

Description of the new genus *Burmahabitans* and three Apameini species, *Photedes macroductus* sp. n., *Sesamia waziristana* sp. n. and *Burmahabitans chinsilvicola* sp. n. (Lepidoptera, Noctuidae)

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Abstract. A diagnosis and description of the new genus *Burmahabitans* is given, and three species of Apameini, *Photedes macroductus* sp. n., *Sesamia waziristana* sp. n. and *Burmahabitans chinsilvicola* sp. n. are presented and illustrated with 10 colour images and 10 genitalia figures.

Keywords. Apameini, Noctuidae, Asia, descriptions.

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Introduction

The article "New Apameini species from Asia (Lepidoptera, Noctuidae)" by the author P. Gyulai, was published in the International Journal of Zoology and Animal Biology (MEDWIN PUBLISHERS ISSN: 2639-216X, DOI: 10.23880/izab-16000248) on 2. November 2020. However, the article was published only online, and author could not find a hard copy anywhere. The publisher only refers to an E-Book, which means they have only electronic books. So far only 6 grades have been published. The choice of topic is very heterogeneous, there are no new species descriptions in it. Furthermore, both the colour and the genitalia figures are very small. The "References" section does not follow the alphabetical order of the original manuscript and the useful scientific articles. Finally, the individual references have been renumbered in the order in which they appear in the text.

To clarify things related to ZooBank registration, the author turned to the ZooBank administration for advice after writing down the history and concerns about the things outlined above in relation to the 2020 article. Following their advice on the new title of the article ("There is no requirement either way in the Code for this – you can call it a description or a redescription" and "Best to explicitly indicate "sp. n."), in this publication the names of the new taxa are exactly the same as the previous ones, but they have been re-described as sp. n. Since there are no nomenclatural acts (new names, lectotypifications, neotype designations, first reviser actions, etc.), the ZooBank administrator suggested to include a sentence in the paper that says.

This work has been registered in ZooBank as urn:lsid:zoobank.org:pub:3CFDD9D0-5B00-440E-893E-34F0F10BE43A."

The most recent comprehensive studies and revisions of the tribe *Apameini* were provided by Zilli *et al.* (2005 and 2009), with a detailed characterization of the species and their genitalia, with colour images and genitalia figures. Following researches in Asia during the last twenty years, the occurrence of further species was suspected, and this has been confirmed by genitalia studies.

Arenostola Hampson, 1908, *Longalatedes* Beck, 1992 and *Photedes* Lederer, 1857, which probably form a genus-group, *teste* Zilli, Ronkay & Fibiger, 2005, are closely related genera of *Apameini*. The species placed in these genera, some of which have many synonyms, are rather small, with similar external features and some shared features in both male and female genitalia. Hence, the exact taxonomic position of some of the species is uncertain and other authors have assigned them to different genera. The male of the species described below is still unknown, and here it is placed provisionally in *Photedes*, based on some of the features of the female genitalia.

Sesamia Guenée, 1852 is a thermophilic and diversified genus found worldwide, apart from the arctic and cool areas. Most of the species are inhabitants of tropical and subtropical regions, some are well-known stem-boring agricultural pests. The taxonomic position of the genus is a subject of discussion, and it has been associated to different tribes of *Noctuidae* by sundry authors and the Internet. Here, the views of Fibiger and Goldstein (2005) are accepted, wherein a new subtribe, *Sesamiina*, was erected within the tribe *Apameini* to include *Sesamia* and some closely related genera, mostly African and south-eastern Asian.

Abbreviations for personal and institutional collections used herein include: HNHM = Hungarian Natural History Museum (Budapest, Hungary); PGM = collection of Péter Gyulai (Miskolc, Hungary); GYP = genitalia slide of P. Gyulai; MF = genitalia slide of Michael Fibiger; VZ = genitalia slide of Zoltán Varga.

Description of the taxa

Photedes macroductus sp. n. (Figs 1, 11)

Holotype. Female (Figs 1, 11), Iran, Prov. Esfahan, Zagros Mts., Fereidun Shar, 3000 m, 15-17.VI.2010, leg. B. Benedek & T. Hác, slide no. GYP 3276 (coll. PGM, later to be deposited in HNHM).

Diagnosis. *Photedes macroductus* sp. n. (Fig. 1) resembles *Ph. improba* (Staudinger, 1900), to which it is closely related (Fig. 2). In comparison, it is more robust, with shorter and slightly broader, pale ochre forewings with fine reddish suffusion, with slight brown suffusion on the main veins and much darker brown hindwings; the forewings of *Ph. improba* are pale yellowish, without brown suffusion on the main veins and much lighter hindwings. In the female genitalia, the most striking difference is in the shape and sclerotization of the ductus bursae; it is asymmetrically enlarged, robust, sinuously ribbed and strongly sclerotized, and only the anterior third section tight, hardly sclerotized and longitudinally ribbed-wrinkled in *Ph. macroductus* (Fig. 11); whereas in *Ph. improba* (Fig. 12), the anterior section is large, bulbous, with tubular distal section, longitudinally slightly ribbed-sclerotized.

Ph. macroductus is significantly smaller than the two externally also similar, Eurasiatic species of *Arenostola*. Forewing length 12 mm, wingspan 24 mm, but 14–19 mm and 30–35 mm respectively in *A. phragmitidis* Hübner, (1803) (Fig. 3) and *A. unicolor* Warren, 1914 (Fig. 4). Another useful feature for superficial separation is the colour of the hindwing, which is much darker in *Ph. macroductus*, brown with pale beige fringes, and much lighter, pale ochre to pale beige in the *Arenostola* species. Underside of forewings darker in *Ph. macroductus* and veins well defined by brown suffusion, while in *Arenostola* species it is the same colour as the upper side, sometimes with a very slight pale ochre suffusion on the veins. In the female genitalia, the main differences are in the shape and sclerotization of ductus bursae and appendix bursae: *Ph. macroductus* (Fig. 12) differs from those of the two similar *Arenostola* species (Figs 13, 14), in asymmetrically enlarged, sinuously ribbed ductus bursae and membranous appendix bursae;

in the two congeners, the ductus bursae is almost evenly broad, longitudinally ribbed sclerotized, appendix bursae strongly sclerotized and ribbed, with a broad sclerotized rod between the inner side of the papillae anales.

Description (Fig. 1). Forewing length 12 mm, wingspan 24 mm. Eyes globular, black; antennae light ochre, filiform; palpi covered with beige scales, third segment only whitish ciliated, apex pointed. Head, thorax, abdomen vesture and legs beige. Forewings triangular, apex pointed; ground colour including fringe pale ochre with fine reddish suffusion; stigmata and transverse lines absent, the main veins somewhat defined by fine brown suffusion. Hindwings brown with pale beige fringes. Underside of the forewings similar to the upperside, but middle area slightly brown suffused and veins clearly defined by slight brown suffusion.

Female genitalia (Fig. 11). Characterized by the long, conical ovipositor, the presence of a long, scythe-like sclerotized rod in the inner side of the papillae anales and a small, dark claw-like shape inside them; apophyses anteriores and posteriores long, the latter longer. Ostium bursae displaced, antrum shallow; ductus bursae asymmetrically enlarged, robust, sinuously ribbed-wrinkled and strongly sclerotized, anterior third section tight, hardly sclerotized, and longitudinally slightly ribbed-wrinkled; appendix bursae and corpus bursae membranous.

Male. Unknown.

Bionomics and distribution. *Ph. macroductus* is known only from the type locality in western Iran, and the close relative *Ph. improba* is a local central Asian species. The somewhat similar Anatolian-Central Asian *A. unicolor* occurs only in the northern part of Iran.

Etymology. *Ph. macroductus* is named from the robust ductus bursae.

***Sesamia waziristana* sp. n. (Figs 5, 17)**

Holotype. Male (Figs 5, 17), Pakistan, NWFP S. Waziristan agency, near Tanai vill., 28.VII–12.VIII.2005, 1500–2500 m, leg. V. Gurko, slide no. GYP 5246m (coll. PGM, later to be deposited in HNHM).

Diagnosis. *Sesamia waziristana* sp. n. (Fig. 5), is one of the smallest species of the genus. The most similar and closest relative of *S. waziristana* is *S. rungsi* Boursin, 1957 (Fig. 6), in Afghanistan. The only known specimen of this species is practically the same size as those of *S. rungsi*; forewing length 10 mm as opposed to 10–11mm. The best feature for separation is the ground colour of the wings; which are much lighter in *S. waziristana*, pale beige in the forewings, but slightly darker, light brown in the hindwings; in *S. rungsi* they are unicolorous brown. In the male genitalia, the main differences are in the valva and the configuration of the cornuti the aedeagus. *S. waziristana* (Fig. 17) has much more elongate distal section of valvae, slightly longer uncus, much lower juxta with larger dorsal-medial prominence, narrower costal extension of valvae, with tip more bifurcate than in *S. rungsi* (Fig. 18). In *S. waziristana*, aedeagus with two large flap-like appendages with numerous small cornuti; in *S. rungsi* there are two large and two smaller flap-like appendages with numerous small cornuti, like a semi-belt on the aedeagus.

It is worth mentioning that another Central Asian species, *Sesamia christophi* Hacker, 1998, from Turkmenistan, Kyrgyzstan, and Tajikistan (Figs 7,8) is also rather similar, but confusion is impossible, since this is conspicuously larger (forewing length 13–14 mm) than *S. waziristana* and wings are brown with slight red-brown suffusion on the forewings. The male genitalia (Fig. 19) are also strikingly different from those of *S. waziristana* (Fig.17), in the much longer distal section and longer, but not bifurcate costal extension of valvae, the lack of the flap-like cornuted appendages of the aedeagus and the presence of a single large cornutus in the basal part of the vesica.

The locality of *S. waziristana* is rather far from those of the two related species, and sympatric occurrence is very unlikely.

Description (Fig. 5). Forewing length 10 mm, wingspan 19 mm. Eyes globular, black; antennae light brown, with a white longitudinal line, slightly ciliated; palpi long, covered with pale ochre scales. Frons, collar, thorax vesture, under side of body and legs also covered with pale ochre or beige scales. Forewing triangular, apex rounded, ground colour pale beige; orbicular and claviform

stigmata absent, reniform stigma obscure; transverse lines absent, but postmedial line indicated by some fine brown dots; fringe pale ochre. Hindwing slightly darker, light brown without discal spot and medial line, fringe pale ochre.

Male genitalia (Fig. 17). characterized by the hooked uncus, broad tegumen, large, subtriangular juxta with dorsal-medial triangle prominence, U-shaped vinculum, distally tapering, terminally rounded valvae without corona but with a conspicuous, large, strongly sclerotized costal extension, tip bifurcate. Aedeagus short but strong, dorsally broaden toward the vesica, bearing two large flap-like appendages with numerous small cornuti; vesica short, ample, with a broader and a thinner basal-subbasal slightly sclerotized area.

Female. Unknown.

Bionomics and distribution. *S. waziristana* is known from the type locality and occurs only in western Pakistan.

Etymology. *S. waziristana* is named from the type locality.

***Burmahabitans* gen. n.**

Type species: *Burmahabitans chinsilvicola* sp. n., by present designation.

Diagnosis. This monotypic genus (Figs 9, 10) is a distinct evolutionary line of *Apameini*. The main external diagnostic features, compared to the related genera *Arenostola* Hampson, 1908, *Longalatedes* Beck, 1992, *Photedes* Lederer, 1857 and *Sesamia* Guenée, 1852 (Figs 1–8) are as follows: vesture of body light rusty; forewings more elongate, with acute apex, ground colour light rusty with a conspicuous, wide, oblique, diffuse rufous fascia which extends from the subapex toward the dorsum. *B. chinsilvicola* has a slight resemblance to *Acrapex roseotincta* Hampson, 1910, (Fig. 7: 18) known from Sri Lanka, but the ground colour of forewing, the direction of the oblique fascia and the presence of some other elements of wing pattern do not match; the male and female genitalia are both conspicuously different. The male genitalia (Fig. 20), show more affinities to *Arenostola*, *Longalatedes* and *Photedes* (the genitalia of almost all the species were figured by Zilli *et al.*, 2005); however, the cucullus section is not separated in this genus, as it is in the first two genera, or separated by a narrow neck of the distal section of valvae as in *Photedes*; the penicular lobes are less extended, and the presence of an elongate sclerotized costal streak of valvae is a good feature for separation from the other genera. A sclerotized costa of valvae and its extension is characteristic of *Sesamia* Guenée, 1852 (Figs 17, 19), but in *Burmahabitans*, it is slight and not extended to a bifurcate tip or a prominent, long, head-like extension as in *Sesamia*; in *Burmahabitans*, the juxta is uniquely large, broadly cup-shaped, ventrally with two small, triangular, sclerotized marks and dorsally with two symmetrical, heavily sclerotized wing-like appendages. The aedeagus is straight, longer than in *Sesamia*, but with shorter caecum, carina without spines, and lacking a strongly sclerotized belt of cornuti. The gear-like, strongly sclerotized appendage in the subbasal section of the vesica is also unique; and a diverticulum, present in *Arenostola*, *Longalatedes* and *Photedes* and in some species of *Sesamia*, is absent. In the female genitalia (Fig. 15), the rod-like bars between the ovipositor lobes are broad but are very narrow or absent in *Sesamia* (Fig. 16), and fused with sclerotized trapezoidal plates in *Arenostola*. The antrum is higher than in all *Longalatedes* and *Photedes*, medially slightly depressed, as opposed to that in *Sesamia*, but the ostium bursae is not displaced to the right as in *Arenostola* Hampson, 1908. The antrum plate is conjoined to the strongly sclerotized, triangular distal section of ductus bursae, which is similar to those of some of the African *Sesamia*, but very different from those of the other relatives; the ample, globular appendix bursae is not a feature of *Sesamia*, but is present in the other three related genera.

Description. Monotypic. For description, see below under *Burmahabitans chinsilvicola* (Figs 9, 10, 15, 20).

***Burmahabitans chinsilvicola* sp. n.** (Figs 9, 10, 15, 20)

Holotype. Male (Fig. 9), Myanmar West, Chin state, ca. 4,5 km W Thaing Gnin village, N 23°11.877', E 93°47.964', 2090 m, 6.XI.2015, leg. Loeffler & Naumann, slide no. GYP 4584, (coll. PGM, later to be deposited in HNHM).

Paratype. Female, same data as holotype, slide no. GYP 4720 (coll. PGM).

Description (Figs 9, 10). *B. chinsilvicola* is a rather small species, forewing length 11–14 mm, wingspan 22–27 mm, the female slightly larger. Body slender, forewings elongate with acute apex. Eyes globular, black; antennae light ochre with white line in the upper side, finely setose-ciliate in male, filiform in female; palpi covered with pale ochre scales, third segment very tiny, brownish, pointed. Frons, collar, thorax and abdomen vesture and legs pale ochre. Ground colour of forewings and cilia light rusty-pale ochre, with an oblique, slightly blurred rufous fascia, which extends from subapex toward the dorsum, faintly tinged with ochreous along distal side; other features of wing pattern lacking, apart from a few brown dots in the male. Hindwings and cilia whitish. Underside of wings whitish, slightly tinged with pale ochreous, with slight brown suffusion in median area of forewings.

Male genitalia (Fig. 20) characterized by the long, thin, terminally evenly tapered uncus; tegumen broad; juxta large, broadly cup-shaped, ventrally with two small, triangular, sclerotized marks, dorsally with two symmetrical, heavily sclerotized, wing-like appendages with a deep, broad depression between them; vinculum V-shaped; valvae almost evenly broad with sclerotized, terminally subtriangular costa, sacculus elongate, harpe small, globular and slightly bifurcate at tip; cucullus densely covered with fine hairs but without corona. Aedeagus rather long, almost straight, tube-like; vesica ample, distally long, tube-like, with gear-like, strongly sclerotized appendage in the middle and a strongly sclerotized strong cornutus sub-terminally, on a long base.

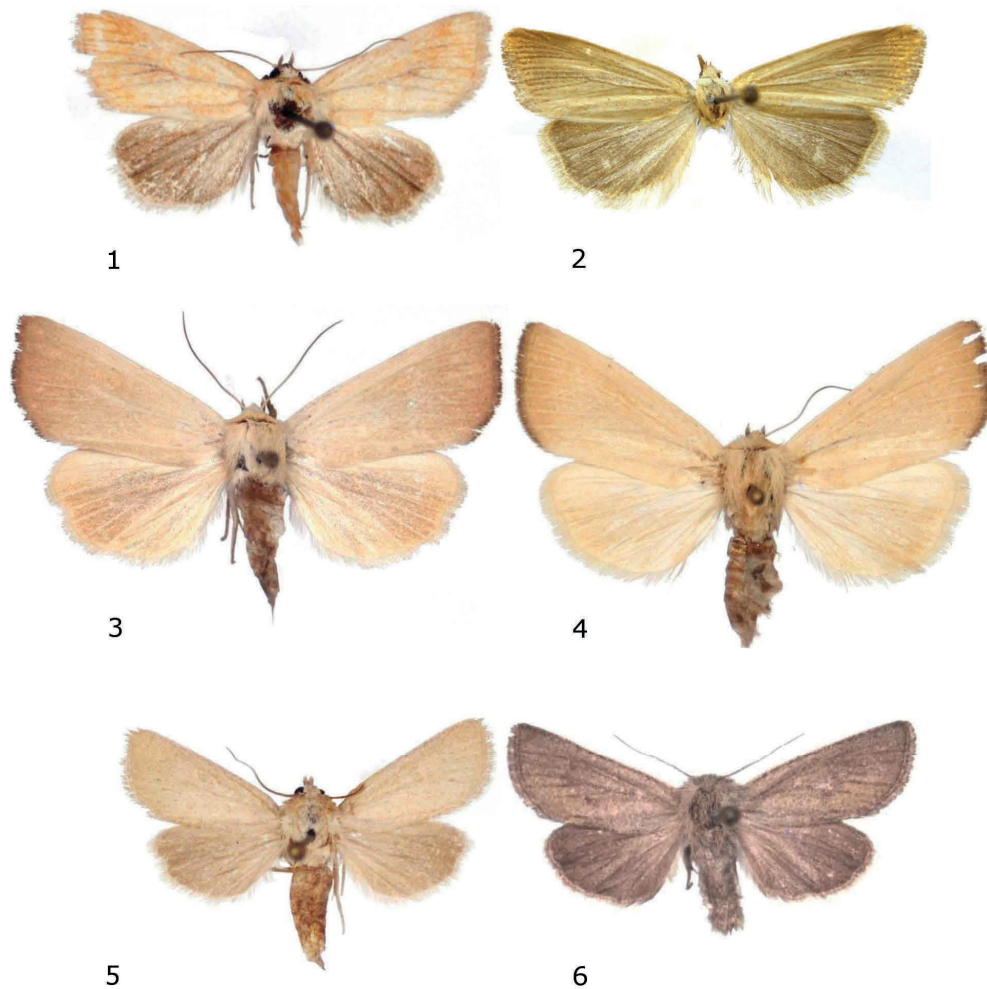
Female genitalia (Fig. 15). Ovipositor lobes strongly sclerotized, conical, long, with a darker claw-like construction inside and two rod-like parallel bars between them; apophyses anteriores and posteriores long, the latter the longer. Antrum broad, sclerotized; ostium bursae medially slightly depressed; antrum plate conjoined with the unevenly sclerotized, triangular distal section of ductus bursae; appendix bursae ample, globular, grainy; corpus bursae saccate, membranous.

Bionomics and distribution. This species is known from the type locality in Chin state, Myanmar (Burma).

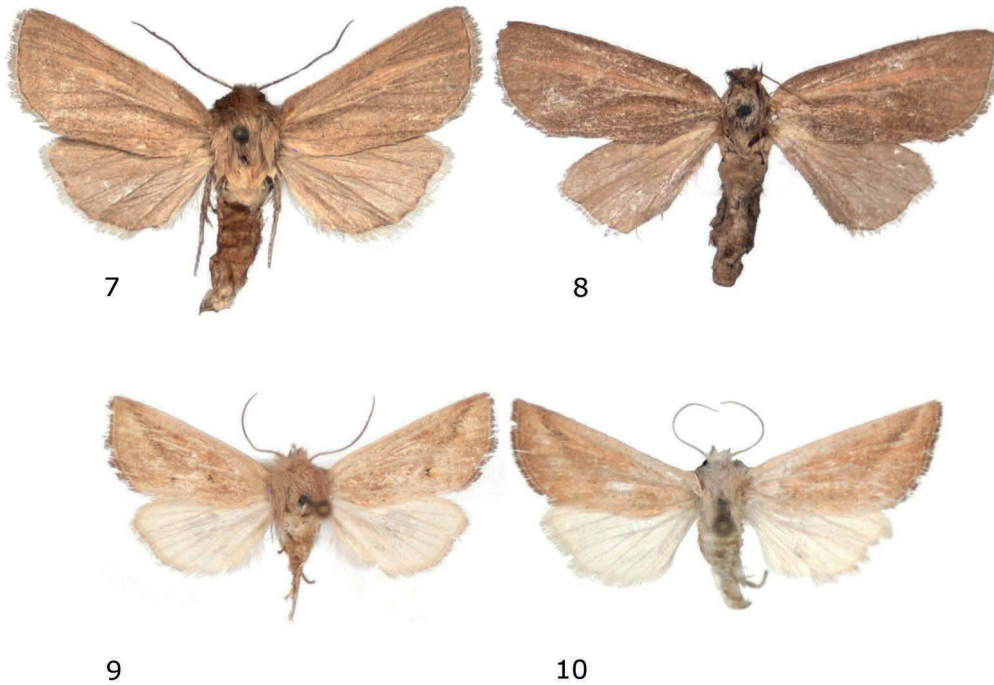
Etymology. *B. chinsilvicola* is named after the locality, in Burma, in Chin State Forest.

Acknowledgements

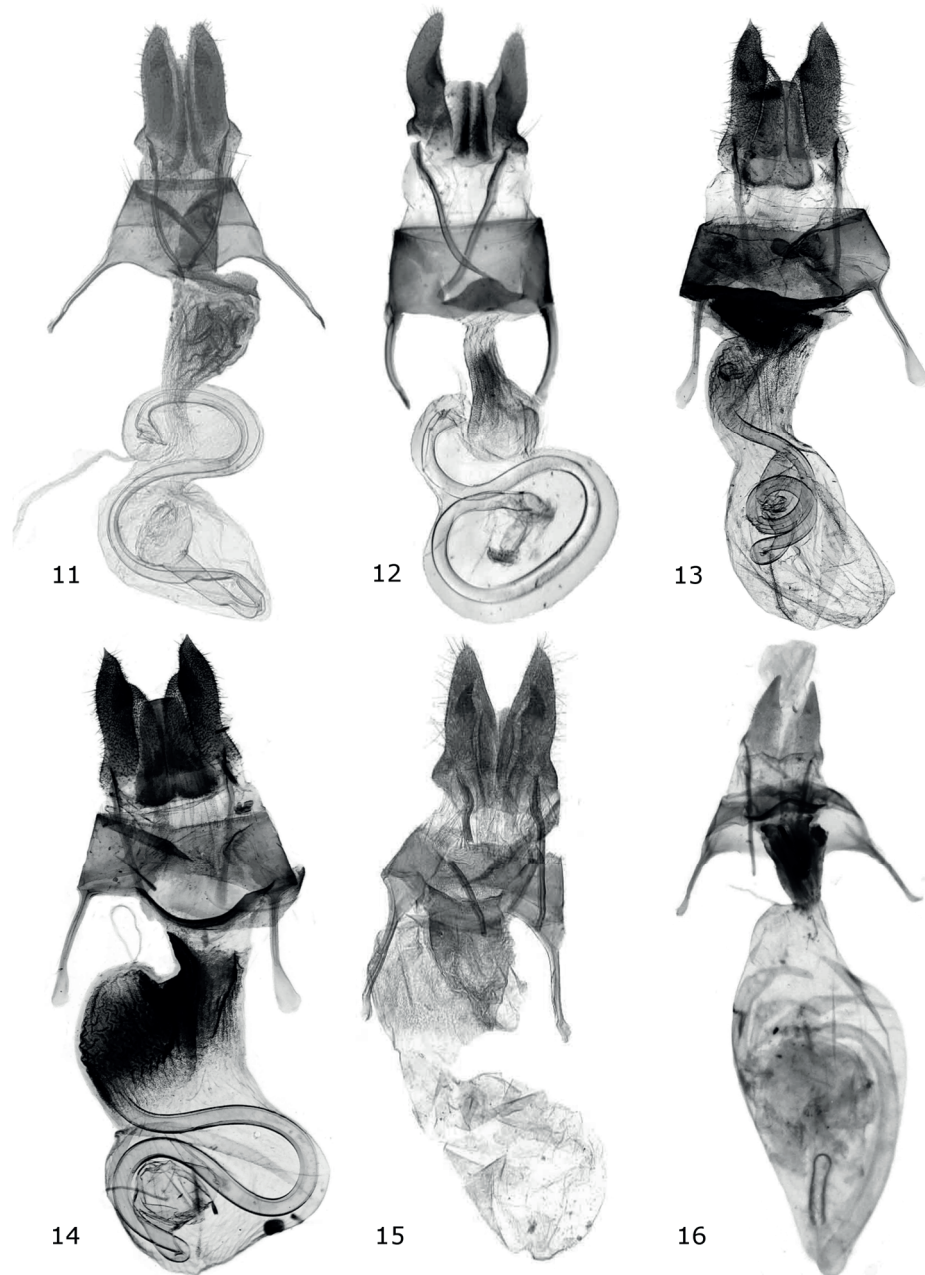
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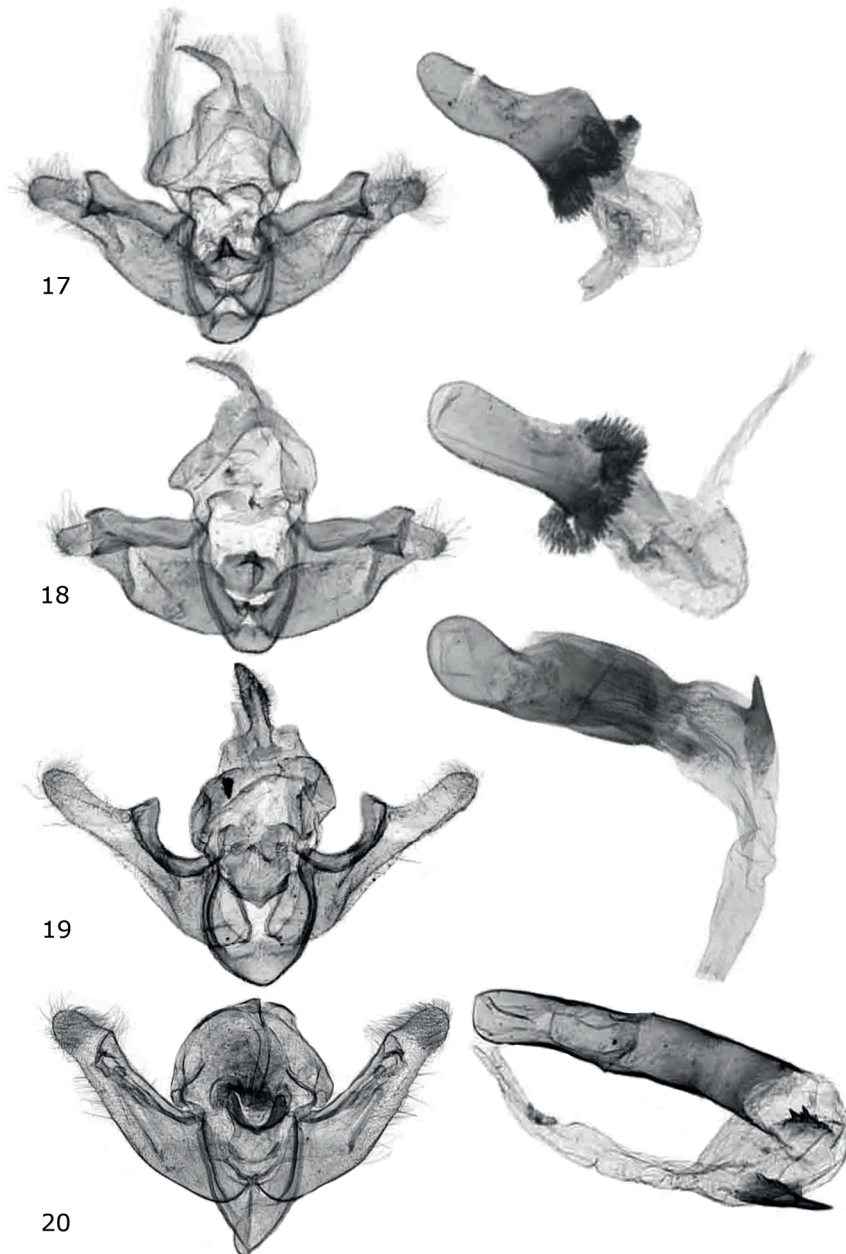
Figures 1–6. Adults. **1.** *Photedes macroductus* sp. n, Holotype, Iran, Prov. Esfahan, Zagros Mts., leg. B. Benedek & T. Hác, female, GYP 3276 (PGM/HNHM); **2.** *Photedes improba* (Staudinger, 1900), Mongolia, Suchebaatar aimak, exp. Z. Kaszab, female, MF 5649 (HNHM); **3.** *Arenostola phragmitidis* Hübner, (1804), Hungary, Fertőboz, female, GYP 5315 (PGM); **4.** *Arenostola unicolor* Warren, 1914, Iran, Kordestan, female, GYP 5313 (PGM); **5.** *Sesamia waziristana* sp. n Holotype, Pakistan, NWFP S. Waziristan, leg. Gurko, male, GYP 5246 (PGM/ HNHM); **6.** *Sesamia rungsi* Boursin, 1957, Afghanistan, Sarobi, leg. Reshöft, male, GYP 5255 (PGM).



Figures 7–10. 7. *Sesamia christophi* Hacker, 1998, Kirgisia, Fergansky basin, leg. Lukhtanov, male, GYP3274 (PGM); 8. *Sesamia christophi* Hacker, 1998, Tajikistan, Parchar, leg. Tshetkin, female, GYP5333 (PGM); 9. *Burmahabitans chinsilvicola* sp. n., Holotype, Myanmar, Chin Forest, leg. Loeffler & Naumann, male, GYP 4584 (PGM/HNHM); 10. *Burmahabitans chinsilvicola* sp. n., Paratype, Myanmar, Chin Forest, leg. Loeffler & Naumann, female, GYP 4720 (PGM).



Figures 11–16. Female genitalia. **11.** *Photedes macroductus* sp. n., Holotype, Iran, Prov. Esfahan, Zagros Mts., leg. B. Benedek & T. Hác, GYP 3276 (PGM/HNHM); **12.** *Photedes improba* (Staudinger, 1900), Mongolia, Sucheabaatar aimak, exp. Z. Kaszab, slide MF 5649 (HNHM); **13.** *Arenostola phragmitidis* Hübner, (1804), Hungary, Fertőboz, GYP 5315 (PGM); **14.** *Arenostola unicolor* Warren, 1914, Iran, Kordestan, GYP 5313 (PGM); **15.** *Burmahabitans chinsilvicola* sp. n., Paratype, Myanmar, Chin forest, GYP 4720 (PGM); **16.** *Sesamia christophi* Hacker, 1998, Tajikistan, Parchar, GYP5333 (PGM/).



Figures 17–20. Male genitalia. **17.** *Sesamia waziristana* sp. n. Holotype, Pakistan, NWFP S. Waziristan GYP 5246 (PGM/HNHM); **18.** *Sesamia rungsi* Boursin, 1957, Afghanistan, Sarobi, GYP 5255 (PGM); **19.** *Sesamia christophi* Hacker, 1998, Kirgisia, Fergansky basin, GYP3274 (PGM); **20.** *Burmahabitans chinsilvicola* sp. n., Holotype, Myanmar, Chin forest, GYP 4584 (PGM).

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