n., and *Standfussiana nictymera esfahanica* ssp. n. are given.

Keywords. Asia, taxonomy, Noctuidae, new descriptions.

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Introduction

Epipsilia Hübner, [1821] 1816, *Rhyacia* Hübner, 1821 and *Standfussiana* Boursin, 1946 are three closely related genera. *Epipsilia* is a small genus, restricted to the western Palearctic. *Rhyacia* is a diverse Holarctic genus, although only a few species are known from the Nearctic. *Standfussiana* is confined to the Palearctic, and is most diverse in the Mediterranean, Near East and the Central Asiatic high mountains. For the most recent revision of *Rhyacia* with taxonomic interpretation and new descriptions see Varga, 2011. The new taxa described here were collected by the author and others during their expeditions to Asia, and deposited in the private collection of the author.

Abbreviations for personal and institutional collections used herein include: HNHM = Hungarian Natural History Museum (Budapest, Hungary); MDC = Marek Dvorak (Czech Republic); MHB = Márton Hreblay in HNHM (Budapest, Hungary); PGYM = Péter Gyulai (Miskolc, Hungary); ZVD = Zoltán Varga (Debrecen, Hungary); GYP = Péter Gyulai; HM = genitalia slide of Márton Hreblay in HNHM (Budapest, Hungary); VZ = genitalia slide of Zoltán Varga (Debrecen, Hungary); HT = holotype; PT = paratype; ♂ = male; ♀ = female; ♂♂ = males; ♀♀ = females

Descriptions of new taxa

Epipsilia grisescens caucasica ssp. n. (Figs 1–3, 33)

Holotype. Male (Fig. 1), Russia, North Caucasus, Kabardino–Balkaria, Elbrus area, Terskol village, Cheget mountain, 2100 m, 1. VIII. 2016, leg. V. Zurilina, slide no. GYP 5407 (coll. PGYM, later to be deposited in the HNHM).

Paratypes. 1♂, Russia, NE Caucasus, San, 2900 m, 5. VII. 1991, leg. B. Herczig, V. Markó & Z. Mészáros (coll. PGYM); 1♂, Russia, C. Caucasus, Terskol, 27–29. VIII. 2013, leg. L. Srnka (coll. PGYM); 1♀, Russia, Kabardino–Balkaria, Elbrus vill., 23. IX. 2009, leg. S. Didenko (coll. MDC).
slide no. GYP 5382

Diagnosis. The new subspecies (Figs 1–3) can be distinguished from the typical one (Fig. 4) by darker, pale brownish, greyish or beige ground colour of forewings with more densely scattered brown scales, more clearly defined wing pattern and much darker hindwings, particularly in the inner area.

In the male genitalia (Figs 33, 34), the best feature for separation is the larger, much broader clavus.

Description (Figs 1–3). Forewing length 17–18 mm, wingspan 35–37 mm. Head, thorax and abdomen vestiture greyish brown. Antennae filiform, densely finely ciliated, greyish. Ground colour of forewings variable, pale brownish, greyish or beige, with densely scattered brown scales; wing pattern dark brown or black; orbicular and reniform stigmata typical but obscure, the former scarcely visible reniform represented by a fine arch; antemedian line wavy, well defined, median fascia absent or broadly diffuse, postmedian line evenly arched, finely lacy, subterminal line faint, slightly tortuous, with a row of small wedge shaped spots. Hindwings pale brownish, slightly darker suffused in marginal area; discal spot and median line slight; cilia whitish. Underside of forewings light brownish-grey, that of hindwings whitish; postmedian and median lines faintly defined.

Male genitalia (Fig. 33) uncus curved, apically slightly hooked; vinculum U-shaped; juxta broadly deltoid, with ventral small protrusion; clavus strongly sclerotized, pincer-like, with laminate inner part and stronger outer side, covered with tiny cornuti; valvae conspicuously broadened terminally, fishtail-like, with a slight process dorsad and ventrad. Aedeagus with a tiny ventral carinal process; vesica membranous, twisted, with a large basal diverticulum, distal section long, tubular.

Bionomics and distribution. The new subspecies is confined to the high Caucasus.

Etymology. *E. griseusca caucasica* is named from its area of distribution.

***Rhyacia (Rhyacia) ledereri tibetana* ssp. n.** (Figs 5, 6, 35)

Holotype. Male (Fig. 5), China, Tibet, 50 km N of Nyalam, 4400 m, 86°00'E, 28°13'N, 12. VIII. 1996, leg. M. Hreblay & B. Szin, slide no. GYP 5399 (coll. PGYM, later to be deposited in the HNHM).

Paratypes. 1♂, same data (coll. PGYM); 16♂♂, same data, (coll. MHB); 1♂, same data, but 12. VIII. 1996, (coll. MHB); 4♂♂, China, Tibet, 20 km W of Old Tingri, 4400 m, 86°00'E, 28°33'N, 19. VIII. 1996, leg. M. Hreblay & B. Szin (coll. MHB); 1♂, China, Tibet, Karo La (Pass), W side, 4600 m, 90°05'E, 28°47'N, 15. VIII. 1996, leg. M. Hreblay & B. Szin (coll. MHB); China, Tibet, Thung La (Pass), W side, 4850 m, 86°05'E, 28°29'N, 20. VIII. 1996, leg. M. Hreblay & B. Szin (coll. MHB).

slide nos. ♂♂HM 9277, 9280, 9296, 9476

Diagnosis. The new subspecies (Figs 5, 6) can be distinguished from the nominotypical subspecies (Figs 7, 8) by the darker, greyish brown forewings, the obscure forewing pattern with less arcuate postmedian line and the lighter hindwings. In the nominotypical subspecies, forewings are red-brown with clearly visible wing pattern, and hindwings are light brown.

Configuration of the male genitalia (Fig. 35) resembles that of the nominotypical subspecies (Fig. 36), but clavus is thicker, shorter, not falciform, and almost without hook; juxta lacking the dorso-medial small protrusion.

It is worth mentioning that the taxonomic position of the rather similar *Rhyacia rattus* (Alphéraky, 1889) (= *Agrotis rattus* (Alphéraky, 1889)) is under discussion, because the type specimen has never been dissected. However, it cannot be the same as the new taxon, as it is a short winged species, with dark brown hindwings, which are whitish-pale brown in the new subspecies.

Description (Figs 5, 6). Forewing length 16–18 mm, wingspan 34–37 mm. Head, thorax and abdomen vestiture greyish-brown, antennae filiform, brown. Forewings concolorous greyish-brown; wing pattern dark brown, hardly discernible; orbicular and reniform stigmata tiny, obscure, the former black encircled, reniform represented by a fine arch; antemedian line wavy, postmedian line evenly arched, finely lacy, subterminal line faint, slightly tortuous. Hindwings whitish-light brown, slightly pale brownish suffused in the marginal area, discal spot and median line absent. Cilia concolorous with ground colour of wings. Underside whitish, somewhat darker in the forewings, without pattern.

Male genitalia (Fig. 35). Characterized by the curved, apically slightly hooked uncus, V-shaped vinculum, deltoid juxta with tiny ventral medial protrusion, elongate valvae with evenly slender, apically rounded terminal section, rounded apically, strong streak-like clavus and wedge shaped harpe. Aedeagus with thin ventral carinal process; vesica membranous, long, corkscrewed, subterminally with a long, thin, coiled sclerotized ribbon of tiny cornuti.

Bionomics and distribution. The new subspecies is confined to the high Tibetan Plateau.

Etymology. *R. ledereri tibetana* is named after the range of distribution.

***Rhyacia (Anchorhyacia) latebrosa* sp. n.** (Figs 9, 10, 51, 52)

Holotype. Female (Fig. 9), Pakistan, Kashmir, Himalaya Mts., Bubin valley, 3200 m, 30.VII. 2011, leg. B. Benedek, slide no. GYP 5366 (coll. PGYM, later to be deposited in HHM).

Paratypes. 3♀♀, same data (coll. PGYM); 2♀♀, Pakistan, Kashmir, Himalaya Mts., Deosai, Bubinvillage, 3150 m, 15–19. VIII. 1998, leg. Z. Varga & G. Ronkay (coll. PGYM); 1♀, Pakistan, Naltar Valley, 3000 m, 16. VII. 1994, leg. Herczig, László & G. Ronkay (coll. ZVD). slide nos. GYP 5381, VZ 7906

Diagnosis. The taxa most closely allied to the new species (Figs 9, 10) are placed in the subgenus *Anchorhyacia* Varga, 2011. *R. latebrosa* is easily distinguished from all the others (Figs 11, 12, 13, 14, 15, 16,) by the dark greyish brown forewings, with more or less yellowish-green suffusion which is the most extensive in the basal and medial areas, the subterminal area being the darkest.

The female genitalia (Figs 51, 52) are readily distinguished from all but one of the *Psammia* group (Figs 53–57) of the subgenus (see in detail Varga 2011) in the significantly larger, prominent, asymmetrical lateral extension of the ductus bursae. From the most resembling *Rh. nyctimerina* (Staudinger, 1888) (Fig. 53), the new species differs by the configuration of the ductus bursae; it has laterally less prominent, but broader ductus bursae without long, strongly sclerotized streaks and less spacious appendix and corpus bursae. In the other taxa, the lateral extension of the ductus bursae is lacking or weak.

Description (Figs 9–10). Forewing length 14–19 mm, wingspan 36–40 mm. Head, thorax and abdomen vestiture pale greenish-ochre brown, antennae filiform, brown. Ground colour of forewings dark greyish brown, with more or less yellowish-green suffusion, especially in the basal and medial areas, the subterminal area being the darkest; wing pattern blackish fuscous; orbicular and reniform stigmata typical, the former yellowish encircled, claviform stigma obscure; antemedian line wavy, double, postmedian line evenly arched, finely lacy, subterminal line fine, slightly sinuous, yellowish. Hindwings greyish brown, slightly broadly darker suffused in the marginal area; discal spot and medial line absent or obsolescent. Cilia pale greyish-green on all wings, but darker on the forewings. Underside dark brownish-grey, darkest in the marginal area of all wings; discal spot and diffuse medial line obsolescent.

Male genitalia. Unknown.

Female genitalia (Figs 51–52). Ovipositor with long, apically rounded, slightly setose papillae anales. Apophyses posteriores long, slender; apophyses anteriores significantly shorter, about 0.25 times as long. Antrum plate broadly oval, with two symmetrical globular appendages, finely sclerotized; ductus bursae anteriorly membranous, then evenly widening, with a large, more or less sclerotized asymmetrical lateral extension; appendix bursae membranous, more or less globular; corpus bursae membranous, saccate.

Bionomics and distribution. The new species occurs on the Deosai Plateau, Kashmir, Pakistani Himalaya Mts.

Etymology. The name of the new subspecies means “latent”, in reference to its recent discovery only.

***Rhyacia evartianae turkestanophasma* ssp. n.** (Figs 13, 14, 16, 38, 56)

Holotype. Male (Fig. 13), Tajikistan bor., Turkest. chr., UrsTjube env., Sachristan, 2800–3000 m, 29. VI. 1988, leg. J. Hanus, slide no. GYP 5417 (coll. PGYM, later to be deposited in the HNHM).

Paratypes. 1♀, Tajikistan, Peter I. Mts., Ganishou, 2070 m, 19. VIII. 1974, leg. J. Tshetkin (coll. PGYM); 1♀, Tajikistan, W Pamir Mts., Shugnan range, 3100 m, n. Chorog, Sangou–Dara, 28. VI–1. VII. 2018, leg. D. Goshko (coll. PGYM). slide no. GYP 5416

Diagnosis. The new subspecies (Figs 13, 14, 16) of *Rh. evartianae* Varga, 1990 (Fig. 15) is hardly separable on external features from the nominotypical subspecies (Fig. 15), because of the individual variability in their wing pattern. However, the new subspecies has slightly more elongate forewing apex and more brown scales scattered on the wings. A safe determination requires dissection of the genitalia, confirmed by the locality given on the data label(s).

In the male genitalia (Fig. 38) (for those of the nominotypical subspecies see Varga 2011, p. 263, figs 5, 6), the best features for separation are the absence of the dorso-medial long thorn on the juxta, the longer, falcate harpe and the apically broadly rounded valva.

Surprisingly, in the female genitalia of the new subspecies (Fig. 56), the appendix and corpus bursae are more spacious, and the ductus bursae somewhat shorter but broader than in the nominotypical (Fig. 57)

Description. Wingspan 39–42 mm. Vesture of body and wings pale ochre with more or less light brown suffusion. Wing pattern brown; stigmata obsolescent, only the arched reniform stigma well defined; antemedian line wavy, double, postmedian line evenly arched, finely lacy, subterminal line fine, slightly sinuous, yellowish. Hindwings whitish-pale brown, slightly darker suffused in the marginal area; discal spot and median line absent or obsolescent.

Male genitalia (Fig. 38). Characterized by the medium long, curved, apically finely hooked uncus, broadly shield-shaped juxta with broad dorsal–medial depression, V-shaped vinculum, large, tubercular clavus, large, falcate harpe and terminally rounded valva. Aedeagus curved ventrad, cylindrical, with a large dorsal carinal spine; vesica tubular, everted ventrad, with a bifid subbasal and a medial diverticulum.

Female genitalia (Fig. 56). Ovipositor with long, apically rounded, slightly setose papillae anales. Apophyses posteriores long, slender; apophyses anteriores significantly shorter, about 0.2 times as long. Structure of antrum rugulose; ductus bursae with a slight, more or less sclerotized, asymmetrical lateral extension; appendix bursae membranous, somewhat recurved; corpus bursae membranous, saccate.

Bionomics and distribution. The new subspecies is restricted to the high mountains of Tajikistan.

Etymology. The name *turkestanophasma* means the “ghost of Turkestan”.

***Rhyacia (Standfussrhyacia) kunluna* sp. n.** (Figs 17, 18, 39, 41)

Holotype. Male (Fig. 17) China, Kunlun Shan, 4000 m, 100 km S of Karaki village, 14. VII.–24. VII. 1995, leg. M. Kopp *et al.*, (coll. PGYM, later to be deposited in the HNHM), slide no. GYP 2111.

Paratypes. 1♂, with the same data, slide no. GYP 5397 (coll. PGYM); 2♂♂, China, Kunlun Shan W, 4000–4400m, 60 km NW of Xaidulla City, 19. VII.–21. VII. 2001, leg. nat. coll. (coll. PGYM); 2♂♂, China, King Mounts, 4000 m, 30 km E of Mustagata, 27. VII.–3. VIII. 1995, leg. M. Kopp *et al.* (coll. PGYM);

Diagnosis. *Rhyacia kunluna* sp. n. (Figs 17, 18) is larger than any of the four described subspecies of *Rh. junonia* (Staudinger, 1881), which are most like it; wingspan 40–42 mm, and 38 mm or less in the related taxa. *Rh. junonia calamochroa* Varga, 1973 (Figs 19, 20) (Afghanistan, Tajikistan) is most like the new species, but *Rh. kunluna* is larger, the ground colour orange-brown and/or pale red-brown suffused, not pinkish as in the closely related subspecies of *Rh. junonia*; postmedian line more lacy-serrate and marginal area of hindwings somewhat darker.

In the male genitalia (Figs 39, 41), the best features for separation from all subspecies of *Rh. junonia* (Fig. 40), are the narrower, longer streak-like harpe and valva, the rather differently shaped triangular juxta, longer dorsal and ventral carinal spines and medially more spacious and longer vesica.

Description (Figs 17, 18). Forewing length 19–21 mm, wingspan 40–42 mm. Head, thorax and abdomen vestiture pale reddish-ochre. Ground colour of forewings orange-brown and/or pale red-brown suffused; wing pattern dark brownish, with dark greenish shade in the orbicular and reniform stigmata; claviform stigma absent; antemedian line wavy, postmedian line evenly arched, strongly serrate-lacy, subterminal line fine, pale ochre, cilia also. Hindwings brownish-white, slightly darker brown suffused in the marginal area; discal spot and the diffuse medial line obscure or absent; fringe whitish.

Male genitalia (Figs 39, 41). Characterized by the medium long, curved, terminally finely hooked uncus, broadly triangular juxta with an acute dorso-medial extension, V-shaped vinculum; valvae elongate, almost evenly broad, cucullus section slightly ventrally curved distally and rounded terminally; harpe streak-like, heavily sclerotized. Aedeagus curved ventrad, cylindrical, with a large dorsal and a smaller ventral carinal spine; vesica tubular, everted ventrad, medially coiled, submedial part with globular diverticulum, terminated in fine spiculum; inner curve with narrow but long sclerotized streak, subterminally with a triangular, weakly sclerotized appendage.

Bionomics and distribution. The new species is restricted to the Kunlun Shan region, above 4000 m, in Xinyiang–Uygur, NW China.

Etymology. The new species is named from its distribution.

***Rhyacia miranda* sp. n.** (Figs 21, 42)

Holotype. Male (Fig. 21), China, Prov. Qinghai, Heka Mts., 3610 m, SW of Santa la, 3–4. VIII. 1999 leg. P. Gyulai & A. Garai, slide no. GYP 1190 (coll. PGYM, later to be deposited in the HNHM).

Diagnosis. The species most closely allied to the new species (Figs 5–8) are *Rhyacia mirabilis* (Boursin, 1954) (Figs 22, 23) and *Rh. admiranda* Gyulai & Ronkay 2001 (Fig. 24). *Rh. miranda* is readily distinguished from both in the conspicuously smaller size (forewing length 15 mm versus 17–19 mm, wingspan 29 mm versus 33–38 mm), the less wavy subterminal line, less serrate postmedian line and the rather greyish suffused, more unicolorous hindwing.

The male genitalia (Fig. 42) of the new species differ from those of the two closely related species (Figs 43, 44) in the slightly ventrally curved cucullus section of the valvae, thicker, apically spatulate, rounded harpe, evenly wide and hardly arched clavus and shorter vesica with smaller, narrower subbasal diverticulum. In comparison with *Rh. mirabilis*, *Rh. admiranda* lacks the proximal sclerotized prominence, and has a significantly shorter and less curved clavus.

It is worth mentioning that the rather similar, but geographically distantly separated *Rh. mirabilis nepalensis* Boursin, 1964 is known only from the high Nepali Himalaya (Mustangbhot). It differs from the new species in the much darker wings with small orbicular and reniform stigmata, more zigzag and serrate antemedian and postmedian lines and elongate, acute forewing apex. The male genitalia differ, as with *Rh. mirabilis*, in the shape of valvae, clavus, cucullus and juxta.

Description (Fig. 21). Forewing length 15 mm, wingspan 29 mm. Head, thorax and abdomen vestiture greenish-ochre. Ground colour of forewings dark greenish with more or less red-brown suffusion, slightly lighter, pale ochre suffused in the basal and subterminal areas; wing pattern of a darker greenish shade of ground colour; orbicular and reniform stigmata typical, claviform stigma absent; antemedian line wavy, postmedian line evenly arched, finely lacy, subterminal line fine, pale ochre, fringe concolorous. Hindwings whitish-grey, slightly darker suffused in the submarginal area; discal spot and the diffuse medial line present but obscure; fringe whitish.

Male genitalia (Fig. 42). The most remarkable features are as follows: medium long, curved, apically finely hooked uncus; relatively broad tegumen with finely pointed penicular lobes; small shield-like juxta with two symmetrical slight extensions dorsad, with a slight medial depression between them and a large ventral protrusion; vinculum U-shaped; valvae almost evenly broad, cucullus section slightly curved ventrally and rounded terminally, corona with a row of fine spines; clavus heavily sclerotized, huge, evenly wide and curved dorsad, with fine teeth in the inner surface distally, extending almost to base of harpe; harpe large, long, heavily sclerotized, flattened; basal plate wide, apically spatulate, rounded. Aedeagus cylindrical, curved, dorsal carinal plate strongly sclerotized, with long digitiform, distally finely serrated process; ventrolateral plate wedge shaped; vesica tubular, everted ventrad, subbasal part with globular diverticulum, terminated in a fine spiculum; inner curve with narrow sclerotized ribbon; distal third curved backward.

Female genitalia. Unknown

Bionomics and distribution. The new subspecies is restricted to the type locality in the north-eastern part of the Tibetan Plateau.

Etymology. The name is a combination of those of the two closely allied congeners.

***Standfussiana nictymera esfahanica* ssp. n.** (Figs 27, 28, 46, 47)

Holotype. Male (Fig. 27), Iran, Prov. Esfahan, Zagros Mts., Fereidun Shar, 3000 m, 15–17. VI. 2010, leg. B. Benedek & T. Hác, slide no. GYP 5395 (coll. PGYM, later to be deposited in the HNHN).

Paratypes. 7♂♂, with the same data (coll. PGYM); 1♀, Iran, Zanjan Prov. Sendan, 17. V. 2001, leg. Benedek & Csorba (coll. ZVD). slide no. GYP 5413m, VZ 10569f

Diagnosis. The new subspecies differs from *S. nictymera osmana* (Wagner, 1929) (Figs 25, 26) in the smaller size (forewing length 18–20 mm, wingspan 36–39 mm, versus 18–23 and 38–45 mm); more elongate forewings, with slight pale ochre suffusion, less zigzag antemedian line and particularly the less arcuate postmedian line, the terminal section of which is oblique, but is perpendicular in subsp. *osmana*.

In the male genitalia (Figs 46, 47), the most reliable differences from subsp. *osmana* (Fig. 45) are the shorter uncus, shorter and terminally spatulate outer arm of the bifid costal extension and the slight protrusion in the subbasal vesica, with a thin, serrate ribbon.

Description. (Figs 27, 28). Forewing length 18–20 mm, wingspan 36–39 mm. Forewing triangular, narrow, ground colour greyish with slight pale ochre suffusion, the darkest in the submarginal area; antemedian line arched, slightly tortuous, postmedian line arcuate, the terminal section oblique; medial fascia diffuse; orbicular and claviform stigmata obsolescent, reniform stigma arched, dark. Hindwings whitish in the basal area, becoming pale brownish suffused and increasingly darker toward the marginal area; lunular discal spot and medial line obscure or absent. Cilia pale ochre on forewings and whitish on hindwings.

Male genitalia (Figs 46, 47) The clasping apparatus is characterized by the thin, terminally hooked uncus, subdeltoid juxta with bifid dorso-medial and ventro-medial extensions, V-shaped vinculum, elongate, almost evenly broad valvae slightly curved dorsad, with short sacculus, evenly thin and less sclerotized distal section; thin harpe and dorso-medially a large, strongly sclerotized, bifid costal extension, with two terminally somewhat spatulate processes. Aedeagus tubular; vesica distally slightly curved dorsad, with a slight protrusion in the subbasal part, with a thin, serrate ribbon, terminally with a tongue-shaped sclerotized appendage.

Bionomics and distribution. The new subspecies is found in the higher part of the Central Zagros Mts. in Iran; there is a single record from the Sendan Dagh.

Etymology. The new subspecies is named after the province in which it is found.

***Standfussiana benedeki* sp. n.** (Figs 29, 30, 48, 49, 59)

Holotype. Male (Fig. 29), Iran, Prov. Khorasan, Kopetdagh Mts., 60 km. N of Qucan, 2100 m, 5. VI. 2010, leg. B. Benedek & T. Hác, slide no. GYP 5409 (coll. PGYM, later to be deposited in the HNHM).

Paratypes. 2♂♂, with the same data, (coll. PGYM); 2♂♂, 1♀ Iran, Prov. Khorasan, Kopetdagh Mts., 40 km. N of Qucan, 2100 m, 4–5. VI. 2010, leg. B. Benedek & T. Hác (coll. PGYM); 1♀, Turkmenistan, Kopetdagh Mts, Dushak, 2300 m, 2. X. 1991, leg. Podlussány, L. Ronkay & Z. Varga (coll. ZVD); 1♀, Kopet Dagh Mts. valley of rivers Ipay Kala & Point Kala, 800–1500 m, 30. VI.–4. VII. leg. Fábán, Herczig, Podlussány & Varga (coll. ZVD); 1♂, Iran, Khorasan Razavi, Kuh-e-Binalud Mts., Darrod t. vicinity, 1720 m, 12. V. 2017, leg. E. Gavristchuk (coll. MDC); slide nos. GYP 5393f, 5409m, VZ 10473f

Diagnosis. *Standfussiana benedeki* sp. n. (Figs 29, 30) is closely related to the western European *S. nictymera* (Boisduval, 1837) and its eastern subspecies *S. nictymera osmana* (Wagner, 1929) (Figs 25, 26) which is distributed from Greece, across Turkey and Caucasus to Iran. The new species is usually slightly smaller than *S. nictymera osmana*: forewing length 19–21 mm, wingspan 38–42 mm, as opposed to 18–23 and 38–45 mm in *S. nictymera osmana*. Forewing of *S. benedeki* rather unicolorous greyish with slight paler ochreous suffusion, a broad, dark greyish suffused marginal area, in which the subterminal line is obscure or invisible, and less zigzag antemedian line than in *S. nictymera osmana*. The broad, dark unicolorous greyish suffused marginal area and the less zigzag antemedian lines are also useful in distinguishing the new species from light forms of the sympatric *S. lucernei elbursica* Boursin, 1963 (Figs 31, 32). However, the differences are slight, and colouration can be very variable in all three taxa. In doubt, correct identification can only be made after genitalia dissection.

In the male genitalia (Figs 48, 49), the uncus is shorter, the inner protrusion of the bifid costal extension is slightly shorter, and the outer one is longer than in *S. nictymera*

osmana (Fig. 45). However, the main differences are in the configuration of the vesica; the new species has a basal diverticulum, in which the ventral carina continues as a thin, but long, sclerotized-serrate ribbon; in the related taxa, the basal part of the vesica is broadly prominent and the sclerotized ribbon thin, less serrate but extending further onto the vesica, and curving terminally. The vesica in the new species is also conspicuously slender; the terminal appendage is rather triangular and less tongue-shaped. *S. benedeki* sp. n. differs from *S. lucerneae elbursica* Boursin, 1963, in that the ventral carinal continuation is a thin, but long, sclerotized-serrate ribbon and the vesica tube is longer and thinner; the terminal tongue-shaped sclerotized appendage is smaller and triangular (Figs 48, 49); in *S. lucerneae elbursica*, the continuation of the ventral carinal plate is broad, laminate and strongly serrate inside (Fig. 50).

In the female genitalia (Fig. 59), the antrum plate lacks the medial flap-like extension, present in *S. lucerneae elbursica* (Figs 60, 61), and is much longer and more evenly sclerotized than in either of the two related taxa; the appendix bursae and corpus bursae are less spacious and conspicuously shorter. The globular pocket-like sclerotized appendage in the appendix bursae is disc-shaped with circular inner pattern in the new species, and is less sclerotized and separated, without circular inner pattern in the two related taxa.

Description (Figs 29, 30). Forewing length 19–21 mm, wingspan 38–42 mm. Antennae greyish, filiform in both sexes, but finely and densely ciliated in males. Vesture of body and legs pale brownish-ochre, lighter on the underside. Forewings triangular, apex elongate; ground colour of forewings light greyish-brown with pale ochre suffusion, which is very variable apart from in the broad, dark greyish marginal area; orbicular stigma obsolescent, reniform stigma crescent shaped, dark greyish, touching the diffuse, broad medial fascia, claviform stigma absent; transverse lines brown, antemedial line slightly zigzag, postmedian line serrate, arched with more or less pale ochre ghost. Hindwings pale brownish suffused, broadly and increasingly darker in the marginal area; lunular discal spot and medial line obscure or absent. Cilia pale ochre on forewings and whitish on hindwings.

Male genitalia (Figs 48, 49) characterized by the thin, terminally hooked uncus, shield-shaped juxta, V-shaped vinculum, elongate, almost evenly broad valvae with narrow sacculus and slightly dorsally curved, evenly thin and less sclerotized distal section; thin harpe dorso-medially with a large, strongly sclerotized, bifid costal extension, with two processes, the outer of which is significantly longer. Aedeagus tubular; vesica distally slightly curved dorsad, with a prominent basal diverticulum in which the sclerotized ribbon-like extension of the ventral carinal plate is thin and serrate, terminally with a triangular sclerotized appendage.

Female genitalia (Fig. 59). Ovipositor with short papillae anales, covered with short setae. Apophyses posteriores long, slender; apophyses anteriores much shorter. Antrum plate broadly cup-shaped, finely sclerotized. Ductus bursae membranous, tubular; appendix bursae not prominent, but with a globular disc-shaped lateral sclerotized appendage with circular inner pattern; corpus bursae membranous, saccate.

Bionomics and distribution. *S. benedeki* has been found only in eastern Iran (Kopet Dagh Mts., Binaloud Mts.) and Turkmenistan (Kopet Dagh Mts.), occurring sympatrically with *S. lucerneae elbursica* Boursin, 1963.

Etymology. The new species is dedicated to Balázs Benedek (Törökbálint, Hungary), specialist on Asiatic Noctuidae and collector most of the type series.

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Figures 1–8. *Epipsilia* and *Rhyacia* spp. adults. 1. *E. griseascens caucasica* ssp. n., HT, Russia, North Caucasus, Kabardino–Balkaria, Elbrus area, Terskol village, Cheget mountain, 2100 m, 1. VIII. 2016, leg. V. Zurilina, GYP 5407 (coll. PGYM); 2. *E. griseascens caucasica* ssp. n., PT, ♂, Russia, NE Caucasus, San, 2900 m, 5. VII. 1991, leg. B. Herczig, V. Markó & Z. Mészáros (coll. PGYM); 3. *E. griseascens caucasica* ssp. n., PT, ♂, Russia, C. Caucasus, Terskol, 27–29. VIII. 2013, leg. L. Srnka, GYP 5382 (coll. PGYM); 4. *E. griseascens* (Fabricius, 1794), ♂, Austria, Ötztal, 1800 m, Ötztal, A–M X. 1976, leg. W. Pavlas, GYP 5401 (coll. PGYM); 5. *R. ledereri tibetana* ssp. n., HT, ♂, China, Tibet, 50 km N of Nyalam, 4400 m, 86°00'E, 28°13'N, 12. VIII. 1996, leg. M. Hreblay & B. Szin, GYP 5399 (coll. PGYM); 6. *R. ledereri tibetana* ssp. n., PT, ♂, China, Tibet, 50 km N of Nyalam, 4400 m, 86°00'E, 28°13'N, 12. VIII. 1996, leg. M. Hreblay & B. Szin, (coll. PGYM); 7. *Rh. ledereri* (Erschov, 1870) ♂, China, Qinghai, Heka Mts., 3700 m, Qing Geng He, 4. VIII. 1999, leg. P. Gyulai & A. Garai (coll. PGYM); 8. *Rh. ledereri* (Erschov, 1870) ♂, Mongolia, Mongol Altai Mts., Bajan Ölgij aimak, Örgön Sirig, 5–6 VIII. 1986, GYP 5400, (coll. PGYM).

9. *Rh. latebrosa* **sp. n.**, HT, female, Pakistan, Kashmir, GYP 5366

10. *Rh. latebrosa* **sp. n.**, PT, female, Pakistan, Kashmir, GYP 5381

11. *Rh. nyctimerina* (Staudinger, 1888), female, Kyrgyzstan, Issyk Kul, GYP 5408

12. *Rh. psammia nyctimerides* (Bang-Haas, 1922), female, Kazakhstan, Almaty prov., GYP 5416

13. *Rh. evartianae turkestanophasma* **ssp. n.**, HT, male, Tajikistan, Sachristan, GYP 5417

14. *Rh. evartianae turkestanophasma* **ssp. n.**, PT, female, Tajikistan, Peter I. Mts., GYP 5416

15. *Rh. evartianae* Varga, 1990, PT, female, Afghanistan, Badakhshan, Varga, 6832

16. *Rh. evartianae turkestanophasma* **ssp. n.**, PT, female, Tajikistan, W Pamir Mts., GYP 5416

Figures 9–16. *Rhyacia* spp. adults. 9. *R. latebrosa* sp. n., HT ♀, Pakistan, Kashmir, Himalaya Mts., Bubin valley, 3200 m, 30. VII. 2011, leg. B. Benedek, slide no. GYP 5366 (coll. PGYM); 10. *R. latebrosa* sp. n., PT ♀, Pakistan, Kashmir, Himalaya Mts., Bubin valley, 3200 m, 30. VII. 2011, leg. B. Benedek (coll. PGYM); 11. *Rh. nyctimerina* (Staudinger, 1888) ♀, Kyrgyzstan, S. Issyk Kul, 1700 m, near Kadzhy Sal, 15–16. VII. 1998, leg. I. Pljutsh, GYP 5408 (coll. PGYM); 12. *Rh. psammia nyctimerides* (Bang-Haas, 1922) ♀, Kazakhstan, Almaty Prov., 10 km N of Tekes, 2000 m, 20. VII. 2009, leg. B. Benedek, GYP 5378 (coll. PGYM); 13. *Rh. evartianae turkestanophasma* ssp. n., HT ♂, Tajikistan bor., Turkest. chr., UrsTjube env., Sachristan, 2800–3000 m, 29. VI. 1988 leg. J. Hanus, slide no. GYP 5417 (coll. PGYM); 14. *Rh. evartianae turkestanophasma* ssp. n., PT, ♀, Tajikistan, Peter I. Mts., Ganishou, 2070 m, 19. VIII. 1974, leg. J. Tshetkin, GYP 5416 (coll. PGYM); 15. *Rh. evartianae* Varga, 1990, PT, Afghanistan, Badakhshan, Darwaz, Darrah-e-Kuf, 3100 - 3300 m, 15. VII. 1972, leg. Brade & Naumann, Varga, 6832 (coll. PGYM); 16. *Rh. evartianae turkestanophasma* ssp. n., PT ♀, Tajikistan, W Pamir Mts., Shugnan range, 3100 m, n. Chorog, Sangou–Dara, 28. VI–I. VII. 2018, leg. D. Goshko (coll. PGYM).

Figures 17–24. *Rhyacia* spp. adults. **17.** *Rh. kunluna* sp. n. HT ♂, China, Kunlun Shan, 4000 m, 100 km S of Karaki village, 14. VII. –24. VII. 1995, leg. M. Kopp *et al.*, GYP 2111 (coll. PGYM); **18.** *Rh. kunluna* sp. n. PT ♂, China, Kunlun Shan, 4000 m, 100 km S of Karaki village, 14. VII. –24. VII. 1995, leg. M. Kopp *et al.*, GYP 5397 (coll. PGYM); **19.** *Rh. junonia calamochroa*, Varga, 1973 ♂, Tajikistan, E Pamir, Tschatetky, 28. VII. 1989, leg. Nekrasov, GYP 5403 (coll. PGYM); **20.** *Rh. junonia calamochroa* Varga, 1973 ♂, Tajikistan, Muzkol Mts., Ak-baital pass, 4200 m, 19. VII. 1996, leg. V. A. Lukhtanov (coll. PGYM); **21.** *Rhyacia miranda* sp. n. ♂, China, Prov. Qinghai, Heka Mts., 3610 m, SW of Santa la, 3 – 4. VIII. 1999 leg. P. Gyulai & A. Garai, slide no. GYP 1190 (coll. PGYM); **22.** *Rh. mirabilis* (Boursin, 1954) ♂, China, Sichuan, Xiangcheng, 3050 m a. s. l., 18–21. VII. 2007, leg. nat. coll., GYP 5372 (coll. PGYM); **23.** *Rh. mirabilis* (Boursin, 1954) ♂, China, Qinghai, 100 km SW of Xining, 3150 m a. s. l., 23–24. VII. 2004, leg. nat. coll., GYP 5368 (coll. PGYM); **24.** *Rh. admiranda* Gyulai & Ronkay 2001, PT ♂, China, Qinghai, Anemaqing Mts., 4200 m, S slope of peak, 11 – 12. VIII. 1999, leg. P. Gyulai & A. Garai GYP 1270 (coll. PGYM).

25. *S. nictymera osmana* (Wagner, 1929), male, Turkey, Zara

26. *S. nictymera osmana* (Wagner, 1929), female, Turkey, Toros daglari

27. *S. nictymera esfahanica* **ssp. n.**, HT, male, Iran, Esfahan, GYP 5395

28. *S. nictymera esfahanica* **ssp. n.**, PT, male, Iran, Esfahan, GYP 5413

29. *S. benedeki* **sp. n.**, HT, male, Iran, Khorassan, GYP 5409

30. *S. benedeki* **sp. n.**, PT, female, Iran, Khorassan, GYP 5393

31. *S. lucernei elbursica* Boursin, 1963, male, Iran, Khorassan, GYP 5396

32. *S. lucernei elbursica* Boursin, 1963, female, Iran, Khorassan, GYP 5552

Figures 25–32. *Standfussiana* spp. adults 25. *S. nictymera osmana* (Wagner, 1929), ♂, Turkey, Prov. Sivas, 8 km W of Zara, 10–11. VII. 2013, leg. P. Gyulai & A. Garai (coll. PGYM); 26. *S. nictymera osmana* (Wagner, 1929) ♀, Turkey, Prov. Konya, Toros daglari, Sertavul, 30. VI.–1. VII. 1992, leg. P. Gyulai (coll. PGYM); 27. *S. nictymera esfahanica* **ssp. n.**, HT ♂, Iran, Prov. Esfahan, Zagros Mts., Fereidun Shar, 3000 m, 15–17. VI. 2010, leg. B. Benedek & T. Hác, GYP 5395 (coll. PGYM); 28. *S. nictymera esfahanica* **ssp. n.**, PT ♂, Iran, Prov. Esfahan, Zagros Mts., Fereidun Shar, 3000 m, 15–17. VI. 2010, leg. B. Benedek & T. Hác, GYP 5413 (coll. PGYM); 29. *Standfussiana benedeki* **sp. n.** ♂, Iran, Prov. Khorasan, Kopetdagh Mts., 60 km. N of Qucan, 2100 m, 5 VI. 2010, leg. B. Benedek & T. Hác, GYP 5409 (coll. PGYM); 30. *Standfussiana benedeki* **sp. n.** ♀, Iran, Prov. Khorasan, Kopetdagh Mts., 60 km. N of Qucan, 2100 m, 5 VI. 2010, leg. B. Benedek & T. Hác, GYP 5393 (coll. PGYM); 31. *S. lucernei elbursica* Boursin, 1963 ♂, Iran, Khorassan, Kopet Dagh, 10 km N of Jevenly, Tandure NP, 2300 m, 9–10. VII. 2010, leg. P. Gyulai & A. Garai, GYP 5396 (coll. PGYM); 32. *S. lucernei elbursica* Boursin, 1963 ♀, Iran, Khorassan Razavi, Binaloud Mts., Shirbad, 3135 m, 12. VII. 2012, leg. M. M. Rabieh, GYP 5552 (coll. PGYM).

33. *E. grisea caucasica* **ssp. n.**, HT, Russia, N. Caucasus, GYP 5407

34. *E. grisea* (Fabricius, 1794), Austria, Ötztal, GYP 5401

35. *Rh. ledereri tibetana* **ssp. n.**, HT, China, Tibet, GYP 5399

36. *Rh. ledereri* (Erschov, 1870), Mongolia, Bajan Ölgij, GYP 5400

Figures 33–36. Male genitalia. **33.** *E. grisea caucasica* ssp. n., HT, Russia, N. Caucasus, GYP 5407; **34.** *E. grisea* (Fabricius, 1794), Austria, Ötztal, GYP 5401; **35.** *Rh. ledereri tibetana* ssp. n., HT, China, Tibet, GYP 5399; **36.** *Rh. ledereri* (Erschov, 1870), Mongolia, Bajan Ölgij, GYP 5400.

37. *Rh. psammia nyctymerides* (Bang-Haas, 1922), Kazakhstan, Almaty prov., GYP 5378

38. *Rh. evartianae turkestanophasma* **ssp. n.**, HT, Tajikistan, Sachristan, GYP 5417

39. *Rh. kunluna* **sp. n.**, HT, China, Kun Lun Shan, GYP 2111

40. *Rh. junonia calamochroa* Varga, 1973, Tajikistan, E Pamir, GYP 5403

Figures 37–40. Male genitalia. **37.** *Rh. psammia nyctymerides* (Bang-Haas, 1922), Kazakhstan, Almaty Prov., GYP 5378; **38.** *Rh. evartianae turkestanophasma* **ssp. n.**, HT, Tajikistan, Sachristan, GYP 5417; **39.** *Rh. kunluna* **sp. n.**, HT, China, Kun Lun Shan, GYP 2111; **40.** *Rh. junonia calamochroa*, Varga, 1973, Tajikistan, E Pamir, GYP 5403.

41. *Rh. kunluna* **sp. n.**, PT, China, Kun Lun Shan, GYP 5397

42. *Rh. miranda* **sp. n.**, HT, China, Qinghai, GYP 1190

43. *Rh. mirabilis* (Boursin, 1954), China, Sichuan, GYP 5372

44. *Rh. admiranda* Gyulai & Ronkay 2001, HT, China, Qinghai, GYP 1182

Figures 41–44. Male genitalia. 41. *Rh. kunluna* sp. n., PT, China, KunLun Shan, GYP 5397; 42. *Rh. miranda* sp. n., HT, China, Qinghai, GYP 1190; 43. *Rh. mirabilis* (Boursin, 1954), China, Qinghai, GYP 5372; 44. *Rh. admiranda* Gyulai & Ronkay 2001, HT, China, Qinghai, GYP 1182.

Figures 45–48. Male genitalia. **45.** *S. nictymera osmana* (Wagner, 1929), Turkey, Darende, GYP 5385; **46.** *S. nictymera esfahanica* ssp. n., HT, Iran, Esfahan, GYP 5395; **47.** *S. nictymera esfahanica* ssp. n., PT, Iran, Esfahan, GYP 5413; **48.** *S. benedeki* sp. n., HT, Iran, Khorassan, GYP 5409.

Figures 49–53. Male genitalia and Figs 51–53. Female genitalia. **49.** *S. benedeki* sp. n., PT, Iran, Khorassan, GYP 5412; **50.** *S. lucerneaelbursica* Boursin, 1963, Iran, Khorassan, GYP 5396; **51.** *Rh. latebroso* sp. n., HT, Pakistan, Kashmir, GYP 5366; **52.** *Rh. latebroso* sp. n., PT, Pakistan, Kashmir, GYP 5381; **53.** *Rh. nyctimerina* (Staudinger, 1888), Kyrgyzstan, Issyk Kul, GYP 5408.

54. *Rh. psammia* (Püngeler, 1906), Iran, Khorasan, GYP 5418

55. *Rh. psammia nyctimerides* (Bang-Haas, 1922), Kazakhstan, Almaty prov., GYP 5378

56. *Rhyacia evartianae turkestanophasma* ssp. n., PT, Tajikistan, Peter I. Mts., GYP 5416

57. *Rhyacia evartianae* Varga, 1990, Afghanistan, PT, Varga 6832

58. *S. nictymera osmana* (Wagner, 1929), Turkey, Tahir, GYP 5386

59. *S. benedeki* sp. n., PT, Iran, Khorassan, GYP 5393

Figures 54–59. Female genitalia. 54. *Rh. psammia* (Püngeler, 1906), Iran, Khorasan, GYP 5418; 55. *Rh. psammia nyctimerides* (Bang-Haas, 1922), Kazakhstan, Almaty Prov., GYP 5378; 56. *Rhyacia evartianae turkestanophasma* ssp. n., PT, Tajikistan, Peter I. Mts., GYP 5416; 57. *Rhyacia evartianae*, Varga, 1990, Afghanistan, PT, Varga, 6832; 58. *S. nictymera osmana* (Wagner, 1929), Turkey, Tahir, GYP 5386; 59. *S. benedeki* sp. n., PT, Iran, Khorassan, GYP 5393.

60. *S. lucerne elbursica* Boursin,
1963, Iran, Khorassan, GYP 5402

61. *S. lucerne elbursica* Boursin,
1963, Iran, Khorassan, GYP 5406

Figures 60–61. Female genitalia. **60.** *S. lucerne elbursica* Boursin, 1963, Iran, Khorassan, GYP 5402; **61.** *S. lucerne elbursica* Boursin, 1963, Iran, Khorassan, GYP

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