A Taxonomic Atlas of the
Eurasian and North African
Noctuoidea

PSAPHIDINAE II. - EREBIDAE II.

A TAXONOMIC ATLAS OF THE EURASIAN AND NORTH AFRICAN NOCTUOIDEA

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THE WITT CATALOGUE

A Taxonomic Atlas of the Eurasian and North African Noctuoidea

Volume 10

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The tribes Feraliini and Psaphidini and the Lygephila generic complex

Oleg Pekarsky, László Ronkay, Gábor Ronkay & Zoltán Varga

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Thomas J. Witt

(1947-2019)

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Preface

This is the first volume in the Taxonomic Atlas series which includes larger groups of two different families. The first part of the volume is the second section of Psaphidinae (Noctuidae), the second is the second part of Toxocampinae (Erebidae). The Psaphidinae chapter includes the *Diphtherocome* generic complex and the subtribe Nacnina, besides certain newly recognised Psaphidinae genera. The Erebidae part contains the sister-groups of the formerly discussed *Autophila-Apopestes* generic complex (Volume 7.), the *Lygephila-Tathorhynchus* and the *Perinaenia-Isoura-Exophyla* lineages.

The modern taxonomic interpretations of the Amphipyrinae trunk (see, for instance, Wagner et al 2008, Keegan et al 2018) consider Amphipyrinae and Psaphidinae as a common subfamily, distinguishing the tribes Amphipyrini and Psaphidini; thus, the former tribes Psaphidini and Feraliini are downgraded to subtribe level.

As the Taxonomic Atlas series already published the first part of Psaphidinae, treating the group as a distinct subfamily, we keep this rank for the second part of the group, too, and all suprageneric taxa are considered here as tribes and subtribes. On the other hand, the *Diphtherocome* generic complex is transferred into Feraliini (subtribe Diphtherocomina) from Acronictinae, and the genus *Nacna* is placed into the newly described subtribe, Nacnina.

The interpretation of *Lygephila* sensu lato (including *Tathorhynchus*, see Goater et al 2003) has been changed in this volume. The complete revision of this taxonomic entity revealed the need to separate *Lygephila* s. str. from *Tathorhynchus*. Herewith the authors took the opportunity to include the outgroup of the *Lygephila-Autophila* clade to this volume, putting the genera *Perinaenia, Isoura* and *Exophyla* to the end of this chapter.

The genitalia of both sexes of each taxon are illustrated and their phylogenetic and biogeographical connections are also discussed. Since these genera and their species/subspecies demonstrate a rich variety of colourful vs. unicolorous appearance with considerable geographical and individual variation, it was necessary to figure a larger number of specimens of most taxa, including valuable type materials from several large European collections, due to the friendly courtesy of our colleagues.

Similarly to the earlier volumes of this series, this volume is also based on a large number of genital slides, almost exclusively prepared by the authors. The technique of photographic reproduction was also continuously improved, mostly by long experience of Gabor Ronkay and also by the kind helpfulness of our friends in the Natural History Museum Vienna, The Natural History Museum London, the Zoological State Collection Munich and State Collection of Natural History Karlsruhe.

The authors would like to expect that this book will be a worthy continuation of the Taxonomic Atlas series and hope that our work will meet the approval both of professional entomologists and of enthusiasts of this fascinating group of moths.

Budapest, 1st September, 2019

the Authors

Abbreviations

BC CAS – Biological Centrum, Czech Academy of Sciences, Ceské Budejovice
BIN – Biological Institute, Russian Academy of Sciences, Novosibirsk
BMNH – The Natural History Museum (formerly British Museum, Natural History, London)
EIHU – Entomological Institute, Hokkaido University, Sapporo
ESRI – Taiwan Endemic Species Research Institute, ChiChi
GBG/ZSM – collection of Gottfried Behounek, Grafing, later in coll. ZSM
GYP – slide of Péter Gyulai
HH – slide of Hermann-Heinrich Hacker
HM – slide of Márton Hreblay
HT – slide of Hubert Thöny
HNHM – Hungarian Natural History Museum, Budapest
ICZN – International Code of Zoological Nomenclature
LMK – Kärntner Landesmuseum, Klagenfurt
LSL – The Linnean Society, London
MHNG – Museum of Natural History, Geneva
MNHNP – Museum National d'Histoire Naturelle, Paris
NIAES – National Institute of Agro-Environmental Sciences, Tsukuba (formerly NSMT)
NHMB – Natural History Museum, Basel
NHMW – Naturhistorisches Museum, Wien
NLMW – Niederösterreichisches Landesmuseum, Wien
NRS – Naturhistoriska Riksmuseet, Stockholm
NSMT – National Science Museum, Tsukuba
OMNH – Osaka Museum of Natural History, Osaka
OP – slide of Oleg Pekarsky
RL – slide of Ronkay László
SBRASN – Siberian Branch of Russian Academy Sciences, Novosibirsk
SMNK – Staatliches Museum für Naturkunde, Karlsruhe
SMNS – Staatliches Museum für Naturkunde, Stuttgart
USNMW – National Museum of Natural History, Washington
VZ – slide of Zoltán Varga
ZFMK – Zoologisches Forschungsinstitut und Museum Alexander Koenig, Bonn
ZISP – Zoological Institute, Russian Academy of Sciences, St. Petersburg
ZMHU – Museum für Naturkunde (formerly Zoologisches Museum der Humboldt-Universität), Berlin
ZMM – Zoological Museum of the Lomonossov University, Moscow.
ZMUC – Zoological Museum, University of Copenhagen
ZSM – Zoologische Sammlung des Bayerischen Staates (Zoologische Staatssammlung), München

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Budapest, 1st September, 2019

Oleg Pekarsky, Gábor Ronkay, László Ronkay and Zoltán Varga

Taxonomic and nomenclatural summary

Neotype designation

Toxocampa glycyrrhizae Rambur, 1866

Lectotype designations

Diphtherocome pallida ab. *laevis* Warren, 1907
Diphtherocome pallida ab. *minor* Warren, 1907
Diphthera discibrunnea Moore, 1867
Diphthera marmorea Leech, 1900
Toxocampa lubrica var. *lubrosa* Staudinger, 1901
Toxocampa lilacina Butler, 1878
Toxocampa cucullata Moore, 1882

Newly described taxa

Newly described subtribes

Subtribe **Diphtherocomina** Ronkay, Ronkay & Varga **subtribe n.**
Subtribe **Nacnina** Ronkay, Ronkay & Varga **subtribe n.**

Newly described genera

Genus ***Vigentinocome*** Ronkay, Ronkay & Varga **gen. n.**
Genus ***Discibocome*** Ronkay, Ronkay & Varga **gen. n.**

Newly described subgenera

Subgenus ***Vigentinocome*** Ronkay, Ronkay & Varga **subgen. n.**
Subgenus ***Chrysocome*** Ronkay, Ronkay & Varga **subgen. n.**
Subgenus ***Criocome*** Ronkay, Ronkay & Varga **subgen. n.**
Subgenus ***Bryochlorocome*** Ronkay, Ronkay & Varga **subgen. n.**

Newly described species

Diphtherocome petrichkarolyi Ronkay, Ronkay & Varga **sp. n.**
Nacna buschmannferenci Ronkay, Ronkay & Varga **sp. n.**
Lygephila nikolaichuki Pekarsky, **sp. n.**
Exophyla dietzelgyulai Ronkay & Ronkay **sp. n.**

Revised status, **stat. rev.**

Raised to species

Diphtherocome laevis Warren, 1907 **stat. rev.**
Diphtherocome minor Warren, 1907 **stat. rev.**

Downgraded to subspecies

Diphtherocome pallida bubaceki Gaal-Haszler, Lödl, Ronkay, Ronkay & Varga, 2012, **stat. rev.**
Lygephila viciae stigmata (Wileman, 1911) **stat. rev.**

New synonyms

Diphtherocome diverticulata Hreblay & Kononenko, 1999 – synonym of *Diphtherocome laevis* Warren, 1907, **syn. n.**
Diphtherocome hoenei likianga Hreblay & Kononenko, 1999 – synonym of *Diphtherocome hoenei* Hreblay & Kononenko, 1999, **syn. n.**
Diphtherocome biformis Hreblay & Kononenko, 1999 – synonym of *Diphtherocome vivida* (Leech, 1900), **syn. n.**
Diphtherocome xichangae Gyulai, Ronkay & Ronkay, 2014 – synonym of *Diphtherocome kuni* Hreblay & Ronkay, 1999, **syn. n.**
Diphtherocome metaphaea (Hampson, 1909) – synonym of *Diphtherocome minor* Warren, 1909, **syn. n.**
Canna javensis Warren, 1912 – synonym of *Nacna splendens* (Moore, 1888), **syn. n.**
Katyusha Kemal & Koçak, 2009 – synonym of *Lygephila* Billberg, 1820, **syn. n.**
Lygephila fereidun Wiltshire, 1961 – synonym of *Lygephila pallida* (Bang-Haas, 1907), **syn. n.**
Lygephila schachti Behounek & Hacker, 1986 – synonym of *Lygephila craccae* ([Denis & Schiffermüller], 1775), **syn. n.**

New combinations

Vigentinocome (Vigentinocome) vigens (Walker, 1865) **comb. n.**
Vigentinocome (Vigentinocome) daliangi (Hreblay & Ronkay, 1999) **comb. n.**
Vigentinocome (Vigentinocome) viridissima (Hreblay & Ronkay, 1999) **comb. n.**

Vigentinocome (Chrysocome) chloronympha (Hreblay, Peregovits & Ronkay, 1999) **comb. n.**
Vigentinocome (Chrysocome) thaumasia (Hreblay & Ronkay, 1998) **comb. n.**
Vigentinocome (Chrysocome) peregovitsi (Gyulai, Ronkay & Ronkay, 2014) **comb. n.**
Vigentinocome (Chrysocome) chrysochlora (Hampson, 1898) **comb. n.**
Vigentinocome (Chrysocome) chrysochlora thainympha (Hreblay & Ronkay, 1999), **stat. n.**, **comb. n.**
Vigentinocome (Criocome) impectinata (Hreblay, Peregovits & Ronkay, 1999) **comb. n.**
Vigentinocome (Criocome) nepalichlora (Hreblay & Ronkay, 1999) **comb. n.**
Vigentinocome (Criocome) nanlingi (Gyulai, Ronkay & Ronkay, 2014) **comb. n.**
Vigentinocome (Criocome) autumnalis (B.S. Chang, 1991) **comb. n.**
Vigentinocome (Bryochlorocome) bryochlora (Hreblay, Peregovits & Ronkay, 1999) **comb. n.**
Discibocome discibrunnea (Moore, 1867) **comb. n.**
Discibocome pulchra (Wileman, 1912) **comb. n.**
Discibocome marmorea (Leech, 1900) **comb. n.**
Discibocome ligula (Gyulai, Ronkay & Ronkay, 2014) **comb. n.**

Subfamily **Psaphidinae** Grote, 1896

by

Ronkay, G., Ronkay, L. & Varga, Z.

The tribes Feraliini and Psaphidini

Diagnosis. There are a number of recent but different concepts about the taxonomic range and phylogeny of psaphidine noctuids. Poole (1995) revised the systematics of the Nearctic Noctuidae and proposed a new tentative subfamily system for the trifine noctuids. He divided the former (non-Hampsonian) Cuculliinae into distinct subfamilies, one of which is the newly established subfamily Psaphidinae. In his postulated phylogeny, Cuculliinae (containing Cuculliini only), Psaphidinae and Oncocnemidinae (and also Stiriinae and Amphipyrinae) are separate subfamilies, being often rather far from each other (Poole 1995, p. 14, fig. 1). The subfamily Psaphidinae comprises six tribes; four of them are represented only in the New World. In his opinion "this amalgamation of tribes represents, to some degree, a marriage of convenience and could (and probably will) be modified in the future". Psaphidinae in his sense includes also Feraliini, and three of the other tribes (Psaphidini, Nocloini and Triocnemidini) form a supposedly homogeneous group "comprising the Psaphidinae in the strict sense". Psaphidinae sensu Poole contains a much larger number of taxa in the Nearctic region than in the whole Palaearctic.

The system proposed by Beck (1996, and elaborated in more detail in 1999) is seemingly less coherent from a phylogenetic point of view. He has taken into consideration only a small fragment of the whole Palaearctic fauna, namely the western one (unfortunately, the western Palaearctic region has the most derived psaphidine fauna and the evaluation of the features is often strongly heterogeneous, sometimes eclectic). The scientific reasons behind his system are not always apparent. The general problem with his work, apart from the unacceptable use of numerous unjustified taxonomic categories and ranks, is the mixing of recognizable phyletic lines due to the stated, but not explained, phylogenetic importance of certain often strongly adaptive morphological features. A more detailed criticism of Beck's concepts is given under the taxonomic notes of the tribe Oncocnemidini.

The third interpretation (Kitching & Rawlins, 1998; Yela & Kitching, 1999) is a more restricted one. Several larval, pupal and imaginal features indicate a relationship with the Cuculliinae, but the distinct apomorphic character is the possession of a transverse row of pits on the anterior margin of the 10th pupal abdominal segment. The adults possess a strong apical claw on the inner side of the foretibia, sometimes with an associated plate (Forbes, 1954; Poole, 1995), but this feature is not uniquely apomorphic as it is also common to Stiriinae, some Cuculliinae, Oncocnemidini and Heliothinae (Kitching & Rawlins, 1998; Yela & Kitching, 1999). As a result of the segregation of psaphidinids from Cuculliinae, Poole (1995), Kitching & Rawlins (1998) and Yela & Kitching (1999) considered them at the subfamily level.

The last, most modern interpretations of wide sense amphipyrine trunk are published by Wagner et al (2008) and Keegan et al (2018), in which they demonstrate that the psaphidinids are closely related to Amphipyrinae and treat them as a tribe Psaphidini within that subfamily.

The subfamily Psaphidinae is characterised in detail by Poole (1995) and Ronkay et al (2011).

The main features are summarised here as follows: 1) the presence of a strong apical claw on the fore tibiae (a shared feature of the tribe with numerous groups of Oncocnemidinae, Stiriinae and Heliothinae);

2) the irregular spacing of the spines on the ventral surface of the tarsal segments (the usual arrangements by the trifine noctuids is in three – sometimes four – regular and linear rows); 3) the 7th tergite in the abdomen of the male is heavily sclerotised, enlarged, and its caudal margin is sometimes weakly bilobed (this condition is absent in Feraliini); 4) the valvae of the male genitalia most often bear a corona of stout setae, and the ampulla (if present) is originated from near the ventral margin of the valva (like in Cuculliinae, Oncocnemidinae and Stiriinae); 5) the vesica is elongate and covered with long cornuti; and 6) they all have a row of cavities on the last segments of the pupae, which also separates the Psaphidinae from both the Amphipyrinae and the Oncocnemidinae. The larvae have a tendency to be humped on A8 and are known to feed on deciduous trees.

In the Volume 5 of the Taxonomic Atlas it was mentioned that "The position of the genus *Phidrimana* Kononenko, 1989 has been clarified by Fibiger & Hacker (2007); it belongs to Amphipyrinae s. str. Another monobasic genus resembling externally to the taxa of Psaphidini, *Guntia* Shchetkin, 1980, is a representative of the subfamily Xylenini, its supposed closest relative is *Dasypolia* Guenée, 1852". The subsequent studies proved their affinity with the Psaphidinae and are treated in the present volume as members of the tribe Psaphidini.

Distribution. The subfamily Psaphidinae is very widespread in the Northern hemisphere, occurring in all continents and all larger biomes. It is also present in the Southern hemisphere but appearing more locally, mostly in the high mountains of the tropical and subtropical Africa and the more temperate parts of the South American Andes; no species is known from the Notogaea. It is worth to note that the subfamily Amphipyrinae is represented by certain autochthonous genera in Australia like *Proteuxoa* Hampson, 1903, *Thoracolopha* Turner, 1939, etc. or the widespread Palaearctic-Oriental genus *Callyna* Guenée, 1852.

Tribe ***Feraliini*** Franclemont & Todd, 1983

Taxonomy. The diagnostic features of Feraliini are the presence of the dorsal pits on the pupa anterior to the cremaster, the lack of the foretibial claw (being typical of Psaphidini) and the characteristic, well-developed, often pollex-like digitus (in *Daseochaeta* it appears as an acute process at the ventral edge of cucullus) of the male clasping apparatus. The known larvae are feed on conifers and Fagaceae, and are similar to those of the Cuculliinae but having uniordinal crochets.

The relegation of the genera *Diphtherocome* (s. l.) and *Nacna* into the tribe Feraliini has long been debatable. The external features of the species of the former genus supported this placement while the genitalia displayed clearly recognisable differential features, especially in the armature of the vesica. Moreover, the early stages were practically unknown and no molecular data were available until the second decade of the 21st century. Thus, the authors of the 5th Volume of the Witt Catalogue desisted to establish new subtribal taxa for these genera.

The results of the most recent investigations, including the information about the larval features of "*Diphtherocome*" *pulchra*, proved the close relationships of the above-mentioned genera with the other main lineages of the Feraliini. These large groups are associated, therefore, with the tribe Feraliini, representing two distinct subtribes, Diphtherocomina and Nacnina.

Diagnosis. Medium-sized species, wingspan 34–45 mm. Head small, frons smooth, hairy. Palpi short, upturned, proboscis rudimentary or well-developed. Eyes either rather small, elliptical or larger, globular, antennae of male bipectinate, those of female slightly serrated or ciliated. Vertex and thorax clothed with rough, long hairs and often with hair-scales. Tegulae rather indistinct, thoracic tufts and crests usually well developed, sometimes an additional crest on vertex. Legs densely hairy, abdomen relatively long, usually slender, hairy, with lateral fringes; dorsal crest absent or short, represented by a few dark tufts on the first three abdominal segments. Basal brush organ may be present, in certain groups fully reduced.

Forewing more or less highly triangular with apex pointed, hindwing broad, rounded; greenish ground colour of forewing easily fading or turning into a yellowish shade through the effect of moisture or direct light.

Male genitalia. Uncus short and strong, usually rather straight and apically hooked, sometimes mandibulate; tegumen slender, high, penicular lobes small or reduced, weakly hairy; juxta shield-like, variably sized and shaped, usually cordiform, subdeltoidal or subrectangular, often medially folded; vinculum moderately long, V-shaped. Valva elongated, sometimes constricted medially; cucullus triangular with apex pointed or more or less rounded, with pollex-like subapical ventral extension which often longer than apical peak; corona absent or replaced by a setose field at apical edge. Sacculus long and narrow, variably strongly, sclerotized; clavus reduced; ampulla most often reduced to is short basal plate or absent; harpe may be strong, thorn-like, digitiform or distally curved, sometimes represented only by its flattened bar without erect apical part; pollex absent or large, triangular and often acute. Aedeagus cylindrical, tapering apically; carina usually with a bill-like dorsal extension and sclerotised, sometimes dentated ventral or ventro-lateral plate; carinal ring in certain groups with well-developed spine-bundles or spinulose belt. Vesica everted forward and bent ventrally, basal part of main tube usually inflated and scobinate; medial and distal sections may bear one or two diverticula and one to four groups of cornuti of variably number and size.

Female genitalia. Ovipositor short or moderately long, subconical; papillae anales weaker or stronger sclerotized, conical; gonapophyses short or medium-long, thin. Antrum sclerotised, flattened, its shape and size important specific features; ductus bursae short or medium-long, tubular, wrinkled and partly sclerotised; appendix bursae subconical or conical, variably strongly sclerotised; sclerotisation of posterior (distal) section of bursae sometimes extends deeply into medial section of corpus bursae.

Distribution. The tribe is well represented in most parts of the Holarctic region and in the high mountainous areas of Africa.

Subtribe *Diphtherocomina* subtribe n.

Taxonomy. The external appearance of the species belonging to *Diphtherocome* (s.l.) suggests a closer relationship with *Feralia* Grote, 1874, especially when the Himalayan and Oriental taxa of the latter genus are considered. This similarity was, however, interpreted as superficial by Ronkay et al (Noctuidae Europaeae, volume 5), following the former placement of the *Diphtherocome* generic complex as a clade within the subfamily Acronictinae. The recent, integrative taxonomic studies on the Acronictinae (Rota et al 2015/2016) and the new results on the taxonomic position of *Diphtherocome* s.l., *Nacna* and *Homonacna* Fletcher, 1961 (= *Chopardiana* Viette, 1963) confirmed the close phylogenetic relationships of these genera with the other main groups of Psaphidinae, transferring them from Acronictinae into this subfamily.

The members of the *Diphtherocome* generic complex represent a distinct clade within Feraliini which is interpreted here as a new subtribe, Diphtherocomina. The genus *Nacna* and its Palaeotropical sister group, *Homonacna*, together with the newly established *Discibocome,* belong also to the tribe Feraliini, as a well-defined subtribe, Nacnina.

Diagnosis. Small or medium-sized species, wingspan 28–45 mm. Proboscis usually present, functional; antennae of male serrate or bipectinate, those of female slightly serrate or ciliate. Abdominal dorsal crest present but short, represented by a few dark tufts on the first three abdominal segments. Basal brush organ may be present, in certain groups fully reduced.

Male genitalia. Uncus short and strong, usually rather straight and apically hooked; tegumen slender, high, penicular lobes reduced, weakly hairy; juxta shield-like, variably sized and shaped, usually cordiform, subdeltoidal or subrectangular, often medially folded; vinculum moderately long, V-shaped. Valva

elongated, distally tapering; cucullus triangular or broader and rounded quadrangular, with apex pointed, often process-like; pollex-like subapical ventral extension usually well-developed, sometimes longer than apical peak or completely fused with apical process; corona absent. Sacculus long and narrow, variably strongly sclerotized; clavus reduced; harpe strong, thorn-like, digitiform or apically curved/recurved; pollex absent. Aedeagus cylindrical, tapering apically; carina with sclerotised ventral or ventro-lateral plate; carinal ring in certain groups with well-developed spine-bundles or spinulose belt. Vesica everted forward and bent ventrally, basal part of main tube usually inflated and scobinate; medial and distal sections may bear one or two diverticula and one to four groups of cornuti of variably number and size.

Female genitalia. Ovipositor short or moderately long, subconical; papillae anales weaker or stronger sclerotized, conical; gonapophyses short or medium-long, thin. Antrum sclerotised, flattened, most often quadrangular, calyciform or funnel-like; ductus bursae short or medium-long, tubular, wrinkled and partly sclerotised; appendix bursae subconical or conical, variably strongly sclerotised; sclerotisation of posterior (distal) section of bursae sometimes extends deeply into medial section of corpus bursae.

Distribution. Himalayan-Sino-Pacific.

Genus ***Diphtherocome*** Warren, 1907

Diphtherocome Warren, 1907, in Seitz, *Die Groß-Schmetterlinge der Erde* **3**: 11. Type-species: *Diphthera pallida* Moore, 1867, by subsequent designation by Hampson, 1909: 22.

Diagnosis. Small to medium-sized species, wingspan 28–45 mm. Head small, frons smooth, hairy. Palpi short, upturned, proboscis rudimentary or well-developed. Male antenna bipectinate or serrate, female antenna slightly serrate or ciliate. Vertex and thorax clothed with rough, long hairs and often with hair-scales. Tegulae rather indistinct, thoracic tufts and crests usually well developed, sometimes an additional crest on vertex. Legs densely hairy, abdomen relatively long, usually slender, hairy, with lateral fringes; dorsal crest short or reduced; abdominal brush organ absent. Forewing more or less high triangular with apex pointed; ground colour bright green of variable shade, noctuid pattern most often sharply marked, consisting of black(ish) crosslines and outlines of stigmata, with variably strong white(ish) definition, in certain cases with stronger brown patches or stripes along crosslines. Hindwing broad and rounded, whitish, milky-white or finely greenish, with diffuse greyish crossline and distal spot, marginal field may be darker grey or brown suffused; fringes whitish or greenish, sometimes brown spotted.

Male genitalia. Uncus short, strong, straight or distally somewhat thickened and arched, apical hook strong, acute; tegumen medium-long and wide, penicular lobes slender, weakly hairy; juxta shield-like, variably sized and shaped; vinculum moderately long, V-shaped. Valva elongated, distally tapering; cucullus triangular, often furcate with process-like apex and pollex-like subapical ventral extension; corona reduced. Sacculus long and narrow; clavus reduced; harpe strong, thorn-like or digitiform, laterally most often flattened and slightly twisted, its shape and position important taxonomic features; pollex absent. Aedeagus cylindrical, tapering apically; carina with sclerotised ventral/ventro-lateral plate; carinal ring with well-developed spine-bundles or spinulose belt. Vesica everted forward and bent ventrally, basal part of main tube inflated and scobinate; medial section with two semiglobular diverticula bearing spiniform cornuti, distal third with variably long, subconical or tubular diverticulum covered with spinules, terminal part of vesica with elongated field of spinules, these latter two groups of spinules often fused into long, sometimes characteristically Y-shaped spinulose field.

Female genitalia. Ovipositor short or moderately long, conical or subconical; papillae anales weaker or stronger sclerotized, rather quadrangular or conical; gonapophyses short or medium-long, thin. Antrum most often heavily sclerotised, quadrangular or calyculate, flattened; ductus bursae short or medium-long, tubular, wrinkled and sclerotised; appendix bursae subconical or conical, variably strongly sclerotised; posterior (distal) section of bursa copulatrix (junction of ductus bursae to corpus bursae and appendix bursae) regularly heavily sclerotised and wrinkled-ribbed, this sclerotisation sometimes extends deeply into medial section of corpus bursae.

Distribution. Himalayan-Sino-Tibetan. The members of the genus are most often stenochorous, only a few species (e.g. *Diphtherocome pallida*) have wider range. All species are connected to the medium-high and higher monsoonic forest belts. Most often uni- or bivoltine species with long flight period, the moths are on the wing, depending on the altitude from the end of the spring to the early autumn.

Genus ***Diphtherocome*** Warren, 1907
Type-species: *Diphthera pallida* Moore, 1867

pallida-group

pallida (Moore, 1867)
pallida bubaceki Gaal-Haszler, Lödl, Ronkay, Ronkay & Varga, 2012, **stat. rev.**
secreta Hreblay & Ronkay, 1999
pallidula Hreblay & Plante, 1998
robusta Hreblay & Kononenko, 1999
mixta Hreblay & Kononenko, 1999
laevis Warren, 1907 **stat. rev.** (= *diverticulata* Hreblay & Kononenko, 1999, **syn. n.**)

fasciata-group

fasciata (Moore, 1888)
hoenei Hreblay & Kononenko, 1999 (= *likianga* Hreblay & Kononenko, 1999 **syn. n.**)

kuni-group

kuni Hreblay & Ronkay, 1999
kuni xichangae Gyulai, Ronkay & Ronkay, 2014

vivida-group

bigu Hreblay & Ronkay, 1999
brevipennis (Hampson, 1909)
pseudovivida Hreblay & Ronkay, 1999
vivida (Leech, 1900) (= *biformis* Hreblay & Kononenko, 1999 **syn. n.**)
trimaculata Hreblay & Kononenko, 1999
pallidipennis Hreblay & Ronkay, 1999
minor Warren, 1907 **stat. rev.** (= *metaphaea* (Hampson, 1909 **syn. n.**)
petrichkarolyi **sp. n.**
longivalva Hreblay & Kononenko, 1999

serrata-group

serrata Hreblay & Kononenko, 1999

Diphtherocome pallida pallida (Moore, 1867)

(Plate 1, Figs 1–3, Plate 29, Figs 1–16; gen. fig. 1)

Diphthera pallida Moore, 1867, *Proceedings of the Zoological Society of London* **1867**: 46, pl. 6, fig. 6. Type-locality: [India, Sikkim] Darjeeling. Lectotype: female, in coll. BMNH.

Diagnosis. The type-species of the genus is on average the largest member of the genus, with the wingspan exceeding 40 mm. The colouration and wing pattern of the members of the *pallida*-group are generally the same and the proper identification usually requires the study of the male genitalia. The specific features of the male genitalia are the long and narrow valvae with long subapical ventral process ("pollex") and shorter

apical peak, the relatively less distally positioned harpe, the very strong and dense, continuous spinulose ring of carina penis and the short, somewhat V-shaped distal cornuti field of the vesica. The female genitalia of *D. pallida* can be distinguished from those of all congeners by the characteristic shape of the antrum with concave lateral edges and the broadly rounded posterior (distal) part of ductus bursae which is regularly broader than the anterior (proximal) end of antrum.

The nominotypical *D. pallida pallida* can be distinguished from the western ssp. *bubaceki* by its on average larger size with its wingspan 36–45 mm (that of the ssp. *bubaceki* is 31–38 mm, an exceptionally large female is 40 mm), broader wings with more rounded apex, somewhat paler green forewing ground colour and more whitish hindwings.

The male genitalia of ssp. *pallida* differ from those of the ssp. *bubaceki* by the somewhat longer and narrower, distally more tapering valvae with longer ampullae and more asymmetrically bifurcate valval apex. The apical process is minute, much smaller than the long, cuneate subapical ventral process (see Hreblay & Ronkay 1999, fig. 205; Hreblay & Kononenko 1999, fig. 8). The aedeagus and the vesica show the same ground plan in both sister-species.

In the female genitalia, the antrum of *D. p. pallida* is shorter and broader than that of *D. pallida bubaceki*, less quadrangular, the lateral sides of ductus bursae are more arched and more arcuate posteriorly, and the sclerotised caudal quarter of corpus and appendix bursae is less extended towards the fundus than in its close relative.

The eastern populations of *D. pallida* found in Sichuan and Yunnan also show certain differences compared with the typical southern Himalayan ones, e.g. the somewhat smaller size and the more vivid green forewing ground colour. As the genitalia of these populations are practically identical, the Chinese populations are considered here to belong to the nominotypical ssp. *pallida*.

Distribution. A Himalayan-Sino-Tibetan species, the ssp. *pallida* has a wide range extending from western Nepal and Sikkim to the south-eastern frontiers of Tibet in China (Sichuan, Yunnan). Bivoltine, the moths are on the wing from May to October in two partly overlapping generations. The species lives in various broad-leaved and mixed forest habitats at medium-high and high altitudes (between 2500–4200 m a.s.l.).

Diphtherocome pallida bubaceki Gaal-Haszler, Lödl, Ronkay, Ronkay & Varga, 2012 **stat. rev.**

(Plate 1, Figs 4–6, Plate 29, Figs 17–24; gen. fig. 2)

Diphtherocome bubaceki Gaal-Haszler, Lödl, Ronkay, Ronkay & Varga, 2012, *Fibigeriana* **1**: 121, pl. 55, figs 24–25; pl. 26, figs 9–14; gen. figs 45–46. Type-locality: India, Kashmir, Sinapur. Holotype: female, in coll. NHMW.

Diagnosis. *Diphtherocome bubaceki* has been described as the allopatric western sister-species of *D. pallida*. The revision of the genus proved the taxonomic importance of the shape and size of the antrum-ductus bursae complex, the basic structure of which is common in *pallida* and *bubaceki*. As the antrum has straight lateral edges in all other species of the genus and the posterior part of ductus bursae is not wider than the anterior part of antrum, we decided to threat the two taxa as two geographic subspecies of the same species.

The westernmost subspecies of *D. pallida* can be distinguished from the nominotypical ssp. *pallida* by its on average smaller size (wingspan 31–38 mm and 36–45 mm, respectively), more elongated forewings having more pointed apex (especially in males), deeper, more unicolorous and somewhat turquoise-shaded green ground colour, more zigzagged postmedial line and thinner but sharper whitish definition of the crosslines.

The male genitalia of *D. p. bubaceki* differ from those of *D. p. pallida* mainly by the somewhat shorter and broader, distally less tapering valvae with shorter ampullae and more or less symmetrically bifurcate valval apex with shortly triangular apical and ventral processes; the juxta is broader and more calyciform. The valvae of the typical ssp. *pallida* are more elongated, distally narrower and strongly more evenly tapering towards the strongly asymmetrically bifurcate valval apex: the apical process is minute, much

smaller than the long, cuneate subapical ventral process (see the gen. fig. 1; also in Hreblay & Ronkay 1999: fig. 205; Hreblay & Kononenko 1999: fig. 8). The aedeagus and the vesica show the same ground plan in both sister-species.

In the female genitalia, the antrum of *D. pallida bubaceki* is longer and narrower than that of *D. p. pallida*, more quadratic, the lateral sides of ductus bursae are straighter, less arcuate posteriorly, and the sclerotised caudal quarter of corpus and appendix bursae is more extended towards the fundus than in its close relative.

Distribution. *Diphtherocome pallida bubaceki* is the most westerly distributed taxon of the entire genus. It occurs in the medium-high altitudes of the western and south-western parts of the main Himalayan chain, from Pakistan (Murree Hills, Kaghan valley) and Indian Kashmir towards to the east to Himachal Pradesh.

Diphtherocome secreta Hreblay & Ronkay, 1999

(Plate 1, Figs 7–8, Plate 2, Fig. 1; Plate 29, Figs 25–32; gen. fig. 3)

Diphtherocome secreta Hreblay & Ronkay, 1999, *Esperiana* **7**: 564, pl. 21, fig. 149. Type-locality: Nepal, Ganesh Himal, 12 km S of Somdang, 2700 m, 28°08'N, 85°11'E. Holotype: male, in coll. HNHM.

Diagnosis. *Diphtherocome secreta* is very similar externally to *D. pallida* and *D. pallidula*. It is, however, somewhat smaller on average than *D. pallida* (wingspan 30–38 mm) and more broad-winged, with finer and more dense black markings. The somewhat shorter forewing with finer and denser dark pattern distinguishes *D. secreta* from its Chinese relatives, *D. robusta* and *D. mixta*.

In the male genitalia, *D. secreta* has, in comparison with *D. pallidula* and *D. pallida*, broader, and distally less elongated cucullus, shorter and less asymmetrical ampullar process, weaker carinal spine-brush and large, entirely continuous Y-shaped distal cornuti field in the vesica. The male genitalia of *D. secreta* differ mostly from those of *D. robusta* and *D. mixta* by the much longer and broadly Y-shaped terminal cornuti field of the vesica. The spinulose area of the carina is remarkably weaker in *D. secreta* than in *D. robusta* but much stronger than in *D. mixta*.

In the female genitalia, the antrum of *D. secreta* is shorter than in *D. pallida*, its anterior part is not dilated and the posterior part of ductus bursae is regularly funnel-like, without lateral humps like in *D. pallida*. The sclerotised posterior section of the bursa copulatrix in much broader and longer in *D. secreta* is shorter than in *D. robusta* and *D. mixta* (especially of the latter species which has characteristically conical appendix bursae), the antrum is shorter and the ductus bursae is more constricted medially than in its closely related Chinese congeners.

Distribution. Southern Himalayan. The species is known from various regions of Nepal, from medium-high and high altitude forest regions (between 2200–3900 m elevations). Bivoltine, the flight period extends from the mid-June to the end of September.

Diphtherocome pallidula Hreblay & Plante, 1998

(Plate 2, Fig. 5, Plate 29, Fig. 33; gen. fig. 4)

Diphtherocome pallidula Hreblay & Plante, 1998, *Esperiana* **6**: 111, pl. E, fig. 31; gen. fig. 42. Type-locality: China, Tibet, 10 km E of Nyemo, 3800 m. Holotype: male, in coll. HNHM.

Diagnosis. *Diphtherocome pallidula* is very similar externally to its sympatric sister-species, *D. pallida*, the main difference between them is the colouration of the thoracic pubescence: the ventral side of prothorax is blackish in *D. pallida*, pale grey in *D. pallidula*. Wingspan 35 mm.

The male genitalia of *D. pallidula* differ from those of *D. pallida* by the shorter and remarkably wider valva, the more distally positioned harpe, the much weaker carinal spine-brush and the longer distal cornuti field of the vesica; from *D. secreta* by the broader valvae, weaker spinulose carinal plate and the

shorter, less Y-shaped distal cornuti field of vesica; from *D. robusta* and from *D. mixta* by the broader valvae, and the longer, stronger, more Y-shaped distal cornuti field of vesica; from *D. robusta* also by the much weaker spinulose carinal plate (see the gen. figs 1–6). The female is still unknown.

Distribution. Southern Tibetan. The only known specimen was found in the valley between Lhasa and Xigaze (Shigatse) in China, in the midsummer period (17.VIII.1996).

Diphtherocome robusta Hreblay & Kononenko, 1999

(Plate 2, Figs 6–8, Plate 30, Figs 1–16; gen. fig. 5)

Diphtherocome robusta Hreblay & Kononenko, 1999, *Esperiana* **7**: 676, pl. 22, figs 9–10. Type-locality: [China, Prov. Yunnan] "Li-kiang, ca 4000 m, Prov. Nord Yuennan". Holotype: male, in coll. ZFMK.

Diagnosis. *Diphtherocome robusta* is a sympatric sister-species of *D. mixta*. The two twin-species are very similar externally and though the wing pattern is somewhat more extensive in *D. robusta* than in *D. mixta*, the forewing ground colour is deeper emerald-green and *D. robusta* is on average somewhat smaller in size (wingspan 32–40 mm vs 38–41 mm, respectively), the proper identification usually requires the study of the genitalia. The sympatrically occurring populations of *D. pallida* can be distinguished from *D. robusta* and *D. mixta* by their stronger, more prominent whitish definition of the crosslines.

The main difference in the male genitalia of *D. robusta* and *D. mixta* can be found in the structure of the carinal spinulose ring which is much stronger and denser in *D. robusta*, in addition, the juxta is smaller and the harpe is shorter than in *D. mixta*.

In the female genitalia, the antrum of *D. robusta* is broader and shorter than in *D. mixta*, the ductus bursae is wider and the appendix bursae is broader, more quadrangular, with less anteriorly extended sclerotisation.

The differences between the genitalia of *D. robusta* and the southern Himalayan relatives are discussed under the Diagnoses of *D. pallida, D. secreta* and *D. pallidula*.

Distribution. Eastern Tibetan. The species is known from Sichuan and Yunnan, inhabiting the higher forest region between 2600–3300 m altitudes; a few specimens, including the holotype, were collected at ca 4000 m a.s.l. Univoltine summer species, the moths are on the wing from the end of May to the beginning of August.

Diphtherocome mixta Hreblay & Kononenko, 1999

(Plate 2, Figs 2–4, Plate 29, Figs 34–40; gen. fig. 6)

Diphtherocome mixta Hreblay & Kononenko, 1999, *Esperiana* **7**: 674, pl. 22, figs 7–8. Type-locality: [China, Prov. Yunnan] "Li-kiang, ca 4000 m, Prov. Nord Yuennan". Holotype: male, in coll. ZFMK.

Diagnosis. *Diphtherocome mixta* can be distinguished externally from its sister-species, *D. robusta*, by its paler green ground colour and finer blackish markings; from *D. pallida* by the weaker white definition of the crosslines. Wingspan 38–41 mm.

The male genitalia of *D. mixta* differ from those of *D. robusta* mostly by the much weaker, practically smoothly sclerotised carinal ring; the carinal plate of *D. mixta* is less spinulose than in the other externally similar relatives. Another, smaller differences between *D. mixta* and *D. robusta* are the broader cucullus (with shorter apical and subapical processes), the somewhat longer harpe and the smaller distal cornuti field in the vesica of *D. mixta*.

In the female genitalia, the characteristically subconical appendix bursae distinguishes *D. mixta* from all close relatives. The quadrangular antrum of *D. mixta* is narrower and longer than in *D. robusta*, and the ductus bursae is also longer and thinner.

Distribution. Eastern Tibetan. The species is known from the eastern bordering mountains of the Tibetan plateau in Sichuan and Yunnan. *Diphtherocome mixta* lives in the high altitude forest belts, between 3000–4000 m altitudes. Univoltine summer species, the moths fly in July-August.

Diphtherocome laevis Warren, 1907 **stat. rev.**

(Plate 3, Figs 1–2, Plate 30, Figs 17–24; gen. fig. 7)

Diphtherocome pallida ab. *laevis* Warren, 1907, *in* A. Seitz, *Die Gross-Schmetterlinge der Erde* **3**: 11, fig. 2b. Type-locality: China ("West China") Sichuan, Siao-lou. Lectotype: male, here designated, in coll. NHMW.

Synonymy

Diphtherocome diverticulata Hreblay & Kononenko, 1999, *Esperiana* **7**: 673, pl. 22, figs 5–6. Type-locality: [China, Prov. Yunnan] "Li-kiang, ca 4000 m, Prov. Nord Yuennan". Holotype: male, in coll. ZFMK; **syn. n.**

Lectotype designation. Lectotype: male, [China] «Chasseurs Thibétains de Ta-Tsien-Lou, Eté 1894, reçu du R.P. Dejean»; slide No. RL12138m (coll. NHM Vienna).

Diagnosis. *Diphtherocome laevis* differs externally from its close relatives, *D. robusta* and *D. mixta* by the longer pectination of the male antenna, the more elongated forewings with more unicolorous green ground colour, weaker, finer black pattern, more reduced dark dots of subterminal line and the less prominent whitish definition of postmedial line. Wingspan 35–44 mm.

The male genitalia of *D. laevis* differ from those of the other species of the *D. pallida*-group by the very long subterminal diverticulum of vesica and the completely divided, small bundles of cornuti of the distal cornuti field which is unified and rather Y-shaped in the above-mentioned relatives.

In the female genitalia, the antrum of *D. laevis* is narrower and shorter than in *D. robusta* and *D. mixta*, and the sclerotised section of the posterior part of bursa copulatrix is remarkably larger, more extended into the corpus bursae than in the two related taxa.

Distribution. Eastern Tibetan. The species is known from the eastern frontier of the Tibetan plateau. The species lives in the higher forest regions (between 2600–4000 m altitudes) in Sichuan and Yunnan. Univoltine species, the adults appear earlier in the year than the related species; the moths are on the wing from the end of April to the end of June.

Diphtherocome fasciata (Moore, 1888)

(Plate 3, Figs 3–4, Plate 30, Figs 25–32; gen. fig. 8)

Diphthera fasciata Moore, 1888, *Proceedings of the Zoological Society of London* **1888**: 408. Type-locality: [India] Punjab, Laka. Holotype: female, in coll. BMNH.

Diagnosis. *Diphtherocome fasciata* differs externally from all closely related species by its paler green forewings with very fine and less extended black pattern. It can be distinguished from the externally most similar *D. trimaculata* by its somewhat larger size (wingspan 34–41 mm vs 34–38 mm), more elongated forewings and better defined crosslines; from *D. serrata* by the absence of the black markings of the median area.

The male genitalia of *D. fasciata* are most similar to those of *D. hoenei* having long and distally evenly tapering valva with simple, acute apex, but the ampulla is finer, more wedge-shaped, the juxta is shorter and more rounded, and the cornuti fields of the vesica are considerably smaller, weaker than in *D. hoenei.*

In the female genitalia, the antrum of *D. fasciata* is generally smaller, narrower and shorter than in *D. hoenei*, the ductus bursae is longer and thinner, the appendix bursae is shorter and subconical and the posterior sclerotisation of the bursae is much shorter and weaker than in its close relative.

Distribution. Southern Himalayan. The species is widespread in the medium-high and higher forest belts of the southern Himalayan chains (between 2000–3200 m a.s.l.), from Himachal Pradesh to eastern Nepal and Sikkim. Supposedly univoltine with rather long flight period: the moths fly from the beginning of May to the end of July.

Diphtherocome hoenei Hreblay & Kononenko, 1999

(Plate 3, Figs 5–8, Plate 30, Figs 33–40, Plate 31, Figs 1–8; gen. fig. 9)

Diphtherocome hoenei Hreblay & Kononenko, 1999, *Esperiana* **7**: 671, pl. 22, figs 1–2. Type-locality: [China, Prov. Shaanxi] "Tapaishan im Tsinling, Sued-Shensi, ca 1700 m". Holotype: male, in coll. ZFMK.

Synonymy

Diphtherocome hoenei likianga Hreblay & Kononenko, 1999, *Esperiana* **7**: 672, pl. 22, figs 3–4. Type-locality: [China, Prov. Yunnan] "Li-kiang ca 4000 m, Prov Nord Yuennan". Holotype: male, in coll. ZFMK; **syn. n.**

Diagnosis. *Diphtherocome hoenei* is a strongly dimorphic species, with a number of other but rare intermediate forms. It differs externally from all related species by its different forewing pattern, in case of the f. *likianga* also by the large orange-brownish patches of the green forewings which are missing from all other taxa of the genus.

The male genitalia of *D. hoenei* are most similar to those of *D. fasciata* with the long and distally evenly tapering valva, but the cucullus is even more elongated and terminated in a single, acute tip, the ampulla is broader and usually apically bifurcate, the juxta is longer, rather shield-like, and the cornuti fields of the vesica are considerably larger than in *D. fasciata.*

In the female genitalia, the antrum of *D. hoenei* is larger than in *D. fasciata*, more quadrangular, the ductus bursae is shorter and broader, the appendix bursae is larger, rather quadrangular and the posterior sclerotisation of the bursae is remarkably stronger and more extended towards the medial section of the bursa copulatrix than in its close relative.

Distribution. Sino-Tibetan. The species is found along the eastern frontier of the Tibetan plateau, from Yunnan to the Central Chinese mountains.

Diphtherocome kuni Hreblay & Ronkay, 1999

(Plate 4, Figs 1–3, Plate 31, Figs 9–16; gen. fig. 10)

Diphtherocome kuni Hreblay & Ronkay, 1999, *Esperiana* **7**: 564, pl. 21, figs 150–151. Type-locality: Vietnam, Prov. Lao Cai, Fansi-pan Mts, 14 km NW of Sa Pa, 1900 m, 22°21'N, 103°46'E. Holotype: male, in coll. HNHM.

Synonymy

Diphtherocome xichangae Gyulai, Ronkay & Ronkay, 2014, *Esperiana* **19**: 187, pl. 1, figs 1–2, gen. figs 1–2. Type-locality: China, S Sichuan, 20 km S of Xichang, 3000 m. Holotype: male, in coll. P. Gyulai (Miskolc); **syn. n.**

Diagnosis. *Diphtherocome kuni* can be distinguished from the externally most similar *D. laevis* by its smaller size (wingspan 33–37 mm vs 35–44 mm), less basally projecting antemedial line, and less sinuous postmedial line with smaller projection towards the marginal field.

The specific autapomorphies of the male genitalia of *D. kuni* are the long, flattened and slightly twisted apical process of valva (the true valval apex is reduced, the subapical ventral process appears as apex), the long and flattened, elliptical-lanceolate harpe, the short and flat, rather scale-like spinules of the carinal spinulose ring and the two remotely arranged subbasal cornuti fields. The other smaller differences are, in comparison with *D. laevis*, the higher, evenly broad juxta, the longer and terminally broadened editum, the differently shaped and shorter subterminal diverticulum of the vesica, armed by much shorter (ca. half-sized) cornuti fields.

The female genitalia of *D. kuni* differ from those of *D. laevis* by the smaller appendix bursae and the longer and narrower sclerotised area extending further towards fundus bursae.

Distribution. The species has two known populations which are considered here as taxonomically identical. The typical population occurs in northern Vietnam (Fansipan area, Hoang Lien National Park), the northern one lives at the south-eastern frontier of the Tibetan plateau in China (Prov. Sichuan, Xichang area). The typical population inhabits montane broad-leaved and mixed forests at medium-high altitudes (1600–2000 m). The known specimens were collected in the summer period (June-August). The Chinese population is known actually only from the type locality of *xichangae* where it lives in a medium-high altitude forest region (ca 3000 m a.s.l.).

Diphtherocome bigu Hreblay & Ronkay, 1999

(Plate 4, Figs 5–6, Plate 31, Figs 17–18; gen. fig. 11)

Diphtherocome bigu Hreblay & Ronkay, 1999, *Esperiana* **7**: 566, pl. 21, fig. 152. Type-locality: Nepal, Rolwaling Himal, Kalinchok Mt., 5 km W of Bigu, 2300 m. Holotype: male, in coll. HNHM.

Diagnosis. *Diphtherocome bigu* and *D. brevipennis* represents a pair of closely related species, being rather transitional between the *D. pallida-* and the *D. vivida* species-groups. *Diphtherocome bigu* differs externally from *D. brevipennis* by its stronger, sharper defined dark markings, with more laced and more whitish defined postmedial line and well-developed dark dots of terminal line, smaller dark patches between orbicular and reniform stigmata and between claviform stigma and postmedial line, and the less prominent ochreous-brown to hazel-brown suffusion in the basal field and between postmedial and subterminal lines. It is smaller and markedly more ochreous-yellowish shaded dark green (faded into deep orange-yellow) than the externally most similar *D. secreta* and *D. pallida* (wingspan 30–36 mm), the forewings are narrower and more pointed triangular than in the latter two species and the brown suffused basal and inner marginal fields are remarkably darker than the other parts of the wing.

The male genitalia of *D. bigu* differ from *D. brevipennis* by the longer and narrower juxta, the more acute harpe, and the smaller subterminal cornuti field; from those of the other taxa of the *D. vivida*-group by the broader, medially more dilated valva with less subapically positioned harpe, and the shorter and broader, less V-shaped subterminal cornuti field; from those of the members of the *D. pallida* species-group by the shortened valvae with truncated (rather fish-tail-shaped) apex, less subapically positioned and more cuneiform harpe and the almost smooth, only laterally somewhat spinulose carina penis.

The female genitalia of *D. bigu* (see the fig. 226 in Hreblay & Ronkay 1999) can be distinguished from those of *D. brevipennis* by the broader but shorter antrum and the somewhat shorter, posteriorly broader and more funnel-like ductus bursae; from those of *D. kuni* by the narrower and more trapezoidal, proximally tapering antrum, anteriorly more constricted and longer ductus bursae and the much smaller sclerotised area of appendix and corpus bursae; from those of *D. secreta* by the smaller and more trapezoidal antrum, longer and anteriorly thinner ductus bursae and narrower sclerotised area of corpus bursae.

Distribution. Southern Himalayan. The species is known from a relatively small area in Central and eastern Central Nepal (Ganesh Himal, Kalinchok area). It lives in the medium-high and high forest belts (2300–3800 m). A supposedly univoltine species, the moths appear at the end of the spring (mid-May) and are on the wing until the mid-July.

Diphtherocome brevipennis (Hampson, 1909)

(Plate 4, Figs 7–8, Plate 31, Figs 19–24; gen. fig. 12)

Daseochaeta brevipennis Hampson, 1909, *Catalogue of the Lepidoptera Phalaenae in the British Museum* **8**: 27, pl. 123, fig. 21. Type-locality: [India] Sikkim, Yatong. Lectotype: male, in coll. BMNH.

Diagnosis. *Diphtherocome brevipennis* differs from its close relative, *D. bigu*, by its on average somewhat smaller size (wingspan 28–36 mm), more unicolorous median and marginal areas and more darkened (ochreous- or reddish brown suffused) basal field and inner half or marginal area, more diffuse and paler whitish subterminal line, larger blackish patches between orbicular and reniform stigmata and between claviform stigma and postmedial line and reduced dark terminal dots.

The male genitalia of *D. brevipennis* are similar to those of *D. bigu* but have larger, broader, more rectangular juxta and much larger subterminal cornuti field of vesica. These two species have, in comparison with the other members of the *D. vivida* species-group, medially broader valvae, more subapically positioned harpe, and shorter and more inflated vesica with short and dense, rather Y-shaped subterminal cornuti field.

The female genitalia of *D. brevipennis* can be distinguished from those of *D. bigu* by the narrower and longer trapezoidal antrum and longer, posteriorly less dilated, less funnel like distal section of ductus bursae. The female genitalia of *D. brevipennis* are also very similar to those of the taxa of the *D. minor* species-complex but the sclerotised appendix bursae is considerably broader and more rectangular than in the related four species.

Distribution. South-eastern Himalayan. The species is known from the Kanchenjunga massif in eastern Nepal and the Indian Sikkim. It inhabits the medium-high and higher monsoonic forest regions, between 2500–3600 m altitudes. Univoltine early summer species, the adults appear in May and are on the wing to the end of June-beginning of July.

Remarks. The type-series of *D. brevipennis* (two males, 1 female) is mixed; the male paralectotype belongs to *D. pallidipennis*.

Diphtherocome pseudovivida Hreblay & Ronkay, 1999

(Plate 5, Figs 3–4, Plate 31, Figs 35–36; gen. fig. 13)

Diphtherocome pseudovivida Hreblay & Ronkay, 1999, *Esperiana* **7**: 567, pl. 21, figs 155–156. Type-locality: East Nepal, Deorali Danda, Torontan, 3200 m. Holotype: male, in coll. HNHM.

Diagnosis. This curious species is known by its male holotype and a female paratype only. It resembles externally to the members of the *D. pallida* species-group but the male genitalia structures undoubtedly show its close relationship with the *D. vivida* species-group. The type-specimens appear as small specimens of *D. secreta* but the postmedial crossline is somewhat more laced-crenellate and the black crosslines are slightly broader, more diffuse. *Diphtherocome pseudovivida* differs externally from *D. vivida* by its more unicolorous and paler emerald-green forewings with much stronger black markings, differently shaped orbicular and reniform stigmata, well-developed terminal black dots and outer spots of the fringes while the brown suffusion is absent from the basal area and the outer side of postmedial line. Wingspan 31–33 mm.

The male genitalia of *D. pseudovivida* shows the typical features of the *D. vivida*-group, differing from *D. bigu* and *D. brevipennis* by the longer and more acute apical process, the more medially positioned and more acutely pointed harpe and the stronger, denser, V-shaped subterminal cornuti field; from those of the other members of the lineage by the somewhat (or sometimes considerably) shorter valvae, and the broader vesica with more ample semiglobular subbasal diverticulum armed by more numerous cornuti and the broader, more dense V-shaped subterminal cornuti field.

The female genitalia of *D. pseudovivida* differ from those of the other species of the *D. vivida*-group by the broad but short, quadrangular but not trapezoidal antrum; the ductus bursae is shorter and broader

than in the members of the *D. minor* species-complex while the sclerotised section of appendix and corpus bursae is much smaller than in *D. vivida* and *D. trimaculata*. Finally, *D. pseudovivida* has, in comparison with *D. secreta*, narrower antrum, less funnel-like posterior half of ductus bursae and considerably narrower sclerotisation in the distal part of the bursa.

Distribution. South-eastern Himalayas. The species is known only from the Kanchenjunga Himal in eastern Nepal, as the three paratypes from the Annapurna region belong in fact to *D. secreta*. Both known specimens were found in high montane monsoonic forest habitats at 3200 m altitude, in the last decade of June.

Diphtherocome vivida (Leech, 1900)

(Plate 5, Figs 1–2, Plate 31, Figs 25–34; gen. fig. 14)

Diphthera vivida Leech, 1900, *Transactions of the Entomological Society of London* **1900**: 137. Type-locality: China, Yunnan, Putsu-Fang, 9820 feet. Lectotype: male, in coll. BMNH.

Synonymy

Diphtherocome biformis Hreblay & Kononenko, 1999, Esperiana **7**: 678, pl. 22, figs 15–16. Type-locality: [China, Prov. Shaanxi] "Tapaishan im Tsinling, Sued-Shensi, ca 1700 m". Holotype: male, in coll. ZFMK; **syn. n.**

Diagnosis. *Diphtherocome vivida* is an easily recognisable species with its short and broad forewings with sharply defined, strongly sinuous-crenellate, white defined postmedial crossline. It differs from its twin species, *D. trimaculata*, by its darker green forewings with much stronger and sharper defined black crosslines.

The genitalia of *D. vivida* clearly show the close relationships with *D. trimaculata* and *D. pseudovivida*. The male genitalia of *D. vivida* differ from those of *D. trimaculata* by its more asymmetrical cucullus, thicker, apically more rounded harpe, and the more sparse subbasal and longer, finer V-shaped subterminal spinulose fields of the vesica; from those of *D. pseudovivida* by the larger, laterally more rounded, shield-like juxta, shorter apical process of cucullus, shorter and less acute harpe, and the finer, more symmetrical V-shaped subterminal cornuti field of the vesica. The valvae of *D. vivida* are proportionally broader and shorter than those of the *D. minor* species-complex, the harpe is shorter, the larger subbasal cornuti field consists of more numerous cornuti and the subterminal cornuti field is broader and more symmetrically V-shaped.

In the female genitalia, *D. vivida* differs from *D. trimaculata* by the more trapezoidal antrum, longer and proximally less dilated ductus bursae and the less extended sclerotised appendix bursae and posterior part of corpus bursae. The much larger sclerotised and posteriorly rounded area of appendix bursae and corpus bursae distinguishes *D. vivida* from the *D. minor* species-complex which have considerably narrower and more quadrangular sclerotised area in the bursa copulatrix.

Distribution. Sino-Tibetan. The species is known from the eastern frontier of the Tibetan plateau (Sichuan, Yunnan) and the Central Chinese mountains in Shaanxi. It occurs in the medium-high and higher monsoonic forest belts, between 1700–3500 m altitudes. Univoltine summer species, the adults are on the wing from the end of June to the beginning of August.

Diphtherocome trimaculata Hreblay & Kononenko, 1999 **stat. rev.**

(Plate 5, Figs 5–6, Plate 31, Figs 37–40, Plate 32, Figs 1–4; gen. fig. 15)

Diphtherocome biformis trimaculata Hreblay & Kononenko, 1999, *Esperiana* **7**: 673, pl. 22, figs 17–18. Type-locality: [China, Prov. Yunnan] "Li-kiang, ca 2000 m, Prov Nord Yuennan". Holotype: male, in coll. ZFMK.

Diagnosis. This species resembles somewhat to the southern Himalayan *D. fasciata* but has shorter, apically more rounded forewings, more vivid ochreous-greenish forewing and more continuous, more sinuous-crenellate crosslines. The genitalia of *D. trimaculata* differ conspicuously from those of *D. fasciata* in both sexes and show its close relationship with the externally rather dissimilar *D. vivida*.

The male genitalia of the two sister-species differ in the shape of the cucullus, the shape and size of the ampullar process and the armature of the vesica. *Diphtherocome trimaculata* has, comparing with *D. vivida*, more or less evenly long apical and subapical ventral processes of valval apex, slenderer and more pointed harpe, more densely spinose subbasal and more asymmetrical V-shaped subterminal cornuti fields of the vesica.

In the female genitalia, the antrum of *D. trimaculata* is more quadrangular than in *D. vivida*, the ductus bursae is shorter and proximally more dilated, and the sclerotised posterior section of bursa copulatrix is larger, the appendix bursae is more extended.

Distribution. Sino-Tibetan. *Diphtherocome trimaculata* occurs sympatrically and syntopically with its sister-species, *D. vivida*; their phaenological data are also overlapping.

Diphtherocome pallidipennis Hreblay & Ronkay, 1999

(Plate 5, Figs 7–8, Plate 32, Figs 5–14; gen. fig. 16)

Diphtherocome pallidipennis Hreblay & Ronkay, 1999, *Esperiana* **7**: 567, pl. 21, figs 155–156. Type-locality: East Nepal, Chagam, 2500–2700 m. Holotype: male, in coll. HNHM.

Diagnosis. The *D. minor* species-complex includes altogether four species, *D. pallidipennis*, *D. minor*, *D. petrichkarolyi* and *D. longivalva*. This species-complex comprises small-sized and short-winged species with unicolorous green ground colour and rather simple forewing pattern. The group features of the male genitalia are the elongated valvae with slender, usually pointed and rather medially positioned harpes, the well-developed, semiglobular subbasal ventral diverticulum bearing a smaller number of spiniform cornuti and the strongly asymmetrical V-shaped subterminal cornuti field, with a variably long intermediate spinulose field between its arms; those of the female genitalia are the trapezoidal antrum with straight or slightly rounded posterior edges, the relatively long and thin, sclerotised ductus bursae, the rather narrow sclerotised distal section of bursa copulatrix with conical or subconical appendix bursae.

Diphtherocome pallidipennis is the on average smallest member of this lineage with its wingspan 27–32 mm. Its ground colour is pale green as in *D. longivalva* but paler than in *D. minor* and *D. petrichkarolyi*. It differs from the former species by the more deeply outcurved and more sinuous medial section of postmedial line and the paler, not brownish irrorated hindwings; from the latter two (Chinese) relatives, besides the paler ground colour, by its more obliquely running lower third of postmedial line, the smaller black patches of the medial area and the weaker dark outlines of the stigmata.

The male genitalia of *D. pallidipennis* differ from those of the other three relatives by its obtuse valval apex without prominent apical and subapical peaks, the remarkably shorter and less pointed harpe, and the larger and more semiglobular subbasal diverticulum armed by more spiniform cornuti; from those of *D. petrichkarolyi* and *D. longivalva* also by the shorter distal spinulose field between the arms of the V-shaped subterminal cornuti field.

In the female genitalia, *D. pallidipennis* has broader but shorter, more trapezoidal antrum than in *D. minor* and *D. petrichkarolyi*, the ductus bursae is proportionally shorter, and the appendix bursae is more elongated, more conical than that of *D. minor* but shorter and less pointed than that of *D. petrichkarolyi*.

Distribution. Southern Himalayan. The species occurs in the eastern parts of the southern Himalayan chain, from the Annapurna region in Central Nepal to the Indian Sikkim. It lives in the medium-high and higher monsoonic forest belts, between 2500–3600 m altitudes. Univoltine midsummer species, the flight period extends from mid-June to the beginning of August.

Diphtherocome minor Warren, 1907 **stat. rev.**

(Plate 6, Figs 1–2, Plate 32, Figs 15–24; gen. fig. 17)

Diphtherocome pallida ab. *minor* Warren, 1907, *in* A. Seitz, *Die Gross-Schmetterlinge der Erde* **3**: 11, no figure published. Type-locality: [China, Prov. Yunnan] "Pu-tsu-fu, W China, 8–10000 feet". Lectotype: male, here designated, in coll. BMNH.

Synonymy

Daseochaeta metaphaea Hampson, 1909, *Catalogue of the Lepidoptera Phalaenae in the British Museum* **8**: 23, pl. 123, fig. 19. Type-locality: [China, Prov. Yunnan] "West China", Pu-tsu-Fang, 9820 feet, VI–VII.1890. Lectotype, male, in coll. BMNH; **syn. n.**

Lectotype designation. Lectotype of *Diphtherocome pallida* ab. *minor*, male, "Pu-tsu-fu, W China, 8–10000 feet, June 90"; "ab. minor Warr." (with the handwriting of Warren); "Rothschild Bequest B.M. 1939-I."; "R" (orange label); "Type" (red ring label); "BMNH (E) 1688757"; coll. BMNH.

Diagnosis. *Diphtherocome minor* is a sympatric sister-species of *D. petrichkarolyi*. The two closely related species are easily separable by their external and genital features as well. *Diphtherocome minor* is generally darker than its twin-species, having somewhat darker green forewings with much stronger and broader blackish defined antemedial and postmedial crosslines, and dark brown suffused hindwings. This dark hindwing distinguishes *D. minor* from the milky-whitish hindwings *D. pallidipennis* and the somewhat grey-brown suffused hindwings of *D. longivalva*. Wingspan 29–34 mm.

The male genitalia of *D. minor* differ from those of *D. petrichkarolyi* and *D. longivalva* by the shorter and basally broader harpe, the smaller number of cornuti of the subbasal ventral diverticulum and the considerably shorter intermediate spinulose field in the distal part of vesica; from those of *D. pallidipennis* by the pointed apical and subapical processes, the considerably longer and more acute harpe and the smaller subbasal ventral diverticulum bearing much less spiniform cornuti.

Distribution. Sino-Tibetan. The species lives in the high mountains bordering the south-eastern edge of the Tibetan plateau in China (Sichuan, Yunnan). It is one of the typical members of the higher montane monsoonic forest regions, between 2800–3200 m altitudes. Univoltine summer species, the flight period of the adults extends from June to August.

Diphtherocome petrichkarolyi **sp. n.**

(Plate 6, Figs 3–4, Plate 32, Figs 25–34; gen. fig. 18)

Holotype: male, China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14–19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay).

Paratypes. China, Sichuan. 8 males, 11 females, with the same data as the holotype; slide Nos RL12175m (male), RL12171f (female) (coll. G. Ronkay and HNHM).

Diagnosis. *Diphtherocome petrichkarolyi* occurs sympatrically with its close relatives, *D. minor* and *D. longivalva*. The new species can be distinguished from *D. minor* by its more vivid emerald-green forewing ground colour, weaker blackish definition of the antemedial and postmedial crosslines, the shorter black streak between the white-tipped claviform stigma and the postmedial line and the much paler, milky-ochreous or milky-white hindwings. Its ground colour is brighter and deeper green than that of *D. longivalva*, the dark forewing markings are remarkably stronger, the medial curve of postmedial line is stronger, deeper and more sinuous, the lower half of postmedial line is almost straight, not angled obliquely outwards as in *D. longivalva*, last but not least, the hindwings are lighter, lacking the brownish irroration which is typical of *D. longivalva*. Wingspan 31–33 mm.

In the male genitalia, the new species has, comparing with those of *D. minor*, longer and slenderer, more acutely pointed harpe, larger number of spiniform cornuti on the subbasal ventral diverticulum of the vesica and the much longer and stronger intermediate spinulose field between the arms of the strongly asymmetrical V-shaped subterminal cornuti field. The valvae of *D. petrichkarolyi* are somewhat shorter and distally less tapering than those of *D. longivalva*, the harpe is somewhat shorter and slenderer, the

juxta is broader but shorter, more quadrangular, the subbasal ventral diverticulum is armed by a smaller number of cornuti and the intermediate spinulose field in the distal part of vesica is stronger, longer.

The female genitalia of *D. petrichkarolyi* differ from those of *D. minor* by the somewhat shorter antrum with slightly concave posterior margin, the longer ductus bursae, the prominently conical appendix bursae and the irregularly arcuate anterior edge of the sclerotised area of bursa copulatrix; from those of *D. longivalva* by the longer and proximally more tapering antrum, the narrower ductus bursae and the longer, more pointed conical appendix bursae.

Distribution. Sino-Tibetan. The new species is known from the type-locality (Gongga Shan region in China, Sichuan) only. It occurs in the high montane monsoonic forest belt, at ca 2800–3000 m altitudes. The specimens of the type series were collected in the midsummer period.

Etymology. The species is dedicated to the memory of our friend, Mr Károly Petrich, enthusiastic Hungarian entomologist, explorer of the Carpathian Lepidoptera fauna.

Diphtherocome longivalva Hreblay & Kononenko, 1999

(Plate 6, Figs 5–6, Plate 32, Figs 35–37; gen. fig. 19)

Diphtherocome longivalva Hreblay & Kononenko, 1999, *Esperiana* **7**: 677, pl. 22, figs 13–14. Type-locality: [China, Prov. Yunnan] "Li-kiang, ca 4000 m, Prov Nord Yuennan". Holotype: male, in coll. ZFMK.

Diagnosis. *Diphtherocome longivalva* is a poorly known species, only a few specimens are present in the collections. It has the most simplified forewing pattern within the members of the *D. minor* species-complex; differing externally from all three related taxa by the shallow and less sinuous medial curve of postmedial line; from *D. pallidipennis* and *D. petrichkarolyi* also by the brownish suffusion of the hindwing which is less extensive and dense than in *D. minor*. Wingspan 30–34 mm.

In the male genitalia, *D. longivalva* has the longest valva and harpe, and the narrowest juxta within the *D. minor* species-complex; in the female genitalia, the antrum of *D. longivalva* is proximally less tapering, and the posterior part of ductus bursae is broader than in the other related species. The shape of the appendix bursae is different in the three close relatives, that of *D. longivalva* is less conical than in *D. petrichkarolyi* but less quadrangular than in *D. minor*.

Distribution. Sino-Tibetan. The species is known from Sichuan and Yunnan, from between 2800–4000 m altitudes. It is supposedly univoltine; the few known (rather worn) specimens were collected in July-August.

Diphtherocome serrata Hreblay & Kononenko, 1999

(Plate 6, Figs 7–8, Plate 32, Figs 38–43; gen. fig. 20)

Diphtherocome serrata Hreblay & Kononenko, 1999, *Esperiana* **7**: 676, pl. 22, figs 11–12. Type-locality: [China, Prov. Yunnan] "Li-kiang, ca 4000 m, Prov. Nord Yuennan". Holotype: male, in coll. ZFMK.

Diagnosis. The position of the species within the genus is still debatable. The external appearance and the clasping apparatus show closer affinity of *D. serrata* with *D. fasciata* but the unusual configuration of the vesica and the differently sclerotised (roughly scobinate) posterior part of corpus bursae distinguish the species from all other known members of *Diphtherocome*. Thus, it is tentatively placed here into a distinct species-group.

Diphtherocome serrata differs from the externally most similar *D. fasciata* and *D. hoenei* by the shortly serrate male antenna, the almost unicolorous vivid green forewings with fine but strong black noctuid pattern, the less sinuous postmedial line, the stronger black patches in the medial area, etc. Wingspan 34–40 mm.

The specific autapomorphy of the male genitalia is the very broad, ample, inflated vesica oriented perpendicular to the axis of the aedeagus. The large subbasal diverticulum armed by a large number of short spines, the other subbasal cornuti field is positioned medially, while the subterminal cornuti field consists of two short, parallel stripe-like spinulose fields. The juxta is remarkably smaller and narrower than in *D. fasciata* and *D. hoenei*, and the cucullus is broader, more regularly triangular than in the other two relatives.

The female genitalia of *D. serrata* differ from those of *D. fasciata* and *D. hoenei* by the shorter antrum, the longer and broader, rather straight ductus bursae, the more elongated conical appendix bursae and the characteristic reticulate and roughly scobinate sclerotisation of the posterior part of corpus bursae.

Distribution. Sino-Tibetan. The species is known from Yunnan and Sichuan, from the higher monsoonic forest regions of the south-eastern frontier of the Tibetan plateau. An early summer species, the adults appear at the beginning of May and are on the wing until the end of July.

Genus *Vigentinocome* gen. n.

Type-species: *Diphthera vigens* Walker, 1865, here designated.

Diagnosis. The genus includes four, externally rather dissimilar groups of species which are unified by certain features of the genitalia of both sexes, and the similar life history of the adults, therefore these lineages are considered as subgenera of the common genus, *Vigentinocome*.

The common features of the male clasping apparatus are the sclerotized juxta with basal plate cordiform, apical part quadrangular with fine medial incision, the long, narrow valva with parallel margins, the long, sclerotized sacculus, the medially (not subapically) positioned ampulla, the large hairy field at place of editum. The most characteristic feature of the genus is the configuration of the aedeagus and the vesica. The aedeagus is medium-long, cylindrical, the vesica is membranous, broadly tubular, dorsal surface finely scobinate basally, medial part with a conical dorsal diverticulum terminated in a small bundle of short but strong spinules and with a small, semiglobular ventral diverticulum armed with a few fine spiculi; lateral spinulose field rounded, consisting of rather short, strong, broad-based spinules.

The female genitalia of *Vigentinocome* are characterised by the relatively long and conical ovipositor with fine, elongated-triangular papillae anales (the ovipositor of *Diphtherocome* is remarkably shorter, the papillae are also shorter, more quadrangular), long and rather slender, infundibular antrum with variably deep posterior cleft, the long, flattened-tubular, partly cristate-ribbed ductus bursae, the small, semiglobular-subconical appendix bursae and the elliptical-rounded, membranous corpus bursae.

Distribution. Himalayan-Sino-Pacific. The species inhabit the medium-high and higher monsoonic forest regions.

***Vigentinocome* gen. n.**
Type-species: *Diphthera vigens* Walker, 1865

***Vigentinocome* subgen. n.**
Type-species: *Diphthera vigens* Walker, 1865

vigens (Walker, 1865) **comb. n.**
daliangi (Hreblay & Ronkay, 1999) **comb. n.**
viridissima (Hreblay & Ronkay, 1999) **comb. n.**

***Chrysocome* subgen. n.**
Type-species: *Nyctycia thaumasia* Hreblay & Ronkay, 1998

chloronympha (Hreblay, Peregovits & Ronkay, 1999) **comb. n.**
thaumasia (Hreblay & Ronkay, 1998) **comb. n.**
peregovitsi (Gyulai, Ronkay & Ronkay, 2014) **comb. n.**
chrysochlora (Hampson, 1898) **comb. n.**
chrysochlora thainympha (Hreblay & Ronkay, 1999), **stat. n.**, **comb. n.**

***Criocome* subgen. n.**
Type-species: *Diphtherocome impectinata* Hreblay, Peregovits & Ronkay, 1999

impectinata (Hreblay, Peregovits & Ronkay, 1999) **comb. n.**
nepalichlora (Hreblay & Ronkay, 1999) **comb. n.**
nanlingi (Gyulai, Ronkay & Ronkay, 2014) **comb. n.**
autumnalis (B.S. Chang, 1991) **comb. n.**

***Bryochlorome* subgen. n.**
Type-species: *Diphtherocome bryochlora* Hreblay, Peregovits & Ronkay, 1999

bryochlora (Hreblay, Peregovits & Ronkay, 1999) **comb. n.**

Subgenus *Vigentinocome* subgen. n.

Type-species: *Diphthera vigens* Walker, 1865, here designated.

Diagnosis. The species of the subgenus *Vigentinocome* are often similar externally to the taxa of the genus *Diphtherocome* and are distinguished by the presence of the abdominal brush organs of the males which are absent in all *Diphtherocome* species (and certain members of the subgenera *Chrysocome, Criocome* and *Bryochlorome*), the shorter pectination of the male antenna, and by the features of the genitalia which are listed in the Diagnosis of the genus.

The diagnostic features of the male genitalia, in comparison with the subgenera *Chrysocome* and *Criocome*, are as follows: valva strongly dilated distally, the apical costal process is much stronger and straighter, the cucullus is broadly quadrangular with laced or rounded margins, and the ampullar process is more medially positioned, oblique, projecting backwards to basal part of valva and fully recurved-hooked.

In the female genitalia, the antrum of the subgenus *Vigentinocome* is shorter than (or more or less equal in length) in the taxa of *Chrysocome* and longer than those of *Criocome*, the ductus bursae is broader and stronger, and the posterior part of corpus bursae is much stronger sclerotised than in *Chrysocome* and *Criocome*.

Distribution. Himalayan-Indo-Chinese. The species of the subgenus have late-summer-early autumnal adults; the taxa of the other three subgenera are typical members of the Himalayan winter fauna.

Vigentinocome (Vigentinocome) vigens (Walker, 1865) **comb. n.**

(Plate 7, Figs 1–2, Plate 32, Figs 44–48; gen. fig. 21)

Diphthera vigens Walker, 1865, *List of the specimens of Lepidopterous Insects in the collection of the British Museum* **32**: 616.
Type-locality: [India, Sikkim] Darjeeling. Holotype: male, in coll. BMNH.

Diagnosis. *Vigentinocome (V.) vigens* is the westernmost member of the *V. (V.) vigens*-complex. It differs externally from the two related taxa by its pale ochreous-whitish suffused inner area of the hindwing and the broader forewings. Wingspan 33–36 mm.

The male genitalia of *V. (V.) vigens* are easily separable from those of *V. (V.) daliangi* and *V. (V.) viridissima* by the much longer medial diverticulum of the vesica; the apical costal process is long and straight and the cucullus is differently shaped: the ventral margin is straight and proximally angulate.

The female genitalia of *V. (V.) daliangi* differ from those of both closely related species by the much weaker and less extended, practically not ribbed-cristate sclerotisation of the posterior (caudal) section of corpus bursae and appendix bursae; in addition, the antrum is longer and more calyciform, medially more constricted than in *V. (V.) vigens*.

Distribution. South-eastern Himalayan. The species is known from eastern Nepal (Kanchenjunga Himal) and the Indian Sikkim.

Vigentinocome (Vigentinocome) daliangi (Hreblay & Ronkay, 1998) **comb. n.**

(Plate 7, Fig. 5, Plate 32, Fig. 49; gen. fig. 22)

Diphtherocome daliangi Hreblay & Ronkay, 1998, *Esperiana* **6**: 111, pl. E, fig. 32; gen. figs 43–44. Type-locality: China, Sichuan, 30 km W of Xide city, 1700 m. Holotype: male, in coll. HNHM.

Diagnosis. *Vigentinocome (V.) daliangi* can be considered as a north-eastern sibling species of the southern Himalayan taxa of the *V. (V.) vigens*-complex. It differs externally from the two related taxa by its darker suffused inner area of the hindwing. Wingspan 36 mm.

The male genitalia of *V. (V.) daliangi* are easily separable from those of *V. (V.) vigens* by the much shorter medial diverticulum of the vesica; the apical costal process is shorter than in the other two species and the cucullus is differently shaped: it is broader than in *V. (V.) viridissima* but the ventral margin is less evenly concave but not straight and proximally angulate as in *V. (V.) vigens*.

Distribution. Sino-Tibetan. The species is known from Sichuan and Shaanxi.

Vigentinocome (Vigentinocome) viridissima (Hreblay & Ronkay, 1999) **comb. n.**

(Plate 7, Figs 3–4, Plate 33, Figs 1–8; gen. fig. 23)

Diphtherocome viridissima Hreblay & Ronkay, 1999, *Esperiana* **7**: 564, pl. 21, fig. 161. Type-locality: Vietnam, Prov. Lao Cai, Fan-si-pan Mts, 14 km NW of Sa Pa, 1900 m, 22°21'N, 103°46'E. Holotype: male, in coll. HNHM.

Diagnosis. *Vigentinocome (V.) viridissima* is similar externally to its close relatives but has somewhat more pointed forewings with deeper emerald green ground colour, broader and more distinctly brownish-greyish shaded are between postmedial and subterminal crosslines, and the hindwing is somewhat darker with stronger brownish irroration in the basal part of the wing and more dense brown marginal area. Wingspan 32–35 mm.

The male genitalia of *V. (V.) viridissima* differ from those of *V. (V.) vigens* by the narrower valva, the less dilated, apically and ventro-laterally more rounded (not laced-crenellate) cucullus, the shorter diverticulum and the larger, more rounded medial cornuti field of the vesica; from those of *V. (V.) daliangi* by their remarkably narrower valva, longer apical process, more rounded cucullus, slenderer harpe, smaller, more cordiform juxta, and the larger medial cornuti field of the vesica.

The female genitalia of *V. (V.) viridissima* differ from those of *V. (V.) vigens* by the longer, more calyciform, medially more constricted and posteriorly more concave antrum, and the much longer and more ribbed-cristate sclerotised posterior (caudal) section of corpus bursae and appendix bursae.

Distribution. Indo-Chinese. The species is known only from the Fan-si-pan Mts (Hoang Lien National Park) and from Yen Bai; it occurs possibly also in other high mountainous regions of Northern Vietnam. The moths inhabit the higher virgin broad-leaved forests between 1900–2250 m altitudes; the adults are on the wing in from the end of August to the beginning of October.

Subgenus *Chrysocome* subgen. n.

Type-species: *Nyctycia thaumasia* Hreblay & Ronkay, 1998, here designated.

Diagnosis. The subgenus is defined by the well-developed apical process and the triangular subapical pollex-like lobe, the long and straight or somewhat arcuate harpe projecting towards valval apex, and the large, elliptical cornuti field of the vesica (males); the medially constricted, rather funnel-like antrum, the long and sclerotised, broadly tubular ductus bursae, the small, subconical or semiglobular, often partly folded and sclerotised appendix bursae, and the elliptical-ovoid corpus bursae with variably strong sclerotisation posteriorly.

The male antenna is shortly biserrate, the female antenna is filiform. The male abdominal brush-organ is present but shows reductions: it is fully developed in *V. (Ch.) thaumasia*, the brush is reduced but its handle and the abdominal pouch is present in *V. (Ch.) chloronympha* while only the pouch is remained in *V. (Ch.) chrysochlora*.

Distribution. Himalayan-Indo-Chinese. The species of the subgenus inhabit montane deciduous and mixed forests between 2000–3900 m altitudes. Univoltine winter species, the moths are on the wing from November to February.

Vigentinocome (Chrysocome) chloronympha (Hreblay, Peregovits & Ronkay, 1999) **comb. n.**

(Plate 7, Figs 7–8, Plate 33, Figs 9–10; gen. fig. 24)

Diphtherocome chloronympha Hreblay, Peregovits & Ronkay, 1999, *Acta Zoologica Academiae Scientiarum Hungaricae* **45**(1): 85, figs 100, 166. Type-locality: Nepal, Koshi, Terhathum area, Tinjure Phedi, 2900 m, 27°12'N, 87°27'E. Holotype: male, in coll. G. Ronkay (Budapest).

Diagnosis. *Vigentinocome (Chrysocome) chloronympha* is closely related to *V. (Ch.) thaumasia* and *V. (Ch.) peregovitsi*. It is easily distinguishable from its close relatives by its bright emerald-green ground colour and sharply defined, fine black forewing pattern. The ground colour of *V. (Ch.) thaumasia* is bluish-grey or violaceous with green(ish) and black markings, while *V. (Ch.) peregovitsi* resembles externally mostly *V. (Ch.) chrysochlora* but the genitalia structures clearly demonstrate its closer relationship with the *V. (Ch.) chloronympha - V. (Ch.) thaumasia* species pair. Wingspan 32 mm, length of forewing 15 mm. The female is unknown.

The male genitalia of the three species are similar in type, differing in a number of features: *V. (Ch.) chloronympha* has, in comparison with *V. (Ch.) thaumasia* and *V. (Ch.) peregovitsi*, broader juxta, shorter and less acute valval apex, smaller, more rounded pollex-like lobe, shorter and less pointed harpe, shorter, finer cornuti sitting on the long diverticulum, and larger medial cornuti field of the vesica consisting of longer, finer spinules.

Distribution. Southern Himalayan. The species is known from the eastern part of the southern Himalayas, from the Kanchenjunga Himal in Nepal and the Assam Himalayas in India. It inhabits the higher deciduous forest belts (2900–3900 m). The moths are on the wing in the late autumn (October-November).

Vigentinocome (Chrysocome) thaumasia (Hreblay & Ronkay, 1998) **comb. n.**

(Plate 8, Figs 1–2, Plate 33, Figs 11–13; gen. fig. 25)

Nyctycia thaumasia Hreblay & Ronkay, 1998, *in* Haruta, *Tinea* **15**(Supplement 1): 218, pl. 151, fig. 21, gen. fig. 1042. Type-locality: Nepal, Annapurna Himal, vicinity of Lumle, 2100 m. Holotype: female, in coll. G. Ronkay (Budapest).

Diagnosis. *Vigentinocome (Chrysocome) thaumasia* differs externally from the other, generally green coloured members of the subgenus by its darker colouration, having variably strong dark violaceous grey suffusion (and some chocolate-brown irroration) in the basal and marginal areas which may cover large parts of the green ground colour; the green colouration appears mostly in the medial area by brilliant green patches along crosslines and below cell. Wingspan 28-31 mm.

The male genitalia of *V. (Ch.) thaumasia* can be distinguished from those of otherwise very similar *V. (Ch.) peregovitsi* by the more acute valval apex and harpe and the smaller, narrower juxta; from those of *V. (Ch.) chloronympha* by the longer and more acutely pointed valval apical process, more triangular and more pointed pollex-like subapical lobe, thinner and more pointed harpe, and the smaller medial cornuti field on the vesica; from those of *V. (Ch.) chrysochlora* (and its ssp. *thainympha*) by the evenly broad, distally not tapering valva with broader cucullus, longer and more acute valval apex and subapical pollex-like lobe, longer and more acutely pointed harpe, smaller, medially more constricted juxta, larger cornuti brush on the diverticulum of the vesica and the smaller medial cornuti field consisting of stronger spinules.

In the female genitalia, *V. (Ch.) thaumasia* has the longest and narrowest, posteriorly deepest incised antrum within the known females of the subgenus. The shape and size of ductus bursae, the sclerotised appendix bursae and the sclerotised posterior edge of corpus bursae is similar to those of *V. (Ch.) chrysochlora* but the sclerotisation of corpus bursae is much weaker than in *V. (Ch.) peregovitsi*.

Distribution. The three known populations of *V. (V.) thaumasia* were found in two rather remote areas of the Nepal Himalayas (Annapurna Himal, Kanchenjunga Himal) and in northern Thailand (Chiang Mai Province). The species is a typical member of the winter aspect, inhabiting medium-high deciduous forests; the adults fly from November to January.

Vigentinocome (Vigentinocome) peregovitsi (Gyulai, Ronkay & Ronkay, 2014) **comb. n.**

(Plate 7, Fig. 6, Plate 32, Figs 50–51; gen. fig. 26)

Diphtherocome peregovitsi Gyulai, Ronkay & Ronkay, 2014, *Esperiana* **19**: 188, pl. 1, fig. 5, gen. fig. 6. Type-locality: Vietnam, Prov. Lao Cai, Fansipan Mts, 3 km NW Cat Cat, 2000 m. Holotype: male, in coll. HNHM.

Diagnosis. *Vigentinocome (Ch.) peregovitsi* is easily separable from *V. (Ch.) chloronympha* and *V. (Ch.) thaumasia* by their different colouration and wing pattern. It is very similar externally to *V. (Ch.) chrysochlora* and resembles also the Taiwanese *V. (Criocome) autumnalis*. It differs from *V. (Ch.) chrysochlora* mostly by the shape of the postmedial line which is angled much stronger outwards at medial veins; the other elements of the coloration and wing pattern show no diagnostic features. *Vigentinocome (Ch.) peregovitsi* has, comparing with *V. (C.) autumnalis*, smaller, more oblique and at lower third less dilated orbicular and reniform stigmata, deeper, more angled arches of postmedial line, and less distinctly marked hindwing underside with weaker, less sharply defined discal spot and transverse line. It can be distinguished from *V. (C.) impectinata* and *V. (C.) nepalichlora* by the recurved lower section of antemedial line (this line is oblique and straight in the two *Criocome* species), medially less angulate forewing outer margin, regularly elliptical (not rather 8-shaped) reniform stigma, more sinuous postmedial line and the paler outer half of marginal area with obsolete, less zigzagged subterminal line; from *V. (C.) nanlingi* by the darker green forewings and the dark grey-brown suffusion in the medial and marginal areas. Wingspan 31–33 mm.

The male genitalia of *V. (Ch.) peregovitsi* are surprisingly similar to those of *V. (Ch.) thaumasia* but have less acute apical valval process, somewhat thicker and medially arched, less pointed harpe and larger, medially less constricted juxta. The apical and subapical processes of *V. (Ch.) peregovitsi* are longer, more triangular and more pointed than in *V. (Ch.) chloronympha*, the juxta is broader and less constricted medially, and the cornuti field of the vesica is smaller, consisting of larger, stronger items. The male genitalia of these three species are rather uniform in the valval shape, the size and shape of the juxta and the armature of the vesica. They differ from *V. (Ch.) c. chrysochlora* and *V. (Ch.) c. thainympha* by their evenly broad valvae having parallel costal and ventral margins, larger and more pointed valval apex and subapi-

cal pollex-like lobe, remarkably smaller and medially more constricted juxta, larger cornuti brush on the diverticulum and the different medial cornuti field of the vesica.

The female genitalia of *V. (Ch.) peregovitsi* differ remarkably from those of the other members of the subgenus *Chrysocome* by the shorter and medially less constricted antrum and the much stronger sclerotisation of the posterior part of corpus bursae. Its female genitalia are most similar to those of *V. (C.) autumnalis*, the differential features are as follows: *V. (Ch.) peregovitsi* has shorter and more quadrangular antrum, significantly shorter, proximally dilated ductus bursae with weaker sclerotised ventro-lateral and hyaline dorso-lateral walls, more laterally positioned junction of ductus bursae with corpus bursae, which is situated opposite the otherwise smaller and more conical appendix bursae, and the more strongly sclerotised, more quadrangular sclerotised patch of corpus bursae which is less extended towards the medial third of the bursae than in *V. (C.) autumnalis*.

The female genitalia of *V. (Ch.) peregovitsi* are easily distinguished from those of *V. (C.) nepalichlora* and *V. (C.) impectinata* by their much longer ductus bursae, smaller and more conical appendix bursae, stronger and more dense sclerotisation of the posterior part and the shorter, more elliptical-ovoid anterior section of corpus bursae.

Distribution. Northern Indochina. The species is known from northern and Central Vietnam (Fansipan Mts, Ngoc Linh Mts) and northern Thailand (Mt. Phahompok in Prov. Chiang Mai, illustrated as *impectinata* in Kononenko & Pinratana 2013; subsequently also from the Da Lat Region (Volynkin 2018). *Vigentinocome (V.) peregovitsi* is a member of the winter fauna, the moths are on the wing from November to February.

Remarks. The holotype specimen of *Vigentinocome (V.) peregovitsi* was incorrectly associated with the male holotype of *V. (V.) daliangi* Hreblay & Ronkay, 1998 and designated as a paratype of the latter taxon. The conspecificity of the two specimens has already been disputed during the description of *V. (V.) daliangi* (see the Remarks in Hreblay & Ronkay 1998: page 112). The subsequent study on the members of the *V. (V.) thaumasia* species-group revealed the correct position of *Vigentinocome (V.) peregovitsi*, which led to the description of the taxon.

Vigentinocome (Chrysocome) chrysochlora chrysochlora (Hampson, 1898) **comb. n.**

(Plate 8, Figs 3–4, Plate 33, Figs 21–22; gen. fig. 27)

Diphthera chrysochlora Hampson, 1898, *Journal of the Bombay Natural History Society* **11**: 447. Type-locality: [India, Meghalaya] Khasis. Holotype: male, in coll. BMNH.

Diagnosis. *Vigentinocome (Ch.) chrysochlora* resembles externally *V. (Ch.) peregovitsi* and the species of the subgenus *Criocome*. It differs from *V. (Ch.) peregovitsi* by the postmedial line which is less angled outwards at medial veins; from *V. (C.) impectinata* and *V. (C.) nepalichlora* by the lower section of antemedial line which is curved backwards at inner margin but oblique and straight in the two *Criocome* species), the elliptical (not rather 8-shaped) reniform stigma, the paler, less zigzagged subterminal line, etc.; from *V. (C.) autumnalis* by its more olive-greenish ground colour and stronger dark grey irroration, narrower median area, and the broader and more prominent, more zigzagged subterminal line.

The typical ssp. *chrysochlora* differs from the Indo-Chinese subspecies, ssp. *thainympha*, by its more sharply marked forewing pattern, more sinuous subterminal line and the darker, somewhat greyish-shaded deep olive-green forewing ground colour. Wingspan 26–31 mm.

The male genitalia of *V. (Ch.) chrysochlora* differ from those of the other three *Chrysocome* species by the distally tapering valvae with short and rather obtuse apical process, smaller triangular pollex-like lobe, larger, shield-like, medially only slightly constricted juxta, much smaller cornuti brush on the diverticulum of the vesica and the large, elongate cornuti field consisting of small spinules. The male genitalia of the two subspecies of *V. (Ch.) chrysochlora* are somewhat different, in the ssp. *chrysochlora* the cucullus is

somewhat broader, the apical costal process is shorter and the ampullar process is less strongly sclerotised than in the ssp. *thainympha*.

The female genitalia of *V. (Ch.) chrysochlora* are easily separable from those of *V. (Ch.) peregovitsi* by the larger, longer and rather funnel-like antrum and the much weaker sclerotisation in the posterior part of corpus bursae; from those of *V. (C.) impectinata* and *V. (C.) nepalichlora* by the longer antrum and ductus bursae and the different sclerotisation of appendix bursae and corpus bursae.

Distribution. Southern Himalayan. The nominotypical subspecies occurs in the Khasia Hills ("Khasis") in north-eastern India.

Vigentinocome (Chrysocome) chrysochlora thainympha (Hreblay & Ronkay, 1999) **stat. n., comb. n.**

(Plate 8, Figs 5–6, Plate 33, Figs 23–28; gen. fig. 28)

Diphtherocome thainympha Hreblay & Ronkay, 1999, *Esperiana* **7**: 570, pl. 21, figs 163–164. Type-locality: North Thailand, Prov. Chiang Mai, Doi Inthanon NP, 2300 m. Holotype: male, in coll. HNHM.

Diagnosis. The taxon *thainympha* is the Indo-Chinese subspecies of *V. (V.) chrysochlora*. It differs from the typical subspecies by its somewhat more indistinct forewing pattern, with less sinuous subterminal line and the paler greenish marginal area. Wingspan 26–31 mm.

The genitalia of the two subspecies show certain smaller differences in both sexes. In the males, the ssp. *thainympha* has longer apical valval process and more prominent pollex-like lobe, and the distal part of harpe is slenderer, more tapering; in the females, the antrum of the ssp. *thainympha* is somewhat shorter, and the appendix bursae is smaller and more conical, apically less rounded than in the nominotypical ssp. *chrysochlora*.

Distribution. North-Western Indochina (Burma, Thailand).

Subgenus ***Criocome*** **subgen. n.**

Type-species: *Diphtherocome impectinata* Hreblay, Peregovits & Ronkay, 1999, here designated.

Diagnosis. The species of the subgenus *Criocome* differ externally from the taxa of the subgenus *Vigentinocome* and the genus *Diphtherocome* by their narrower and more pointed forewings with somewhat cristate outer margin, more complex noctuid pattern and generally darker hindwings and by certain features of the genitalia of both sexes.

The typical members of the subgenus are easily separable from the subgenus *Chrysocome* by the above-mentioned external features and the characteristically oblique and straight antemedial line which is a unique character within the genus *Vigentinocome*. The male antenna is shortly biserrate or simply dentate, the female antenna is filiform. The males lack the abdominal brush-organs in the *impectinata-nepalichlora* species-pair while the other two species have complete basal abdominal coremata.

The diagnostic features of the male genitalia are the shorter, somewhat arched and distally tapering valvae, shorter apical costal process (cucullus sometimes triangular and apically acute), shorter and less straight aedeagus and the different armature of the vesica.

In the female genitalia, the antrum is quadrangular or somewhat cup-shaped, posteriorly variably strongly incised; the ductus bursae is either short and ribbed or longer and broader, stronger sclerotised; the appendix bursae is large, semiglobular or apically rounded subconical, partly cristate-ribbed and sclerotised; posterior part of corpus bursae is densely scobinate, this sclerotisation is weaker than in the subgenera *Vigentinocome* and *Chrysocome*.

Distribution. Himalayan-Indo-Chinese. The species of the subgenus inhabit montane deciduous and mixed forests between 1200–3000 m altitudes. Univoltine winter species, the moths are on the wing from November to February.

Vigentinocome (Criocome) impectinata (Hreblay, Peregovits & Ronkay, 1999) **comb. n.**

(Plate 8, Figs 7–8, Plate 33, Figs 14–20; gen. fig. 29)

Diphtherocome impectinata Hreblay, Peregovits & Ronkay, 1999, *Acta Zoologica Academiae Scientiarum Hungaricae* **45**(1): 82, figs 92–95, 163. Type-locality: Vietnam, Prov. Lao Cai, Fan-si-pan Mts, 14 km NW of Sa Pa, 1900–2000 m, 22°20'N, 103°46'E. Holotype: male, in coll. HNHM.

Diagnosis. *Vigentinocome (Criocome) impectinata* is confusingly similar externally to its allopatric sister species, *V. (C.) nepalichlora*; the diagnostic features can be found in the pectination of the male antenna and the shape and size of the last abdominal sternite. The pectination of the male antenna of *V. (C.) impectinata* is considerably shorter, the branches being almost half as short as in *V. (C.) nepalichlora* and extend only to the end of medial third of the antenna. Wingspan 28–34 mm.

In the male genitalia, *V. (C.) impectinata* has narrower, distally more tapering valva, somewhat more prominent apex, fully reduced subapical costal lobe (the ventral edge of cucullus has no deeper ventral incision at base of harpe) and shorter, slenderer harpe than in *V. (C.) nepalichlora*. The armature of the vesica is also somewhat different in the two species as the diverticulum of the vesica is smaller and weaker in *V. (C.) impectinata*, armed by a few fine spinules only.

The female genitalia of *V. (C.) impectinata* and *V. (C.) nepalichlora* are very similar but differ in the shape of the caudal incision of the antrum which is narrower, more sharply defined, regularly lyriform in *V. (C.) impectinata*, and the antrum itself is less tapering anteriorly than in *V. (C.) nepalichlora*.

Distribution. South-eastern Himalayan - Indo-Chinese. The species is recorded from small, rather disjunct areas of North Vietnam, northern Thailand and eastern Nepal (Surke Danda, 2560 m; Deorali Danda, 1850 m). The main habitats are monsoonic forests and elfin forests at medium-high and higher altitudes; the moths are on the wing in November-December.

Remarks. The species is illustrated in Kononenko & Pinratana (2013) as the female of "*Diphtherocome thainympha*" while the two specimens shown as "*D. impectinata*" illustrate in fact *Vigentinocome (V.) peregovitsi*.

Vigentinocome (Criocome) nepalichlora (Hreblay & Ronkay, 1999) **comb. n.**

(Plate 9, Figs 1–2, Plate 33, Figs 29–40; gen. fig. 30)

Diphtherocome nepalichlora Hreblay & Ronkay, 1999, *Esperiana* **7**: 570, pl. 21, fig. 166. Type-locality: Nepal, Arun valley, 12 km of Hille, 2620 m, 27°06'N, 87°24'E. Holotype: male, in coll. HNHM.

Diagnosis. *Vigentinocome (C.) nepalichlora* is externally very similar to its allopatric Indo-Chinese sister-species. The males are easily distinguishable, however, by the different pectination of their antennae as the branches of *V. (C.) nepalichlora* are at least twice as long as those of *V. (C.) impectinata*. The females of the two sister-species are best separable externally by the size of the last sternite which is narrower trapezoidal and less sclerotised in *V. (C.) nepalichlora* than in *V. (C.) impectinata*. Wingspan 28–35 mm.

The genitalia of *V. (C.) nepalichlora* and *V. (C.) impectinata* display recognisable differences in both sexes. In males, the distal part of valva of *V. (C.) nepalichlora* is considerably broader than in *V. (C.) impectinata*, with larger and more sclerotised subapical ventral plate, the harpe is distally broader and more rounded, the diverticulum of the vesica is longer, more tubular and armed by more numerous and

stronger spinules. In the females, the antrum of *V. (C.) nepalichlora* is more trapezoidal than that of *V. (C.) impectinata*, having broader but shallower, more circular posterior cleft.

Distribution. Southern Himalayan. The species is known only from Nepal, from the Annapurna region to the Kanchenjunga Himal. The species is connected to the medium-high altitude forest regions (2000–3000 m a.s.l.); the moths are on the wing in October-November.

Remarks. The species was illustrated by Yoshimoto (1994: Plate 83, fig. 7) under the name *Diphtherocome chrysochlora*.

Vigentinocome (Criocome) nanlingi (Gyulai, Ronkay & Ronkay, 2014) **comb. n.**

(Plate 9, Figs 3–4, Plate 33, Figs 41–43; gen. fig. 31)

Diphtherocome nanlingi Gyulai, Ronkay & Ronkay, 2014, *Esperiana* **19**: 188, pl. 1, figs 3–4, gen. figs 3–5. Type-locality: China, Prov. Hunan, Nanling Mts, Shikenkong Mt., 1500 m, 24°54'N, 112°57'E. Holotype: male, in coll. P. Gyulai (Miskolc).

Diagnosis. The closest relative of *V. (C.) nanlingi* is *V. (C.) autumnalis*. The main diagnostic external features distinguishing *V. (C.) nanlingi* from *V. (C.) autumnalis* are the generally paler green ground colour and the more contrasting wing pattern with stronger brown (not greyish) defined antemedial and postmedial crosslines, narrower, more regularly bean-shaped reniform stigma and the rather unicolorous marginal area with obsolete or fully reduced subterminal line. Wingspan 30–33 mm.

The male genitalia of *V. (C.) nanlingi* can be distinguished from those of *V. (C.) autumnalis* by the longer and narrower valvae with triangular cucullus lacking the subapical ventral processes being typical of *V. (C.) autumnalis*, shorter and broader, medially dilated harpe, much broader juxta, and the different armature of the vesica (presence of subbasal spinulose field, absence of medial diverticulum armed with cornuti, stronger developed terminal cornuti fields). The male genitalia of *V. (C.) nanlingi* differ from those of *V. (C.) nepalichlora* and *V. (C.) impectinata* by the longer and narrower, apically more acutely pointed valvae with longer cuculli, the differently shaped (not reversed hockey-stick-like) harpe, the larger, more deltoidal (not cordiform) juxta and the larger subbasal cornuti field of the vesica.

The female genitalia of *V. (C.) nanlingi* are separable from those of *V. (C.) autumnalis* by the narrower, rather calyculate antrum with deeper posterior cleft, the proximally broader ductus bursae and the much shorter sclerotised part of appendix bursae; from those of *V. (C.) impectinata* and *V. (C.) nepalichlora* by the differently shaped, calyculate and not quadrangular antrum having broad and shallow posterior cleft, the longer and more twisted, more sclerotised ductus bursae and the stronger sclerotised appendix bursae.

Distribution. Sino-Tibetan. The species was found in a relatively low altitude forested area in the Nanling Mts (Hunan Province) in China. The moths are on the wing in October-November.

Vigentinocome (Criocome) autumnalis (B.S. Chang, 1991) **comb. n.**

(Plate 9, Figs 5–6, Plate 33, Figs 44–50; gen. fig. 32)

Daseochaeta autumnalis B.S. Chang, 1991, *Illustrations of Moths in Taiwan* **5**: 21, fig. 15. Type-locality: Taiwan, Nantou County. Holotype: male, in coll. NSMT.

Diagnosis. The easternmost member of the subgenus differs externally from the other *Criocome* species by its more unicolorous and more vivid dark emerald green forewings. The darker suffusion of the basal and marginal fields is greenish-grey, not brown(ish) as in *V. (C.) nanlingi*, the subterminal line is well-visible, ochreous-white, strongly zigzagged and the reniform stigma is larger, more irregularly shaped and medially more constricted than in its continental relative.

The male genitalia are strongly autapomorphic with the broad distal part of valva having three apical-subapical sclerotised processes and the strongly falcate ampulla; the presence of a number of small, scattered cornuti on the broad distal diverticulum is also a unique feature of the species within the entire genus (this field of cornuti is represented in *V. (C.) nanlingi* by a small field of short and medium-long spinules sitting on the main tube of the vesica).

The female genitalia of *V. (C.) autumnalis* can be distinguished from those of *V. (C.) nanlingi* by the broader and larger, rather quadrangular antrum, the somewhat narrower ductus bursae and the longer sclerotised posterior part of the appendix bursae, extending farther antero-laterally into corpus bursae than in its sister taxon; from those of *V. (C.) impectinata* and *V. (C.) nepalichlora* by very weak and shallow posterior cleft of the antrum, the remarkably longer and somewhat twisted ductus bursae and the long sclerotised postero-lateral field of corpus bursae.

Distribution. The species has long been considered as endemic to Taiwan; recently, Yanagita (2009) published the occurrence of *V. (C.) autumnalis* in the southernmost parts of Japan (Okinawa-jima and Amami-oshima Islands).

Subgenus ***Bryochlorome*** **subgen. n.**

Type-species: *Diphtherocome bryochlora* Hreblay, Peregovits & Ronkay, 1999, here designated

Diagnosis. The only known species of the subgenus *Bryochlorome* differs externally from the members of the subgenera *Chrysocome* and *Criocome* by its smaller size (wingspan 29–33 mm; it is the smallest species of the genus *Vigentinocome*), much paler, light mossy green forewing ground colour with less intense darker suffusion, especially in the basal area, finer, narrower crosslines, much larger, lunulate reniform stigma, paler, more greyish hindwing and by the reduction of the white(ish) stripe of the subterminal line; the abdomen of the female also narrower, without strongly dilated last segment.

The male genitalia of *Bryochlorome* differ from those of the other lineages of the genus *Vigentinocome* by the longer uncus, the much higher and narrower, quadrangular juxta, the significantly longer, more acute cucullus with slightly truncate or even finely double-peaked apex; the very long and sinuous harpe (it is more than twice as long as in the other congeners), and the narrower vesica with broadly tubular diverticulum armed by spiniform cornuti and the considerably smaller medial cornuti fields.

The female genitalia of *Bryochlorome* differ from those of the other subgenera of *Vigentinocome* by its broader, caudally not incised antrum. The ductus bursae is longer than in *Chrysocome* and *Criocome*, its sclerotization is stronger and the corpus bursae is shorter, more rounded. The ductus and the corpus bursae of *V. (B.) bryochlora* are rather similar in shape and size to those of *V. (Chrysocome) thaumasia* but the ductus bursae of the latter species is stronger, not constricted at middle, the appendix bursae is narrower and longer, more strongly sclerotized and the corpus bursae is shorter, more rounded than in *V. (B.) bryochlora*.

Vigentinocome (Bryochlorome) bryochlora (Hreblay, Peregovits & Ronkay, 1999) **comb. n.**

(Plate 9, Figs 7–8, Plate 34, Figs 1–10; gen. fig. 33)

Diphtherocome bryochlora Hreblay, Peregovits & Ronkay, 1999, *Acta Zoologica Academiae Scientiarum Hungaricae* **45**(1): 83, figs 98–99, 164–165. Type-locality: Vietnam, Prov. Lao Cai, Fan-si-pan Mts, 3 km NW of Cat Cat, 2000 m. Holotype: male, in coll. HNHM.

Diagnosis. *Vigentinocome (Bryochlorome) bryochlora* differs externally from the members of the subgenus *Criocome* by its much paler, light mossy green forewing ground colour with less intense darker suffusion, especially in the basal area, finer, narrower crosslines, much larger, lunulate reniform stigma, paler,

more greyish hindwing and by the reduction of the white(ish) stripe of the subterminal line; the abdomen of the female also narrower, without strongly dilated last segment. Wingspan 29–33 mm.

The differences between the genitalia of *V. (B.) bryochlora* and the other members of the genus are discussed in detail in the Diagnosis of the subgenus.

Distribution. Himalayan-Indo-Chinese. The species has been recorded from eastern Nepal, Thailand and northern Vietnam. Univoltine winter species, the moths are on the wing in November-December.

Subtribe *Nacnina* subtribe n.

Diagnosis. The subtribe includes three, externally easily recognizable genera, *Discibocome* **gen. n.**, *Nacna* Fletcher, 1961 (= *Canna* Walker, 1865, nom. praeocc.) and *Homonacna* Fletcher, 1961 (= *Chopardiana* Viette, 1963). The former two genera have long been associated, similarly to the taxa of the *Diphtherocome* s.l. generic complex, with the subfamily Acronictinae, though its genitalia features do not fit with the basic acronictine scheme. The doubts of the closer relationship of *Nacna* with the other Acronictinae lineages was first manifested by the systematic survey of the subfamily Acronictinae (e.g. Wagner et al 2011, Rota et al 2016), being supported also by molecular taxonomic results. Most recently, Keegan et al (2018) proved the close relationship of *Nacna* with the other psaphidine lineages, indicating also their distinctness. Interestingly, already Fletcher recognised the relationship of *Homonacna* with the psaphidine trunk, placing his new genus into the subfamily Cuculliinae (and not into Acronictinae!) which contained the taxa of Psaphidinae in the Hampsonian system used generally in that time.

The subtribe Nacnina are characterised by the simplified male genitalia structure, with short, simple uncus, elongated valvae with rudimentary corona and weak or somewhat stronger editum, variably strong, often weak or almost entirely reduced harpe and ampulla and the strongly shortened, basally globular or subconical vesica with basally-subbasally (not distally-terminally) positioned ductus ejaculatorius.

The basal abdominal coremata (brush organ) is present in *Homonacna* but fully reduced in *Nacna* and *Discibocome*. The last abdominal segments of the male are rather weak, with generally broadly U-shaped sclerotisation on the last sternite and variably broad Y-shaped sclerotisation on the last tergite. In the females, the last sternite is broad, relatively strongly sclerotised, quadrangular with modestly rounded margins, the last tergite is variably strongly sclerotised, and the sclerotisation is more prominent in the posterior half, with deeper or shallower cleft at posterior margin.

The three genera are easily distinguished by both their external and genital features. Externally, the species of *Discibocome* and *Homonacna* resemble the taxa of *Diphtherocome* s.l., being often remarkably larger than the members of the genus *Nacna* which have more bright green/emerald forewings and larger unicolorous areas without darker brown of blackish pattern. The males of *Homonacna* have brush organs which are absent in *Discibocome* and *Nacna*. Last but not least, the green colouration is more permanent in *Homonacna* while the forewings of the *Discibocome* and *Nacna* species are rapidly faded into yellow.

In the male genitalia, the valvae of *Discibocome* are elongated-triangular with strongly distally tapering, finely pointed cucullus; the uncus is strong and distally rather thickened, and the harpe (clasper) is present, strong but short or medium-long, digitiform or sponge-cake-shaped. The basal, straight or arched basal part of vesica has a variably long, arched-tubular or more or less globular subbasal diverticulum; the walls of both parts are densely scobinate, lacking smaller or larger cornuti.

The two other genera have broader, distally less tapering valvae. In *Homonacna*, the valvae are stronger sclerotised than in *Nacna*, possessing stronger and longer corona, and well-developed, thorn- or stick-like harpe, while the vesica is shorter, rather globular, covered by a large number (some hundreds) of minute spiculi; in addition, the carina penis has a fine sinuous and folded lateral sclerotised plate besides the beak-shaped ventral sclerotised extension which is absent in *Nacna*. The male genitalia of *Nacna* have

weaker sclerotised valvae, with more reduced corona and minute or fully reduced harpe and the somewhat more elongated vesica is armed by 4–25 large and strong cornuti.

The female genitalia of the three genera are more differently built. In *Nacna*, the antrum and ductus bursae are generally membranous, lacking stronger sclerotisation which is typical in the other clades of Psaphidini, resembling more to the structures of the tribe Amphipyrini. The proximal end of ductus bursae may be dilated bearing weak scobination and stronger wrinkles which is often prolonged into the appendix bursae. Appendix bursae can be entirely membranous and variably strongly ribbed-folded, in certain species (the members of the *malachitis*-group) there is a knob-like or clubbed and folded, gelatinous/jellied lateral - postero-lateral structure composed from the proximal part of ductus bursae and appendix bursae, the configuration and size of which is a specific character. This structure is strongly stained with eosin or chlorazol, therefore it may appear on the genitalia photographs as a sclerotised part of the copulatory organ but it is hyaline in the native organ. In *Homonacna*, the ductus bursae is longer and more sclerotised, flattened ribbon-like, its proximal part stronger ribbed-cristate. Corpus bursae shorter than in *Nacna*, more or less discoidal-globular, with curved and partly cristate-ribbed appendix bursae. Finally, in *Discibocome* there are two main types as the *discibrunnea*-line has sclerotised, flattened antrum and posterior part of ductus bursae and the fundus bursae is densely ribbed with finely sclerotised ribs while the *marmorea*-line has much shorter and membranous ductus bursae and longer, slenderer corpus bursae with weaker ribbed fundus bursae but with stronger wrinkled-ribbed appendix bursae and posterior section of corpus bursae.

Distribution. The two genera have a strictly allopatric distribution in two different continents: *Discibocome* and *Nacna* species occur in eastern and south-eastern Asia, from the temperate Pacific region to northern Indochina (*N. splendens* also to the northern Sundaland) while the species of *Homonacna* lives in the mountain forest regions of the eastern parts of tropical and subtropical Africa.

Genus ***Discibocome*** **gen. n.**

Type-species: *Diphthera discibrunnea* Moore, 1867, here designated.

Diagnosis. The newly established genus is closer related to *Homonacna* than to *Nacna*, the species belonging to *Discibocome* resemble the members of *Homonacna* while all *Nacna* species have a distinctive colouration and pattern. The detailed comparison of the three genera is given above, in the Diagnosis of the subtribe.

The diagnostic external features of *Discibocome* are the filiform antennae of both sexes, with somewhat longer ciliation on the male antenna, the absence of the male abdominal brush organs, and the forewing colouration and pattern being similar to certain species-groups of *Diphtherocome* s. str.

The male genitalia are characterised by the strong and distally rather thickened uncus, elongated-triangular, distally tapering valvae with triangular, finely pointed cucullus, fully developed, flattened, rounded or digitiform (sponge-cake-shaped) harpe (clasper), the more or less Y-shaped, membranous vesica with medium-long basal tube and variably long, recurved-tubular or more or less globular subbasal diverticulum, and the complete lack of cornuti while the walls of the vesica are partly are densely scobinate.

The female genitalia of *Discibocome* are rather dimorphic: the two species of the *discibrunnea*-group have sclerotised, flattened antrum and sclerotised posterior part of ductus bursae and densely ribbed fundus bursae while the two species of the *marmorea*-group have much shorter and membranous ductus bursae, longer, slenderer corpus bursae with weaker ribbed fundus bursae, and stronger wrinkled-ribbed appendix bursae and posterior section of corpus bursae.

The genus includes two closely related species-pairs, representing two distinct, easily separable lineages while the members of both species-groups are very close to each other and their genitalia show only smaller but characteristic specific differences.

Distribution. Himalayan-Sino-Pacific. The range of the genus extend from the western Himalayas (the historical Kashmir), throughout the southern Himalayas and northern Indochina to Taiwan to the east, to the Central Chinese mountains in Shaanxi to the north and the northern parts of the Malay peninsula to the south.

Genus ***Discibocome* gen. n.**
Type-species: *Diphthera discibrunnea* Moore, 1867

discibrunnea (Moore, 1867) **comb. n.**
pulchra (Wileman, 1912) **comb. n.**
marmorea (Leech, 1900) **comb. n.**
ligula (Gyulai, Ronkay & Ronkay, 2014) **comb. n.**

Discibocome discibrunnea (Moore, 1867) **comb. n.**

(Plate 10, Figs 1–2, Plate 34, Figs 11–24; gen. fig. 34)

Diphthera discibrunnea Moore, 1867, *Proceedings of the Zoological Society of London* **1867**: 46. Type-locality: [India, Sikkim] Darjeeling. Lectotype: male, here designated; in coll. BMNH.

Synonymy
Diphtherocome discibrunnea f. *olivata* Warren, 1913, in Seitz: *Die Groß-Schmetterlinge des Indo-Australischen Faunengebietes* **11**: 34.
Daseochaeta discibrunnea ab. *punjabensis* Strand, 1921. Type-locality: [India, Himachal Pradesh] Dalhousie. Holotype: female, in coll. BMNH;
Daseochaeta mckeanae Cockerell, 1930, *Bulletin of the Brooklyn Entomological Society* **25**: 42. Type-locality: [Thailand] Siam, Doi Sutep. Holotype: female, in coll. BMNH; **syn. n.**
Lectotype designation. Lectotype of *Dipthera discibrunnea* Moore, 1867: male, "Darjiling, Russell", "Moore Coll., 94–106.", "Dipthera [sic!] discibrunnea Type Moore." (with the handwriting of Moore), "Type" (red ring label), "gen. prep. Hreblay N: 10997♂" (pink label), "Noctuidae Brit. Mus. slide No. 15674♂" (blue label). The lectotype is deposited in the BMNH.

Diagnosis. *Discibocome discibrunnea* can be easily distinguished from its all other congeners by the more diffuse and more interrupted, less whitish defined antemedial, postmedial and subterminal lines and the variably strong but clearly visible, often prominent dark brown to blackish irroration of the median and marginal areas. The forewing is usually narrower and more pointed than in *D. pulchra* and regularly remarkably narrower than in *D. marmorea* and *D. ligula*. Wingspan 29–38 mm.

The genitalia of *D. discibrunnea* and *D. pulchra* are very similar in both sexes, despite the larger differences in the external appearance. In the males, *D. discibrunnea* has somewhat longer and distally less dilated uncus, narrower dorsal part of juxta and broader and more flattened harpe than in *D. pulchra*. In the females, the ductus bursae of *D. discibrunnea* is proportionally shorter, somewhat broader and more tapering proximally than that of *D. pulchra*.

There are prominent differences between the male genitalia of the two species-pairs. The taxa of the *discibrunnea* line have longer and thinner uncus, subdeltoidal juxta with well-developed dorsal sclerotised section, shorter and broader harpe, longer and thinner aedeagus and different, more Y-shaped configuration of vesica with long and straight basal tube directed forward and large, recurved subbasal diverticulum. The two species of the *marmorea* line have shorter and distally broader, stronger sclerotised uncus, more or less calyculate juxta without sclerotised dorso-medial (apical) section, longer and thinner harpe, shorter and thicker aedeagus, and long, recurved basal tube of vesica, while the subbasal diverticulum is short and rather globular. The female genitalia of the two species-groups differ conspicuously in the length and sclerotisation of ductus bursae, being much longer and more firmly sclerotised in the taxa of the *discibrunnea*-line (see also in the Diagnosis of the genus).

Distribution. *Discibocome discibrunnea* is the most widespread member of the genus; its area extends from the western Himalayas to northern Indochina, the northern mountainous areas of Malaysia and the south-eastern frontier of the Tibetan plateau in China. The species inhabits the medium-high montane

forest regions, most often between 2000–3000 m altitudes. Bivoltine, with two more or less continuous generations; the moths are on the wing from the end of April to the end of September.

Discibocome pulchra (Wileman, 1912) **comb. n.**

(Plate 10, Figs 3–4, Plate 34, Figs 25–32; gen. fig. 35)

Daseochaeta pulchra Wileman, 1912, *Entomologist* **45**: 132. Type-locality: [Taiwan] Formosa, Arizan. Holotype: male, in coll. BMNH.

Synonymy

Diphthera taikoshonis Matsumura, 1929, *Insecta Matsumurana* **3**: 114. Type-locality: [Taiwan] Formosa, Punkiko. Syntypes: 2 males and 1 female, in coll. EIHU.

Diagnosis. *Discibocome pulchra* is easily separable from its continental sister-species by its clean and more vivid, somewhat more bluish-shaded green forewings, lacking the dark irroration being typical of *D. discibrunnea*, and the sharper marked and white defined black(ish) antemedial, postmedial and subterminal crosslines. The outlines of the stigmata are also stronger; especially the dark tip of claviform stigma is more prominent in *D. pulchra*. *Discibocome pulchra* can be distinguished from *D. marmorea* and *D. ligula* by it more robust body, more variegated forewings with sharper white definition of the crosslines and stigmata, more distinctly marked crosslines, and the weaker dark suffusion in the basal area and between postmedial and subterminal lines. Wingspan 30–39 mm.

In the male genitalia, *D. pulchra* has, in comparison with *D. discibrunnea*, slightly shorter and distally more dilated uncus, broader triangular dorso-medial (apical) section of juxta, and thinner harpe. In the female genitalia, the ductus bursae is somewhat longer than that of *D. discibrunnea*, having more parallel, proximally less tapering lateral margins. The differences in the genitalia of the two species-pairs are discussed above, under the Diagnosis of the preceding species.

Distribution. Endemic to Taiwan. The species is widespread in the mountainous ranges of the island, preferring the medium-high and higher altitude regions (1800–2200 m a.s.l.) but appears also in the lower wooded areas and the highest forested belts. Bi- or trivoltine, depending on the climate and altitude of the given locality; the adults can be found from the end of March to the beginning of December. The known foodplant is *Viburnum plicatum formosanum* (dearlep.tw/species.html?namecode=346215; 2018).

Discibocome marmorea (Leech, 1900) **comb. n.**

(Plate 10, Figs 5–6, Plate 34, Figs 33–40; gen. fig. 36)

Diphthera marmorea Leech, 1900, *Transactions of the Entomological Society of London* **1900**: 136. Type-locality: [China, Yunnan] Pu-tsu-Fang, 9820 feet. Lectotype: male, here designated; in coll. BMNH.

Lectotype designation. Lectotype of *Diphthera marmorea* Leech, 1900: male, "Pu-tsu-Fang, 9820 feet, Native Collector, June & July 1890", "Leech Coll., 1900–64", "Diphthera marmorea sp. n., type ♂" (with the handwriting of Leech), "Type" (red ring label), "gen. prep. Hreblay N: 10995♂" (pink label), "Noctuidae Brit. Mus. slide No. 15672♂" (blue label), "BMNH (E) 1688712". The lectotype is deposited in the BMNH.

Diagnosis. *Discibocome marmorea* and *D. ligula* represent the second sister-species pair of the genus. The two species are very similar externally, the distinctive external features between them are as follows: the subterminal stripe is much stronger, more crenellate and more continuous in *D. marmorea* than in *D. ligula* and the dark tornal patch is larger, with rounded tip; the hindwing marginal area is more diffuse and paler, and the underside pattern is less contrasting than in its sister-species. The forewing colouration is more unicolorous, more bluish shaded green than in *D. discibrunnea* and *D. pulchra*, the crosslines are less distinct and less white defined, the submarginal stripe is darker and more uniformly suffused, as well as the marginal area of the hindwing. In addition, the body of *D. marmorea* is more gracile than those of *D. discibrunnea* and *D. pulchra*. Wingspan 30–35 mm.

The male genitalia of *D. marmorea* differ from those of *D. ligula* by the distally more dilated uncus, the slenderer harpe and the somewhat slenderer basal tube of vesica. In the female genitalia, the corpus bursae of *D. marmorea* is narrower than in *D. ligula*, the sclerotised plate of the antrum is narrower, and the ductus bursae somewhat longer.

Distribution. Sino-Tibetan. The species is distributed along the south-eastern frontier of the Tibetan plateau, from Yunnan towards the Central Chinese mountains in Shaanxi (Daba Shan). It inhabits the medium-high and higher monsoonic forest belts, between 2000–3000 m altitudes. Univoltine species with summer adults; the moths are on the wing in June-July.

Discibocome ligula (Gyulai, Ronkay & Ronkay, 2014) **comb. n.**

(Plate 10, Figs 7–8, Plate 34, Figs 41–44, Plate 35, Figs 1–4; gen. fig. 37)

Diphtherocome ligula Gyulai, Ronkay & Ronkay, 2014, *Esperiana* **19**: 189, pl. 1, figs 7–8, gen. figs 8–9. Type-locality: China, Prov. Sichuan, Volong Nature Reserve, Siguliang Mt., 31°09'N, 103°20'E. Holotype: male, in coll. P. Gyulai (Miskolc).

Diagnosis. *Discibocome ligula* is the sister-species of *D. marmorea*. It can be distinguished from *D. marmorea* by its more obsolescent crosslines, more diffuse outlines of stigmata, the much paler dark area between postmedial and subterminal lines and the smaller, shorter dark tornal patch. The hindwing colouration of the two species shows also certain distinctive features as *D. ligula* has more conspicuous, darker marginal suffusion. *D. ligula* is easily distinguished from the externally similar *D. discibrunnea* and *D. pulchra* by its slenderer body (particularly the thorax is slimmer), more unicolorous bluish-green forewings with weaker crosslines and outlines of stigmata. Wingspan 32–34 mm.

The male genitalia of *D. ligula* have, in comparison with *D. marmorea*, distally less dilated uncus, larger harpe and broader basal tube of the vesica. The distinctive features of the female genitalia can be found mostly in the shape and size of corpus bursae, which is much more ample in *D. ligula*, being proximally ca. twice as broad as in *D. marmorea*. Additionally, the sclerotised plate of the antrum of *D. ligula* is broader, anteriorly somewhat more depressed, the ductus bursae is longer, and the appendix bursae is somewhat larger than in *D. marmorea*.

Distribution. Sino-Tibetan. The species is known from the mountains eastwards from the eastern frontiers of the Tibetan plateau (Sichuan, Shaanxi) in China. It inhabits various medium-high altitude forest regions, between 1300–2200 m a.s.l. Bivoltine, the moths are on the wing from the beginning of May to mid-October.

Genus ***Nacna*** Fletcher, 1961

Nacna Fletcher, 1961, *Ruwenzori Expedition* **1**: 198. Type-species: *Canna pulchripicta* Walker, 1865, by monotypy. An objective replacement name for *Canna* Walker, 1865.

Synonymy

Canna Walker, 1865, *List of the Specimens of Lepidopterous Insects in the Collection of the British Museum* **33**: 790. Type-species: *Canna pulchripicta* Walker, 1865, by monotypy. Preoccupied, a junior homonym of *Canna* Gray, 1821 (Mammalia).

Diagnosis. The genus is easily recognisable by the external appearance of the species, no really similar other noctuoid genera are known. There are a few other genera having bright green forewings (e.g. *Staurophora* Reichenbach, 1817, *Atrachea* Warren, 1911, *Parhylophila* Hampson, 1912, *Paracrama* Moore, 1884 etc.) which may have somewhat similar forewing pattern but there are remarkable differences between *Nacna* and the mentioned other genera in the body size, wingspan, wing shape and colouration,

etc. Its closest relative is the African *Homonacna*; the differential characters of the two genera are discussed in detail in the diagnosis of the subtribe.

The diagnostic external features of *Nacna* are the rather short body with robust thorax and well-developed tegulae, and slender abdomen with at least one large dark tuft of dorsal crest; the bright green (malachite-green or emerald-green) forewings with large elliptical-discoidal green basal area surrounded by ochreous- or reddish-brown zone between fine, partly incomplete, blackish and white defined antemedial, medial and postmedial lines, the indistinct white patch representing reniform stigma, the somewhat brownish suffused green marginal area with variably strongly developed white subterminal line and brown and/or blackish patches at terminal part of wing; the white or whitish (exceptionally brown) hindwing of both sexes, with brown suffused, shorter or longer, sometimes patch- or stripe-like marginal area.

The male genitalia are characterised by the simplified clasping apparatus (see the gen. figs 38–44), the relatively short, broadly tubular vesica armed by specially arranged, large cornuti and the subbasally positioned ductus ejaculatorius.

The female genitalia have short but relatively strong, shortly conical ovipositor with short, fine gonapophyses, entirely membranous antrum, finely wrinkled-ribbed, membranous ductus bursae with dilated, somewhat bulla-like proximal section (this part and the small, semiglobular or shortly conical appendix bursae may be strongly gelatinous/jellied, producing a knob-like or more elongated, chromophilous structure) and elliptical or sacculiform, weakly membranous or wrinkled-ribbed corpus bursae; signa absent.

The species of the genus can be arranged by the external features into four different groups but the genitalia structures support the division of *Nacna* into two major groups, the *malachitis*-group and the *pulchripicta*-group. In the *malachitis*-group the vesica is armed by a few (4–6) large cornuti and the female genitalia have a knob-like structure; the *pulchripicta*-group possesses a larger number (15–25) of cornuti while the ductus bursae and appendix bursae are membranous, without gelatinous appendage.

The species of the *pulchripicta*-group are easily separable by their external features while the habitus of the three species of the *malachitis*-group is often confusingly similar and the study of the genitalia is often necessary for the proper identification.

Distribution. Himalayan-Sino-Pacific. The members of the genus are distributed in the temperate monsoonic and subtropical areas of eastern and south-eastern Asia, to the Russian Far East and Japan to the north and northern Malaysia to the south; a single species is recorded also from Java. Certain species pairs have allopatric distribution (e.g. *N. malachitis* and *N. splendens* or *N. smaragdina* and *N. sugitanii*) but the sympatric occurrence of two or even three species of the genus is also known from the south-eastern Himalayas, the Chinese high mountains and Taiwan.

Genus ***Nacna*** Fletcher, 1961
Type-species: *Canna pulchripicta* Walker, 1865

malachitis (Oberthür, 1880)
splendens (Moore, 1888)
buschmannferenci **sp. n.**
prasinaria (Walker, 1865)
pulchripicta (Walker, 1865)
smaragdina (Draudt, 1937)
sugitanii (Nagano, 1918)

Nacna malachitis (Oberthür, 1880)

(Plate 11, Figs 1–2, Plate 35, Figs 5–13; gen. fig. 38)

Telesilla malachitis Oberthür, 1880, *Études de Lépidoptérologie* **5**: 80, pl. 3, fig. 9. Type-locality: Russia, Askold Island. Syntypes: 4 males, in coll. BMNH.

Diagnosis. The three closely related species of the *N. malachitis* lineage are very similar externally and are hardly separable by each other by their external features. The average size and the dark marginal pattern of the hindwing show specific features (it is more or less continuous but rather weak in its lower half in *N. malachitis*; much stronger and usually dark in its entire area in *N. splendens*; represented by a large dark apical patch in *N. buschmannferenci*), but the identification of the problematic specimens require the study of the genitalia. The locality data also may help in the identification as the three species are almost completely allopatric, except in the island of Taiwan where *N. splendens* and *N. buschmannferenci* may occur sympatrically and syntopically in the lower wooded areas.

The male genitalia of the three species are easily separable by the length and armature of the vesica: *N. malachitis* and *N. splendens* have short and tubular, distally more or less globular basal tube, with four (*malachitis*) or five (*splendens*) cornuti in the top region, while the basal tube is longer, more tubular distally in *N. buschmannferenci*, armed with four cornuti in the top region and additional two (altogether six) cornuti proximo-laterally. The simplified clasping apparatuses show more or less overlapping features, though the uncus of *N. malachitis* is somewhat shorter and slenderer than in the other two species. It is somewhat curious that the number of cornuti is so strongly fixed in these closely related species but this feature appeared as constant in the large number of specimens investigated.

In the female genitalia, *N. malachitis* and *N. splendens* have short and weak ductus bursae and a characteristic gelatinous, knob-like structure including also appendix bursae; the chromophilous feature of this structure makes it more prominent. This structure is smaller and weaker, laterally less developed in *N. malachitis* than in *N. splendens*. The third species, *N. buschmannferenci* has a much stronger, partly sclerotised and ribbed, flattened and partly folded appendix bursae, lacking the postero-lateral knob.

Distribution. Manchurian-Pacific. This is the northernmost distributed member of the genus, occurring in the Russian Far East, the Korean peninsula, Japan and Manchuria. It is widespread and usually frequent in the humid deciduous woodlands. Bivoltine, the adults fly in two more or less continuous generations, from the end of April to the end of September.

Nacna splendens (Moore, 1888)

(Plate 11, Figs 3–4, Plate 35, Figs 14–24; gen. fig. 39)

Canna splendens Moore, 1888, *Proceedings of the Zoological Society of London* **1867**: 46, pl. 6, fig. 6. Type-locality: [India, Himachal Pradesh] Dharmshala. Type(s): in coll. BMNH.

Synonymy
Canna javensis Warren, 1912, *Novitates Zoologicae* **19**: 11. Type-locality: Indonesia, Java. Holotype: male, in coll. BMNH; **syn. n.**

Diagnosis. The most characteristic external feature of *N. splendens* is the strong dark hindwing marginal suffusion, the strongest within the lineage. Rarely, the tornal section of the dark marginal field is paler or even obsolescent; the separation of these specimens from the other two twin species requires the dissection of the genitalia.

The specific feature of the male genitalia is the armature of the vesica composed from five apical cornuti (*N. malachitis* has four, *N. buschmannferenci* has six cornuti), that of the female genitalia is the large, laterally enlarged, globular and often somewhat racemose knob-like structure of ductus bursae and appendix bursae, being larger than in *N. malachitis* and having more complex surface.

The insular populations in Taiwan and Java are considered here as identical with the nominotypical ssp. *splendens* but the molecular taxonomic studies may prove their distinctness.

Distribution. Himalayan-Sino-Pacific. The most widespread species of the genus, it has a wide range including the southern Himalayas (Nepal, Sikkim, Assam), the mountainous parts of Indochina, the northern regions of Malaysia (Cameron Highlands), southern and Central China, Taiwan and Java. The main habitats are the medium-high and higher monsoonic forests and elfin forests, between 450–2600 m altitudes. It occurs partly sympatrically with *N. buschmannferenci* in Taiwan but preferring the lower regions; no sympatric occurrence with *N. malachitis* is known. Tri- or even multivoltine, depending on the climate and altitude of the given locality, the flight period is extending from March to December.

Remarks. *Nacna javensis* is illustrated in colour by Warren (in Seitz, volume **3**: 3; pl. 5, row b).

Nacna buschmannferenci sp. n.

(Plate 11, Figs 5–8, Plate 35, Figs 25–36; gen. fig. 40)

Holotype: male, Holotype, Taiwan, Prov. Nantou, Hohuan (Hehuan) Mts, Experimental Station, 3100 m, 26–28.IX.1999, G. Csorba & B. Herczig (coll. G. Ronkay).

Paratypes. **Taiwan**. **Chiayi County**: 1 male, 3 females, Alishan Mt., 2200 m, 14.VII.1989, leg. Y.B. Fan, 16.IV.2010, leg. S. Wu, 7.IV.2011, leg. S. Wu & W.C. Chang (coll. TFRI); 1 female, Alishan, 25–26.VI.1987, leg. C.S. Lin (coll. NMNS); 2 males, 3 females, Suyuang, 880 m, 27.VII.1997, leg. S.T. Kovács (coll. S.T. Kovács).

Hualien County: 2 females, Ci'en, 1950 m, 13.IX.2012 and 7.V.2013, leg. S. Wu (coll. TFRI); 1 female, Guanyuan, 2300 m, 13.IX.2012, leg. S. Wu (coll. TFRI); 1 female, Taroko N.P., Kuanyuan (Guanyuan), 2256 m, 24°11'15"N, 121°20'45"E, 10.VII.2007, leg. A. Kun (coll. HNHM); 1 female, Guanyuan, 14.VIII.1983, leg. B.S. Chang (coll. NMNS); 1 male, 2 females, Bilyushenmu, 26.V.1991, leg. H.Y. Wang (coll. NMNS); 1 male, Tayuling, 30 km SE of Lishan, 2650 m, 25.IX.1992, leg. F. Aulombard & J. Plante (coll. MNHG); 1 male, 1 female, Tayuling, 2750 m, 28.VI.1997, leg. S.T. Kovács (coll. S.T. Kovács); 8 specimens, Sangyong Lodge, 10.V.2010, leg. Gy. Fábián (coll. Fábián).

Ilan County: 2 females, Taipingshan, 1800 m, 26.VII.1990, leg. Y.B. Fan (coll. TFRI); 1 female, Chiduan, 23.IV.1982, leg. B.S. Chang (coll. NMNS); 1 female, Ming-Chyr Forest Recreation Area, 1200 m, 10–11.XII.1997, leg. Gy. Fábián (coll. Gy. Fábián); 1 male, 2 females, from the same locality, 18.IV.1997, leg. S.T. Kovács (coll. S.T. Kovács); 1 male, Pi Hu, 450 m, 29.VI.1997, leg. S.T. Kovács (coll. S.T. Kovács).

Kaohsiung City: 1 male, Tianchi, 2280 m, 25.VIII.2014, leg. C.M. Fu & W.H. Cheng (coll. CM Fu); 1 female, ditto, 14.V.2015, leg. C.M. Fu & W.H. Cheng (coll. CM Fu); 1 female, Kuaigu, 2487 m, 21.VII.2014, leg. C.M. Fu & W.H. Cheng (coll. CM Fu).

Kaohsiung County: 2 females, Tengzhi Taoyuan, 4.V.1987, leg. Y.B. Fan (coll. TFRI); 2 females, Tengzhi, 20–25.III.1989, leg. C.S. Lin (coll. NMNS); 1 male, ditto, 22.III.1991, 1550 m, leg. H.Y. Wang (coll. NMNS); 1 male, ditto, 21–24.XI.1995, leg. C.S. Lin & M.L. Chan (coll. NMNS); 3 males, 2 females, Liugui, Tunchi, 6–8.IX.1989, leg. C.S. Lin (coll. NMNS); 1 female, Shanping, 750 m, 25–26.III.1988, leg. Lin & Huang (coll. NMNS); 1 male, ditto, 5–10.IV.1988, leg. K.W. Huang (coll. NMNS); 1 female, ditto, 9–13.V.1988, leg. K.W. Huang (coll. NMNS); 1 male, ditto, 10–11.VI.1988, leg. K.W. Huang (coll. NMNS).

Miaoli County: 2 females, Guanwu, 2000 m, 6.IX.1989, leg. Y.B. Fan, 29.IV.2011, leg. S. Wu & W.C. Chang (coll. TFRI); 1 female, Guanwu, 25–29.IV.1989, leg. C.S. Lin (coll. NMNS); 1 male, 21 km E of Tungshih, 1335 m, 22.III.1996, 121°03'E, 24°19'N, leg. T. Csővári & P. Stéger (coll. T. Csővári).

Nantou County: 1 male, 1 female, with the same data as the holotype (coll. G. Ronkay and HNHM); 8 males, 4 females, Biluxi (Piluchi), 2000 m, 13.VI.1990, leg. Y.B. Fan, 30.VI.1986, 30.VII.1986, 3.IX.1986, 14.IX.1986, leg. Y.C. Chang (coll. TFRI); 1 female, Howang, 1800 m, 28.X.2011, leg. S. Wu & W.C. Chang (coll. TFRI); 1 male, Meifeng, 2100 m, 18.VII.1990, leg. Y.B. Fan (coll. TFRI); 2 females, from the same locality, 14.VIII.2012, leg. S. Wu & W.C. Chang (coll. TFRI); 1 female, Meifeng, 29.VI.1984, leg. B.S. Chang (coll. NMNS); 2 males, 2 females, ditto, 16.III.1985, leg. B.S. Chang (coll. NMNS); 1 male, 11 females, ditto, 27–29.V.1986, leg. C.S. Lin (coll. NMNS); 1 male, Meifeng, 24°05'N, 121°10'E, 2250 m, 25.IX.1999, leg. G. Csorba & B. Herczig (coll. J. Stumpf); 1 male, Yuanfeng, 5 km SW to Hehuan Mountain at the Road 14, 2756 m, 24°07'31"N, 121°11'38"E, 8.VIII.1999, leg. A. Kun & E. Juhász (coll. J. Stumpf); 1 male, 1 female, Shihshan, 2400 m, 5.X.2011 and 22.III.2012, leg. S. Wu & W.C. Chang (coll. TFRI); 1 male, 2 females, Tatajia (Tatachia), 2610 m, 4.VIII.2011, 21.II.2012 and 22.III.2012, leg. S. Wu & W.C. Chang (coll. TFRI); 1 female, Tsueifeng, 2250 m, 7.X.2012, leg. J.F. Tsai (coll. TFRI); 1 female, Hohuanshan (Hehuanshan), 3002 m, 22.IX.2006, leg. H.R. Tzuoo (coll. H.R. Tzuoo); 3 females, Hehuanshan, Hehuan Lodge, 1.VII.1987, leg. C.S. Lin (coll. NMNS); 1 female, Hohuan Pass, 3000 m, 17.VI.1997, leg. B. Herczig & L. Ronkay (coll. G. Ronkay); 3 females, Tsuiluan, 29.VIII.1986, leg. B.S. Chang (coll. NMNS); 1 female, Wushe, 30–1.IX.1992, leg. C.S. Lin (coll. NMNS); 1 female, Wangxiang, 20.VIII.2012, leg. T.Y. Hsieh (coll. NMNS); 1 female, Dongpu, 16.VI.1985, leg. B.S. Chang (coll. NMNS); 1 female, Dongpu Lodge, 28.IX.1990, leg. L.P. Shyu (coll. NMNS); 6 males, 6 females, Yushan NP, Tungpu (Dongpu), 24–26.IV.1997, S.T. Kovács (coll. HNHM and S.T. Kovács); 3 males, 2 females, Lulin Lodge, 16.VIII.1990, leg. B.S. Chang (coll. NMNS); 2 females, Shishan, 20.X.1990, leg. B.S. Chang (coll. NMNS); 1 female, ditto, 18.III.1991, leg. B.S. Chang (coll. NMNS); 9 males, 2 females: 3 km SW of Tsueifeng, 2100 m, 11.X.1995, 20.X.1995, 26–27.X.1995, and 1–2.IV.1996, leg. T. Csővári & P. Stéger, 4–5.VIII.1996 and 7.VIII.1996, leg. T. Csővári & L. Mikus (coll. T. Csővári); 1 male, 1 female, 3 km E of Tili, 555 m, 12.X.1995 and 21.X.1995, 120°58'E, 23°47'N, leg. T. Csővári & P. Stéger (coll. T. Csővári); 1 female, from the same locality, 16.XI.1996, leg. T. Csővári & Cs. Szabóky (coll. T. Csővári); 2 males, 2 females,

5 km SW of Tayuling, 3000 m, 19.VIII.1996, and 8–9.VII.1997, 121°17'E, 24°09'N, leg. T. Csővári & L. Mikus (coll. T. Csővári); 2 males, 1 female, 1 km W of Tatachia peak, 2520 m, 13.X.1995 and 22.X.1995, 120°53'E, 23°33'N, leg. T. Csővári & P. Stéger (coll. T. Csővári); 1 female, 2 km E of Alishan, 2450 m, 11.IV.1997, leg. L. Peregovits & A. Kun (coll. G. Ronkay); 2 males, Lushan Spa, 1200m, 29–30.III.1982 and 24–27.VIII.1983, leg. H. Yoshimoto; 1 male, from the same locality, 7–9.XI.1983, leg. K. Yazaki (coll. MHNG); 1 male, Hueisun Forest, 570–800 m, 28–29.IX.1992, leg. F. Aulombard & J. Plante (coll. MHNG); 23 specimens, Bilu Giant Tree, 2000 m, 6.V.2010, leg. Gy. Fábián (coll. Fábián).
Pingtung County: 1 female, 10 km SE of Mutan, 470 m, 7–10.III.1996, leg. Gy. Fábián & L. Németh (coll. P. Gyulai); 3 males, 10 females, from the same locality, 6.IV.1997, leg. G. Csorba & L. Ronkay (coll. S.T. Kovács); 1 male, 1 female, from the same locality, 24–25.IV.1997, leg. S.T. Kovács (coll. HNHM).
Taichung County: 2 females, Anmashan, 2000 m, 29.XI.2009, leg. S. Wu, 17.VII.2013, leg. S. Wu & W.C. Chang (coll. TFRI); 3 males, 6 females, Anmashan, 6–8.V.1986, leg. C.S. Lin (coll. NMNS); 1 male, ditto, 2100 m, 19.VIII.1996, leg. C.M. Fu (coll. CM Fu); 1 female, ditto, 2100 m, 13.IX.1996, leg. C.M. Fu (coll. CM Fu); 1 male, Anmashan, 2000 m, 1–2.VII.1997, leg. S.T. Kovács (coll. S.T. Kovács).
Taitung County: 2 males, 1 female, Hsiangyang, 2200 m, 10.IV.1997, G. Csorba & L. Ronkay (coll. G. Ronkay and HNHM); 2 males, from the same locality, 2–3.XI.1996, leg. Gy. Fábián & F. Nemes (coll. Gy. Fábián); 1 female, above Liyuan, 1950 m, 15.VI.1997, B. Herczig & L. Ronkay (coll. G. Ronkay); 3 males, Yu-Shan Mts, Yakou, 2600 m, 16.X.1996, leg. Gy. Fábián & F. Nemes (coll. Gy. Fábián).
Taoyuan County: 1 male, 16 km E of Fuhsing, 870 m, 5–6.IV.1996, 121°24'E, 24°50'N, leg. T. Csővári & P. Stéger (coll. T. Csővári).
Taiwan (without additional information): 20 specimens (coll. A. Becher & J. Stumpf).
Slide Nos: RL11035m, RL12277m, Németh B-87 (males), RL12278f, RL12997f (females).

Diagnosis. The new species is on average larger in size than the other two closely related taxa (wingspan 33–38 mm; the other two species are smaller than 33 mm). It differs externally from the other two sister taxa by the hindwing marginal area where the dark marginal stripe is reduced to a large brown apical patch while the lower part of the dark stripe is missing. In a few occasions, there is a shadow-like brownish irroration; the identity of such specimens can be confirmed by genitalia studies.

The specific differences between *N. buschmannferenci* and the other members of the *malachitis* lineage are easily recognisable, providing a doubtless identification. In the males, the new species has six cornuti in the vesica, arranging into three groups whole the 4 or 5 cornuti of the other two species are arranged into two apical groups. In the females of *N. buschmannferenci*, the ductus bursae-appendix bursae complex does not form a knob-like gelatinous structure but appears as a long and broad, partly sclerotised and ribbed, flattened and somewhat folded tube.

Distribution. Endemic to Taiwan. It appears practically in all parts of the island but prefers the higher altitude forest regions where locally may be frequent. The new species occurs sympatrically and syntopically with the Taiwanese populations of *N. splendens* but this latter species is rarer and more local in Taiwan, inhabiting usually the lower areas. *Nacna buschmannferenci* is supposedly multivoltine, the adults can be found practically in the whole year, being the rarest in the winter months (January and February).

Etymology. The new species is dedicated to our friend and colleague, Mr. Ferenc Buschmann, enthusiastic Hungarian lepidopterist, explorer of the fauna of the Carpathian Basin.

Nacna prasinaria (Walker, 1865)

(Plate 12, Figs 1–2, Plate 35, Figs 37–44; gen. fig. 41)

Diphthera prasinaria Walker, 1865, *List of the Specimens of Lepidopterous Insects in the Collection of the British Museum* **32**: 615.
Type-locality: [India, Sikkim] Darjeeling. Type(s): in coll. BMNH.

Diagnosis. *Nacna prasinaria* is easily separable from all other congeners by the differently shaped, rather trilobate green basal area bordered by the crispate antemedial line; all related species have more or less evenly arcuate antemedial line, therefore their basal area is a large, elliptical-ovoid green field. The hindwing marginal area is also different from those of the other species of the genus as the dark brown stripe is narrow and running submarginally, therefore the marginal stripe of the wing is white, not brown.

In the male genitalia, the armature of the vesica of *N. prasinaria* is most similar to that of *N. pulchripicta*, having very long and straight cornuti on one side of the apical section of the main tube. The difference between the two species can be found in the size, number and arrangement of the cornuti: in *N. prasinaria*, there only a few (3–4) very long cornuti on one side and the crown of cornuti is rather continuous from the tip of the main tube to the end of the opposite side. In *N. pulchripicta*, the largest cornuti (usually only two) are somewhat shorter and less acute than in *N. prasinaria* and followed by 3–4 shorter cornuti towards the tip of the main tube, and the long row of cornuti on the opposite side consists of more irregularly sized and usually more curved cornuti. There are some differences in the clasping apparatuses of the two species as the uncus of *N. prasinaria* is more evenly curved, the tegumen is longer, the juxta is somewhat larger and the medial section of the valva is more dilated than in *N. pulchripicta*. The other two related species, *N. smaragdina* and *N. sugitanii*, have shorter cornuti on both sides of the main tube of vesica, and their size is and more evenly changing from the tip of the tube towards the medial section of both sides of the vesica.

In the female genitalia, the ovipositor of *N. prasinaria* is narrower and less conical than in *N. pulchripicta* (and also, *N. smaragdina* and *N. sugitanii*), the corpus bursae is proportionally longer and more saccate, and the posterior part of corpus bursae is more ribbed-reticulate than in its close relatives.

Distribution. Southern Himalayan. The species is widely distributed in the eastern part of the main Himalayas, from Himachal Pradesh in India throughout Nepal and Bhutan to Indian Sikkim, inhabiting the medium-high and higher forest belts. Bivoltine, the moths are on the wing from May to September in two more or less continuous generations.

Nacna pulchripicta (Walker, 1865)

(Plate 12, Figs 3–4, Plate 35, Figs 1–6; gen. fig. 42)

Canna pulchripicta Walker, 1865, *List of the Specimens of Lepidopterous Insects in the Collection of the British Museum* **33**: 790.
Type-locality: [India, Sikkim] Darjeeling. Holotype: male, in coll. BMNH.

Diagnosis. *Nacna pulchripicta* is an easily recognisable species. It can be distinguished from the other *Nacna* species by its more unicolorous and more bluish-shaded green forewings with more elongated basal green patch, sharper antemedial and medial crosslines with more uniform brownish filling between them, the absence of the white reniform stigma and the white patches of the marginal area and the weaker marginal suffusion of the white hindwing. The white hindwing is a key feature when compared *N. pulchripicta* with *N. smaragdina* and *N. sugitanii* as the latter two species have brown(ish) hindwings in both sexes.

The male genitalia of *N. pulchripicta* differ from those of *N. prasinaria* by the shorter large cornuti and the more unevenly sized and shaped row of cornuti oppositely, the basally more curved uncus, the shorter tegumen, the smaller juxta, and the apically more pointed valvae with less dilated medial section. The large cornuti of the vesica are remarkably longer and straighter in *N. pulchripicta* than in *N. smaragdina* and *N. sugitanii* and the row of the smaller cornuti consists of larger and more unevenly sized units. In addition, the uncus is less curved subbasally and the valva is medially more dilated and apically more pointed in *N. pulchripicta* than in *N. smaragdina* and *N. sugitanii*.

The female genitalia of *N. pulchripicta* are more similar to those of *N. smaragdina* and *N. sugitanii* than to those of *N. prasinaria* by the less conical, proximally less broadened ovipositor and the elliptical-ovoid, often drop-shaped corpus bursae. The penultimate segment of the ovipositor is narrower in *N. pulchripicta* than in *N. smaragdina* and *N. sugitanii*, the anterior part of ductus bursae is more tubular, the appendix bursae is broader and the posterior half of corpus bursae is more ribbed than in the other two relatives. The medial section of corpus bursae has a rugose structure in *N. pulchripicta* which is missing from *N. smaragdina* and *N. sugitanii*; the latter two species possess a large ribbed-wrinkled area medially instead of this structure.

Distribution. Southern Himalayan. The range of this species is restricted to the central and eastern parts of the southern Himalayan chain, from western Nepal to Bhutan and the Indian part of Sikkim. It inhab-

its the medium-high forest areas, between 2000–3000 m altitudes. Bivoltine, the adults are on the wing, more or less continuously, from May to August.

Nacna smaragdina (Draudt, 1937)

(Plate 12, Figs 5–6, Plate 35, Figs 7–15; gen. fig. 43)

Canna smaragdina Draudt, 1937, *Entomologische Rundschau* **54**: 374, pl. 4, fig. 1a. Type-locality: China, Prov. Shaanxi, Tsinling Mts, Tapaishan (= Taibaishan). Syntypes: in coll. ZFMK.

Diagnosis. *Nacna smaragdina* differs from the closest related *N. sugitanii* by its paler, more mossy-green forewing ground colour, the broader and darker brown median stripe, the more variegated upper (costal) part of the marginal field and the paler, often whitish inner area of the hindwing. The wing shape is similar in these two species, being somewhat shorter and broader than in the third similar species, *N. pulchripicta*. *Nacna smaragdina* has, in comparison with *N. pulchripicta*, paler green ground colour, smaller and more rounded basal green area, well-developed white reniform stigma, broader brown medial stripe, better defined white subterminal line and darker, brown suffused white hindwings.

In the male genitalia, the armature of the vesica shows specific differences. In *N. smaragdina* the row of the large cornuti consists of longer and apically less curved cornuti than in *N. sugitanii*, the cornuti of the apical section are considerably longer and the row of short cornuti contains a larger number of somewhat longer cornuti; the distal half of the main tube of vesica is less dilated than in *N. sugitanii*. The main differences in the clasping apparatuses are the smaller juxta and the more triangular cucullus of *N. smaragdina*.

The female genitalia of the two species are more similar than the males. The ductus bursae of *N. smaragdina* is proximally less dilated above appendix bursae and less scobinate than in *N. sugitanii*, and the corpus bursae is more discoidal-ovoid with broader fundus and stronger ribbed-wrinkled walls.

Distribution. Sino-Tibetan. The species has a rather restricted area in the Central Chinese Mountains in Shaanxi (Tsinling Mts, Taibaishan and Daba Shan Mts). The main habitats are medium-high and high montane deciduous and mixed forests, between 1600–3000 m altitudes. Bivoltine, the flight period extends from May to August.

Nacna sugitanii (Nagano, 1918)

(Plate 12, Figs 7–8, Plate 35, Figs 16–20; gen. fig. 44)

Canna sugitanii Nagano, 1918, *Insect World* **22**: 356. Type-locality: Japan. Type(s): in coll. NSMT.

Diagnosis. *Nacna sugitanii* is easily separable from the other members of the genus by its dark hindwing of both sexes. Besides this key feature, it differs from the closest related *N. smaragdina* by its darker, unicolorous malachite-green forewing ground colour, narrower and reddish-brown shaded median zone and obsolescent reniform stigma; from *N. pulchripicta* by its broader and shorter forewings, more rounded basal green patch and better defined whitish subterminal line.

In the male genitalia, the two rows of cornuti consist of shorter and more curved items than in *N. smaragdina*, the apical cornuti are very small, and the entire distal part of the main tube of vesica is more dilated. In the clasping apparatus, *N. sugitanii* has the proportionally largest juxta and longest vinculum, and the valval tip is more rounded than in *N. smaragdina*.

The female genitalia of *N. sugitanii* differ from those of *N. smaragdina* by the more broadened and more scobinate anterior part of ductus bursae and appendix bursae and the reversed drop-shaped corpus bursae with narrower fundus and less ribbed-wrinkled walls.

Distribution. Endemic to Japan. The species is distributed in the mountainous areas of Honshu and Shikoku, appearing in the higher deciduous forest belts. Bivoltine, the moths are on the wing from May to August.

Tribe ***Psaphidini*** Grote, 1896

Subtribe ***Psaphidina*** Grote, 1896

Genus ***Guntia*** Shchetkin, 1980

Guntia Shchetkin, 1980, *Russkiy Zoologichesky Zhurnal* **59**: 1255. Type-species: *Guntia chorogica* Shchetkin, 1980, by original designation.

Diagnosis. The genus *Guntia* Shchetkin, 1980 and its type-species, *Guntia chorogica* Shchetkin, 1980 was discovered and described rather recently, at the last third of the twentieth century. It has been remained as one of the poorest known Central Asiatic trifine Noctuidae genera, due to its restricted distribution and the rather hardly accessible description published in Russian.

The external and genital differences between the two remotely distributed species are easily recognisable, as well as the shared morphological characters indicating the close relationship of the two taxa. The genus includes large sized moths (wingspan 47–60 mm) with robust body, shortly bipectinate male antenna, rather homogeneous thoracic vestiture and smooth dorsal abdominal pubescence, elongated forewings with pointed apex, pale grey ground colour and reduced noctuid pattern.

The diagnostic features of the male genitalia are as follows: uncus short, flattened, apically rounded; tegumen slender and short; penicular lobes minute, densely hairy with long, fine bristles; juxta sclerotised, narrow subdeltoidal; vinculum long and strong, V-shaped; valvae short, rather weak, distally tapering into rounded cucullus; corona represented by a few hair-like setae; sacculus strong, short; clavus broad, obtuse, partly setose; harpe (clasper) large, flattened, slightly S-shaped, with strong and long basal sclerotised plate; digitus plate long, broad, its terminal process short, fine, acute. Aedeagus long, tubular, distally strongly arched; dorsal carinal bar eversible, narrow and rather weak; ventral eversible carinal plate large and heavily sclerotised, ventrally serrate; vesica short, membranous, recurved ventrally; subbasal dorsal diverticulum small, membranous, bearing fine, pin-like cornutus; dorsal subterminal fascia of cornuti short, consisting of fine, medium-long spinules.

The female genitalia are characterised by the very long, telescopic ovipositor with long, fine papillae anales, long penultimate segment and very long pairs of gonapophyses, calyculate antrum with stronger sclerotised ostial arch, medium-long, posteriorly tapering, partly cristate-ribbed and gelatinous covered ductus bursae, discoidal or sacculiform, membranous corpus bursae, without or with small, rounded signa.

Distribution. Central Asiatic. The two stenochorous, allopatric species of the genus occur in The Pamir Mts in Tadjikistan and in Iran.

Genus ***Guntia*** Shchetkin, 1980
Type-species: *Guntia chorogica* Shchetkin, 1980

chorogica Shchetkin, 1980
iranica Ronkay, Ronkay & Gyulai, 2014

Guntia chorogica Shchetkin, 1980

(Plate 13, Figs 1–2, Plate 36, Figs 21–23; gen. fig. 45)

Guntia chorogica Shchetkin, 1980, *Russkiy Zoologichesky Zhurnal* **59**: 1255. Type-locality: Tadjikistan, Pamir Mts, Khorog. Holotype: male, in coll. ZIN.

Diagnosis. The type-species of the genus differs externally from its Iranian congener by its dark grey suffused pale ashy grey forewings with more complex although rather diffuse wing pattern, more homogeneous dark covering on veins, especially in the median area, distinctly marked orbicular and reniform stigmata, latter with conspicuous whitish-grey filling, and by the much paler, finely grey irrorated whitish hindwings. Wingspan 47–60 mm.

The main differences between the female genitalia of the two species are found in the sclerotisation of the antrum and ductus bursae, and the configuration of corpus bursae. The ostial ring of the antrum is stronger sclerotised in *G. chorogica* than in *G. iranica* the proximal part of ductus bursae is more dilated, the appendix bursae is larger and covered with gelatinous incrustation, and the corpus bursae is larger, discoidal-globular, bearing two large and a third, smaller, rounded signa.

Distribution. The species is a typical member of the late autumnal aspect of the south-eastern part of the Tadjik Pamir, it was found generally in the surrounding of the famous Botanical Garden in Khorog.

Guntia iranica Ronkay, Ronkay & Gyulai, 2014

(Plate 13, Fig. 3, Plate 36, Fig. 24; gen. fig. 46)

Guntia iranica Ronkay, Ronkay & Gyulai, 2014, *Fibigeriana Supplement. Book series of Taxonomy and Faunistics* **2***:* 158, pl. 33, fig. 7; gen. fig. 26. Type-locality: Iran. Holotype: female, in coll. G. Ronkay (Budapest).

Diagnosis. *Guntia iranica* differs conspicuously from its only known congener, *G. chorogica*, by its generally darker, more brownish shaded grey forewings, with very fine dark covering on veins (which is the most extensive in the marginal area) but without stronger dark streaks in the basal area, pale grey fields between veins in the median and marginal areas, much finer and incompletely encircled orbicular and reniform stigmata, without prominent paler filling, more obsolete postmedial and subterminal crosslines and, finally, by the uniformly darkened, grey-brown suffused hindwings. Wingspan 51 mm.

The most conspicuous specific features of the female genitalia of *G. iranica* are, in comparison with *G. chorogica*, the lack of signa, the narrowly sacculiform corpus bursae, the smaller and more membranous appendix bursae, the proximally less dilated and less strongly sclerotised ductus bursae and the weaker sclerotisation of the ostial ring of the calyculate antrum.

Distribution. Iranian. The bionomical and distribution data are very scarce. No precisely given locality is indicated on the label and the only real information about the bionomics is the date of collecting, from the first half of November.

Genus ***Rezahiria*** Ronkay, Ronkay & Gyulai, 2014

Rezahiria Ronkay, Ronkay & Gyulai, 2014, *Fibigeriana Supplement. Book series of Taxonomy and Faunistics* **2**: 156. Type-species: *Rezahiria marmota* Ronkay, Ronkay & Gyulai, 2014, by original designation.

Diagnosis. The placement of this monotypic genus into the subtribe Psaphidina is still tentative and based principally on certain external and male genital features and the known bionomical data. On the other hand, the configuration of the vesica of *Rezahiria* and its armature show similarity to that of *Rhiza*

Staudinger, 1888 (subgenus *Graphantha* Ronkay, Varga et Fábián, 1995), as well as the large, irregularly ridged juxta. The clasping apparatus appears as highly autapomorphic with the unusually built uncus, or the apically bifurcate digitus which makes the situation even more difficult. Moreover, only the male sex is known, therefore there is no additional information about the female genitalia which could be helpful for a better founded decision.

The type-species of *Rezahiria* is also similar externally to certain other Xyleninae and Hadeninae groups (e.g. *Heptapotamia* Alphéraky, 1893, *Hada* Billberg, 1820, *Cornutifera* Varga & Ronkay, 1991, etc.) but with remarkable differences in the head structure and the colouration of the wings; moreover, the genitalia of the mentioned genera are conspicuously dissimilar.

The diagnostic external features of *Rezahiria* are as follows: body robust; eyes large, globular, naked, with long lashes; frons rounded; antenna with medium-long, asymmetrical pectination; palpi rather short, rather porrect, with short apical joint; proboscis well-developed; collar and tegulae homogeneously and densely covered with long hair-scales; metathoracic tuft only slightly separated; forelegs without spines; abdomen relatively short, cylindrical, with lanuginose vestiture; without distinct dorsal crest and anal tuft; forewing rather shortly triangular, with finely pointed apex and arched outer margin; hindwing short, rounded.

In the male genitalia, the clasping apparatus is slightly asymmetrical, ampullae and apical ends of digituses somewhat differently shaped. Uncus strong, basally thick, tapering distally towards finely rounded and flattened tip; tegumen broad and short, with small, rounded, finely setose penicular lobes; juxta large, long, flattened, subdeltoidal, with fine constriction and ridges at medial section; vinculum strong, V-shaped, with short saccus. Valvae elongated, costal margin slightly concave at medial section; distal third somewhat dilated, cucullus rounded, weakly setose-hairy, with finely tipped apex; corona absent. Sacculus short, dorsally rounded, without specialised clavus; harpe (basal bar of ampullar process) questionmark-shaped, slender and sclerotised; ampulla strong, cuneate, finely arched and acutely pointed; transtilla well-developed, with sclerotised, large proximal lobes; digitus large, broad, apically bifurcate, with shorter ventral and longer, more wedge-shaped dorsal tips. Aedeagus medium-long, cylindrical; coecum slender, carinal section somewhat dilated; ventro-lateral carinal plate with heavily sclerotised longitudinal bar, armed by teeth. Vesica broadly tubular, recurved ventro-laterally at medial third; basal section membranous, medial and distal parts densely covered with minute setiform cornuti; terminal section membranous.

Distribution. Iranian.

Rezahiria marmota Ronkay, Ronkay & Gyulai, 2014

(Plate 13, Figs 7–8, Plate 36, Figs 25–27; gen. fig. 47)

Rezahiria marmota Ronkay, Ronkay & Gyulai, 2014, *Fibigeriana Supplement. Book series of Taxonomy and Faunistics* **2**: 158, pl. 33, fig. 8; gen. fig. 27. Type-locality: Iran, Prov. Esfahan, 8 km of Natanz. Holotype: male, in coll. G. Ronkay (Budapest).

Diagnosis. *Rezahiria marmota* differs from the externally most similar *Pseudohadena* (*Jaxartia* and *Pseudopseustis*) species by its shorter pectination of the male antenna, the shorter wings and the generally darker colouration with diffuse, shadow-like crosslines and stigmata, and the unicolorous dark hindwings; from the species of *Rhiza* (*Graphantha*) by the pectinated male antenna, the more robust body with homogenous and thick vestiture, the much more indistinct forewing pattern and the prominently darker hindwings. An additional difference is the winter (and very early spring) flight period which is unknown in the Pseudohadenina genera. Wingspan 35–37 mm.

The differences in the genitalia are discussed above, in the diagnosis of the genus. The externally somewhat similar species of the Hadeninae genera (e.g. *Hada, Lasionycta*, *Cornutifera, Conisania* Hampson, 1905, *Sideridis egena subfusca* Hacker & Kautt, 1995, etc.) are easily separable from *Rezahiria marmota* by their hairy eyes and the strikingly different male genitalia and their summer flight period. The species of the externally somewhat similar Xyleninae genera, *Heptapotamia, Catasema* Staudinger, 1888, and *Metopodicha* Draudt, 1936, differ from *R. marmota* by their ochreous-yellowish, ochreous-brown or

orange-brown forewing ground colour, most often more distinct crosslines and stigmata, and pale, usually white or whitish hindwings. Finally, the two known species of the genus *Pamirorea* Ronkay & Varga, 1990, have, in comparison with *R. marmota*, slenderer body, more distinct dark crosslines and outlines of orbicular and reniform stigmata on grey or brown-grey ground, paler, less uniformly dark brown-grey hindwings; and the male genitalia of the two genera are rather dissimilar.

The diagnostic male genital features distinguishing *R. marmota* from the externally somewhat similar species are mentioned above in the diagnosis of the genus.

Distribution. Iranian. *Rezahiria marmota* appears as a winter noctuid species, with the adults overwintering or active throughout the winter, as records are known from December and March. It occurs in the vicinity of Natanz, in Esfahan Province, Central Iran.

Genus ***Phidrimana*** Kononenko, 1989

Phidrimana Kononenko, 1989, *Japan Heterocerists' Journal* **152**: 29. Type-species: *Dryobota amurensis* Staudinger, 1892, by original designation.

Diagnosis. The type-species of this monotypic genus has long been placed into the subfamily Xyleninae (Cuculliinae in the Hampsonian sense) since Kononenko (1989) stated its close relationship with the sensu stricto Amphipyrinae and established the new genus for it. His statement is correct though in that time Amphipyrinae and Psaphidinae were two distinct subfamilies. Subsequently, Fibiger & Hacker (2007), Kononenko (2005), Kononenko & Han (2007) and Kononenko (2017) interpreted it as a genus belonging to Amphipyrinae. The most recent works (Lafontaine & Schmidt (2010), Keegan et al (2018), etc.) demonstrated the close phylogenetic connection between Amphipyrinae and Psaphidinae and treated the latter group as a tribe within the same subfamiliar unit.

Certain genitalia features like the heavily sclerotised scaphium, that is separated into two long, basally broad, heavily sclerotised, tapered and apically pointed plates, the large, plate-like, slightly curved pleurites, the absence of the penicular lobes, the "Amphipyrinae type" cornuti of the vesica, or the presence of a small triangular pouch ("ostial ligula") in the postvaginal plate, clearly support the placement of *Phidrimana* into the amphipyrine trunk. The well-developed saccular process, the cuneate, long harpe (clasper), the presence of the corona, and the large pyramidal terminal cornutus are apomorphic features of the genus which can be derived from homologous parts of the genitalia of psaphidine genera, as well as the very long, telescopic ovipositor, the sclerotised and flattened antrum and ductus bursae, and the rather short corpus bursae. Finally, the moths have a non-amphipyrine external appearance, with different body structure and pubescence and colouration and pattern of both wings resembling far more the greyish coloured psaphidine genera. Thus, the genus *Phidrimana* is treated here as a member of Psaphidinae, tribe Psaphidini.

Distribution. Siberian-Pacific.

Phidrimana amurensis (Staudinger, 1892)

(Plate 13, Figs 4–6, Plate 36, Figs 28–34; gen. fig. 48)

Dryobota amurensis Staudinger, 1892, *Deutsche Entomologische Zeitschrift. Gesellschaft Iris zu Dresden* **5**: 432. Type-locality: Russia, Ussuri region. Holotype: female, in coll. ZMHU.

Synonymy

Miselia sabulosa Graeser, 1892 (October), *Berliner entomologische Zeitschrift* **37**: 222. Type-locality: [Russia] Amur valley, Khabarovsk. Holotype: male, in coll. ZISP.

Diagnosis. An easily recognisable species. It differs externally from the somewhat similar species of the genera *Dryobotodes* Warren, 1910 and *Dichonia* Hübner, 1816 by its weaker, slenderer body, not clubbed foretibiae, broader forewings and the rather unicolorous grey ground colour of both wings; from the also somewhat similar species of *Meganephria* Hübner, 1820 by its smaller size, much weaker and gracile body, narrower wings with less sharply defined noctuid pattern, smaller and differently shaped stigmata, etc.

The genitalia of both sexes are characterised in the Diagnosis of the genus; no similar genitalia are known.

Distribution. The species has a wide range from the Ural region and the western Kazakh steppes throughout western and Central Siberia, Mongolia, Transbaikalia to the Russian Far East, Manchuria and Korea. Univoltine species, inhabiting various deciduous forests and forest patches in the zonal forest steppes; the moths are on the wing in the summer (July-September).

Genus ***Gracilisinensis*** Gyulai & Saldaitis, 2017

Gracilisinensis Gyulai & Saldaitis, 2017, *Zootaxa* **4353**(2): 393. Type-species: *Gracilisinensis vaiva* Gyulai & Saldaitis, 2017, by original designation.

Diagnosis. The genus is placed to the tribe Psaphidini. This placement is based on a few shared characters of *Gracilisinensis* with the other genera of the tribe which are as follows: bipectinate antennae of males; in male genitalia the absence of the typical harpe, instead of it bearing a small ventrally positioned saccular appendage, which is originated from subventral part of the valva (shared feature with Stiriinae and Oncocnemidinae), appearing independent from the distal part of the sacculus; a fine, rather anteriorly projecting costal extension in the distal part of the ventral edge of the valva and ample, membranous, somewhat dorsally everted vesica with a subbasal row of short but strong cornuti. In female genitalia the shared characters are the membranous but distally sclerotized ductus bursae, hardly prominent appendix bursae, and long, membranous, corpus bursae without signa.

The genus is related to *Diphtherocome* sharing certain external characters (colour and wing pattern) and the similar genitalia morphological structure: in males the base configuration of the saccular and ventral extensions and the subbasal row of short but strong cornuti; in females the configuration of antrum-ductus bursae complex, the shallow appendix bursae, the long, saccular corpus bursae and the absence of the signa. The two species of *Gracilisinensis* differ from the species of *Diphtherocome* by smaller size, much more broadly bipectinate antennae with longer rami in males and the more prominent orbicular and reniform stigmata of forewing.

In the male genitalia, the valval shape of *Gracilisinensis* resembles those of *Discibocome* (Hreblay & Kononenko 1997; Gyulai, Ronkay & Ronkay 2014), differing from them by lacking the typical harpe; bearing very long and fine hairs in high density particularly in the dorsal, setose side; possessing weak saccular appendage and small digitate process (which sometimes leaning back inward) in the distal part of the ventral edge. The "saccular appendage" is a small, ventrally positioned harpe/clasper, which appears as mostly independent from the distal part of the sacculus; and the digitate process is a fine, rather anteriorly projecting costal extension, which may be curved backwards to the ventral surface of the valva. The vesica with the strong cornuti field is a shared feature within some other species-groups of *Diphtherocome* (e.g. the *pallida* species-group) while the structure of the female genitalia appears closer to that of *Discibocome*.

At first sight, the two species of *Gracilisinensis* are also similar to some species of the genus *Victrix* Staudinger, 1871 but the features of the male and female genitalia support the assignment of these two genera into two different subfamilies: *Gracilisinensis* to Psaphidinae and *Victrix* to Bryophilinae.

Distribution. Sino-Tibetan.

Genus ***Gracilisinensis*** Gyulai & Saldaitis, 2017
Type-species: *Gracilisinensis vaiva* Gyulai & Saldaitis, 2017

vaiva Gyulai & Saldaitis, 2017
moha Gyulai & Saldaitis, 2017

Gracilisinensis vaiva Gyulai & Saldaitis, 2017

(Plate 14, Figs 1–2; Plate 36, Figs 35–37; gen. fig. 49)

Gracilisinensis vaiva Gyulai & Saldaitis, 2017, *Zootaxa* **4353**(2): 396, figs 1–3. Type-locality: China, Sichuan, Erlang Shan. Holotype: male, in coll. P. Gyulai (Miskolc).

Diagnosis. *Gracilisinensis vaiva* is easily distinguishable from its northern sister species, *G. moha*, by a number of external and genitalia features. *G. vaiva* has more variegated forewing, lighter marginal field, with less prominent orbicular and reniform stigmata, and strictly arched postmedial line (not almost straight as in the sister species *G. moha*), much conspicuous blackish patch in the forewing termen, white colouration in the basal part of the subterminal line and conspicuously broader bipectinate antennae in the males. Wingspan 29–37 mm.

In the male genitalia, it is very distinctive by the basally significantly weaker, however distally conspicuously broader valvae, the larger juxta and carinal plate of the aedeagus.

Distribution. The species is known from the eastern edge of the Tibetan plateau in Sichuan province west and north parts. It lives in virgin mixed forest habitats dominated by various broad-leaved trees; the moths are on the wing from the end of the summer to the beginning of autumn.

Gracilisinensis moha Gyulai & Saldaitis, 2017

(Plate 14, Figs 3–4; Plate 36, Figs 38–40; gen. fig. 50)

Gracilisinensis moha Gyulai & Saldaitis, 2017, *Zootaxa* **4353**(2): 398, figs 4, 9. Type-locality: China, Shaanxi, Taibai Shan. Holotype: male, in coll. P. Gyulai (Miskolc).

Diagnosis. *Gracilisinensis moha* can be separated from its southern twin species by its smaller size (wingspan 27–30 mm), more unicolorous forewing, with darker marginal field and more prominent orbicular and reniform stigmata, almost straight postmedial line, less conspicuous blackish patch in termen, absence of white colouration in the basal section of subterminal line and the finer bipectinate antennae of the males.

The male genitalia are separable from those of *G. vaiva* by the basally significantly broader, however distally conspicuously slenderer valvae with strictly concave dorsal costa, the smaller juxta and the smaller carinal plate of the aedeagus. The female is unknown.

Distribution. The species is known only from Shaanxi, China.

Family **Erebidae** Leach, 1815

Subfamily **Toxocampinae** Guenée, 1852

Tribe **Toxocampini** Guenée, 1852

The ***Lygephila*** genus-group

by

Oleg Pekarsky

Taxonomy and phylogeny. The genus-group contains two genera, *Tathorhynchus* and *Lygephila*; its sister-group is the *Autophila* generic complex. The outgroup of the clade is the *Perinaenia* Butler, 1878 - *Isoura* Hampson, 1894 - *Exophyla* Guenée, 1841 clade. In their revision, Goater et al (2003) united *Lygephila* and *Tathorhynchus* into a common genus, distinguishing them as subgenera. This common genus is still somewhat less diverse in taxa (ca 50 described species and subspecies) while the number of the species and subspecies level taxa of *Autophila* (sensu lato) exceeds the one hundred.

The apomorphies distinguishing the *Lygephila* generic complex from the *Autophila* genus-group are discussed in detail by Goater et al (2003); the main statements are shortly repeated here as follows.

The *Lygephila* Billberg, 1820 - *Tathorhynchus* Hampson, 1894 branch is characterised by the following apomorphic features: 1) presence of a sclerotised finger-like process from the penicular ventral part of tegumen (this peculiar process is not a pleurite: pleurites are absent in this trunk of the Erebidae, and pleurites of the trifine Noctuidae are strongly attached to vinculum, and more longitudinally, weakly connected to tegumen (present also in some species-groups of *Autophila,* in *Autophila (Autophila) monstruosa* Boursin, 1970, the penicular lobes have the same structure and origin as in *Lygephila*, demonstrating the original position of the organ); 2) transtilla heavily sclerotised, tapering upwards by diaphragm; 3) clasper small or medium-long, most often finger-like or cuneate (rarely flattened and variably strongly furcate), arising subapically, parallel with valva margins; 4) a sclerotised triangular, dorso-apical saccular process (editum) may be present (though may be inconspicuous in certain large lineages and species-groups; 5) vesica complex, with numerous (ca 7–10 or more) small diverticula, some of them with spinules by apex, sometimes with one apical diverticulum with a cluster of small spines; or with small but strong, mace-like structures; often with single subbasal cornutus or sclerotised crest; occasionally the entire armature is reduced; 6) ovipositor short, mostly membranous, only sclerotised posteriorly; 7) apophyses most often short and slender; and the 8) antrum is more or less funnel-shaped, usually heavily sclerotised.

Distribution. The *Lygephila-Tathorhynchus* clade is remarkably more widespread than the *Autophila* generic complex. The former is also predominantly Palaearctic but there are also Ethiopian, Oriental, Nearctic and also Notogaean (Australian) species while the latter is exclusively Palaearctic with a few taxa occurring along the bordering mountains of the Palaearctic and the Oriental regions.

Genus ***Lygephila*** Billberg, 1820

Lygephila Billberg, 1820, *Enumeratio Insectorum in Museo G. J. Billberg*: 85. Type-species: *Phalaena lusoria* Linnaeus, 1758, by subsequent designation by Tams, 1939.

Synonymy

Asticta Hübner, 1823, *Verzeichniss bekannter Schmetterlinge:* 277. Type-species: *Noctua procax* Hübner, 1813, by monotypy;

Toxocampa Guenée, 1841, *Annales de la Société Entomologique de France* **10**: 75. Type-species: *Ophiusa limosa* Treitschke, 1826, by subsequent designation by Desmarest, 1848;

Eccrita Lederer, 1857, *Die Noctuinen Europa's, mit Zuziehung einiger bisher mesit dazu gezählter Arten des Asiatischen Russland's, Kleinasien's, Syrien's, und Labrador's,* Wien. **1857**: 45, 207. Type-species: *Phalaena ludicra* Hübner, 1790, by monotypy;

Craccaphila Beck, 1996, *Neue entomologische Nachrichten* **36**: 30. Type-species: *Noctua craccae* [Denis & Schiffermüller], 1775, by original designation.

Sinocampa Kononenko & Fibiger, 2008, *Zootaxa* **1876**: 22. Type-species: *Lygephila longicoecum* Kononenko & Fibiger, 2008, by original designation. Preoccupied, a junior primary homonym of *Sinocampa* Chou & Chen, 1981 (Diplura);

Katyusha Kemal & Koçak, 2009, *Miscellaneous Papers* **146**: 146. A subjective replacement name for *Sinocampa* Kononenko & Fibiger, 2008, **syn. n.**

Diagnosis. The group characters distinguishing the *Lygephila-Tathorhynchus* lineage from the *Autophila-Apopestes* lineage are discussed in detail in the "Taxonomy" chapter of the *Lygephila* genus-group. *Lygephila* differs externally from *Tathorhynchus* by the strongly dissimilar external appearance (most often remarkably larger size, broader forewings with pointed apex, different wing pattern, dark, usually black or blackish collar, etc.) and the much less prominent sexual dimorphism.

The main distinctive features of the male genitalia between *Lygephila* and *Tathorhynchus* are as follows: the valvae of *Lygephila* are more elongated than in *Tathorhynchus*, the claspers are weaker and slenderer, usually more elongated, sometimes bifurcate or bilobate, and the vesica is more complex, comprising a larger number of membranous, partly scobinate diverticula but the armature of the vesica is weaker than in *Tathorhynchus*, composed from minute teeth or somewhat stronger ridges or denticles but never from clusters of stronger spinules or spines.

The female genitalia of *Lygephila* differ from those of *Tathorhynchus* are the posteriorly much broader, more funnel-like sclerotised antrum and the absence of large sclerotised areas in the distal part of corpus bursae which are typical of the latter genus.

Distribution. The genus *Lygephila* is widespread in the Palaearctic region, present also in the northern part of the Oriental region, eastern Africa and the Nearctic but missing from the Notogaea and South America.

The ***lusoria*** species-group

Lygephila lusoria lusoria (Linnaeus, 1758)

(Plate 14, Figs 5–6; Plate 37, Figs 1–11; gen. fig. 51)

Phalaena lusoria Linnaeus, 1758, *Systema Naturae* (edn 10) **1**: 506. Type-locality: [Europe, Germany].

Synonymy

Ophiusa orobi Duponchel, [1842], *Histoire naturelle des lépidoptères ou Papillons de France* **3**: pl. 43, fig. 1. Type-locality: Hungary. Type(s): in coll. MNHP.

Diagnosis. *Lygephila lusoria* is the largest member of the species-group. It differs from externally similar *L. amasina* by its less contrasting wing pattern and not sharp inner corner of the reniform stigmata.

The nominotypical subspecies is in most cases larger than the ssp. *glycyrrhizae* from Spain, having more contrasting wing pattern.

The male genitalia of *L. lusoria* are characterised by the long uncus, the long, distally moderately dilated valva with spine-like clasper which does not reach the valval apex; these features distinguish this species from *L. amasina* and the another species of the species-group. The female genitalia of the *L. lusoria* are characterized by the size, being the largest among the other members of the species-group. *Lygephila lusoria* differs from *L. amasina* by the somewhat deeper cleft on the posterior margin of antrum, the lateral wrinkled sclerotized area of ductus bursae and the elongated-ellipsoidal shape of the corpus bursae; from all another similar species by the V-shaped incision of the posterior margin of antrum, whereas the other taxa have rather U-shaped cleft.

Distribution. Western Palaearctic. In Europe it ranges from Spain to Bulgaria and from Ukraine to south Russia and western Kazakhstan (Uralsk). All former records from Asia Minor refer to *L. amasina*, whereas the records from north Caucasus and Transcaucasia refer to *L. minima*.

Lygephila lusoria glycyrrhizae (Rambur, 1866)

(Plate 14, Figs 7–8; Plate 37, Figs 12–19; gen. fig. 52)

Toxocampa glycyrrhizae Rambur, 1866, *Catalogue Systématique des Lépidoptères de l'Andalousie* **1866**: pl. 7, fig. 6. Type-locality: Spain, Andalucía, Sierra de Alfacar. Neotype: male, in coll. ZMHU.

Synonymy

Toxocampa glycyrrhizae Staudinger, 1871, *Catalog der Lepidopteren des Europäischen Faunengebietes* (edn 2): 140. Type-locality: Spain, Andalucía. Holotype: in coll. MNHP.

Toxocampa glycirrchizae (sic!) ab. *alfacaria* Ribbe, 1912, *Deutsche Entomologische Zeitschrift. Gesellschaft Iris zu Dresden* **23**: 297. Type-locality: Spain, Alfacar [Granada].

Neotype designation. Neotype: male, "Andalusien | Sierra de Alfacar | 1905 C. Ribbe.", "coll. MNHU Berlin", "♂", "OP1977m 38 mm" (coll. ZMHU).

Diagnosis. The subspecies *glycyrrhizae* differs externally from the other populations of *L. lusoria* by its more gracile body and the more unicolorous, less variegated forewings with weaker, often obsolete crosslines, not or only slightly divided darker marginal area and the narrower, often streak-like black reniform stigma.

The most significant distinctive feature of *L. l. glycyrrhizae* is, in comparison with *L. l. lusoria*, the small size of the genitalia of both sexes. The genitalia of the Spanish moths are approximately 1.3 times smaller than those of *L. l. lusoria* from Central and Eastern Europe, Crimea and the Urals. In addition, there are a few small but usually recognisable differences in the shape of uncus, the valva and the aedeagus: *L. l. glycyrrhizae* has somewhat shorter uncus stem than in *L. l. lusoria*, the valvae have costal dilatation medially and the aedeagus is less curved, whereas the ground plan of the female genitalia of the two taxa is practically the same.

Distribution. Spain.

Remarks. There are certain difficulties concerning with the identity of the taxon, as well as in the authorship and the date of description. It is a matter of concept whether *glycyrrhizae* is considered as a well-separable geographic subspecies or a species distinct from *L. lusoria* but the subtle differences in the genitalia support better the one species with distinct subspecies theory.

In the literature one can find two different citations for the description of "*glycyrrhizae*", Rambur, 1858/1866 versus Staudinger, 1871, but it is clear that the original description was given by Rambur in his article published in the *Catalogue Systématique des Lépidoptères de l'Andalousie* in 1866. The moth depicted in the fig. 6 of this colour plate illustrates undoubtedly the taxon we have been called as *glycyrrhizae* for a long time. It is very important to declare because the female specimen preserved in the MNHM Paris and labelled as the type specimen of *glycyrrhizae* Rambur represents in fact a *L. craccae*.

Comparing the specimen with the illustration it becomes evident that they are not identical, therefore the "type" specimen is mislabelled and cannot be the type of *glycyrrhizae*. Thus, the designation of the neotype has become inevitable. Last but not least, it is worth to note that the taxon is missing from the catalogue of Poole (1989).

Lygephila amasina (Staudinger, 1878)

(Plate 15, Figs 1–2; Plate 37, Figs 20–29; gen. fig. 53)

Toxocampa lusoria var. *amasina* Staudinger, 1878, *Horae Societatis Entomologicae Rossicae* **14**: pl. 428. Type-locality: Turkey, Amasia. Syntypes: in coll. ZMHU.

Synonymy

Ophiusa lusoria sublutea Warren, 1913, *Die Groß-Schmetterlinge des Palaearktischen Faunengebietes* **3**: 372, pl. 68, row e. Type-locality: Turkey, Taurus Mts. Holotype: female, in coll. BMNH.

Diagnosis. *Lygephila amasina* can be distinguished from its allopatric sister-species, *L. lusoria* by its generally larger, regularly more cuneate black reniform stigma, having often acute lower inner apex. The forewing colouration and markings are variable, with smaller or larger overlap in the features of the two species, but the darker inner definition of the subterminal line is most often weaker in *L. amasina*.

The male genitalia of *L. amasina* differ from those of *L. lusoria* by the broader uncus and the longer, thinner clasper reaching valval apex. The main differences between the female genitalia of the two species can be found in the shape of the antrum and the corpus bursae: the postero-lateral edges of antrum are broader and more rounded in *L. amasina*, being not acutely pointed as in *L. lusoria* and the corpus bursae of *L. amasina* is shorter and broader, rather ovoid, while it is long and narrow sacculiform in *L. lusoria*.

Distribution. Levantine-Anatolian. Confirmed records of the species are known from Israel, Lebanon and Turkey.

Lygephila colorata Babics & Ronkay, 2009

(Plate 15, Figs 3–4; Plate 38, Figs 1–9; gen. fig. 54)

Lygephila colorata Babics & Ronkay, 2009, *Folia Entomologica Hungarica* **70**: 169. Type-locality: Pakistan, Karakoram Mts, Naltar valley, 2800 m. Holotype: male, in coll. G. Ronkay.

Diagnosis. *Lygephila colorata* differs externally from *L. lusoria* and *L. amasina* by its more elongated forewing with pointed apex; from the externally also rather similar *L. alaica* by its more colourful forewings with conspicuous and intense cinnamon-brown marginal suffusion, and the more prominent, coffee-brown subterminal line being wider at termen.

The male genitalia of *L. colorata* differ from those of the above-mentioned congeners by the very characteristic, rather globular shape of vesica and the wide and massive valva with parallel margins medially.

The diagnostic features of the female genitalia of *L. colorata* are the deeply concave posterior margin of antrum with U-shaped cleft, and the characteristically spherical corpus bursae.

Distribution. Central Asiatic. The species is known to occur in the medium-high and higher montane areas of the Karakoram and the Hindukush Mts in the North-western Territories of Pakistan and in the Hissar range of Tajikistan.

Lygephila pallida (Bang-Haas, 1907)

(Plate 15, Figs 5–7; Plate 38, Figs 11–20; gen. fig. 55)

Toxocampa pallida Bang-Haas, 1907, *Deutsche Entomologische Zeitschrift. Gesellschaft Iris zu Dresden* **20**: 77, pl. 3, fig. 9. Type-locality: Turkey, Aintab, Zeitun. Syntypes: 3 females, in coll. MNHU.

Synonymy

Lygephila fereidun Wiltshire, 1961, *Journal of the Bombay Natural History Society* **58**: 628, pl. 1, fig. 7 adult, pl. 4, fig. 20 male genitalia. Type-locality: Iran, Elburs Mts, Lar Valley, 9000 ft. Holotype: male, in coll. BMNH, **syn. n.**

Diagnosis. *Lygephila pallida* is most similar externally to *L. minima, L. moellendorffi* and *L. subpicata*. It can be distinguished from *L. minima* by its narrower forewings and more acute apex; from *L. subpicata* and *Lygephila moellendorffi* is confusingly similar externally to the Iranian *L. subpicata* by its narrower and less acutely pointed forewings with most often less distinctly marked crosslines and smaller reniform stigma. The orbicular stigma is always missing, while it is regularly present and often prominently marked in *L. subpicata*.

The male genitalia of *L. pallida* differ from those of *L. subpicata* by the shorter spine-like clasper (it does not reach the valval edges); from those of *L. minima* by the narrower valva, the longer clasper and the absence of sclerotization from the top section of the 2nd medial diverticulum.

In the female genitalia, *L. pallida* has a characteristic folded area in the antero-ventral section of antrum which is absent from *L. subpicata*.

Distribution. Anatolian. The species occurs in the central and eastern regions of Turkey.

Lygephila moellendorffi Herz, 1904

(Plate 15, Fig. 8; Plate 38, Fig. 21; gen. fig. 56)

Toxocampa moellendorffi Herz, 1904, *Annuaire du Museé Zoologique de l'Académie Impériale des sciences de St.-Petersbourg* **9**: 318. Type-locality: [North] Korea, Pungtung village. Lectotype: male, in coll. ZISP.

Diagnosis. The existence of this species is one of the hardly explicable cases in the taxonomy of the genus *Lygephila*. It is known only by two males representing the type series and the species was not recorded again during the more intense faunistical exploration of the Korean peninsula nor from the surrounding areas in the Russian Far East and Manchuria.

Lygephila moellendorffi is confusingly similar externally to the Iranian *L. subpicata*, displaying no differential features comparing the habitus and the genitalia structures of the two species. The similarly elongated forewings with pointed tips have the same pattern, especially the triangular reniform stigma with sharp extension on the inner corner and satellite streak-like spots are practically identical in the two taxa. The mentionable differences are the absence of the orbicular stigma which is almost always present in *L. subpicata* and the relatively well-marked postmedial line which is usually obsolete or missing from *L. subpicata*.

The common features of the male genitalia of the two sister-species are the similar shape of uncus and valvae with the similarly sized and shaped clasper being also located subapically; they reach the apical valval margins in both species. The aedeagus and the vesica are short and relatively wide in both taxa, the characteristic crown-like cornuti on the subbasal and 2nd medial diverticula are also present in both *L. moellendorffi* and *L. subpicata*; moreover, the configuration of the terminal diverticula are also similar. This striking resemblance suggests that they represent the same species, but the great distance between their ranges does not support this conclusion.

Distribution. North Korea.

Remarks. The photo of the paralectotype was illustrated by Kononenko et al. (1998); the genitalia of the paralectotype were first illustrated by Kononenko and Han (2007).

Lygephila subpicata Wiltshire, 1971

(Plate 16, Figs 1–3; Plate 38, Figs 22–32; gen. fig. 57)

Lygephila lusoria subpicata Wiltshire, 1971, *Annalen des Naturhistorisches Museum in Wien* **75**: 638, pl. 1, figs 6–8. Type-locality: Iran, Alvand Mt, near Hamadan. Holotype: male, in coll. BMNH.

Diagnosis. The comparison of *L. subpicata* with *L. moellendorffi* is given in detail in the Diagnosis of the preceding species. *Lygephila subpicata* differs externally from the other similar species, especially from *L. pallida*, similar species by the shape of reniform stigmata the lower inner corner of which prolonged into a dash (elongated) and by the frequently appearing orbicular stigma, represented often by a larger spot or even a dash.

The male genitalia of *L. subpicata* differ from those of *L. pallida* in the length and shape of the clasper, and by the structure of the aedeagus and the vesica. *L. subpicata* has, in comparison with *L. pallida*, reduced carinal extension; much longer and curved clasper which reaches valval apex and costal margin; large subbasal diverticulum with crown-like apical cornutus on top; small, short and narrow tapering part of 1st terminal diverticulum; and crown-like apical cornutus on the 2nd medial diverticulum. In *L. pallida*, the clasper is shorter, less curved and finely pointed, that does not reach apex of valva, and the carinal extension is present, its sclerotisation is continued onto the small, oblate subbasal diverticulum forming a long, heavily sclerotized, ridge-like cornutus complex.

In the female genitalia, *L. subpicata* lacks the folded area from the basal part of antrum which is typical of *L. pallida*.

Distribution. Iranian. The species is rather widespread in the northern and western mountainous areas of Iran but has not been found outside the borders of the country.

Lygephila minima Pekarsky, 2013

(Plate 16, Fig. 4; Plate 38, Fig. 10; gen. fig. 58)

Lygephila minima Pekarsky, 2013, *ZooKeys* **351**: 62, figs 21–24. Type-locality: Russia, Stavropol region, Podkumok. Holotype: male, in coll. ZISP.

Diagnosis. *Lygephila minima* resembles externally the pale colour forms of *L. pallida* by its small size and pale ground colour of the forewing. It differs from the related species by its broader forewings with better developed noctuid pattern and pale grey-brown ground colour. In the male genitalia of *L. minima* the distal section of uncus is more dilated than in *L. pallida*, the valva is wider with rounded apex, the tip of the clasper is not sharp, the 1st medial diverticulum is arched-reniform and the 2nd medial diverticulum is hemispherical, membranous, without sclerotized areas. In *L. pallida*, the uncus is narrower, the valva is longer and slenderer than those of *L. minima*, the valval apex and the clasper are more pointed, the 1st medial diverticulum is basally very wide, swelling-like and the 2nd medial diverticulum is large, tubular, with sclerotized area on the top. Female unknown.

Distribution. Russia (Stavropol region) and Armenia.

Lygephila alaica Remm, 1983

(Plate 16, Figs 5–6; Plate 39, Figs 1–4; gen. fig. 59)

Lygephila alaica Remm, 1983, *Entomologicheskoe Obozrenie* **62**: 599, fig. 8 (genitalia). Type-locality: Tajikistan, Khadzha-Obi-Garm. Holotype: male, in coll. ZISP.

Diagnosis. *Lygephila alaica* is a strongly autapomorphic species of the *L. lusoria* species-group possessing a number of external and genital features which are not found in the other members of *Lygephila*. It

can be distinguished from the other externally similar species by the most acutely pointed forewing apex within the *lusoria*-group, and by the characteristic shape of the reniform stigma. The outer and lower outer sections of the reniform stigma are separated by the pale scales covering the crossvein and the medial veins into a row of distinct blackish dots; this is a unique feature within the genus.

The male genitalia of *L. alaica* are strikingly different from those of all related species, especially by the characteristic shape of the clasper. This short and broad, rather dentiform plate-like clasper is unique within the entire genus but is typical of several species-groups of *Autophila* (s.l.). Other specific features of the male genitalia are the short and wide aedeagus and the configuration of the vesica with the presence of the well-developed subbasal diverticulum armed by a large cornutus.

The diagnostic features of the female genitalia of *L. alaica* are the medially subdivided funnel-shaped antrum-ductus bursae complex and the strongly asymmetrical ostium bursae.

Distribution. Central Asiatic. The species has been recorded from Tajikistan and Uzbekistan.

The ***lubrica*** species-group

Lygephila lubrica (Freyer, 1846)

(Plate 16, Figs 7–8; Plate 39, Figs 5–13; gen. fig. 60)

Ophiusa lubrica Freyer, 1846, *Neuere Beiträge zur Schmetterlingskunde mit Abbildungen nach der Natur* **6**: 7, pl. 484, fig. 4. Type-locality: not given [Kazakhstan, Ust-Bukhtarminsk].

Synonymy

Toxocampa lubrica var. *sublubrica* Staudinger, 1896, *Deutsche Entomologische Zeitschrift. Gesellschaft Iris zu Dresden* **8**: 271. Type-locality: [Mongolia, Uliassutai] Uliassutay. Holotype: male, in coll. MNHU.

Diagnosis. The members of the species-group are externally rather similar, with recognisable differences. *Lygephila lubrica* differs from *L. lubrosa* by its larger size, more elongated forewings and pale coloration, from *L. kazachkaratavika* and *L. orbonaria* by the brownish-grey ground colour of both pairs of wings. *L. kazachkaratavika* has, comparing with *L. lubrica*, lighter/bright, more contrast, greyish forewings with just a few brownish elements of pattern, while *L. orbonaria* is characterised by unicolorous grey forewings with less developed pattern.

The differences in the genitalia structures among the three similar species are easily recognisable in both sexes. In males, the dilated part of uncus is wider in *L. lubrica* than in *L. orbonaria* but narrower than in *L. lubrosa* and *L. kazachkaratavika*, and the clasper is more proximally located, being closer to the medial section of the valva than in the three other species. In the females, the antrum of *L. lubrica* is robust, its basal part thick, with wide U-shaped cleft on the posterior margin, whereas in *L. lubrosa* the antrum is less sclerotized, with thinner basal part; in *L. kazachkaratavika* the posterior cleft of the antrum is deep, narrow, slit-like; and in *L. orbonaria* the antrum is short, bent dorsally at 45 degrees.

Distribution. Siberian. The species is distributed from Ukraine (Zaporozhie, Rostov, Samara and Povolzhie regions) towards the Russian part of the Urals and through Kazakhstan, the Russian Altai and northern Mongolia to the Russian Far East.

Lygephila lubrosa (Staudinger, 1901)

(Plate 17, Figs 1–2; Plate 39, Figs 14–19; gen. fig. 61)

Toxocampa lubrica var. *lubrosa* Staudinger, 1901, *Catalog der Lepidopteren des Palaearctischen Faunengebietes* **1**: 252. Type-locality: [Kyrgyzstan, Issyk-Kul] "Iss. K.". Lectotype (here designated): female, in coll. ZMHU.
Lectotype designation. Lectotype: female, "Iss. K., 1895, Rückbeil", slide No.: OP4046f, in coll. ZMHU.

Diagnosis. *Lygephila lubrosa* differs externally from the closely related *L. lubrica* by its on average smaller size, somewhat shorter and broader forewings and the more vivid, ochreous-brown hindwings with sharper dark marginal area; from *L. kazachkaratavika* by its less zigzagged and at lower section less oblique postmedial crossline; and from *L. orbonaria* by its narrower forewings with more distinct darker and the generally darker colouration of both wings.

The male genitalia of *L. lubrosa* differ from those of *L. lubrica* and *L. kazachkaratavika* by the smaller clasping apparatus and the somewhat narrower and more acute valval apex; from those of *L. orbonaria* by the larger dilatation of the uncus, the narrower, apically more acute valva and the longer aedeagus.

In the female genitalia, the diagnostic features of *L. lubrosa* are the proximally strongly tapering antrum with wide and long, rather V-shaped postero-medial cleft (the sides of the cleft are finely serrate, it is a unique character among the congeners), and the small, globular corpus bursae. In comparison with *L. lubrosa*, the antrum of *L. lubrica* is more robust and wider/stronger anteriorly with large U-shaped postero-medial cleft; the antrum of *L. kazachkaratavika* is much longer with deep slit-like postero-medial cleft; and the antrum of *L. orbonaria* is remarkably shorter and posteriorly rather calyculate, and uniquely bent dorsally at 45 degrees.

Distribution. Central Asiatic. The species is known from Kazakhstan (valley of the river Ili) and Kyrgyzstan (Issyk-Kul region).

Lygephila kazachkaratavika Shchetkin & Shchetkin, 1994 [1997]

(Plate 17, Figs 3–4; Plate 39, Figs 20–25; gen. fig. 62)

Lygephila kazachkaratavika Shchetkin & Shchetkin, 1994 [1997], *Izvestia Akademii Nauk Tajikskoj SSR* **20**: 13–16. Type-locality: Kazakhstan, Balamurun, Kara-Tau. Neotype: male, in coll. HNHM.

Diagnosis. *Lygephila kazachkaratavika* is separable from *L. lubrica* and *L. lubrosa* by its contrasting, well-developed forewing pattern; the hindwings are more ochreous-brown than in *L. lubrica* but darker than in *L. orbonaria*.

In the male genitalia, *L. kazachkaratavika* differs from *L. lubrica* and *L. orbonaria* by its wider dilatation of the uncus; from *L. lubrosa* also by its larger clasping apparatus, wider valva and longer aedeagus.

In the female genitalia, the diagnostic features of *L. kazachkaratavika* are the proportionally longer antrum with a deep, slit-like cleft on the posterior margin.

Distribution. Central Asiatic. Kazakhstan, Kyrgyzstan.

Lygephila orbonaria Shchetkin & Shchetkin, 1994 [1997] **stat. rev.**

(Plate 17, Figs 5–8; Plate 39, Figs 26–29; Plate 40, Figs 1–3; gen. fig. 63)

Lygephila lubrosa orbonaria Shchetkin & Shchetkin, 1994 [1997], *Izvestia Akademii Nauk Tajikskoj SSR* 20: 13–16. Type-locality: SW Tajikistan, "Tigrovaya Balka" reserve. Neotype: male, in coll. P. Gyulai (Miskolc).

Diagnosis. *Lygephila orbonaria* is easily distinguishable from the previous taxa of the *L. lubrica* species-complex by its more unicolorous and most often paler grey forewings with reduced crosslines and usually indistinct or obsolete reniform stigma and the paler, more ochreous-yellowish hindwings.

The male genitalia of *L. orbonaria* differ from those of all members of the species-group by the narrow, medio-distally only slightly dilated uncus, the wider valva, and the subapically located, strong clasper with its tip reaching the valval edge.

The diagnostic feature of the female genitalia of *L. orbonaria* is the rather short funnel-shaped antrum bent dorsally at 45 degrees (a unique female character within the entire genus. In addition, the postero-medial incision is broader and shorter than in *L. lubrica, L. lubrosa* and *L. kazachkaratavika*, rather calyculate, and the corpus bursae is more elongated than in *L. lubrosa* and *L. kazachkaratavika*.

Distribution. Central Asiatic. SW Tajikistan (Pianj, Amu-Darya river valley) and Kazakhstan (Ili river valley).

Lygephila ludicra (Hübner, 1790)

(Plate 18, Figs 1–2; Plate 40, Figs 4–12; gen. fig. 64)

Phalaena Noctua ludicra Hübner, 1790, *Beiträge zur Geschichte der Schmetterlinge* **2**: 95, pl. (4), 3, fig. R. Type-locality: Europe.

Synonymy

Eccrita ludicra var. *gracilis* Staudinger, 1896, *Deutsche Entomologische Zeitschrift. Gesellschaft Iris zu Dresden* **9**: 270. Type-locality: Mongolia, Schurangijn-gol. Syntypes, in coll. ZMHU;

Toxocampa ichinosawana Matsumura, 1925, *Journal of the College of Agriculture* **15**: 152, pl. 9, fig. 2. Type-locality: South Sakhalin. Holotype: female, in coll. EIHU.

Diagnosis. The eastern populations of *L. ludicra* are described as distinct taxa but the morphological differences between the western Palaearctic and the eastern Asiatic populations are rather slight, appearing mostly in the strength of the body, and the genitalia show no mentionable differences. Thus, the species is considered here as taxonomically homogeneous.

Lygephila ludicra can be distinguished from all other related species by its narrow forewings; this species has the narrowest forewings within the entire *L. lubrica* species-group. It has, in comparison with the closest related *L. stueningi*, on average smaller wingspan (38–46 mm vs 43–48 mm), apically less pointed forewing, less distinctly marked antemedial crossline and more sinuous subterminal line, reduced orbicular stigma and the reniform stigma lacks the long lower inner streak running along cellvein which is typical of *L. stueningi*. *Lygephila ludicra* is considerably smaller and more narrow-winged than *L. dubatolovi*, having less sharply defined crosslines, broader and larger reniform stigma and paler hindwings. It differs externally from *L. lubrica, L. lubrosa, L. kazachkaratavika* and *L. orbonaria*, besides the wing shape, by its smaller size and more gracile body, the more marmorate forewings with larger, at lower section broader reniform stigma and the differently coloured hindwings.

The male genitalia of *L. ludicra* are most similar to those of *L. stueningi* but the clasping apparatus is larger, despite the smaller wingspan of the imago, the uncus is longer and dilated more distally than in its sister-species, the valva is longer, with more triangular cucullus and more pointed apex, and the clasper is longer, more digitiform whereas *L. stueningi* is characterized by its shorter valva with less pointed apex and the shorter and straighter clasper; the configuration of the vesica is also different in the two species, see the gen. figs 64 and 65.

The female genitalia of *L. ludicra* and *L. stueningi* are very similar, they differ only in the shape and size of the sclerotised antrum, which is fully symmetrical in *L. ludicra*, the posterior margin is evenly arched and the medial section is more constricted than in *L. stueningi*. The antrum of *L. ludicra* is much smaller and shorter than in the species of the *L. lubrica* species-complex and the posterior margin is only slightly incised, without deep V- or U-shaped cleft.

Distribution. Trans-Palaearctic. The species is widespread along the steppe belt from Central Europe to Mongolia, north-eastern China and the temperate Pacific region, as far to the east as Sakhalin and the Kurili Isles. Its range is expanding to the eastern Mediterranean and Asia Minor to the south and penetrating in certain areas also into the taiga belt.

Lygephila stueningi Kononenko & Fibiger, 2008

(Plate 18, Figs 3–4; Plate 40, Figs 13–18; gen. fig. 65)

Lygephila stueningi Kononenko & Fibiger, 2008, *Zootaxa* **1876**: 20, figs 1–4, 13, 17, 25. Type-locality: China, Prov. Yunnan, A-tun-tse, 4500 m. Holotype: male, in coll. ZFMK.

Synonymy

Eccrita ludicra f. *major* Draudt, 1950, *Mitteilungen der Münchener Entomologischen Gesellschaft* **40** (1): 152, pl. 9, fig. 17. Type-locality: [China] A-tun-tse [Nord Yunnan]. Holotype: male, in coll. ZFMK.

Diagnosis. *Lygephila stueningi* is the Chinese sister-species of *L. ludicra*. It is larger in size than its close relative, having somewhat broader and apically more pointed forewings, the characteristic marmoreal pattern is stronger, the orbicular stigma is present and the lower inner angle of the reniform stigma is characteristically prolonged along the lower cellvein; this latter feature, the more gracile body and the paler hindwings distinguish *L. stueningi* from *L. dubatolovi*.

The male genitalia of *L. stueningi* differ from those of *L. ludicra* by their smaller clasping apparatus, shorter uncus, shorter and apically less elongated and less pointed valva, shorter and straighter clasper and different configuration of vesica; from *L. dubatolovi* by their slenderer, distally less dilated uncus, broader valvae and thinner claspers.

The female genitalia of the three related species are similar in type, differing from those of the *L. lubrica* species-complex by their much smaller, less elongated, and postero-medially less incised antrum. In *L. stueningi* the antrum is shorter than in *L. ludicra* and *L. dubatolovi*, having asymmetrical posterior margin, and the incision of the posterior margin is shallower than in *L. ludicra*.

Distribution. Sino-Tibetan. The species is known from the eastern frontier of the Tibetan plateau in China (Sichuan and Yunnan).

Remarks. The taxon has been first recognised by Draudt who distinguished it as a form of *L. ludicra* under the name "*Eccrita ludicra* f. *major*" Draudt, 1950. Thus, according to the ICZN, the name *major* is unavailable (Kononenko & Fibiger 2008) and the taxon was described again based on the same type material under the name *L. stueningi*.

Lygephila dubatolovi Fibiger, Kononenko & Nilsson, 2008

(Plate 18, Figs 5–6; Plate 40, Figs 19, 20; gen. fig. 66)

Lygephila dubatolovi Fibiger, Kononenko & Nilsson, 2008, *Zootaxa* **1922**: 62, figs 1, 2, 4, 9, 12, 17, 22, 23. Type-locality: Russia, Primorye Territory, Arsenjev. Holotype: male, in coll. SBRASN.

Diagnosis. *Lygephila dubatolovi* is the largest and most broad-winged within the taxa of the *L. ludicra* species-complex. It can be recognised, besides the wing shape and the more robust body, by the lower section of postmedial line running obliquely from the crossvein below cell and by the darkened hindwing with diffuse but clearly visible discal spot and transverse line.

The male genitalia of *L. dubatolovi* differ from those of *L. ludicra* and *L. stueningi* by the more dilated uncus and the narrower valva, the clasper is proportionally shorter and thicker than in the two closely allied species.

In the female genitalia, the antrum of *L. dubatolovi* is longer and posteriorly less incised than in the two other members of the species-complex, and the corpus bursae is smaller, near globular, whereas *L. ludicra* and *L. stueningi* have shorter antrum with deeper concavity on posterior margin, and the corpus bursae is larger, more elongated.

Distribution. Sino-Pacific. Confirmed records of the species are known from the Russian Far East, Northeastern China and Central China (Shaanxi).

The *vulcanea* species-group

Lygephila vulcanea (Butler, 1881)

(Plate 18, Figs 7–8; Plate 40, Figs 21–24; Plate 41, Figs 1–3; gen. fig. 67)

Toxocampa vulcanea Butler, 1881, *Transactions of the Entomological Society of London* **1881**: 192. Type-locality: Japan, Tokyo. Holotype: male, in coll. BMNH.

Synonymy

Toxocampa vulcanea ab. *strigosata* Warren, 1914, *Die Groß-Schmetterlinge des Palaearktischen Faunengebietes* **3**: 374. Type-locality: West-China; Japan.

Diagnosis. The revision of the *vulcanea* species-group was published by Pekarsky in 2016, clarifying the species regularly confused in the former literature. The four species belonging to the *vulcanea*-group can be divided by their external features into two subgroups but the genitalia structures show they represent four rather distinct taxonomic units, often with remarkable autapomorphic characters. This group includes the largest species of the genus, with the wingspan up to 65 mm (or even more).

Lygephila vulcanea resembles externally *L. lupina* and *L. emaculata* but is easily distinguished by its darker colouration of both wings, the characteristic violaceous forewing shade, and the strongly sinuous subterminal line with rather line than patch-like upper part; the entire body and the sclerotisation of the wings is stronger than in the two other members of the species-group. It differs from the fourth species of the group, *L. maxima*, by its smaller wingspan (42–53 mm vs 52–65 mm, respectively), weaker body, more acute forewing apex, darker colouration, more reduced antemedial, medial and postmedial crosslines, more sinuous subterminal line, etc.

The male genitalia of *L. vulcanea* differ from those of all other relatives by its short, tough, flattened clasper, and the wide and massive valva; all three related species have narrower, elongated valva, and longer and slenderer, thorn- or rod-like clasper.

The female genitalia of *L. vulcanea, L. lupina* and *L. maxima* are rather similar with their long and entirely sclerotised antrum, corresponding with the long, stick-like aedeagus (*L. emaculata* has much shorter aedeagus and antrum than in the other three members of the species-group). *L. vulcanea* has, comparing with *L. lupina* and *L. maxima*, deep and narrow slit-like cleft on the posterior margin of antrum, this cleft is shallower and significantly wider in the other two species.

Distribution. Temperate Pacific. Confirmed records of the species are known from Japan, the Korean peninsula and NE China.

Remarks. There are no authentic genitalia pictures of *L. vulcanea* from Russia in the literature. Kononenko (2010) incorrectly illustrated the male genitalia of *L. lupina* as *L. vulcanea* from North China and the female genitalia from Primorye under its synonymic name *L. mirabilis*. Sviridov (2003) reported, however, *L. vulcanea* from the Russian Far East (Primorye territory); this record requires confirmation.

Lygephila lupina (Graeser, 1890)

(Plate 19, Figs 1–2; Plate 41, Figs 4–6; gen. fig. 68)

Toxocampa lupina Graeser, 1890, *Berliner Entomologische Zeitschrift* **35**: 79. Type-locality: [Russia, Jewish Autonomy, Radde] Raddefka. Holotype: female, in coll. MNHU.

Synonymy

Eccrita mirabilis Bryk, 1949, *Arkiv för Zoologi* **41** (1): 119. Type-locality: N Korea, Shuotsu. Holotype: male, in coll. NHRS.

Diagnosis. *Lygephila lupina* is on average somewhat smaller in size than its close relative, *L. vulcanea*, with its wingspan 44–49 mm but larger and more broad-winged than *L. emaculata*. It differs externally from *L. vulcanea*, besides of the size and the strength of the body, by its pale ochreous-brown ground colour of forewing, the less sinuous subterminal line with the upper part appearing as a strong black patch, and the costal dots of medial and postmedial crosslines joined into a long costal streak whereas *L. vulcanea* is darker, deep brown to claret-brown, most often with clearly visible violaceous shade, the subterminal line is more sinuous, and the medial and postmedial crosslines appear as separate dots on costa. *Lygephila lupina* is easily separable from *L. emaculata* by its larger size, more robust body, broader forewings with stronger marmoreal dark irroration and weaker crosslines, differently shaped reniform stigma, etc.

The male genitalia of *L. lupina* are most similar to those of *L. maxima* by its narrow valvae and long, stick-like aedeagus but differ by the longer and rather symmetrical claspers, the longer and less dilated uncus and the different configuration of the vesica; from *L. emaculata* by the much longer and proportionally thinner aedeagus, the longer, slenderer claspers and the different armature and diverticula of the vesica; and from *L. vulcanea* by the much slenderer valvae and claspers.

In the female genitalia, the postero-medial cleft of the antrum of *L. lupina* is narrower and deeper than in *L. maxima* but broader and shallower than in *L. vulcanea*; the antrum of these three species is much longer than in *L. emaculata*.

Distribution. Temperate Pacific. The species has been recorded from the Russian Far East (Primorye terr.) and north-eastern China.

Lygephila maxima (Bremer, 1861)

(Plate 19, Figs 3–4; Plate 41, Figs 10–14; gen. fig. 69)

Toxocampa maxima Bremer, 1861, *Bulletin de l'Académie impériale des sciences de Saint-Pétersbourg* **3**: 491. Type-locality: Russia: Amur reg: Blagoveschensk, "Ussuri" [Primorye terr:], "Kengka See" [Khanka lake]). Syntypes: in coll. ZISP.

Synonymy

Toxocampa enormis Butler, 1878, *Annals and Magazine of Natural History* **5** (1): 290. Type-locality: Japan, Yokohama. Syntypes: in coll. BMNH.

Diagnosis. *Lygephila maxima* is the largest and most robust known species of the genus by its wingspan up to 65 mm. It differs externally from the somewhat similar species by its larger size, contrasting wing pattern with well-developed crosslines and exposed, pale ochreous covered forewing veins, etc.

The male genitalia of *L. maxima* differ from those of *L. lupina* by its more asymmetrical and shorter claspers, somewhat broader valvae and more dilated uncus, and the different configuration of the vesica; from those of *L. vulcanea* by the much narrower valvae, the longer and thinner claspers and the differently built vesica; from *L. emaculata* and from all species of the *L. lubrica* species-group by the much slenderer and longer aedeagus.

The female genitalia of *L. maxima* are most similar to those of *L. vulcanea* and *L. lupina* by the very long, narrow funnel-like antrum and the rather ovoid corpus bursae. In *L. maxima* the antrum is long, narrow with shallow and rather broad concavity on the posterior margin, the antrum of *L. lupina* and *L. vulcanea* have narrower and deeper postero-medial cleft.

Distribution. Sino-Pacific. The species is rather widespread in the temperate Pacific region, occurring in the Russian Far East, the Korean peninsula, Manchuria and Japan; its range extends into the central parts of China east of the Tibetan plateau.

Lygephila emaculata (Graeser, 1892)

(Plate 19, Figs 5–6; Plate 41, Figs 7–9; gen. fig. 70)

Toxocampa emaculata Graeser, 1892, *Berliner Entomologische Zeitschrift* **37**: 231. Type-locality: Russia, Ussuri, Kozlofska. Holotype: male, in coll. ZISP.

Diagnosis. Medium-large *Lygephila* species sharing external features with the *L. vulcanea* and *L. lusoria* species-group. It differs from the taxa of the *L. vulcanea* species-group by its smaller size (wingspan 41–48 mm), narrower forewings with better visible crosslines (except of *L. maxima*) and the differently shaped reniform stigma; from the species of the *L. lusoria* species-group by its reniform stigmata composed from different small, somewhat differently coloured parts.

In the male genitalia, *L. emaculata* differs conspicuously from the other taxa of the *L. vulcanea* group by the shorter and broader aedeagus and the differently armed vesica; from *L. lusoria* by the narrower, distally not dilated uncus, the larger, somewhat wider valva, the ventro-dorsally curved clasper, and the straight, more elongated and narrower aedeagus, the lack of the sclerotised ridge of the subbasal diverticula of the vesica, the generally smaller diverticula, etc.

The female genitalia of *L. emaculata* differ conspicuously from those of the other three species of the *L. vulcanea* species-group by the much shorter and weaker antrum and more similar to those of *L. lusoria*. Comparing the two species, *L. emaculata* has smaller and narrower antrum with shallower postero-medial incision, and pyriform corpus bursae, whereas the antrum of *L. lusoria* is larger, wider, its posterior margin is asymmetrical and the corpus bursae is ellipsoidal.

Distribution. Russian Far East (S Khabarovsk and Primorye territory).

The *dorsigera* species-group

Lygephila dorsigera (Walker, 1865)

(Plate 19, Figs 7–8; Plate 41, Figs 15–22; Plate 42, Figs 1–4; gen. fig. 71)

Toxocampa dorsigera Walker, 1865, *List of the Specimens of Lepidopterous Insects in the Collection of the British Museum* **33**: 873. Type-locality: Sri Lanka. Holotype: female, in coll. BMNH.

Synonymy

Lygephila kishidai Kinoshita, 1989, *Tyô to Ga* **40** (2): 141, figs 1–9, 19. Type-locality: Taiwan, Nantou County, Lushan Spa, 1200 m, Holotype: male, in coll. OMNH.

Taxonomy. The species-group includes a number of medium-sized to relatively large species (wingspan 34–52 mm) with narrow, apically pointed forewings and usually well-visible crosslines. The body is, however, less robust than in the taxa of the *L. angustissima* and *L. vicioides* species-groups and the forewings of the members of these latter two species-groups are even narrower than in the species of *L. dorsigera* group. The taxa of the group are easily separable also by their external features except the four north-easterly distributed species (the *recta* species-complex) the satisfactory identification of which usually requires the study of the genitalia.

The *L. dorsigera* group contains the most southerly distributed Asiatic species of the genus; the range of the species-group extends to the south as far as Sri Lanka and Indonesia (Java, Sulawesi and Flores).

Diagnosis. An externally variable species with constant features of the genital structures in both sexes. In the male genitalia, *L. dorsigera* differs from all other relatives by its evenly curved, rod-like uncus,

whereas all relatives characterized by distally widened, flattened uncus; in the females, the posterior part of antrum is the widest comparing with all relatives.

Distribution. Oriental-Pacific. The species is widespread in the southern Himalayas, from Nepal to northern Indochina (Myanmar, Thailand, northern Vietnam), south-eastern and eastern China (Guangxi, Hunan, Zhejiang), and Taiwan, and south from the Himalayas through the Indian peninsula to Sri Lanka.

Lygephila recta (Bremer, 1864)

(Plate 20, Figs 1–2; Plate 42, Figs 5–12; gen. fig. 72)

Toxocampa recta Bremer, 1864, *Mémoires de l'Académie impériale des sciences de St.-Pétersbourg* **8** (1): 98, pl. 8, fig. 9. Type-locality: Russia, SE Siberia, Ussuri Region. Syntypes: in coll. ZISP.

Diagnosis. *Lygephila recta* is a medium-sized moth with grey-brown forewing ground colour and rather straight pale (ochreous or milky-white) subterminal line. This, stronger and straighter, light subterminal line can distinguish *L. recta* from *L. subrecta* which have most often less prominent and somewhat more sinuous subterminal line but the proper identification usually requires the study of the genitalia.

The male genitalia of the four closely related species of the *L. recta* species-complex cannot be confused. The valval shape of *L. recta* is very characteristic (and unique within the genus), extremely narrow, having long, cuneate cucullus and medially positioned, small (sometimes reduced) clasper. The valvae of the other three species are considerably broader and the well-developed clasper is positioned subapically. The shape and size of the uncus is also diagnostic within the species-complex (see the gen. figs 72–75), it is the longest in *L. recta*.

The female genitalia are more or less similar within the species-complex, differing mostly in the shape and size of the sclerotised antrum. The antrum of *L. recta* differs from that of *L. subrecta* by its narrower, more constricted anterior third and the more rounded edges of its posterior part; from that of *L. lilacina* by its shallower postero-medial incision. The antrum of *L. recta* is shorter and distally broader than in *L. pallidivena*, laterally not evenly tapering, and posteriorly less incised.

Distribution. Manchurian-Pacific. The species occurs in the Russian Far East (Primorye, Ussuri, Sakhalin and the Kurili Islands), in north-eastern China, Korea and Japan.

Lygephila subrecta Sugi, 1982

(Plate 20, Figs 3–4; Plate 42, Figs 13–18; gen. fig. 73)

Lygephila subrecta Sugi, 1982, *Moths of Japan* **1**: 857, pl. 210, figs 20, 21 (adults); pl. 376, figs 1, 3 (genitalia). Type-locality: Japan, Hokkaido, Shintoku. Holotype: male, coll. Sugi, in coll. NIAES.

Diagnosis. *Lygephila subrecta* is externally often confusingly similar to the sympatrically occurring *L. recta* and *L. lilacina* but usually has somewhat dull antemedial and postmedial crosslines and the subterminal line is most often slightly more sinuous than in its close relatives.

The male genitalia of *L. subrecta* differ from those of *L. recta* by their wider, lanceolate valva with subapically positioned, somewhat claw-like clasper; from those of *L. lilacina* by the longer and less dilated uncus, more elongated and apically more pointed valva with reduced ampulla; and from *L. pallidivena* by the shorter and more dilated uncus, the narrower and apically more pointed valva and the thinner and somewhat longer, apically finely curved clasper.

In the female genitalia, the lateral margins of the antrum of *L. subrecta* are almost straight, not constricted anteriorly as in *L. recta* and *L. lilacina*, its postero-medial cleft is deeper than in *L. recta* but shallower than in *L. lilacina* and *L. pallidivena*; the antrum of *L. subrecta* is shorter but distally broader than that of *L. pallidivena*.

Distribution. Temperate Pacific. The species is known to occur in Japan and Korea.

Lygephila lilacina (Butler, 1878)

(Plate 20, Figs 5–6; Plate 42, Figs 19–25; gen. fig. 74)

Toxocampa lilacina Butler, 1878, *Annals and Magazine of Natural History* **5** (1): 290. Type-locality: Japan, Yokohama. Lectotype: male, here designated, in coll. BMNH.

Synonymy

Lygephila ogatai Kinoshita & Sasaki, 1986, *Tyô to Ga* **37**: 209, figs 1, 2 adults, figs 5, 6, 9, 11, 14, 15, 18 genitalia. Type-locality: Japan, Osaka-fu, Ibaraki-shi, Fukui. Holotype: male in coll. OMNH.

Lectotype designation. Lectotype: male, "T. lilacina ♂ Butler Type | Yokohama Japan" (partly with the handwriting of Butler), "Syntype" (blue ring label), "Noctuidae Brit. Mus. slide No. 13950" (coll. BMNH).

Diagnosis. *Lygephila lilacina* is confusingly similar to its sympatric sister-species, *L. recta* and *L. subrecta*, and though there are some external differences between the three taxa (see the Diagnoses of the former two species), the satisfactory identification requires the study of the genital structures.

The male genital apparatus of *L. lilacina* is characterized by its rather small size. *Lygephila lilacina* has, in comparison with the other members of the *L. recta* species-complex, shorter and medially remarkably broader uncus and apically more rounded valva with obtuse tip; the other two related species possessing subapically positioned clasper have narrower and longer uncus and apically more pointed valva.

The female genitalia of *L. lilacina* are very similar to those of *L. recta* due to the anteriorly constricted antrum (the antrum of the other two species is evenly tapering towards the junction to corpus bursae) but the concavity on the posterior margin is deeper in *L. lilacina*.

Distribution. The species is known to occur only in Japan.

Lygephila pallidivena Pekarsky, 2016

(Plate 20, Figs 7–8; Plate 42, Figs 26–28; gen. fig. 75)

Lygephila pallidivena Pekarsky, 2016, *Zootaxa* **4161** (4): 559, Figs 1, 2, 11, 17–19. Type-locality: China, North Sichuan. Holotype: male, in coll. GBG/ZSM.

Diagnosis. *Lygephila pallidivena* differs externally from the more northerly distributed relatives by its somewhat smaller size (wingspan 36–38 mm), narrower forewings with stronger antemedial and postmedial crosslines and the greyish shaded ground colour of forewing (all other species of the *L. recta* species-complex have more brownish forewing ground colour).

The male genitalia of *L. pallidivena* differ most prominently from those of the other members of the species-complex by the characteristically long, narrow, flattened, almost straight uncus with acute tip. The male genitalia are also similar to those of *L. dorsigera* but the valvae of *L. pallidivena* are symmetrical, longer and narrower with sharper apex whereas the clasping apparatus of *L. dorsigera* is strongly asymmetrical having remarkably larger, broader left valva, the apex of both valvae is rounded and the claspers are considerably shorter than in *L. pallidivena*.

In the females, the antrum of *L. pallidivena* is longer and its anterior part is broader than in the above-mentioned relatives.

Distribution. Sino-Tibetan. The few known records of the species originate from the SW frontier of the Tibetan plateau (China, N Sichuan).

Lygephila cucullata (Moore, 1882)

(Plate 21, Figs 1–2; Plate 42, Figs 29–34; Plate 43, Figs 1–3; gen. fig. 76)

Toxocampa cucullata Moore, 1882, *Description of new Indian Lepidopterous Insects from the Collection of the late Mr. W.S. Atkinson. Heterocera* **2**: 159. Type-locality: India, Himachal Pradesh, Dalhousie. Lectotype: female, here designated, coll. BMNH.

Synonymy

Toxocampa orientalis Butler, 1886, *Proceedings of the Zoological Society of London* **1886**: 181. Type-locality: [Pakistan] Murree. Holotype: male, in coll. BMNH.

Lectotype designation. Lectotype: female, "Toxocampa cucullata (type) Moore" (with the handwriting of Moore), "Type" (red ring label), "Moore Coll. 94–106 | Dalhousie" (coll. BMNH).

Diagnosis. Large *Lygephila* species (wingspan 46–52 mm), the largest member of the *L. dorsigera* species-group. It is characterised by the rather elongated forewings with acutely pointed apex, variably shaded grey-brown ground colour, fine crosslines and the usually thinly ochreous-whitish covered veins. No really similar species is known, the externally most resembling taxa are the members of the *L. vulcanea* species-group, especially *L. maxima* from which it differs by its smaller size, less robust body, less distinctly marked antemedial and postmedial crosslines, less expressed light covering of veins and the broader dark marginal suffusion of the hindwings.

The male genitalia of *L. cucullata* are similar to those of *L. javanica* and *L. pallidivena*, due to their symmetrical, elongated valvae and the long, basally curved and distally only slightly dilated uncus but differ from them by the larger, clavate clasper rising out of ventral valval margin, the reduced ampulla and the dorso-ventrally curved aedeagus; from those of *L. dorsigera* also by the symmetrical valvae.

The female genitalia of *L. cucullata* are characterised by the very long, rather Y-shaped antrum with long, flattened-tubular anterior section, deep V-shaped postero-medial cleft and rounded postero-lateral edges and the elliptical-sacculiform corpus bursae. The female genitalia of *L. dorsigera* have, in comparison with *L. cucullata*, funnel-shaped antrum with straight lateral edges and small postero-medial incision. The antrum of *L. javanica* is much shorter and broader than that of *L. cucullata*, asymmetrical triangular-conical, evenly tapering from broad posterior part towards ductus bursae, and has very shallow postero-medial concavity. In *L. pallidivena* the antrum is long, subconical, with rather straight lateral edges and widely U-shaped postero-medial incision and the corpus bursae is less elongated than in *L. cucullata*.

Distribution. South-western Himalayan. The known area of the species covers large areas of the Indian and Pakistani Himalayas.

Lygephila javanica Pekarsky, 2016

(Plate 21, Figs 3–4; Plate 43, Figs 4–6; gen. fig. 77)

Lygephila javanica Pekarsky, 2016, *Zootaxa* **4205** (5): 486, figs 1–4. Type-locality: Indonesia, Java, Djoenggo-Ardjoeno, 1500 m. Holotype: male, in coll. RMNH.

Diagnosis. *Lygephila javanica* is the most southerly distributed Asiatic *Lygephila* species. It differs externally from the other south-eastern Asiatic congener, *L. dorsigera*, by its undulate antemedial line which is prominently curved towards the lower edge of cell at place of claviform stigma whereas the antemedial line of *L. dorsigera* is regularly straight and oblique.

The male genitalia of *L. javanica* are most similar to those of *L. dorsigera* but differ from those by the larger clasping apparatus with practically symmetrical, larger and longer valvae, the larger and stronger, blunt-pointed clasper surpassing the valval edge, the characteristically long, digitiform left ampulla, and the longer, medially flattened and distally dilated (rather falciform) uncus with acute tip, whereas the

clasping apparatus of *L. dorsigera* is smaller and remarkably asymmetrical, with shorter valvae, smaller, acutely pointed clasper and smaller left ampulla, and the uncus is thinner, rod-like.

In the females, the antrum of *L. javanica* is more massive than that of *L. dorsigera*, somewhat shorter and somewhat asymmetrical, with convex right and straight left side while *L. dorsigera* has rather symmetrical, triangular antrum with straight lateral margins at both sides.

Distribution. Indonesia: Java, Flores, Sulawesi.

The *angustissima* species-group

Lygephila aphroditae Babics, 2014

(Plate 21, Figs 5–6; Plate 43, Figs 7–9; gen. fig. 78)

Lygephila aphroditae Babics, 2014, *Esperiana* **19**: 304, pl. 1, fig. 7; gen fig. 7. Type-locality: China, Prov. Yunnan, 20 km N of Deqin, 3100 m, 28°28,5'N, 98°51,4'E. Holotype: male, in coll. HNHM.

Diagnosis. The taxa of the *L. angustissima* species-group are characterised by the lanceolate valva and simple, rod-like uncus (males), the elongated antrum and the two-chambered corpus bursae (females). Medium-sized moths with narrow, elongated forewings having acute apex and pale grey-brown ground colour.

Lygephila aphroditae is similar externally to *L. yoshimotoi* and *L. vargai* but differs from its relatives by tender pale grey forewing ground colour and the barely developed wing pattern; the satisfactory identification often requires the study of the genitalia.

The male genitalia of *L. aphroditae* can be distinguished from those of all other members of the species-group by the shorter and evenly curved uncus and the long, apically finely bifurcate clasper.

In the female genitalia, *L. aphroditae* differs from *L. yoshimotoi* by its more evenly tapering antrum with deeper v-shaped postero-medial incision and rounded postero-lateral edges and the larger two-chambered corpus bursae; from those of *L. angustissima* and *L. vargai* by the proportionally longer broad posterior and shorter narrow anterior sections of the antrum.

Distribution. Sino-Tibetan. The few known specimens were collected in the bordering high mountains of the SE edge of the Tibetan plateau in China (Yunnan).

Lygephila angustissima (Draudt, 1950)

(Plate 21, Figs 7–8; Plate 43, Figs 10–16; gen. fig. 79)

Toxocampa angustissima Draudt, 1950, *Mitteilungen der Münchner Entomologischen Gesellschaft* **40**: 165. Type-locality: China, Yunnan, Li-kiang. Neotype: male, in coll. ZFMK.

Diagnosis. *Lygephila angustissima* can be distinguished from the other three species of the species-group by its somewhat narrower forewings with finer, less pointed apex and darker brown ground colour, the stronger developed crosslines, the characteristic pale ochreous covered veins and the intense dark marmoreal irroration.

The male genitalia of *L. angustissima* are most similar to those of *L. vargai* possessing similarly lanceolate valva and medially curved rod-like uncus. *Lygephila angustissima* differs from *L. vargai* by its larger size of the entire clasping apparatus, the wider valva with incurved dorsal margin and the basally stronger clasper; from *L. yoshimotoi* and *L. aphroditae* by the longer and less curved uncus, medially less dilated valva and the shorter and thicker clasper.

In the female genitalia, *L. angustissima* has the longest and posteriorly narrowest antrum within the species-group, the postero-lateral edges are less pointed than in *L. vargai* and the postero-medial cleft is shallower than in *L. aphroditae* and *L. vargai* but deeper than in *L. yoshimotoi*.

Distribution. Sino-Tibetan. The species occurs in the south-eastern frontier of the Tibetan plateau (China: Yunnan and Sichuan).

Lygephila vargai Babics, 2014

(Plate 22, Figs 1–2; Plate 43, Figs 17–19; gen. fig. 80)

Lygephila vargai Babics, 2014, *Esperiana* **19**: 303, pl. 1, fig. 6; gen fig. 1. Type-locality: China, Prov. Sichuan, Volong reserve, Siguliang Shan [near Guanyang], 31°09'N, 103°20'E. Holotype: male, in coll. P. Gyulai (Miskolc).

Diagnosis. *Lygephila vargai* is externally often confusingly similar to *L. aphroditae*, and though it has somewhat darker forewings, the proper identification requires the study of the genitalia.

Interestingly, the male genitalia are most similar to those of the externally well separable *L. angustissima*, but differ from them by the generally smaller size of the clasping apparatus, narrower and apically more tapering valva, somewhat shorter and more evenly arched uncus and finer clasper. The male genitalia of *L. vargai* are easily separable from those of *L. aphroditae* and *L. yoshimotoi* by their longer uncus, narrower valvae and thicker clasper.

The female genitalia of *L. vargai* differ from those of *L. angustissima* and *L. aphroditae* by the broader posterior part of the antrum having wide V-shaped postero-medial incision and pointed postero-lateral edges; from those of *L. yoshimotoi* by the longer narrow anterior section of antrum, and the considerably shorter, more funnel-like broad posterior section with deeper postero-medial cleft and pronounced and pointed postero-lateral edges.

Distribution. Sino-Tibetan. The few known specimens were collected in Sichuan, Shaanxi and Hubei.

Lygephila yoshimotoi Kinoshita, 1989

(Plate 22, Figs 3–4; Plate 43, Figs 20–25; gen. fig. 81)

Lygephila yoshimotoi Kinoshita, 1989, *Tyô to Ga* **40** (2): 144, figs 10, 11, adults, figs 12–17, genitalia. Type-locality: Taiwan, Nantou Hsien, Lushan Spa, 1200 m. Holotype: male, in coll. OMNH.

Diagnosis. *Lygephila yoshimotoi* is similar externally to *L. aphroditae* and *L. vargai* but the body is somewhat stronger built and the forewing marginal area is more darkened than in its continental Chinese relatives; the collecting locality also helps in the identification as *L. yoshimotoi* is known only from the island of Taiwan.

The male genitalia of *L. yoshimotoi* differ conspicuously from those of the other taxa of the species-group by the presence of the large, triangular ampulla positioned in the middle of valva, and the medium-long, curved uncus which is longer than that of *L. aphroditae* but shorter than in *L. angustissima* and *L. vargai*.

The female genitalia of *L. yoshimotoi* have the longest broad posterior section and the shortest and narrowest tubular anterior section of antrum within the *L. angustissima* species-group, and the postero-medial incision of the antrum is shallower than in its relatives.

Distribution. Endemic to Taiwan.

The *vicioides* species-group

Lygephila vicioides (Hampson, 1926)

(Plate 22, Figs 5–6; Plate 43, Figs 26–35; gen. fig. 82)

Asticta vicioides Hampson, 1926, *Description of New Genera and Species of Lepidoptera Phalaenae of the Subfamily Noctuinae (Noctuidae) in the British Museum (Natural History)*: 148. Type-locality: India, Himachal Pradesh, Kulu, Sultanpur. Holotype: male, in coll. BMNH.

Synonymy

Lygephila robusta Babics & Ronkay, 2009, *Folia Entomologica Hungarica* **70**: 175. Type-locality: Nepal, Ganesh Himal, near Godlang, 2520 m. Holotype: male, in coll. G. Ronkay.

Taxonomy. The typical members of the *L. vicioides* species-group are characterised by the thin, long and less arched uncus, the characteristically triangular valvae with large medial costal lobe and cuneate clasper positioned parallel with costal margin, and the rather short, somewhat sinuous aedeagus with weaker or stronger curved coecum penis. The female genitalia are more similar to those of the *L. angustissima* species-group but have proportionally larger and stronger antrum and less distinctly two-chambered corpus bursae with smaller fundus. The external appearance of the moths of these two species-groups is very similar but the genitalia structures clearly distinguish the two lineages.

Diagnosis. *Lygephila vicioides* differs externally from *L. pidmanulapidvela* by its stronger developed crosslines and in most cases disjunct or discontinuous dark colouration of the forewing costa.

The male genitalia of *L. vicioides* are similar to those of *L. pidmanulapidvela* but differ by the basally slightly curved uncus, the narrower valva with more acute apex, the straight, pointed clasper and the medially bent aedeagus, whereas the valva in *L. pidmanulapidvela* is wider, more massive with obtuse apex and the aedeagus is more undulate. The genitalia of these two species differ from those of *L. nikolaichuki* by the longer and thinner uncus and the cuneate, not double-peaked clasper; from those of *L. fibigeri* but the different shape of the valvae and the less curved coecum penis.

In the female genitalia, the posterior section of the antrum is remarkably deeper and broader incised (ca half of the antrum length) in *L. vicioides* than in *L. pidmanulapidvela*, having narrow postero-lateral edges; the antrum of *L. vicioides* is stronger and broader than that of *L. nikolaichuki*.

Distribution. Southern Himalayan. Confirmed records of the species are known from Pakistan, India and Nepal.

Lygephila pidmanulapidvela Pekarsky, 2018

(Plate 22, Figs 7–8; Plate 44, Figs 1–9; gen. fig. 83)

Lygephila pidmanulapidvela Pekarsky, 2018, *Entomofauna carpathica* **30** (1): 46, figs 1–4 (adults), 11–14, 19, 20 (genitalia). Type-locality: Nepal, Koshi, Terhathum area, Tinjure Phedi, 2900 m, 87°27'E, 27°12'N. Holotype: male, in coll. G. Ronkay.

Diagnosis. *Lygephila pidmanulapidvela* differs externally from *L. vicioides* by its less developed, sometimes obsolescent antemedial line and the darker, in most cases continuously dark coloured forewing costa.

The male genitalia of *L. pidmanulapidvela* are most similar to those of *L. vicioides* but have medially curved uncus, wider and more massive valva with obtuse apex, thicker and slightly curved clasper with blunt tip and more undulate aedeagus whereas the uncus of *L. vicioides* is curved at base, the valva is narrower with its more pointed apex, the clasper is less curved and apically more pointed and the aedeagus is bent medially.

In the females, the posterior section of the antrum of *L. pidmanulapidvela* is less deeply incised (one third of the antrum length), this incision in *L. vicioides* is wider and deeper V-shaped (ca half of the antrum length).

Distribution. Southern Himalayan. The species is known to occur in Central and eastern Nepal.

Lygephila nikolaichuki Pekarsky **sp. n.**

(Plate 23, Figs 1–2; Plate 44, Figs 10–13; gen. fig. 84)

Holotype. Male, Nepal, Kanchenjunga reg., Deorali Danda 6 km NW of Yamphudin, 2900 m, 8–9.VIII.2000, leg. M. Hreblay, & T. Csővári, slide No.: OP2028m (coll. P. Gyulai).
Paratypes. **Nepal**. 1 female, Gosainkund Lekh, Tarke Banjeyang, 3600 m, 27.VIII.1967, leg. Dierl & Schacht, slide No.: OP2346f (coll. ZSM); 1 female, Kanchenjunga Himal, Koshi, Taplejung area, above Hellok, 2700 m, 3.IV.1996, leg. G. Csorba & L. Ronkay, slide No.: OP4059f (coll. G. Ronkay); 1 female, 6 km SW of Kalinchok peak, 3160 m, 6.VIII.1995, leg. M. Hreblay & T. Csővári (coll. MNHG); 1 male, 1 female, Nepal, Ganesh Himal, Kurkpudanda Pass, 3600 m, 85°13'E, 28°12'N, 22.VII.1995, leg. M. Hreblay & T. Csővári (coll. T. Csővári).

Diagnosis. The new species is somewhat similar to *L. vicioides* and *L. pidmanulapidvela* but is easily distinguishable from them by its remarkably larger size (wingspan 42–47 mm vs 37–42 mm), more greyish forewings with some bluish shining and very dark coloured costa and costal area, and the stronger developed forewing pattern.

Comparing the male genitalia, *L. nikolaichuki* is closest to *L. fibigeri* but differs from it by the longer uncus, the larger and wider valva, the wider and double-peaked, flattened clasper positioned in the middle of the valval edges and the less undulate aedeagus with shorter coecum penis whereas the uncus of *L. fibigeri* is shorter, the valva is narrower, the clasper is simple and narrower, positioned close to ventral its edge and the aedeagus is more undulate with longer and strongly curved coecum penis. The male genitalia of *L. nikolaichuki* are easily separable from those of *L. vicioides* and *L. pidmanulapidvela* by the shorter uncus, and the flattened and double-peaked clasper.

The female genitalia of the new species are similar to those of *L. vicioides* and *L. pidmanulapidvela* but the antrum is slenderer, the postero-medial cleft is smaller and weaker than in *L. vicioides* but deeper than in *L. pidmanulapidvela*, and the postero-lateral edges are narrower and less rounded than in the latter species. The female genitalia of these three species differ conspicuously from those of *L. fibigeri* by their larger, less abruptly tapering and somewhat asymmetrical antrum having broader postero-medial incision, while the antrum of *L. fibigeri* is symmetrical, more funnel-like with broadly triangular posterior three-quarters, remarkably narrower postero-medial incision and more rounded postero-lateral edges.

Distribution. Southern Himalayan. The new species occurs sympatrically with *L. vicioides* and *L. pidmanulapidvela* in Central and eastern Nepal.

Etymology. The new species is dedicated to Ivan Ivanovich Nikolaichuk, remarkable person, the great example to follow whom the author has fortune to know for almost three decades.

Lygephila fibigeri Babics & Stüning, 2011

(Plate 23, Figs 3–4; Plate 44, Figs 14–16; gen. fig. 85)

Lygephila fibigeri Babics & Stüning, 2011, *Esperiana* **16**: 127. Type-locality: China, Prov. North Yunnan, Li-kiang, ca. 3000 m. Holotype: male, in coll. ZFMK.

Diagnosis. *Lygephila fibigeri* is rather remote from the other members of the *L. vicioides* species-group due to its autapomorphic genitalia features. It resembles mostly certain species of the *L. angustissima* species-group, especially *L. aphroditae* and *L. vargai*, but differs from them by its smaller size, shorter and wider forewings and the light brown forewing ground colour with violaceous shade.

The male genitalia of *L. fibigeri* are large, robust, heavily sclerotized, differing from the other taxa of the species-group by the shorter and thicker uncus, the narrower valvae with less enlarged, rather rounded medial costal lobe, smaller and thinner, more distally positioned clasper, and the shape of the aedeagus with long, strongly curved coecum penis, bulged medial section and ventrally bent carinal end.

The autapomorphic feature of the female genitalia of *L. fibigeri* is the heavily sclerotised, broadly funnel-like antrum with large and rounded postero-lateral edges and deep, narrow postero-medial cleft; the short, tubular anterior section is thinner than in the other three related species.

Distribution. Sino-Tibetan. The species has been recorded only from North Yunnan in China.

The *Lygephila longicoecum* species-group

Lygephila longicoecum Kononenko & Fibiger, 2008

(Plate 23, Figs 5–6; Plate 44, Figs 17–22; gen. fig. 86)

Lygephila longicoecum Kononenko & Fibiger, 2008, *Zootaxa* **1876**: 23, figs 7, 15, 20, 25. Type-locality: China [Shaanxi, Tsinling Mts], "Province Shansi, Qin Ling Mt., Hu Zhen Zi vic., 33°51,18'N, 107°50,3'E". Holotype: male, in coll. ZFMK.

Taxonomy. This lineage represents probably a complex of closely related species but the material available is still insufficient to decide the question. There are mentionable differences between the male genitalia of the typical Shaanxi specimens and the more north-easterly collected single male from Mentougou (Prov. Beijing, see the Plate 44, Fig. 21), possibly these two populations represent two distinct taxa.

The external appearance of the moths is typically *Lygephila* while the genitalia of both sexes are strongly autapomorphic. The apomorphic genitalia features inspired the separation of the species from the main trunk of *Lygephila*, first as a subgenus within the common *Lygephila* (*Sinocampa* Kononenko & Fibiger, 2008 (homonym); *Katyusha* Kemal & Koçak, 2009 (subjective replacement name)). Subsequently, Babics (2014) upgraded *Katyusha* to generic level but without the evaluation of the distinctness of the other major lineages of *Lygephila* which also may deserve supraspecific rank. Herewith the author treats the main phyletic lines of *Lygephila* as species-groups and downgraded *Katyusha* to one of the synonymous supraspecific categories.

Diagnosis. *Lygephila longicoecum* is externally somewhat similar to certain Chinese (*L. stueningi*, *L. dubatolovi*), and southern Himalayan (*L. cucullata*) relatives due to its large size, rather slender body, elongated forewings with acute apices and the presence of the antemedial medial and subterminal crosslines but they differ in practically all details of the wing pattern. It shows some similarity also with the Manchurian-Pacific *L. maxima* but is remarkably smaller in size, having slenderer body, more diffuse noctuid pattern and darker veins and the hindwings are unicolorous brown.

The male genitalia of *L. longicoecum* display certain apomorphic features being unique within the genus (gen. fig. 86) like the strongly sclerotised, rather triangular valva with straight ventral margin, large medial costal hump and asymmetrical subapical costal extensions, characteristically fused ampulla-clasper complex forming long, bilobate structure with fine subapical twist and crest-like apical section, and the very long, narrowly tubular and finely arched, submedially dilated aedeagus with slender, long coecum penis.

The female genitalia of the species are also unmistakable due to the extremely large and rounded ("bear-ear-like") postero-lateral edges of the large, infundibular, sclerotised antrum with deep V-shaped postero-medial cleft, the long sclerotised crest along dorsal axis towards narrow anterior section, and the simple, rounded-discoidal corpus bursae with subconical appendix positioned laterally at left side.

Distribution. Sino-Pacific. The species has two, rather disjunct populations in China, in the Taibaishan Range in Shaanxi and in the Beijing region (Mentougou district).

The *procax* species-group

Lygephila procax (Hübner, 1813)

(Plate 23, Figs 7–8; Plate 44, Figs 23–31; gen. fig. 87)

Noctua procax Hübner, [1813], *Sammlung europäischer Schmetterlinge* **4**: pl. 109, fig. 510. Type-locality: [Europe].

Synonymy

Asticta proclivis Hübner, 1823, *Verzeichnis bekannter Schmetterlinge*: 266. An unjustified emendation;

Ophiusa limosa Treitschke, 1826, *Die Schmetterlinge von Europa* **5** (3): 298. Type-locality: [Hungary, Budapest] Mountains near Ofen [Buda]. Types: in coll. HNHM.

Diagnosis. Polytypic species. Practically all European populations are slightly different externally. *Lygephila procax* differs externally from *L. nigricostata* and *L. intermedia* by its unicolorous blackish-brown ground colour of forewings and hindwings; from *L. asiatica* by its larger size and more intensive colouration of the wings.

Comparing the male genitalia of the six species of the *L. procax* species-group, the clasper of *L. procax* is shorter than in *L. nigricostata* and *L. intermedia*; the clasping apparatus and aedeagus are significantly larger in size than in *L. asiatica*.

In the female genitalia, the antrum of *L. procax* is longer than in *L. nigricostata*, having shallower postero-medial cleft and roundish postero-lateral edges; the posterior section of the antrum is significantly narrower in *L. procax* than in *L. intermedia*. The entire female genitalia of *L. procax* are much larger than those of *L. asiatica*, *L. decolor* and *L. frosya*, whereas in *L. intermedia* the posterior part of antrum is wider than in *L. procax*, having almost parallel lateral edges; in *L. nigricostata* the antrum is shorter than that of *L. procax*, the postero-medial cleft is deeper, and the postero-lateral edges are more pointed.

Distribution. Western Palaearctic. The range of the species covers the southern part and central parts of Europe.

Lygephila asiatica Pekarsky, 2016

(Plate 24, Figs 1–2; Plate 44, Figs 32–36; Plate 45, Figs 1–5; gen. fig. 88)

Lygephila asiatica Pekarsky, 2016, *Entomofauna carpathica* **28** (2): 12, figs 12–18. Type-locality: Kazakhstan, Zaisan district, SW coast of the Zaisan Lake. Holotype: male, in coll. O. Pekarsky.

Diagnosis. *Lygephila asiatica* externally resembles *L. intermedia* and *L. nigricostata*, but differs from them by its smaller size and less intensive darker colouration. It can be distinguished from *L. procax* and *L. decolor* by the lighter medial part of the wings; from *L. frosya* by its larger size and more developed reniform stigma.

The male genitalia of *L. asiatica* are most similar to those of *L. procax* but are smaller in size, having narrower valva with sharper apex and gentle subapical concavity on dorsal margin. *Lygephila asiatica* can be distinguished from *L. decolor* by its narrower valva with more acute apex; from *L. frosya* by the shorter clasper and the absence of the costal valval extension; from *L. intermedia* and *L. nigricostata* by the shorter clasper and the smaller, narrower valva. The female genitalia of *L. asiatica* are confusingly similar to those of *L. decolor* and it is very hard to point any significant difference in their structures, however the male genitalia of these two species are definitely different. The female genitalia of *L. asiatica* differ from those of *L. frosya* by the longer, less sclerotized and more curved anterior part of antrum; from *L. procax*, *L. intermedia* and *L. nigricostata* by the generally smaller size and the shorter antrum.

Distribution. Turkestanian. The species lives in the western and central parts of the Tien Shan massif in Kazakhstan (Kyzylorda, Almaty and Zaysan regions).

Lygephila intermedia Pekarsky, 2016

(Plate 24, Figs 3–4; Plate 45, Figs 6–15; gen. fig. 89)

Lygephila intermedia Pekarsky, 2016, *Entomofauna carpathica* **28** (2): 24, figs 56–64. Type-locality: Pakistan, Margalla Hills, 600 m, 20 km N Islamabad, Pir Sohawa, N33°50', E72°55'. Holotype: male, in coll. G. Ronkay.

Diagnosis. *Lygephila intermedia* differs from the externally most similar *L. procax* by its characteristically darkened costa and lighter inner part of the wings, while it can be satisfactorily separated from its most easterly distributed relative, *L. nigricostata*, only by the study of the genital structures.

In the male genitalia, the clasper of *L. intermedia* is longer than in *L. procax* and somewhat thinner than in *L. nigricostata*, moreover, in *L. intermedia* there is no sclerotized row of teeth in the basal part of the vesica which is typical of *L. nigricostata*.

The female genitalia of the three externally similar species mentioned above are much easier separable. In *L. intermedia*, the posterior section of the antrum is long and wide, with finely arched lateral edges and the postero-medial cleft is small, narrow; in *L. nigricostata*, the posterior section of the antrum is shorter, rather triangular, with broader and deeper, V-shaped postero-medial cleft; whereas in *L. procax* the antrum is narrower, evenly tapering towards its anterior end, and the postero-medial cleft is narrower than in *L. nigricostata* but deeper than in *L. intermedia*.

Distribution. Central Asiatic. The species has a large and rather unusual range of distribution, extending from Iran and Turkmenistan through Kyrgyzstan (and supposedly Afghanistan), the Himalayan region (Pakistan and Nepal) to SW China (North Yunnan).

Lygephila decolor (Bang-Haas, 1912)

(Plate 24, Figs 5–6; Plate 45, Figs 16–18; gen. fig. 90)

Toxocampa decolor Bang-Haas, 1912, *Deutsche Entomologische Zeitschrift. Gesellschaft Iris zu Dresden* **26** (3): 162, (4): pl. 6, f. 23. Type-locality: [China] Yarkend, Mustagata. Lectotype: male, in coll. MNHU.

Taxonomy. Poole (1989) established a new combination for the taxon, mentioning it as *Lygephila decolor* and treated it as a distinct species. Subsequently, Goater et al. (2003) considered *L. decolor* as a synonym of *L. procax* while Babics (2014) listed it as a subspecies of *L. procax*. The type material was studied and the taxonomic position of *L. decolor* was clarified by Pekarsky (2016).

Diagnosis. *Lygephila decolor* differs externally from *L. procax, L. nigricostata* and *L. frosya* by the unicolorous pale yellow-brown ground colour of forewings and hindwings, the forewing costal margin is not or only slightly darker than other parts of the wing.

In the male genitalia, the clasper of *L. decolor* is shorter than in *L. procax* and *L. nigricostata*, the uncus is longer in proportion to valval length, the valva is shorter and medially wider. In the vesica, the 2nd medial diverticulum of *L. decolor* is significantly different in shape than in the two close relatives, the 6th medial diverticulum is absent, and the terminal diverticulum is smaller with smaller pockets. The male genitalia of *L. decolor* are easily distinguished from those of *L. frosya* by the absence of the subapical costal process, the shorter clasper and the differently sized and shaped diverticula of the vesica.

Comparing the female genitalia, the antrum of *L. decolor* is shorter and the apophyses anteriores are thinner and shorter than in *L. procax* and *L. nigricostata*; the posterior section of antrum is broader and less evenly tapering than on *L. frosya*.

Distribution. Turkestanian. The species occurs in the Xinjiang-Uygur territory in China and in eastern Kazakhstan (Dzharkent region).

Lygephila frosya Pekarsky, 2016

(Plate 24, Figs 7–8; Plate 45, Figs 19–22; gen. fig. 91)

Lygephila frosya Pekarsky, 2016, *Entomofauna Carpathica* **28** (2): 19, figs 37–42. Type-locality: Russia East, Dauria, valley of river Onon at Nizhnei Tsasuchei. Holotype: male, in coll. HNHM.

Diagnosis. *Lygephila frosya* is somewhat smaller and more gracile than *L. procax*, *L. nigricostata*, *L. asiatica* and *L. decolor*. It is distinguishable from the similar species by its delicate greyish-brown colouration of wings and the presence of numerous oblique light streaks on the darkened costal edge.

The genitalia are very distinctive in both sexes. The male genitalia of *L. frosya* differ from those of all related species by the presence of an autapomorphic, pointed subapical costal process and the very long clasper. The key features of the female genitalia are the strongly sclerotized, posteriorly rather narrow, anteriorly evenly tapering antrum and the subconical sclerotised area at junction of ductus bursae to corpus bursae.

Distribution. The few known specimens display a strongly disjunct pattern of distribution; the species is known from Central Asia (China: Inner Mongolia and Shaanxi, Taibaishan; Mongolia: Prov. Čojbalsan; Russia: Dauria) and from the Northern Caucasus (Pyatigorsk).

Lygephila nigricostata (Graeser, 1890)

(Plate 25, Figs 1–2; Plate 45, Figs 23–29; gen. fig. 92)

Toxocampa limosa var. *nigricostata* Graeser, 1890, *Berliner entomologische Zeitschrift* **35**: 80. Type-locality: [Russia] Ussuri [Primorye territory]), Amur, Sidemi [Bezverkhovo]. Lectotype: male, in coll. MNHU.

Taxonomy. The taxonomic interpretation of the taxon has been changed in a number of times in the last decades. *L. nigricostata* was mentioned as a species distinct from *L. procax* by Kononenko et al. (1998), Goater et al. (2003), Kononenko (2005), Kononenko & Han (2007) and Matov et al. (May 2008). It was synonymised with *L. procax* by Fibiger & Kononenko (November 2008) and mentioned by Kononenko (2010) as conspecific with of *L. procax*. Four years later, Babics (2014) revised its status, upgrading it to species rank. Latest, Kononenko (2016) considered again *L. nigricostata* as synonym of *L. procax* while in the same year Pekarsky (2016) confirmed that *L. nigricostata* is species distinct from *L. procax*.

Diagnosis. *Lygephila nigricostata* is the easternmost member of the *L. procax* species-group. It differs externally from *L. procax* by its markedly darkened forewing costal and subterminal areas and broad hindwing marginal area, while the satisfactory separation of *L. nigricostata* and *L. intermedia* require the study of the genitalia.

In the male genitalia, the clasper of *L. nigricostata* is longer than in *L. procax*, and somewhat thicker than in *L. intermedia*. The most conspicuous autapomorphy of *L. nigricostata* is the row of sclerotized teeth in basal part of the vesica which is absent from all other species of the group.

In the female genitalia, the antrum of *L. nigricostata* is smaller, more triangular than in the related species, the postero-medial cleft is deeper and the postero-lateral edges are angular, not rounded.

Distribution. Manchurian-Pacific. The species occurs in the Russian Far East, north-eastern China, Korea and Japan.

The *pastinum* species-group

Lygephila pastinum (Treitschke, 1826)

(Plate 25, Figs 3–4; Plate 45, Figs 27–39; gen. fig. 93)

Ophiusa pastinum Treitschke, 1826, *Die Schmetterlinge von Europa* **5** (3): 297. Type-locality: Austria, Vienna region. Type(s): syntypes, in coll. HNHM.

Synonymy

Ophiusa astragali Herrich-Schäffer, [1851], *Systematische Bearbeitung der Schmetterlinge von Europa*: 415. Type-locality: Spain;

Toxocampa pastinum var. *dilutior* Staudinger, 1892, *Deutsche Entomologische Zeitschrift. Gesellschaft Iris zu Dresden* **5**: 372. Type-locality: [Mongolia] Kentei. Syntypes: in coll. ZMHU;

Toxocampa graciosissima Bryk, 1949, *Arkiv för Zoologi* **41A** (1): 131, pl. 5, fig. 4. Type-locality: North Korea, near Kyeongseong, Hamgyeong bugdo (Shuotsu). Holotype: male, in coll. NRS.

Diagnosis. The species-group includes two medium-sized to relatively large species with gracile body and broad, apically pointed forewings, with the wingspan 28–45 mm (the second generation of *L. pastinum* in Europe could be considerably smaller, the wingspan is sometimes only 28–30 mm). *Lygephila pastinum* differs externally from the similar *L. fonti* by its on average larger size, more grey(ish) forewings with more contrasting pattern, most often sharper defined reniform stigma and stronger irroration of black(ish) scales. The large specimens of *L. pastinum* sometimes resemble also *L. lusoria* but are regularly smaller in size, having slenderer body weaker sclerotised wings and the reniform stigma is differently shaped in the two species: that of *L. pastinum* has smaller and narrow main part with two satellite outer streaks while it is larger and wider in *L. lusoria*, usually without outer streaks.

The male genitalia of *L. pastinum* differ from those of *L. fonti* by the longer and less dilated uncus, and the broader, dentiform, bifurcate or bilobate clasper whereas the uncus of *L. fonti* is shorter and medially more dilated, and the clasper is finer, more lanceolate.

The female genitalia of *L. pastinum* are usually confusingly similar to those of *L. fonti*, displaying no distinctive features even if certain specimens of *L. fonti* show differential characters (see under the Diagnosis of *L. fonti*).

Distribution. Trans-Palaearctic. One of the most widespread species of the genus, its range extends from the British Isles and Portugal through the entire continent to the Russian Far East, Manchuria, Korea and Japan but absent from most parts of the Mediterranean and the western Asiatic arid territories, as well as the northern parts of the boreal zone.

Lygephila fonti Yela & Calle, 1990

(Plate 25, Figs 5–6; Plate 45, Figs 40–43; gen. fig. 94)

Lygephila fonti Yela & Calle, 1990, *Miscellània Zoològica* **12**: 205, figs 1, 2a, male genitalia, figs 3e-f adults. Type-locality: Spain, Jaén, Sierra de Cazorla, Arroy de las Truchas. Holotype: male, in coll. Yela (Toledo).

Diagnosis. *Lygephila fonti* is a sympatric sister-species of *L. pastinum*. These two species are rather similar externally but the wing pattern of *L. fonti* is always more indistinct, often obsolete, even the black reniform stigma may be faded into pale brown; the forewing colouration of *L. fonti* is regularly more brownish than in the variably grey shaded *L. pastinum* and usually lacks the fine dark irroration which is typical of its sister taxon. The measures of the two species may be also distinctive as both generations of *L. fonti* are small in size with the wingspan 28–36 mm while the first brood of *L. pastinum* is usually large (wingspan 34–48 mm) and the majority of the second generation specimens are also larger than 35 mm. *Lygephila*

fonti may resemble also very small specimens of *L. lusoria* but *L. fonti* is even smaller, its both pairs of wings are more unicolorous, and the forewing pattern is more diffuse or obsolescent.

The male genitalia of the two species display recognisable specific differences. *Lygephila fonti* has, in comparison with *L. pastinum*, shorter and medially more widened uncus, finer, lanceolate clasper with simple, acute apex, and less developed (in some specimens hardly recognisable) ampulla.

The female genitalia are almost identical in *L. fonti* and *L. pastinum*, but certain specimens of *L. fonti* have somewhat longer antrum with deeper postero-medial concavity.

Distribution. Endemic to Spain.

The *craccae* species-group

Lygephila craccae ([Denis & Schiffermüller], 1775)

(Plate 25, Figs 7–8; Plate 26, Figs 1–2; Plate 46, Figs 5–36; gen. fig. 95)

Noctua craccae ([Denis & Schiffermüller], 1775), *Ankündung eines Systematischen Werkes von den Schmetterlinge der Wiener Gegend* **1775**: 94. Type-locality: Austria, Vienna region.

Synonymy

Phalaena nigricollis Villiers, 1789, *Caroli Linnaei Entomologica, Fauna Suecicae Descriptionibus Aucta* **2**: 272, pl. 5, fig. 12. Type-locality: France;

Toxocampa innocens Krulikovsky, 1909, *Revue Russe d'Entomologie* **9**: 309. Type-locality: [Russia] Urzhum. Holotype: male, in coll. Kyiv Museum;

Ophiusa craccae grisea Warren, 1913, *Die Groß-Schmetterlinge des Palaearktischen Faunengebietes* **3**: 373, pl. 68, row g. Type-locality: [Russia or Kazakhstan] Uralsk. Holotype: female, in coll. BMNH;

Ophiusa craccae laevigata Warren, 1913, *Die Groß-Schmetterlinge des Palaearktischen Faunengebietes* **3**: 373, pl. 68, row g. Type-locality: Austria, South Tyrol. Syntypes, in coll. BMNH;

Ophiusa craccae lutosa Warren, 1913, *Die Groß-Schmetterlinge des Palaearktischen Faunengebietes* **3**: 373, pl. 68, row g. Type-locality: Southern France. Syntypes, in coll. BMNH;

Ophiusa angustipennis Warren, 1913, *Die Groß-Schmetterlinge des Palaearktischen Faunengebietes* **3**: 373, pl. 68, row g. Type-locality: India: Kashmir, Goorais Valley. Holotype: male, in coll. BMNH;

Toxocampa craccae caliginosa Schawerda, 1931, *Zeitschrift des Österreichischen Entomologischen Vereins* **16**: 54. Type-locality: Corsica, Col de Vizzavona. Syntypes: 2 males, 2 females, in coll. LSNK;

Toxocampa craccae centralasiae Sheljuzhko, 1955, *Mitteilungen der Münchner Entomologischen Gesellschaft* **44–45**: 281, pl. 5, figs 1, 2. Type-locality: Kazakhstan, Dzharkent. Holotype: male, in coll. ZSM;

Toxocampa craccae riata Rungs, 1952, *Bulletin de la Société des sciences naturelles du Maroc* **31**: 84. Type-locality: Morocco, South of Taza, Tazeka Massif, Bab Taka. Holotype: male, in coll. MNHP;

Lygephila herrerai Yela, 1990, *Eos* **65** (2): 294, figs 1, 2 adults, figs 3, 5, 6 genitalia. Type-locality: Spain, Jaén, Sierra de Cazorla, Arroyo de las Truchas, 780 m. Holotype: male, in coll. Yela;

Lygephila schachti Behounek & Hacker, 1986, *Entomofauna* **7**(3): 42, figs 1, 3 adult, figs 5, 7 genitalia. Type-locality: Turkey, prov. Hakkari, Sat Dag, Veregös, SW Yüksekova, 1700 m. Holotype: male, in coll. G. Behounek (ZSM); **syn. n.**

Taxonomy. The *L. craccae* species-group can be characterised by the small, narrow lunulate or somewhat wider triangular reniform stigma, composed most often from a number of smaller dark dots and short streaks, with paler brownish areas between them; the strongly asymmetrical clasping apparatus with enlarged left valva and narrower right valva, fine, long, pointed clasper, triangular ampulla and well-developed, pointed digitus and the long, more or less straight, broadly tubular aedeagus of the males; the entirely sclerotised, infundibular antrum with narrow, long anterior section and the characteristic "trilobate" shape of corpus bursae of the females.

The interpretation of the different populations of the "superspecies" *L. craccae* is possibly the most difficult problem of the taxonomy of *Lygephila*. The great intra- and inter-populational variability shadow the possible small specific differences, even if there are two or more externally distinguishable "*craccae*

forms" can be found at the same site. Moreover, there are at least three different BINs have been already recognised in the European populations and there is no information about the barcodes of the western and Central Asiatic populations.

There are about a dozen of described taxa are considered to belong into the wide sense *L. craccae* (see the list of synonyms above) which have more or less distinct range and sometimes they occur parallel with rather "typical *craccae*"-like moths. Herewith all these taxa are considered as synonymous with *L. craccae* (s.l.), with the statement that this question is not satisfactorily solved and the complex, integrative revision of the *L. craccae* group is highly desirable.

Diagnosis. *Lygephila craccae* is the most widespread and most common *Lygephila* species. Polytypic species, displaying considerable variation in the size and body strength, forewing ground colour and intensity of pattern, the underside of wings is also variable. The Pakistani populations of *L. craccae* (the "f. *angustipennis*"), being most similar to *L. violaceogrisea*, can be distinguished from the Chinese sister species by their stronger, more robust body, less acutely pointed forewing, somewhat larger and more arched reniform stigma and the less uniformly darkened hindwing. Certain specimens of *L. craccae* may resemble also *L. viciae* but differ from the latter species by their stronger body and more sclerotised wings, less marmoreal forewings with usually weaker pattern, more sinuous subterminal line and narrower, more lunulate (not triangular) reniform stigma, the paler hindwing inner area and the less unicolorous underside of both wings.

The male genitalia of *L. craccae* differ from those of *L. violaceogrisea* by the more evenly curved and apically more sharply pointed uncus, dorso-medially more dilated valvae with larger, more triangular ampulla, more or less symmetrical, shorter and finer, more cuneate claspers and better developed, apically more wedge-shaped digituses; from those of *L. viciae* by the evenly curved uncus, considerably slenderer valvae with more triangular and apically pointed cucullus, strong, pointed distal extensions of digitus, etc.

The female genitalia of *L. craccae* differ from those of *L. violaceogrisea* by their longer and anteriorly more evenly tapering antrum with proportionally shorter anterior section and larger but distally less dilated and more asymmetrical posterior section, with larger and much deeper, rather U-shaped postero-medial incision. The differences between *L. craccae* and *L. viciae* are more or less the same, though the length of the antrum and the shape and size of the postero-medial cleft are different in the three species; moreover, the corpus bursae of *L. craccae* is broader, more trilobate, not elliptical-ovoid as in *L. viciae*.

Distribution. Trans-Palaearctic. The species is one of the most widely distributed species of the genus though its core area is concentrated to the western part of Eurasia.

Lygephila violaceogrisea (Draudt, 1950)

(Plate 26, Figs 3–4; Plate 46, Figs 44–46; Plate 47, Figs 1–4; gen. fig. 96)

Toxocampa viciae violaceogrisea Draudt, 1950, *Mitteilungen der Münchner Entomologischen Gesellschaft* **40**: 165. Type-locality: China, North Yunnan, A-tun-tse. Holotype: male, in coll. ZFMK.

Diagnosis. *Lygephila violaceogrisea* is usually more similar externally to *L. viciae* than to most populations of the otherwise closer related *L. craccae*, displaying the most similarity with certain darker greyish shaded and well-marked specimens of the western Himalayan f. *angustipennis*. The main differences between *L. violaceogrisea* and *L. craccae* can be found in the strength of the body, the wing shape and the hindwing colouration as *L. violaceogrisea* is more gracile and on average smaller than all known populations of *L. craccae*, having more pointed forewings with darker, usually bluish- or finely violaceous shaded grey ground colour, better visible and more diffuse crosslines, and more evenly brown suffused hindwings.

Lygephila violaceogrisea can be distinguished from *L. viciae* by its more greyish shaded forewings with more pointed apex, darker (not whitish-ochreous covered) veins and subterminal line, and the narrower, more lunulate reniform stigma.

The male genitalia of *L. violaceogrisea* differ significantly from those of the other members of the *L. craccae* species-group by the generally smaller size, more symmetrical valvae, with more asymmetrical and longer, less pointed claspers (left clasper shorter and stronger, right clasper longer and narrower, more rod-like), and the shorter aedeagus; the valvae are narrower and more elongated than those of *L. viciae*, with pointed, not rounded apices.

The female genitalia of *L. violaceogrisea* can be easily distinguished from those of *L. craccae* by the remarkably shorter antrum with narrowly tubular anterior section and wide, funnel-shaped posterior part with very shallow postero-medial incision; from those of *L. viciae* by the shorter tubular anterior part of antrum, the shallower postero-medial incision and the larger, trilobate corpus bursae.

Distribution. Sino-Tibetan. China, Yunnan, Sichuan, Qinghai.

Lygephila viciae viciae (Hübner, [1822])

(Plate 26, Figs 5–6; Plate 47, Figs 1–15; gen. fig. 97)

Noctua viciae (Hübner, [1822]), *Systematisch-alphabetisches Verzeichniss aller bisher bey den Fürbildungen zur Sammlung europäischer Schmetterlinge angegeben Gattungsbenennungen mit Vormerkung auch Augsburgischer Gattungen*: pl. 146, figs 671–673. Type-locality: Europe.

Synonymy

Ophiusa viciae var. *coronillae* Herrich-Schäffer, 1855, *Systematische Bearbeitung der Schmetterlinge von Europa, Zugleich als Text, Revision und Supplement zu J. Hübner's Sammlung Europäischer Schmetterlinge* **1855**: index, p. 15, fig. 271. Type-locality: no locality given.

Toxocampa viciae var. *caeca* Staudinger, 1896, *Deutsche Entomologische Zeitschrift. Gesellschaft Iris zu Dresden* **9**: 374, pl. 4, fig. 7. Type-locality: [Mongolia] Urga. Holotype: male in coll. ZMHU.

Diagnosis. *Lygephila viciae* is a Trans-Palaearctic species displaying no remarkable geographic variation in its external features throughout its vast range. The female genitalia show, however, recognisable differences between the Pacific and the more westerly distributed populations. Thus, *stigmata* is considered here as a geographic subspecies *L. viciae*.

Lygephila viciae differs externally from *L. violaceogrisea* by the more brown(ish) shaded forewings with less pointed apex, paler veins and whitish defined, rather straight subterminal line, and the narrower, more lunulate reniform stigma; from *L. craccae* by its smaller size, more robust body, straighter subterminal line, broader, rather triangular reniform stigma, paler veins, stronger costal markings, bigger distance between postmedial and forewing apex, more uniformly brown suffused hindwings and underside of both wings, without contrasting pale inner and dark marginal areas.

The male genitalia of *L. viciae* can be distinguished from those of *L. violaceogrisea* and *L. craccae* by the apically widely rounded valvae with very large dorsal costal lobe of the left valva, the fine, bar-like claspers and the reduced apical extensions of the digituses, and the different configuration of the vesica with much smaller medial diverticula.

The female genitalia of *L. viciae* differ from those of *L. violaceogrisea* by the longer tubular anterior part of antrum, the deeper, more U-shaped postero-medial cleft, the more rounder postero-lateral edges and the narrower and longer, more elliptical-ovoid (not trilobate) corpus bursae; from those of *L. craccae* by the shorter but broader, more abruptly tapering funnel-like posterior section of antrum with shallower but broader, more U-shaped postero-medial cleft and the more elongate-ovoid corpus bursae.

Distribution. Western Palaearctic. The typical populations of *L. viciae* occur in most parts of Europe except the British Isles, the Iberian peninsula, the southern Mediterranean areas and the far northern regions; it is known also from Asia Minor, western Turkestan, Siberia, Mongolia and Transbaikalia.

Lygephila viciae stigmata (Wileman, 1911) **stat. rev.**

(Plate 26, Figs 7–8; Plate 47, Figs 15–24; gen. fig. 98)

Toxocampa stigmata Wileman, 1911, *Transactions of the Entomological Society of London.* **1911**: 248, pl. 31, fig. 7. Type-locality: Japan, Hakodate, Yesso. Holotype: female, in coll. BMNH.

Diagnosis. The external appearance of the two subspecies of *L. viciae* is more or less the same though the eastern subspecies has usually somewhat stronger dark irroration and broader reniform stigma. There are no valuable differential characters in male genitalia, but in the females the antrum of the ssp. *stigmata* is on average longer than in the nominotypical ssp. *viciae*.

Distribution. Siberian-Pacific. The ssp. *stigmata* occurs in NE and E. China (Manchuria, Shaanxi, Sichuan), the Russian Far East (Ussuri region, Primorye territory), Korea and Japan.

Genus *Tathorhynchus* Hampson, 1894

Tathorhynchus Hampson, 1894, *The Fauna of British India, including Ceylon and Burma, Moths* **2**: 268. Type-species: *Scopula vinctalis* Walker, 1866, by original designation.

Synonymy

Xymehops Viette, 1954, *Annales de la Museum de Congo, Tervuren* **1**: 557. Type-species: *Xymehops nigra* Viette, 1954, by original designation.

Diagnosis. The diagnostic external features of (the Eurasiatic species of) *Tathorhynchus* are, in comparison with *Lygephila*, the slenderer body, the pale collar with fine dark streak only, the longer and narrower, apically rounded forewings with longitudinal dark streaks, and the small, pale oval reniform stigma with two blackish dots inside.

The male genitalia of *Tathorhynchus* differ from those of *Lygephila* by the shorter valvae with thicker, apically acute, thorn-like clasper and the vesica more simple vesica with a few scobinate diverticula with two longer rows of larger spinules.

The main difference between the female genitalia of *Tathorhynchus* and *Lygephila* can be found in the sclerotisation of the posterior part of corpus bursae which bears two large sclerotised patches in *Tathorhynchus* while the corpus bursae of *Lygephila* is membranous, with some fine sclerotised areas.

Distribution. Old World tropical genus, its only species, *T. exsiccata* appears in the southern parts of the Palearctic region as regular or occasional migrant. Most species occur in Africa, there are only two species distributed outside the Palaeotropical region. *Tathorhynchus exsiccata* was introduced to certain parts of the Nearctic and Neotropical regions.

Tathorhynchus exsiccata (Lederer, 1855)

(Plate 27, Figs 1–2; Plate 47, Figs 25–34; gen. fig. 99)

Spintherops exsiccata Lederer, 1855, *Verhandlungen der zoologisch-botanischen Gesellschaft in Wien* **5**: 204. Type-locality: [Lebanon] Beirut.

Synonymy

Scopula vinctalis Walker, 1866, *List of the specimens of Lepidopterous Insects in the collection of the British Museum* **34**: 1476. Type-locality: [India] South Hindostan; Australia, Sydney. Syntypes: in coll. BMNH.

Platysenta angustiorata Grote, 1882, *Bulletin of the United States Geological and Geographical Survey of the Territories* **5**: 584. Type-locality: [USA] Colorado. Syntypes: in coll. BMNH;

Tathorhyncus [sic] *exsiccata* ssp. *greuteri* Koutsaftikis, 1973, *Annales Musei Goulandris* **1**: 203, pl. 31, fig. 11. Type-locality: [Greece] Samothraki, Hora. Holotype: male, in coll. Goulandris Museum, Kifissia.

Diagnosis. An easily recognisable species by its characteristic forewing shape and pattern, no similar species is known from Eurasia. Its closest relative, *T. fallax* Swinhoe, 1902, occurs in the Australian region, the other similar species live in Africa south of the Sahara. *Tathorhynchus exsiccata* differs from *T. fallax* by its much stronger dark forewing markings in the submedial fold and in the cell between and around of orbicular and reniform stigmata, and the darker marginal suffusion of both wings; from the females of the African relatives also by its smaller and sharper defined reniform stigma, the absence of the darker brown(ish) irroration in the basal and medial areas of the forewing and the paler inner area of the hindwing (the males of the African species have quite differently shaped and coloured, dark blackish-grey wings).

Distribution. Old World Tropical migrant species. *Tathorhynchus exsiccata* is resident in most parts of Africa and the Oriental region, migrating specimens occur in southern Europe, western and Central Asia. It has been introduced into America (USA, Dominica, and Argentina); it is substituted by a distinct species, *T. fallax* in Australia and the surrounding islands.

The ***Perinaenia*** generic complex

by

Gábor Ronkay and László Ronkay

Diagnosis. The *Perinaenia* generic complex belongs to the tribe Toxocampini; its closest related groups are the *Lygephila* Billberg, 1820 - *Tathorhynchus* Hampson, 1894 and the *Autophila* Hübner, [1823] - *Apopestes* Hübner, [1823] generic complexes, considering both the appearance and the genitalia morphology. Interestingly, the black or blackish collar appears parallel in both large clades (in *Isoura* and *Lygephila*), otherwise the two clades can be easily distinguished by a number of group apomorphies.

The three genera under discussion, *Perinaenia*, *Isoura* and *Exophyla*, form a very compact clade, according to their morphological and bionomical features. The first two genera are standing closer to each other, and *Exophyla* represents their sister-group. The characterisation of the external and genitalia morphology of the clade, as well as the bionomic features being typical for the three genera are provided below.

External morphology: 1) head, thorax and abdomen covered with smooth, flat, easily removable hair-like scales; 2) head small, eyes large, globular, palpi slender, upturned; 3) antennae filiform and ciliate in both sexes; 4) forewing narrow, long, apically finely rounded, hindwing broad and rounded; and 5) forewing pattern obsolescent, finely rippled pattern.

Male genitalia: 1) uncus long and narrow, regularly curved, apically finely hooked; 2) tegumen symmetrical or slightly asymmetrical, with characteristic shark-tooth-shaped penicular lobe (in *Perinaenia* and *Isoura*); 3) vinculum well-developed, sclerotised, relatively short, saccus U-shaped; 4) valvae symmetrical, saccular part elongated, distal part rather rhomboidal (*Perinaenia*) or rabbit-ear-shaped (*Isoura* and *Exophyla*); 5) sacculus well-developed, with parallel margins; 6) harpe (clasper) short, flat, bar-like; 7) ampulla heavily sclerotised, with wide and short basal plate and long, sabre-shaped, erect process; 8) aedeagus long, cylindrical with fine, medium-long sclerotised carinal bars; 9) vesica everted forward, then upturned dorsad; composed from two to four variably shaped diverticula and a very long, tubular terminal diverticulum; and the 10) vesica is armed by two characteristic spiculi fields distally (in *Perinaenia* and *Isoura*, missing in *Exophyla*).

Female genitalia: 1) ovipositor short, conical, papillae anales short, slightly rounded apically; 2) apophyses posteriores thin, long and straight, apophyses anteriores heavily sclerotised, (very) short and variably strongly curved; 3) antrum strongly sclerotised, posterior part humped, medially variably deeply incised (except in *Exophyla*); 4) ductus bursae heavily sclerotised, tubular; its anterior section membranous,

finely curved; 5) corpus bursae membranous, distal part helicoid; appendix bursae dorsally positioned; and the 6) signum is helicoid, covered relatively sparsely by spiculi.

Externally, the *Perinaenia* clade is characterised by the rather robust body with narrow, elongated forewings, this feature is present in the *Lygephila-Autophila* clade only in the genus *Tathorhynchus* (but these species have the most gracile body within the entire generic complex). The wing pattern is strongly variable in both clades but the underside pattern is most often very simple or absent in the *Perinaenia* clade while it can be well-differentiated and expressed in the *Lygephila* clade, displaying usually distinctive specific features.

The most prominent differences in the genitalia are as follows:

Perinaenia clade: 1) the harpe-ampulla complex originates from the costal part of the medial section of the valva; 2) the ampullar part is much stronger developed, characteristically sabre-shaped and curved ventrad; 3) the tegumen and the vinculum are more or less equal in length; 4) the vesica has maximum two spinulose fields; 5) the posterior part of the bursa copulatrix has a helicoid curve; 6) the moths keep their wings horizontal with partly overlapping forewing distal parts (one of the forewings is slipped under the other one) like in most Noctuinae species; and 7) the overwintering stage is the adult.

Lygephila-Autophila clade: 1) the harpe-ampulla complex originates from the distal third of the valva nearby the ventral margin, as a direct continuation of the elongated sacculus; 2) the harpe-ampulla complex forms a common process (except in the subgenus *Cheirophanes* Boursin, 1955 of *Autophila*), this process is either straight or curved slightly dorsad; 3) the tegumen is considerably longer than the vinculum; 4) the vesica has several diverticula bearing spinulose fields; and 5) the bursa copulatrix is often elongated and inflated, and the posterior part of the bursa copulatrix is never helicoid.

Distribution. The generic complex is widespread in the wide sense Palaearctic but only a single species of *Exophyla* is distributed in the western and central parts of Eurasia.

Genus ***Perinaenia*** Butler, 1878

Perinaenia Butler, 1878, *Annals and Magazine of Natural History* **5** (1): 289. Type-species: *Perinaenia lignosa* Butler, 1878, by original designation.

Diagnosis. The three genera are rather uniform in their external and genitalia features, with clearly recognisable group apomorphies. The genera can be distinguished by the following characteristics: the species of the sister genera *Perinaenia* and *Isoura* differ from those of *Exophyla* by their more robust body, usually not extensive but more pronounced forewing markings and less intense reticulate-marmorate pattern which is typical of *Exophyla*; the presence of the spinose fields in the vesica (they are reduced in *I. clara*), the longer, more stick-like aedeagus with shorter coecum penis, the slenderer, evenly curved uncus, and the proportionally shorter ovipositor with remarkably thicker, stronger sclerotised apophyses anteriores.

The best distinctive features between the genera *Perinaenia* and *Isoura* are the colouration of the collar and the hindwing: the collar is conspicuously black and the hindwing is bright yellow in *Isoura* while the pubescence of the thorax is more or less concolorous in *Perinaenia* and the hindwing ground colour varies from whitish-ochreous to pale grey-brown.

In the male genitalia, the vesica of *Perinaenia* is longer, with well-developed subbasal spinulose field, the distal part of valva is more quadrangular, the harpe is less developed, lacking the apical erect part, and the vinculum is more elongated. The vesica of *Isoura* is shortened, the subbasal field of spinules is absent and the apical field is partly (*fuscicollis*) or fully (*clara*) reduced, the distal half of the valva is more rounded, and the harpe is stronger, with rounded (*fuscicollis*) or acute (*clara*), short erect process, and the vinculum is broader but shorter than in *Perinaenia*.

The basic configuration of the female genitalia is very similar in the two genera, a mentionable difference can be found in the structure of the ostium-antrum complex: the lateral lobes of this plate are much stronger and lobate in *Perinaenia* while in *Isoura* this part is evenly rounded (*fuscicollis*) or projected caudally, forming a characteristic U-shaped plate (*clara*).

Checklist

Genus ***Perinaenia*** Butler, 1878

accipiter Felder & Rogenhofer, 1874
mingchyrica Babics & Ronkay, 2011
nigrifascia Babics & Ronkay, 2011
atripunctum Babics & Ronkay, 2011

Distribution. Analysing their distribution patterns, it seems very probable that the area of the type-species, *P. accipiter,* overlaps the ranges of the three other, stenochorous congeners. The distribution of *P. accipiter* is undoubtedly incompletely known, the known records mark the edges of its large and supposedly interrupted area: it has been recorded from northern Japan through the Himalayan-Sino-Tibetan region to the Hindukush complex in Afghanistan and expanded to the south as far as Goa in SW India (type-locality). *Perinaenia mingchyrica* is most probably an insular endemism and a descendant of *P. accipiter* in Taiwan. These two species inhabit similar biotopes in the Pacific region, occurring mostly in medium-high, humid deciduous forests. The other two members of the genus occur in the continental eastern Asia, *P. atripunctum* occurs in the Taibaishan area in Shaanxi, China, while the northern Indo-Chinese representative of *Perinaenia* is *P. nigrifascia* which is known by a single female specimen from the Fansipan Mts in northern Vietnam.

Perinaenia accipiter (Felder & Rogenhofer, 1874)

(Plate 27, Figs 3–4, Plate 47; Figs 35–37; Plate 48, Figs 1–3; gen. fig. 100)

Spintherops accipiter Felder & Rogenhofer, 1874, *Reise Oesterreischen Fregatte Novara um die Erde in den Jahren 1857, 1859. Zoologischer Theil, Zweiter Band, Zweite Abtheilung, Lepidoptera* **4**: pl. 111, fig. 29. Type-locality: [India, Goa] Pangi. Holotype: female, in coll. BMNH.

Synonymy
Perinaenia lignosa Butler, 1878, *Annals and Magazine of Natural History* **5** (1): 289. Type-locality: Japan, Yokohama. Type(s): in coll. BMNH.

Diagnosis. The taxonomic placement of the species was revised and corrected by Boursin (1948) who recognised its close relationship with the *Autophila* Hübner, [1821] complex.

Perinaenia accipiter can be distinguished from its sister-species, *P. mingchyrica*, by its darker colouration of the body and both pairs of wings, the shorter dark covering of the forewing costa, extending only to the antemedial line, and the absence of the pistachio-green scales around reniform stigma which is typical of *P. mingchyrica*. It is on average smaller than its Taiwanese relative with their wingspan 38–45 mm vs 42–47 mm, respectively.

The male genitalia of *P. accipiter* differ from those of *P. mingchyrica* by the stronger, thicker ampulla, the longer and slenderer aedeagus, the stronger developed spiculi fields of the medial section of the vesica and the apical part of terminal diverticulum.

The female genitalia of the two species are separable by the shape and size of the signum and the corpus bursae: *P. accipiter* has, in comparison with *P. mingchyrica*, longer signum and medially broader corpus bursae.

Perinaenia accipiter is easily separable from the other two congeners. It differs from *P. nigrifascia* by its larger size (wingspan 38–45 mm vs 35–36 mm), darker brown colouration and the absence of the

long black basal dash; from *P. atripunctum* by its remarkably darker wings and the small, dot-like and white(ish) centred reniform stigma surrounded (partly) by dark (usually blackish-brown) scales.

Distribution. The distribution pattern of the species is quite curious, it is distributed in the relatively northern part of the Pacific region: Japan, Korea, and NE. China (Manchuria) and SE Afghanistan, but the type-locality of the species lies in the south-western part of India (Goa).

Perinaenia mingchyrica Babics & Ronkay, 2011

(Plate 27, Figs 5–6; Plate 48, Figs 4–9; gen. fig. 101)

Perinaenia mingchyrica Babics & Ronkay, 2011, *Zootaxa* **2733**: 19, pl. 1, figs 2–3; gen. fig. 1. Type-locality: Taiwan, Taoyuan County, Ming-Chyr Forest Recreation Area, 1200 m. Holotype: male, in coll. G. Ronkay (Budapest).

Diagnosis. *Perinaenia mingchyrica* differs from the closely related *P. accipiter* by its paler thorax and abdomen, pale yellow hindwing ground colour with intensive dark brown marginal suffusion, and by the prominently dark irrorated forewings costal margin and the conspicuous pistachio-green scales defining the reniform stigma. Wingspan 42–47 mm, length of forewing 21–22 mm; sexes similar.

The male genitalia of *P. mingchyrica* differ from those of *P. accipiter* by their shorter and thicker aedeagus, weaker spiculi field of the medial section of the vesica and the apical part of terminal diverticulum, and the thinner ampulla. The main differences in the female genitalia are the shorter signum band and the thinner medial section of corpus bursae.

Distribution. The species appears as endemic to Taiwan. It occurs in the eastern and central mountainous regions of the island; the few known specimens were found in very different types of forest habitats, from the hilly subtropical forests to the upper range of the timberline.

Perinaenia atripunctum Babics & Ronkay, 2011

(Plate 27, Figs 7–8; Plate 48, Figs 10–11; gen. fig. 102)

Perinaenia atripunctum Babics & Ronkay, 2011, *Zootaxa* **2733**: 24, pl. 1, fig. 4; gen. fig. 4. Type-locality: China, Shaanxi, South Taibaishan, Tsinling Mts, Houzhenzi, 1400 m, 33°51'N, 107°49'E. Holotype: male, in coll. G. Ronkay (Budapest).

Diagnosis. *Perinaenia atripunctum* differs conspicuously from the related *P. accipiter* by its remarkably paler, yellowish-ochreous forewing ground colour and the characteristically large and rounded reniform stigma. Wingspan 43–45 mm, length of forewing 20–22 mm.

The male genitalia of *P. atripunctum* can be distinguished from those of *P. accipiter* by their finer, thinner ampulla, and the very characteristic long and thin process of the editum which is a unique autapomorphy of the species.

Distribution. Central Chinese. The species is known by two male specimen collected in the same mountain system in the Taibaishan area in Shaanxi, Central China. This area is a Nature Reserve, covered by hilly and meso-montane deciduous and mixed forests. The further three specimen collected in the same habitat.

Perinaenia nigrifascia Babics & Ronkay, 2011

(Plate 28, Fig. 1; Plate 48, Fig. 12; gen. fig. 103)

Perinaenia nigrifascia Babics & Ronkay, 2011, *Zootaxa* **2733**: 23, pl. 1, fig. 5; gen. fig. 3. Type-locality: Vietnam, Prov. Lao Cai, Fan-si-pan Mts, 16 km NW of Sa Pa, 1800 m. Holotype: male, in coll. HNHM.

Diagnosis. *Perinaenia nigrifascia* differs from *Perinaenia accipiter* by its smaller size, somewhat paler brown ground colour of both wings, and the prominent black basal dash in the submedian fold. Wingspan 35–36 mm, length of forewing 17 mm; sexes similar.

The male genitalia of *P. nigrifascia* differ from those of *P. accipiter* by their characteristic rabbit-ear shaped valva and the lack of spinulose fields from the vesica. The female genitalia of *P. nigrifascia* differ from those of *P. accipiter* by its longer anal papillae and apophyses posteriores, more bow-shaped ostium bursae, shorter and medially more dilated ductus bursae, shorter and less helicoid distal part of corpus bursae, proportionally larger, discoidal proximal part and the weaker sclerotised signum.

Distribution. Northern Indo-Chinese. The species is known by two specimens from northern Vietnam. The holotype specimen was found at the edge of the montane deciduous forest and the mossy forest belts, the second moth was collected in a low altitude rainforest habitat; both overwintering adults were collected at light at early spring.

Genus *Isoura* Hampson, 1894

Isoura Hampson, 1894, *The Fauna of British India, including Ceylon and Burma, Moths* **2**: 506. Type-species: *Triphaena fuscicollis* Butler, 1889, by original designation.

Diagnosis. The genus *Isoura* differs from *Exophyla* by the more robust body of the adults, usually not extensive but more pronounced forewing markings and less intense reticulate-marmorate pattern which is typical of *Exophyla*; the presence of the spinose fields in the vesica (they are reduced in *I. clara*), the longer, more stick-like aedeagus with shorter coecum penis, the slenderer, evenly curved uncus, and the proportionally shorter ovipositor with remarkably thicker, stronger sclerotised apophyses anteriores.

The best distinctive features between the genera *Perinaenia* and *Isoura* are the colouration of the collar and the hindwing: the collar is conspicuously black and the hindwing is bright yellow in *Isoura* while the pubescence of the thorax is more or less concolorous in *Perinaenia* and the hindwing ground colour varies from whitish-ochreous to pale grey-brown.

In the male genitalia, the vesica of *Isoura* is shortened, the subbasal field of spinules is absent and the apical field is partly (*fuscicollis*) or fully (*clara*) reduced, the distal half of the valva is more rounded, and the harpe is stronger, with rounded (*fuscicollis*) or acute (*clara*), short erect process, and the vinculum is broader but shorter than in *Perinaenia*. The vesica of *Perinaenia* is longer, with well-developed subbasal spinulose field, the distal part of valva is more quadrangular, the harpe is less developed, lacking the apical erect part, and the vinculum is more elongated.

The basic configuration of the female genitalia is very similar in the two genera, a mentionable difference can be found in the structure of the ostium-antrum complex: the lateral lobes of this plate are much stronger and lobate in *Perinaenia* while in *Isoura* this part is evenly rounded (*fuscicollis*) or projected caudally, forming a characteristic U-shaped plate (*clara*).

The genus comprises at least two closely related although externally easily distinguishable species.

Distribution. The genus *Isoura* has long been known, similarly to *Perinaenia*, as monobasic. The type-species, *I. fuscicollis* (Butler, 1889) is a real rarity, despite its wide range extending from the south-western Himalayas (type-locality: India, Himachal Pradesh) through the Himalayan-Sino-Tibetan region to the Taiwanese Mountains. It inhabits monsoonic forests at lower and medium-high altitudes throughout its range. The second species is more tropical, their areas are partly overlapping in the south-eastern parts of the Himalayas (eastern Nepal). The actually known range of *I. clara* extends from the eastern Himalayas (Nepal, northern Vietnam) to Sulawesi.

Isoura fuscicollis (Butler, 1889)

(Plate 28, Figs 5–6; Plate 48, Figs 13–15; gen. fig. 104)

Triphaena fuscicollis Butler, 1889, *Illustrated Typical Specimens of the Lepidoptera Heterocera in the Collection of the British Museum* **7**: 56, pl. 127, fig. 4. Type-locality: [India, Himachal Pradesh] Dharmsala. Syntypes: 1 male and 1 female, in coll. BMNH.

Diagnosis. The fasciate and the unicolorous hindwinged specimens have long been considered as colour forms of the same species until Babics and Ronkay (2011) proved that they represent two distinct, partly sympatrically occurring species.

Isoura fuscicollis is easily separable from *I. clara* by its prominent dark, usually blackish-brown transverse stripe on both surfaces of the hindwings. Wingspan 44–50 mm; sexes similar.

In the male genitalia, *I. fuscicollis* has, comparing with *I. clara*, remarkably shorter and less curved uncus, broader and shorter juxta, narrower distal section of valva, shorter erect part of harpe, and the larger vesica with long, apically sclerotised terminal diverticulum.

The female genitalia of *I. fuscicollis* differ from those of *I. clara* by the much smaller and finely arched ostium-antrum complex, the longer and straighter ductus bursae and the shorter apophyses anteriores.

Distribution. Himalayan-Sino-Pacific. The species appears as widespread but rare and local throughout the southern Himalayas and northern Indochina to Taiwan.

Isoura clara Babics & Ronkay, 2011

(Plate 28, Figs 7–8; Plate 48, Figs 16–18; gen. fig. 105)

Isoura clara Babics & Ronkay, 2011, *Zootaxa* **2733**: 24, pl. 1, figs 7–8; gen. fig. 5. Type-locality: Nepal, Mechi, Taplejung area, Lamite Banjang, 3450 m, 27°29'N, 87°56'E. Holotype: female, in coll. G. Ronkay (Budapest).

Diagnosis. *Isoura clara* differs externally from the related *I. fuscicollis* by its clear yellow hindwings without transverse stripe on both surfaces, and the slightly darker forewing ground colour without lustrous costal suffusion. Wingspan: 44–50 mm, length of forewing: 21–23 mm; sexes similar.

The male genitalia of *I. clara* differ from those of *I. fuscicollis* by their much longer and evenly curved uncus, narrower but longer juxta, distally much broader and more rounded valva, longer erect part of harpe, finer, less curved ampulla, and the smaller, less ample vesica without long, apically sclerotised terminal diverticulum.

In the female genitalia, *I. clara* differs from its sister-species by their characteristically U-shaped ostium-antrum complex, curved ductus bursae and the longer apophyses anteriores.

Distribution. The few known specimens were collected in rather remote areas of south-eastern Asia (Nepal, northern Vietnam and Sulawesi). The two females are found in the late autumn, they were most probably prepared for the overwintering; the rather worn male is possibly an old specimen which had been emerged from the pupa a year earlier. The southern Himalayan specimens were collected in human settlements where they can easily find shelters for the diapause.

Genus ***Exophyla*** Guenée, 1841

Exophyla Guenée, 1841, *Annales de la Société Entomologique de France* **10**: 248. Type-species: *Noctua rectangularis* Geyer, 1828, by subsequent designation by Warren, 1913.

Diagnosis. As the generic relegation of all African species placed by authors into *Exophyla* is doubtful, the genus can be considered as represented by a pair of species with Palaearctic distribution**.**

The genus includes medium-sized moths (wingspan 31–40 mm) with rather robust body, broad wings and characteristic fine whitish reticulate pattern on the pale brownish forewings. The antennae of both sexes are similarly simple, shortly ciliate; the pubescence of the thorax is rather homogeneous, with similarly coloured collar, tegulae and metathoracic tuft; abdomen rather cylindrical, only slightly flattened dorso-ventrally, dorsal crest absent. Colouration of the forewing is variable from ochreous-brown and pale sand-brown to light olive-grey, variably strongly reticulate with short, fine white(ish) streaks. The noctuid pattern is reduced, only the reniform stigma may be present and the subterminal line is often marked by a row on variably dark grey or brown dots. The hindwing is broadly rounded, shining milky ochreous-brown, with darker veins, fine, diffuse grey-brown transverse stripe and variably broad and dark marginal suffusion.

Distribution. *Exophyla rectangularis* has a large and scattered area from the Balkan Peninsula across the mountains of Asia Minor and western Asia, while its twin species occurs in the Pakistani Himalayas. The habitat preference of the species differs conspicuously from those of the species of *Isoura* and *Perinaenia*, as it favourizes dry and warm habitats on various altitudes, occurring often in gorges of stream valleys.

Exophyla dietzelgyulai Ronkay & Ronkay **sp. n.**

(Plate 28, Fig. 2; Plate 48, Fig. 30; gen. fig. 106)

Holotype: female, Pakistan, Himalaya Mts, Kaghan valley, 30 km S of Babusar Pass, 3500 m, 27.VII.1994, leg. B. Herczig, Gy. M. László & G. Ronkay, slide No.: BJ1065 (coll. G. Ronkay).

Diagnosis. The new species differs from its allopatric western sister-species, *E. rectangularis*, by its smaller size (wingspan 31 mm vs 33–40 mm), narrower and apically more pointed forewings with somewhat more reticulate pattern, lacking the dark spots of the subterminal line but the reniform stigma is marked by two fine dots.

The female genitalia of the two species can be distinguished by the shape and length of the antrum and the sclerotised posterior section of ductus bursae: *E. dietzelgyulai* has remarkably longer ductus bursae and the antrum is narrower than in *E. rectangularis*, having two rounded triangular terminal (lateral) lobes.

Distribution. The species is known from the type-locality (Pakistan, Kaghan valley) only. The species was found at a high altitude area in a brook valley surrounded by scattered forest patches and subalpine meadows.

Exophyla rectangularis (Geyer, 1828)

(Plate 28, Figs 3–4; Plate 48, Figs 19–29; gen. fig. 107)

Noctua rectangularis Geyer, 1828, *in* Hübner, *Sammlung Europäischer Schmetterlinge* **4**: pl. 169, fig. 801. Type-locality: [Croatia] Fiume [Rijeka].

Diagnosis. *Exophyla rectangularis* is on average larger and more broad-winged than its sister-species, *E. dietzelgyulai* (wingspan 33–40 mm vs 31 mm), the colouration of the forewing is variable from ochreous-brown and pale sand-brown to light olive-grey but the wings are in general less reticulate, the reniform stigma is absent and the subterminal line is often marked by a row on variably dark grey or brown dots. narrower and apically more pointed forewings with somewhat more reticulate pattern, lacking the dark spots of the subterminal line but the reniform stigma is marked by two fine dots.

The female genitalia of the two species can be distinguished by the shape and length of the antrum and the sclerotised posterior section of ductus bursae: the ductus bursae of *E. rectangularis* is shorter and the antrum is broader, lacking the short lateral appendages which are present in *E. dietzelgyulai*.

Distribution. Holo-Mediterranean-Iranian. The species has a wide but rather scattered area extending from the Maghreb area and the Iberian Peninsula throughout the Mediterranean region and Asia Minor the northern Iran.

COLOUR PLATES

Magnified images



1. *Diphtherocome pallida pallida* (Moore, 1867) male, Nepal, Annapurna Himal



2. *Diphtherocome pallida pallida* (Moore, 1867) female Nepal, Ganesh Himal



3. *Diphtherocome pallida pallida* (Moore, 1867) Holotype, female, India, Sikkim



4. *Diphtherocome pallida bubaceki* Gaal-Haszler et al, 2012 Holotype, female, India, Kashmir



5. *Diphtherocome pallida bubaceki* Gaal-Haszler et al, 2012 Paratype, male, Pakistan, Murree Hills



6. *Diphtherocome pallida bubaceki* Gaal-Haszler et al, 2012 Paratype, male, Pakistan, Murree Hills



7. *Diphtherocome secreta* Hreblay & Ronkay, 1999 Holotype, male, Nepal, Ganesh Himal



8. *Diphtherocome secreta* Hreblay & Ronkay, 1999 Paratype, female, Nepal, Ganesh Himal



1. *Diphtherocome secreta* Hreblay & Ronkay, 1999 male, Nepal, Annapurna Himal



2. *Diphtherocome mixta* Hreblay & Kononenko, 1999 Holotype, male, China, Yunnan



3. *Diphtherocome mixta* Hreblay & Kononenko, 1999 Paratype, male, China, Yunnan



4. *Diphtherocome mixta* Hreblay & Kononenko, 1999 female, China, Sichuan



5. *Diphtherocome pallidula* Hreblay & Plante, 1998 Holotype, male, China, Tibet, Nyemo



6. *Diphtherocome robusta* Hreblay & Kononenko, 1999 Holotype, male, China, Yunnan



7. *Diphtherocome robusta* Hreblay & Kononenko, 1999 male, China, Sichuan



8. *Diphtherocome robusta* Hreblay & Kononenko, 1999 female, China, Sichuan



1. *Diphtherocome laevis* Warren, 1907 Lectotype, male, China, Yunnan



2. *Diphtherocome laevis* Warren, 1907 female, China, Sichuan



3. *Diphtherocome fasciata* (Moore, 1888) male, Nepal, Annapurna Himal



4. *Diphtherocome fasciata* (Moore, 1888) female, Nepal, Annapurna Himal



5. *Diphtherocome hoenei* Hreblay & Kononenko, 1999 Holotype, male, China, Shaanxi



6. *Diphtherocome hoenei* Hreblay & Kononenko, 1999 female, China, Sichuan



7. *Diphtherocome hoenei* Hreblay & Kononenko, 1999 male, China, Sichuan



8. *Diphtherocome hoenei* Hreblay & Kononenko, 1999 female, China, Sichuan



1. *Diphtherocome kuni* Hreblay & Ronkay, 1999 Holotype, male, North Vietnam



2. *Diphtherocome kuni* Hreblay & Ronkay, 1999 Paratype, female, North Vietnam



3. *Diphtherocome kuni* Hreblay & Ronkay, 1999 Paratype, male, North Vietnam



4. *Diphtherocome kuni* Hreblay & Ronkay, 1999 male, China, Sichuan (Paratype of *D. xichangae* Gyulai, et al, 2014)



5. *Diphtherocome bigu* Hreblay & Ronkay, 1999 Holotype, male, Nepal, Rolwaling Himal



6. *Diphtherocome bigu* Hreblay & Ronkay, 1999 Paratype, male, Nepal, Ganesh Himal



7. *Diphtherocome brevipennis* (Hampson, 1909) Lectotype, male, India, Sikkim



8. *Diphtherocome brevipennis* (Hampson, 1909) female, Nepal, Kanchenjunga Himal



1. *Diphtherocome vivida* (Leech, 1900) male, China, Sichuan



2. *Diphtherocome vivida* (Leech, 1900) female, China, Sichuan



3. *Diphtherocome pseudovivida* Hreblay & Ronkay, 1999 Holotype, male, Nepal, Kanchenjunga Himal



4. *Diphtherocome pseudovivida* Hreblay & Ronkay, 1999 Paratype, female, Nepal, Kanchenjunga Himal



5. *Diphtherocome trimaculata* Hreblay & Kononenko, 1999 male, China, Sichuan



6. *Diphtherocome trimaculata* Hreblay & Kononenko, 1999 female, China, Sichuan



7. *Diphtherocome pallidipennis* Hreblay & Ronkay, 1999 Holotype, male, East Nepal, Chagam



8. *Diphtherocome pallidipennis* Hreblay & Ronkay, 1999, Paratype, female, Nepal, Annapurna Himal



1. *Diphtherocome minor* Warren, 1907 male, China, Sichuan



2. *Diphtherocome minor* Warren, 1907 female, China, Sichuan



3. *Diphtherocome petrichkarolyi* **sp. n.** Holotype, male, China, Sichuan



4. *Diphtherocome petrichkarolyi* **sp. n.** Paratype, female, China, Sichuan



5. *Diphtherocome longivalva* Hreblay & Kononenko, 1999 Holotype, male, China, Yunnan



6. *Diphtherocome longivalva* Hreblay & Kononenko, 1999 female, China, Sichuan



7. *Diphtherocome serrata* Hreblay & Kononenko, 1999 male, China, Sichuan



8. *Diphtherocome serrata* Hreblay & Kononenko, 1999 female, China, Sichuan



1. *Vigentinocome (Vigentinocome) vigens* (Walker, 1865) Lectotype, male, India, Sikkim



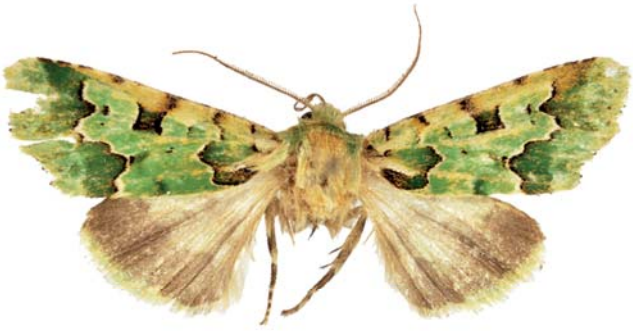
2. *Vigentinocome (Vigentinocome) vigens* (Walker, 1865) female, India, Sikkim



3. *Vigentinocome (Vigentinocome) viridissima* (Hreblay & Ronkay, 1999) Holotype, male, North Vietnam



4. *Vigentinocome (Vigentinocome) viridissima* (Hreblay & Ronkay, 1999) Paratype, female, North Vietnam



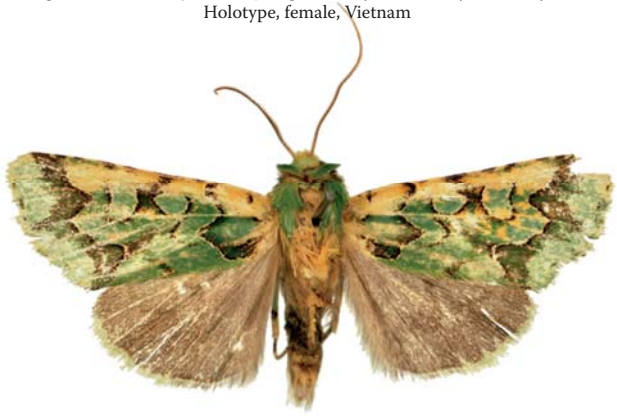
5. *Vigentinocome (Vigentinocome) daliangi* (Hreblay & Ronkay, 1999) Holotype, male, China, Sichuan



6. *Vigentinocome (Chrysocome) peregovitsi* (Gyulai, Ronkay & Ronkay, 2014) Holotype, female, Vietnam



7. *Vigentinocome (Chrysocome) chloronympha* (Hreblay, et al, 1999) Holotype, male, Nepal, Kanchenjunga Himal



8. *Vigentinocome (Chrysocome) chloronympha* (Hreblay, et al, 1999) male, India, Assam



1. *Vigentinocome (Chrysocome) thaumasia* (Hreblay & Ronkay, 1998)
male, North Thailand



2. *Vigentinocome (Chrysocome) thaumasia* (Hreblay & Ronkay, 1998)
Holotype, female, Nepal, Annapurna Himal



3. *Vigentinocome (Chrysocome) chrysochlora chrysochlora* (Hampson, 1898)
Holotype, male, Khasis



4. *Vigentinocome (Chrysocome) chrysochlora chrysochlora* (Hampson, 1898)
female, Khasis



5. *Vigentinocome (Chrysocome) chrysochlora thainympha*
(Hreblay & Ronkay, 1999) male, North Thailand



6. *Vigentinocome (Chrysocome) chrysochlora thainympha*
(Hreblay & Ronkay, 1999) Paratype, female, North Thailand



7. *Vigentinocome (Criocome) impectinata* (Hreblay, Peregovits & Ronkay, 1999)
Holotype, male, North Vietnam



8. *Vigentinocome (Criocome) impectinata* (Hreblay, Peregovits & Ronkay, 1999)
Paratype, female, North Vietnam



1. *Vigentinocome (Criocome) nepalichlora* (Hreblay & Ronkay, 1999)
Paratype, male, Nepal, Kanchenjunga Himal



2. *Vigentinocome (Criocome) nepalichlora* (Hreblay & Ronkay, 1999)
Paratype, female, Nepal, Kanchenjunga Himal



3. *Vigentinocome (Criocome) nanlingi* (Gyulai, Ronkay & Ronkay, 2014)
Holotype, male, China, Hunan



4. *Vigentinocome (Criocome) nanlingi* (Gyulai, Ronkay & Ronkay, 2014)
Paratype, female, China, Hunan



5. *Vigentinocome (Criocome) autumnalis* (B.S. Chang, 1991) male, Taiwan



6. *Vigentinocome (Criocome) autumnalis* (B.S. Chang, 1991) female, Taiwan



7. *Vigentinocome (Bryochlorome) bryochlora* (Hreblay et al, 1999)
Holotype, male, North Vietnam



8. *Vigentinocome (Bryochlorome) bryochlora* (Hreblay et al, 1999)
female, North Vietnam



1. *Discibocome discibrunnea* (Moore, 1867) male, Nepal, Annapurna Himal



2. *Discibocome discibrunnea* (Moore, 1867) female, Nepal, Annapurna Himal



3. *Discibocome pulchra* (Wileman, 1912) male, Taiwan



4. *Discibocome pulchra* (Wileman, 1912) female, Taiwan



5. *Discibocome marmorea* (Leech, 1900) male, China, Sichuan



6. *Discibocome marmorea* (Leech, 1900) female, China, Sichuan



7. *Discibocome ligula* (Gyulai, Ronkay & Ronkay, 2014) Holotype, male, China, Sichuan



8. *Discibocome ligula* (Gyulai, Ronkay & Ronkay, 2014) Paratype, female, China, Shaanxi



1. *Nacna malachitis* (Oberthür, 1880) male, North Korea



2. *Nacna malachitis* (Oberthür, 1880) female, Russian Far East



3. *Nacna splendens* (Moore, 1888) male, Nepal, Annapurna Himal



4. *Nacna splendens* (Moore, 1888) female, Nepal, Annapurna Himal



5. *Nacna buschmannferenci* **sp. n.** Holotype, male, Taiwan



6. *Nacna buschmannferenci* **sp. n.** Paratype, male, Taiwan



7. *Nacna buschmannferenci* **sp. n.** Paratype, female, Taiwan



8. *Nacna buschmannferenci* **sp. n.** Paratype, female, Taiwan



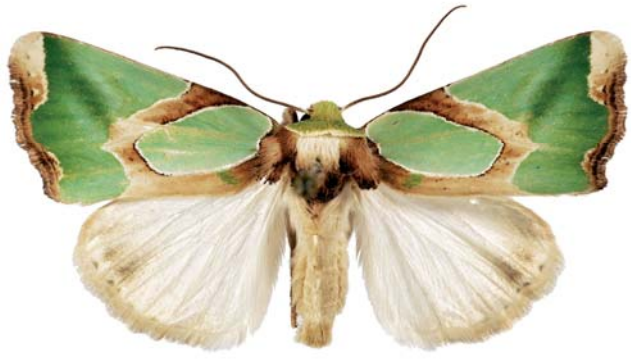
1. *Nacna prasinaria* (Walker, 1865) male, Nepal, Annapurna Himal



2. *Nacna prasinaria* (Walker, 1865) female, Nepal, Annapurna Himal



3. *Nacna pulchripicta* (Walker, 1865) male, Nepal, Annapurna Himal



4. *Nacna pulchripicta* (Walker, 1865) male, Nepal, Annapurna Himal



5. *Nacna smaragdina* (Draudt, 1937) male, China, Shaanxi



6. *Nacna smaragdina* (Draudt, 1937) female, China, Shaanxi



7. *Nacna sugitanii* (Nagano, 1918) male, Japan



8. *Nacna sugitanii* (Nagano, 1918) female, Japan



1. *Guntia chorogica* Shchetkin, 1980 male, Tadjikistan,Pamir Mts



2. *Guntia chorogica* Shchetkin, 1980 female, Tadjikistan,Pamir Mts



3. *Guntia iranica* Ronkay, Ronkay & Gyulai, 2014 Holotype, female, Iran



4. *Phidrimana amurensis* (Staudinger, 1892) Holotype, female, Russia, Ussuri region



5. *Phidrimana amurensis* (Staudinger, 1892) male, NE Mongolia



6. *Phidrimana amurensis* (Staudinger, 1892) female, NE Mongolia



7. *Rezahiria marmota* Ronkay, Ronkay & Gyulai, 2014 Holotype, male, Iran, Esfahan



8. *Rezahiria marmota* Ronkay, Ronkay & Gyulai, 2014 Paratype, male, Iran, Esfahan



1. *Gracilisinensis vaiva* Gyulai & Saldaitis, 2018 Holotype male, China, Sichuan (Photo P. Gyulai)



2. *Gracilisinensis vaiva* Gyulai & Saldaitis, 2018 Paratype female, China, Sichuan (Photo P. Gyulai)



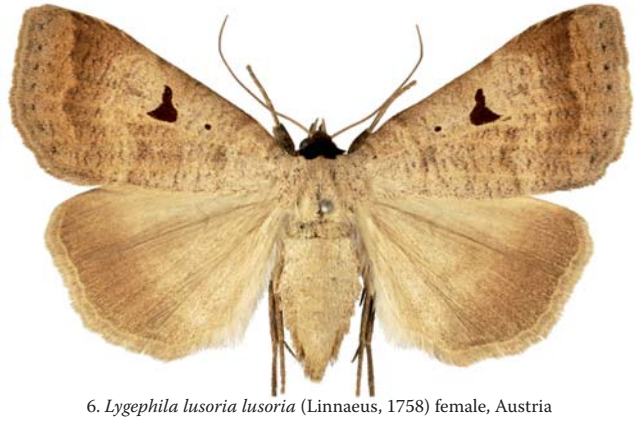
3. *Gracilisinensis moha* Gyulai & Saldaitis, 2018 Holotype male, China, Shaanxi (Photo P. Gyulai)



4. *Gracilisinensis moha* Gyulai & Saldaitis, 2018 male, China, Shaanxi



5. *Lygephila lusoria lusoria* (Linnaeus, 1758) male, Austria



6. *Lygephila lusoria lusoria* (Linnaeus, 1758) female, Austria



7. *Lygephila lusoria glycyrrhizae* (Rambur, 1866) male, Spain



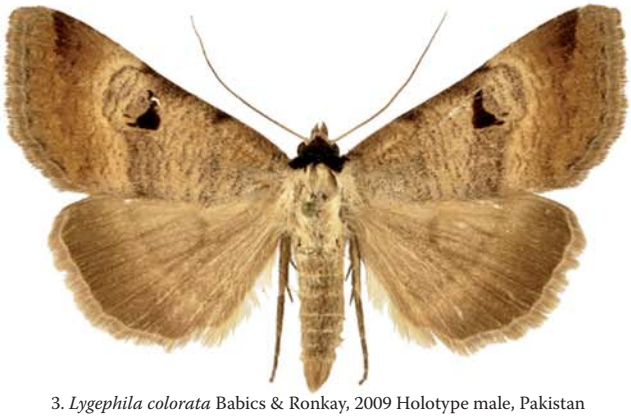
8. *Lygephila lusoria glycyrrhizae* (Rambur, 1866) female, Spain



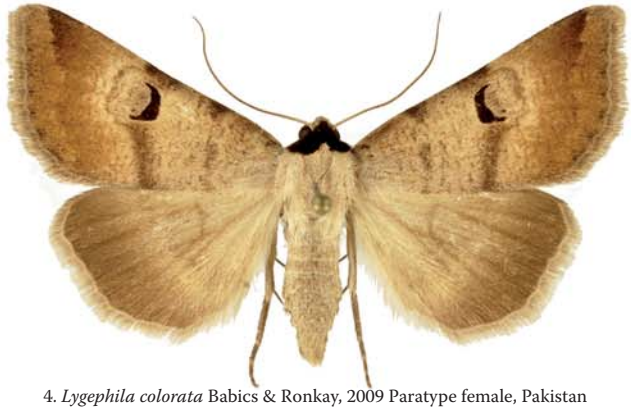
1. *Lygephila amasina* (Staudinger, 1878) male, Turkey



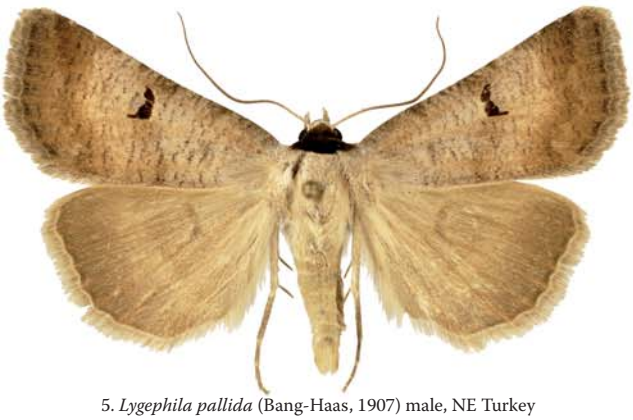
2. *Lygephila amasina* (Staudinger, 1878) female, Turkey



3. *Lygephila colorata* Babics & Ronkay, 2009 Holotype male, Pakistan



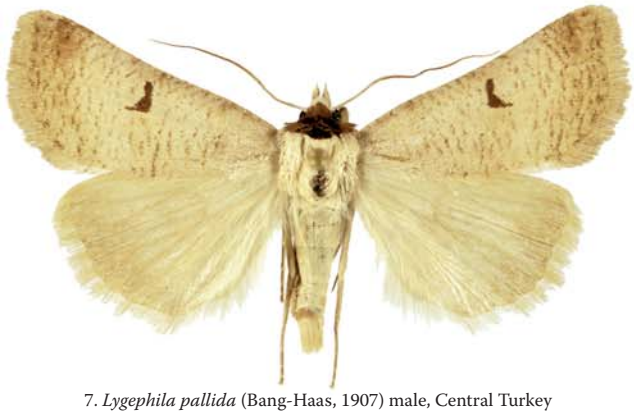
4. *Lygephila colorata* Babics & Ronkay, 2009 Paratype female, Pakistan



5. *Lygephila pallida* (Bang-Haas, 1907) male, NE Turkey



6. *Lygephila pallida* (Bang-Haas, 1907) female, NE Turkey



7. *Lygephila pallida* (Bang-Haas, 1907) male, Central Turkey



8. *Lygephila moellendorffi* (Herz, 1904) Lectotype male, North Korea



1. *Lygephila subpicata* Wiltshire, 1971 Holotype male, Iran, Alvand Mts



2. *Lygephila subpicata* Wiltshire, 1971 Paratype female, Iran, Fars



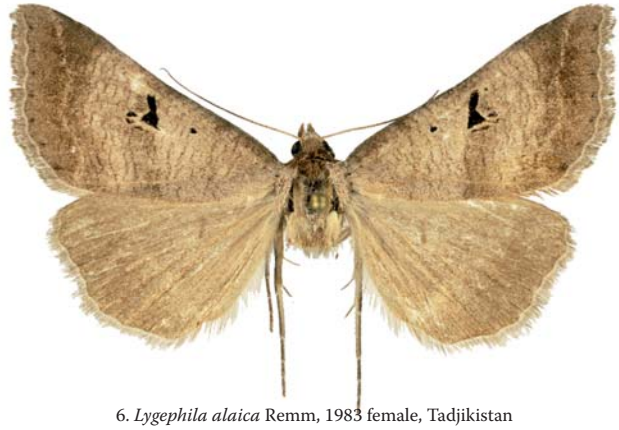
3. *Lygephila subpicata* Wiltshire, 1971 Paratype male, Iran, Fars



4. *Lygephila minima* Pekarsky, 2013 Paratype male, Russia, Stavropol district



5. *Lygephila alaica* Remm, 1983 male, Tadjikistan



6. *Lygephila alaica* Remm, 1983 female, Tadjikistan



7. *Lygephila lubrica* (Freyer, 1846) male, Mongolia



8. *Lygephila lubrica* (Freyer, 1846) female, Mongolia



1. *Lygephila lubrosa* (Staudinger, 1901) Paralectotype male, Kirghisia, Issyk-Kul



2. *Lygephila lubrosa* (Staudinger, 1901) Lectotype female, Kirghisia, Issyk-Kul



3. *Lygephila kazachkaratavika* Shchetkin Yu.L .& Shchetkin Yu.Yu., 1997 Neotype male, Kazakhstan, Balamurum



4. *Lygephila kazachkaratavika* Shchetkin Yu.L .& Shchetkin Yu.Yu., 1997 female, Syr-Darja, Baigacum



5. *Lygephila orbonaria* Shchetkin Yu.L. & Shchetkin Yu.Yu., 1997 Neotype male, Tadjikistan



6. *Lygephila orbonaria* Shchetkin Yu.L .& Shchetkin Yu.Yu., 1997 female, Syr-Darja, Baigacum



7. *Lygephila orbonaria* Shchetkin Yu.L .& Shchetkin Yu.Yu., 1997 male, Syr-Darja, Baigacum



8. *Lygephila orbonaria* Shchetkin Yu.L .& Shchetkin Yu.Yu., 1997 female, SE Kazakhstan



1. *Lygephila ludicra* (Hübner, 1790) male, Hungary



2. *Lygephila ludicra* (Hübner, 1790) female, Hungary



3. *Lygephila stueningi* Kononenko & Fibiger, 2008
Holotype male, China, Yunnan



4. *Lygephila stueningi* Kononenko & Fibiger, 2008 female, China, Yunnan



5. *Lygephila dubatolovi* Fibiger, Kononenko & Nilsson, 2008
male, China, Shaanxi



6. *Lygephila dubatolovi* Fibiger, Kononenko & Nilsson, 2008
female, China, Shaanxi



7. *Lygephila vulcanea* (Butler, 1881) male, Japan



8. *Lygephila vulcanea* (Butler, 1881) female, Japan



1. *Lygephila lupina* (Graeser, 1890) male,
Holotype of *Eccrita mirabilis* Bryk, 1949, Korea



2. *Lygephila lupina* (Graeser, 1890) Holotype female, Russian Far East



3. *Lygephila maxima* (Bremer, 1861) male, Russian Far East



4. *Lygephila maxima* (Bremer, 1861) female, Japan



5. *Lygephila emaculata* (Graeser, 1892) male, Russian Far East



6. *Lygephila emaculata* (Graeser, 1892) female, Russian Far East



7. *Lygephila dorsigera* (Walker, 1865) male, Taiwan



8. *Lygephila dorsigera* (Walker, 1865) female, North Vietnam



1. *Lygephila recta* (Bremer, 1864) male, Japan



2. *Lygephila recta* (Bremer, 1864) female, South Korea



3. *Lygephila subrecta* Sugi, 1982 male, South Korea



4. *Lygephila subrecta* Sugi, 1982 female, South Korea



5. *Lygephila lilacina* (Butler, 1878) Lectotype male, Japan



6. *Lygephila lilacina* (Butler, 1878) Paralectotype female, Japan



7. *Lygephila pallidivena* Pekarsky, 2016 Holotype male, China, Sichuan



8. *Lygephila pallidivena* Pekarsky, 2016 Paratype female, China, Sichuan



1. *Lygephila cucullata* (Moore, 1882) male, Pakistan



2. *Lygephila cucullata* (Moore, 1882) female, Pakistan



3. *Lygephila javanica* Pekarsky, 2016 Holotype male, Indonesia, Java



4. *Lygephila javanica* Pekarsky, 2016 Paratype male, Indonesia, Sulawesi



5. *Lygephila aphroditae* Babics, 2014 Paratype male, China, Yunnan



6. *Lygephila aphroditae* Babics, 2014 Paratype female, China, Yunnan



7. *Lygephila angustissima* (Draudt, 1950) Neotype male, China, Yunnan



8. *Lygephila angustissima* (Draudt, 1950) female, China, Yunnan



1. *Lygephila vargai* Babics, 2014 male, China, Sichuan



2. *Lygephila vargai* Babics, 2014 Paratype female, China, Hubei



3. *Lygephila yoshimotoi* Kinoshita, 1989 male, Taiwan



4. *Lygephila yoshimotoi* Kinoshita, 1989 female, Taiwan



5. *Lygephila vicioides* (Hampson, 1926) Holotype male, India, Himachal Pradesh



6. *Lygephila vicioides* (Hampson, 1926) female, Pakistan, Kashmir



7. *Lygephila pidmanulapidvela* Pekarsky, 2018, Paratype male, Nepal. Ganesh Himal



8. *Lygephila pidmanulapidvela* Pekarsky, 2018, Paratype female, Nepal. Ganesh Himal



1. *Lygephila nikolaichuki* Pekarsky **sp. n.** Holotype male, Nepal, Kalinchok



2. *Lygephila nikolaichuki* Pekarsky **sp. n.** Paratype female, Nepal, Kanchenjunga Himal



3. *Lygephila fibigeri* Babics & Stüning, 2011 Holotype male, China, Yunnan



4. *Lygephila fibigeri* Babics & Stüning, 2011 Paratype female, China, Yunnan



5. *Lygephila longicoecum* Kononenko & Fibiger, 2008 Holotype male, China, Shaanxi



6. *Lygephila longicoecum* Kononenko & Fibiger, 2008 Paratype female, China, Shaanxi



7. *Lygephila procax* (Hübner, 1813) male, Hungary



8. *Lygephila procax* (Hübner, 1813) female, Hungary



1. *Lygephila asiatica* Pekarsky, 2016 male, Kazakhstan



2. *Lygephila asiatica* Pekarsky, 2016 female, Kazakhstan



3. *Lygephila intermedia* Pekarsky, 2016 Paratype male, Nepal, Annapurna Himal



4. *Lygephila intermedia* Pekarsky, 2016 Paratype female, Nepal, Langtang Himal



5. *Lygephila decolor* (Bang-Haas, 1912) Lectotype male, China, Mustagata Mts



6. *Lygephila decolor* (Bang-Haas, 1912) Paralectotype female, China, Mustagata Mts



7. *Lygephila frosya* Pekarsky, 2016 Holotype male, Russia, Dauria



8. *Lygephila frosya* Pekarsky, 2016 Paratype female, China, Inner Mongolia



1. *Lygephila nigricostata* (Graeser, 1890) Lectotype male, Russian Far East



2. *Lygephila nigricostata* (Graeser, 1890) female, Russian Far East



3. *Lygephila pastinum* (Treitschke, 1826) male, Austria



4. *Lygephila pastinum* (Treitschke, 1826) female, Austria



5. *Lygephila fonti* Yela & Calle, 1990 Holotype male, Spain
(Photo José Luis Yela Garcia)



6. *Lygephila fonti* Yela & Calle, 1990 female, Spain
(Photo José Luis Yela Garcia)



7. *Lygephila craccae* ([Denis & Schiffermüller], 1775) male, Austria



8. *Lygephila craccae* ([Denis & Schiffermüller], 1775) female, Hungary



1. *Lygephila craccae* ([Denis & Schiffermüller], 1775)
Holotype of *Toxocampa angustipennis* Warren, 1913, male, India, Kashmir



2. *Lygephila craccae* ([Denis & Schiffermüller], 1775) female, India, Kashmir



3. *Lygephila violaceogrisea* (Draudt, 1950) male, China, Yunnan



4. *Lygephila violaceogrisea* (Draudt, 1950) female, China, Yunnan



5. *Lygephila viciae viciae* (Hübner, 1822) male, Germany



6. *Lygephila viciae viciae* (Hübner, 1822) female, Germany



7. *Lygephila viciae stigmata* (Wileman, 1911) male, South Korea



8. *Lygephila viciae stigmata* (Wileman, 1911) Holotype female, Japan



1. *Tathorhynchus exsiccata* (Lederer, 1855) male, Iran, Fars



2. *Tathorhynchus exsiccata* (Lederer, 1855) female, Morocco



3. *Perinaenia accipiter* (Felder & Rogenhofer, 1874) male, Japan



4. *Perinaenia accipiter* (Felder & Rogenhofer, 1874) female, Japan



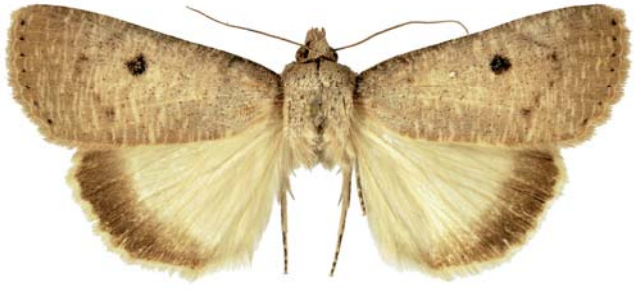
5. *Perinaenia mingchyrica* Babics & Ronkay, 2011 Paratype male, Taiwan



6. *Perinaenia mingchyrica* Babics & Ronkay, 2011 Paratype female, Taiwan



7. *Perinaenia atripunctum* Babics & Ronkay, 2011 Holotype male, China, Shaanxi



8. *Perinaenia atripunctum* Babics & Ronkay, 2011 Paratype male, China, Shaanxi



1. *Perinaenia nigrifascia* Babics & Ronkay, 2011 Holotype female, Vietnam



2. *Exophyla dietzelgyulai* **sp. n.** Holotype female, Pakistan, Himalaya Mts



3. *Exophyla rectangularis* (Geyer, 1828) male, Italy, South Tyrol



4. *Exophyla rectangularis* (Geyer, 1828) female, Armenia



5. *Isoura fuscicollis* (Butler, 1889) male, Taiwan



6. *Isoura fuscicollis* (Butler, 1889) female, Taiwan



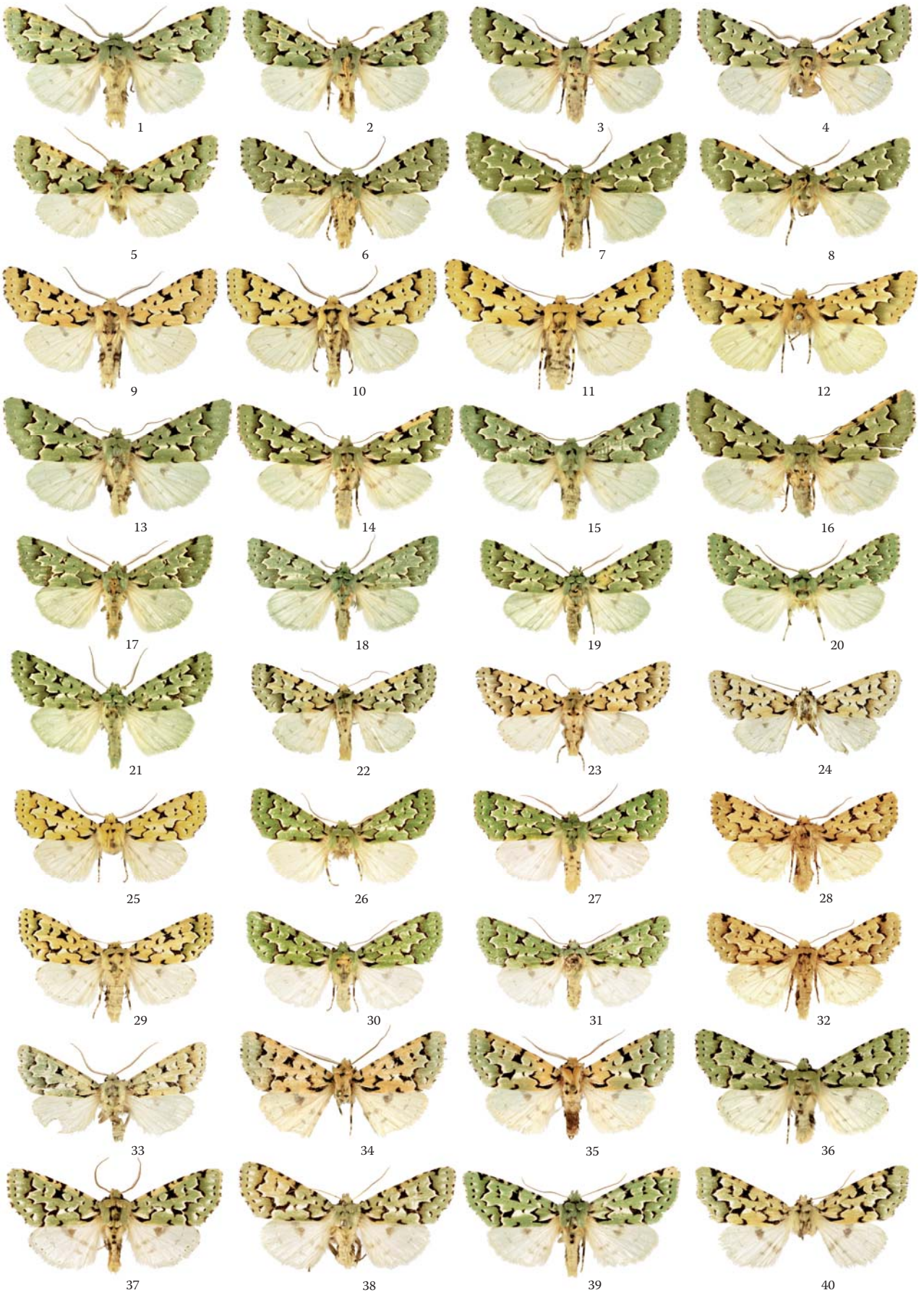
7. *Isoura clara* Babics & Ronkay, 2011 Paratype male, Indonesia, Sulawesi



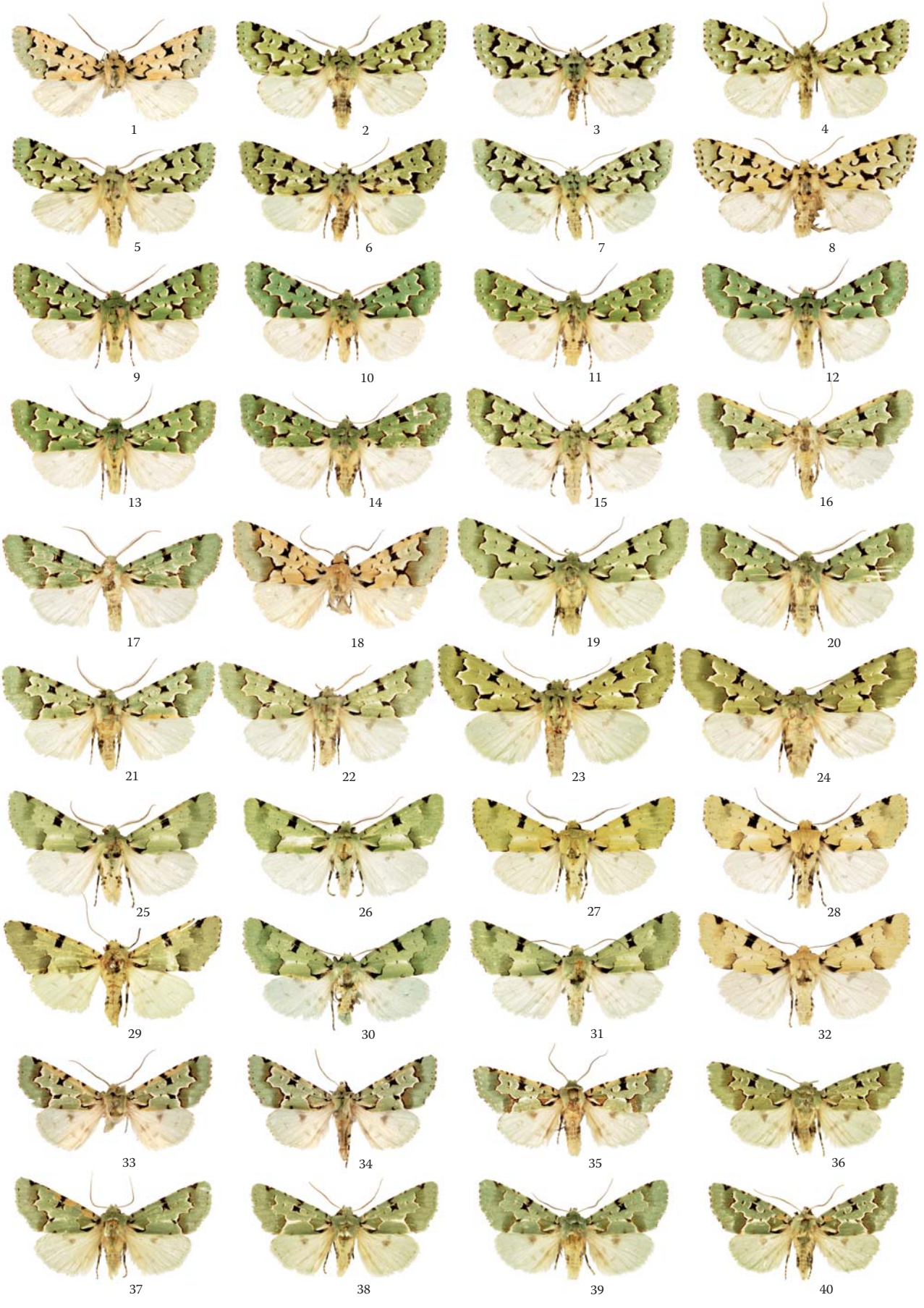
8. *Isoura clara* Babics & Ronkay, 2011 Holotype female, Nepal, Kanchenjunga Himal

Natural-sized images

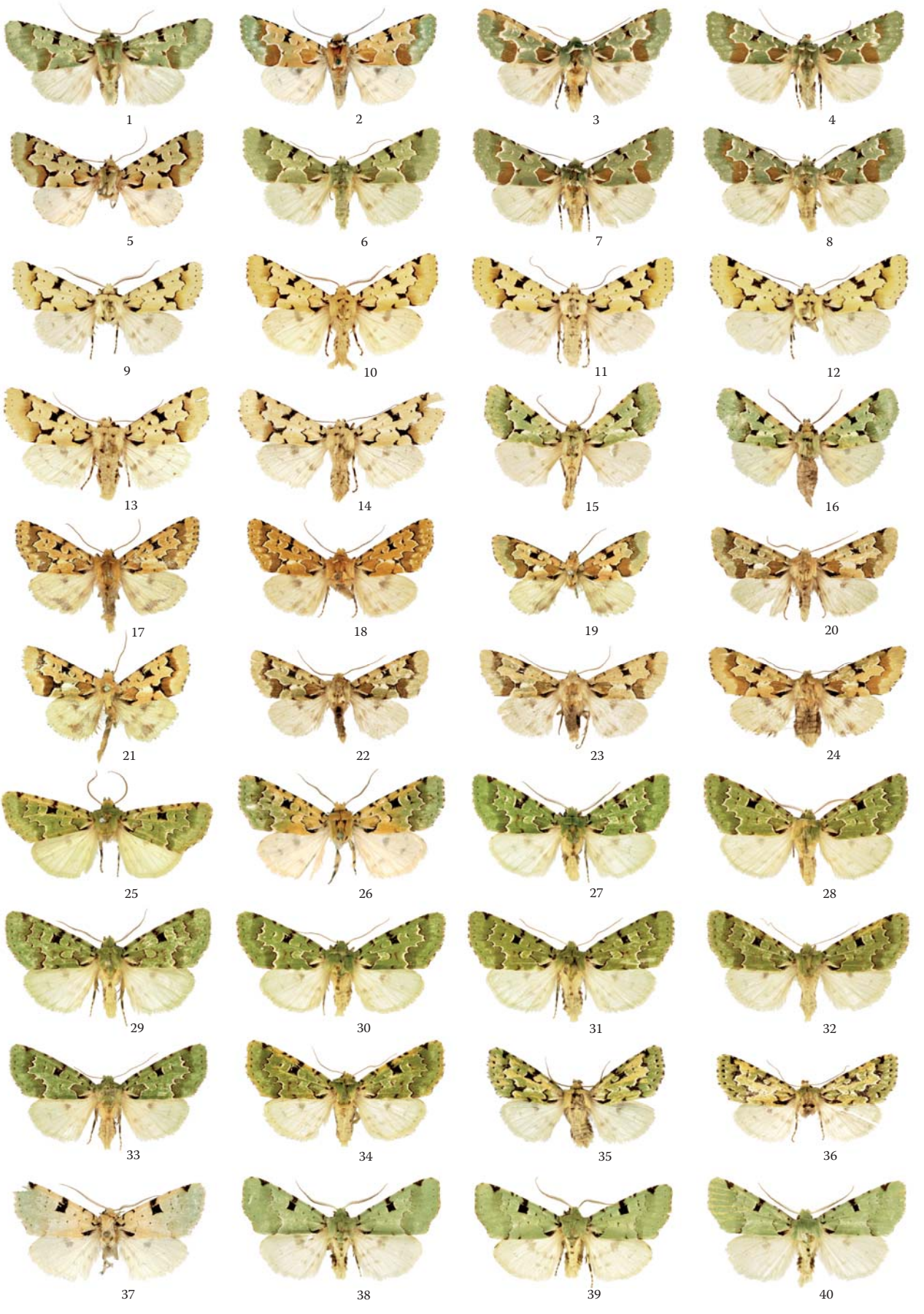
1. *Diphtherocome pallida pallida*, m. – Nepal, Ganesh Himal, 7 km W of Godlang, 2950 m, 14.IX.1995, B. Herczig & Gy.M. László (coll. G. Ronkay)
2. *Diphtherocome pallida pallida*, m. – Nepal, Ganesh Himal, 7 km W of Godlang, 2950 m, 14.IX.1995, B. Herczig & Gy.M. László (coll. G. Ronkay)
3. *Diphtherocome pallida pallida*, m. – Nepal, Annapurna Himal, 11 km SE of Jomsom, 4000 m, 17-18.VII.1995, G. Csorba, Gy.M. László & G. Ronkay (coll. G. Ronkay)
4. *Diphtherocome pallida pallida*, m. – Nepal, Annapurna Himal, 11 km SE of Jomsom, 4000 m, 17-18.VII.1995, G. Csorba, Gy.M. László & G. Ronkay (coll. G. Ronkay)
5. *Diphtherocome pallida pallida*, m. – [India] Sikkim, Gangtok, 06-12.IX.1938, Exp. Schäfer, slide No.: HM 10943 (coll. ZMHU)
6. *Diphtherocome pallida pallida*, m. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
7. *Diphtherocome pallida pallida*, m. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, 2600-3200 m, 23.VI.-15.V.2001, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
8. *Diphtherocome pallida pallida*, m. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, 2600-3200 m, 23.VI.-15.V.2001, V. Sinjaev & A. Plutenko, slide No.: RL 11006 (coll. G. Ronkay)
9. *Diphtherocome pallida pallida*, m. – Nepal, Ganesh Himal, Khurpudanda Pass, 3600-3700 m, 13-16.V.1995, Gy. Fábián & L. Ronkay (coll. G. Ronkay)
10. *Diphtherocome pallida pallida*, m. – Nepal, Ganesh Himal, Khurpudanda Pass, 3600-3700 m, 13-16.V.1995, Gy. Fábián & L. Ronkay (coll. G. Ronkay)
11. *Diphtherocome pallida pallida*, f. – Nepal, Ganesh Himal, Khurpudanda Pass, 3600-3700 m, 13-16.V.1995, Gy. Fábián & L. Ronkay (coll. G. Ronkay)
12. *Diphtherocome pallida pallida*, f. – Holotype, [India, Sikkim] Darjeeling, slide No.: BMNoct 15664
13. *Diphtherocome pallida pallida*, f. – Nepal, Ganesh Himal, above Nesim, 2720 m, 21.IX.1995, B. Herczig & Gy.M. László (coll. G. Ronkay)
14. *Diphtherocome pallida pallida*, f. – Nepal, Annapurna Himal, 11 km SE of Jomsom, 4000 m, 17-18.VII.1995, G. Csorba, Gy.M. László & G. Ronkay (coll. G. Ronkay)
15. *Diphtherocome pallida pallida*, f. – Nepal, Ganesh Himal, above Nesim, 2720 m, 21.IX.1995, B. Herczig & Gy.M. László (coll. G. Ronkay)
16. *Diphtherocome pallida pallida*, f. – Nepal, Annapurna Himal, 11 km SE of Jomsom, 4000 m, 17-18.VII.1995, G. Csorba, Gy.M. László & G. Ronkay (coll. G. Ronkay)
17. *Diphtherocome pallida bubaceki*, m. – Paratype, Pakistan, Kashmir, Himalaya Mts, 30 km N of Murree, near Nathia Gali, Ayubia village, 2600 m, 10.VII.2001, G. Ronkay (coll. G. Ronkay)
18. *Diphtherocome pallida bubaceki*, m. – Paratype, Pakistan, Kashmir, Himalaya Mts, 30 km N of Murree, near Nathia Gali, Ayubia village, 2600 m, 10.VII.2001, G. Ronkay (coll. G. Ronkay)
19. *Diphtherocome pallida bubaceki*, m. – Paratype, Pakistan, Kashmir, Himalaya Mts, 30 km N of Murree, near Nathia Gali, Ayubia village, 2600 m, 10.VII.2001, G. Ronkay (coll. G. Ronkay)
20. *Diphtherocome pallida bubaceki*, m. – Paratype, Pakistan, Nathia Gali, 21-28.VII.1972, Reshöft, slide No.: RL 6540 (coll. G. Ronkay)
21. *Diphtherocome pallida bubaceki*, m. – Paratype, Pakistan, Kashmir, Himalaya Mts, 30 km N of Murree, near Nathia Gali, Ayubia village, 2600 m, 20.VI.200, Z. Varga & G. Ronkay (coll. G. Ronkay)
22. *Diphtherocome pallida bubaceki*, f. – Holotype, [India] Kashmir, Srinagar, 1963 (coll. NHMW)
23. *Diphtherocome pallida bubaceki*, f. – India, Kashmir 15 km W of Kangan, Vangan, 16-17.VII.1982, M. Arenberger & E. Arenberger (coll. NHMW)
24. *Diphtherocome pallida bubaceki*, f. – Pakistan, Himalaya Mts, Kaghan valley, 30 km S of Babusar Pass, 3500 m, 27.VII.1994, B. Herczig, Gy.M. László & G. Ronkay (coll. G. Ronkay)
25. *Diphtherocome secreta*, m. – Nepal, Ganesh Himal, Nesukharka, 2700 m, 20-21.V.1995, Gy. Fábián & L. Ronkay (coll. G. Ronkay)
26. *Diphtherocome secreta*, m. – Paratype of *Diphtherocome pseudovivida*, Nepal, Annapurna Himal, between Nangethanti and Ghorepani, 2600 m, 24.VII.1995, Gy.M. László & G. Ronkay, slide No.: RL 6539 (coll. G. Ronkay)
27. *Diphtherocome secreta*, m. – Nepal, Annapurna Himal, 1 km NW of Chitre, 2300 m, 21-22.VI.1996, Gy.M. László & G. Ronkay (coll. G. Ronkay)
28. *Diphtherocome secreta*, m. – Paratype, Nepal, Kanchenjunga Himal, Rampuk Kharka, 3885 m, 25.VI.1998, M. Hreblay (coll. HNHM)
29. *Diphtherocome secreta*, f. – Nepal, Ganesh Himal, 2 km S of Somdang, 3400 m, 17.V.1995, Gy. Fábián & L. Ronkay (coll. G. Ronkay)
30. *Diphtherocome secreta*, f. – Nepal, Annapurna Himal, between Nangethanti and Ghorepani, 2600 m, 24.VII.1995, Gy.M. László & G. Ronkay (coll. G. Ronkay)
31. *Diphtherocome secreta*, f. – Nepal, Annapurna Himal, between Nangethanti and Ghorepani, 2600 m, 24.VII.1995, Gy.M. László & G. Ronkay (coll. G. Ronkay)
32. *Diphtherocome secreta*, f. – Paratype, Nepal, Kanchenjunga Himal, Rampuk Kharka, 3885 m, 25.VI.1998, M. Hreblay (coll. HNHM)
33. *Diphtherocome pallidula*, m. – Holotype, China, Tibet, 10 km E of Nyemo, 3800 m, 17.VIII.1996, M. Hreblay & B. Szín, slide No.: HM 9264 (coll. HNHM)
34. *Diphtherocome mixta*, m. – Holotype, China, Prov. Yunnan, Likiang, 4000 m, 26.VII.1935, H. Höne, slide No.: HM 12405 (coll. ZFMK)
35. *Diphtherocome mixta*, m. – Paratype, China, Prov. Yunnan, Likiang, 3000 m, 05.VII.1935, H. Höne (coll. ZFMK)
36. *Diphtherocome mixta*, m. – China, W Sichuan, between Yajiang and Litang, 3600 m, 15.VII.2009, A. Floriani, I. Floriani & A. Saldaitis (coll. G. Ronkay)
37. *Diphtherocome mixta*, m. – China, Ta-tsien-Lou, 1894, Chasseurs Thibétains du P. Dejean, slide No.: RL 12138 (coll. NHMW)
38. *Diphtherocome mixta*, f. – [China] Szetschwan, Tatsienlu, exp. Stötzner (coll. NHMW)
39. *Diphtherocome mixta*, f. – , China, Prov. Sichuan, Daxue Shan, Gongga Shan, 80 km W Kangding, 3800 m, 27-29.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
40. *Diphtherocome mixta*, f. – China, N Yunnan, between Zhongdian and Lijiang, 3000 m, 19.VII.2009, A. Floriani, I. Floriani & A. Saldaitis, slide No.: RL 12184 (coll. G. Ronkay)


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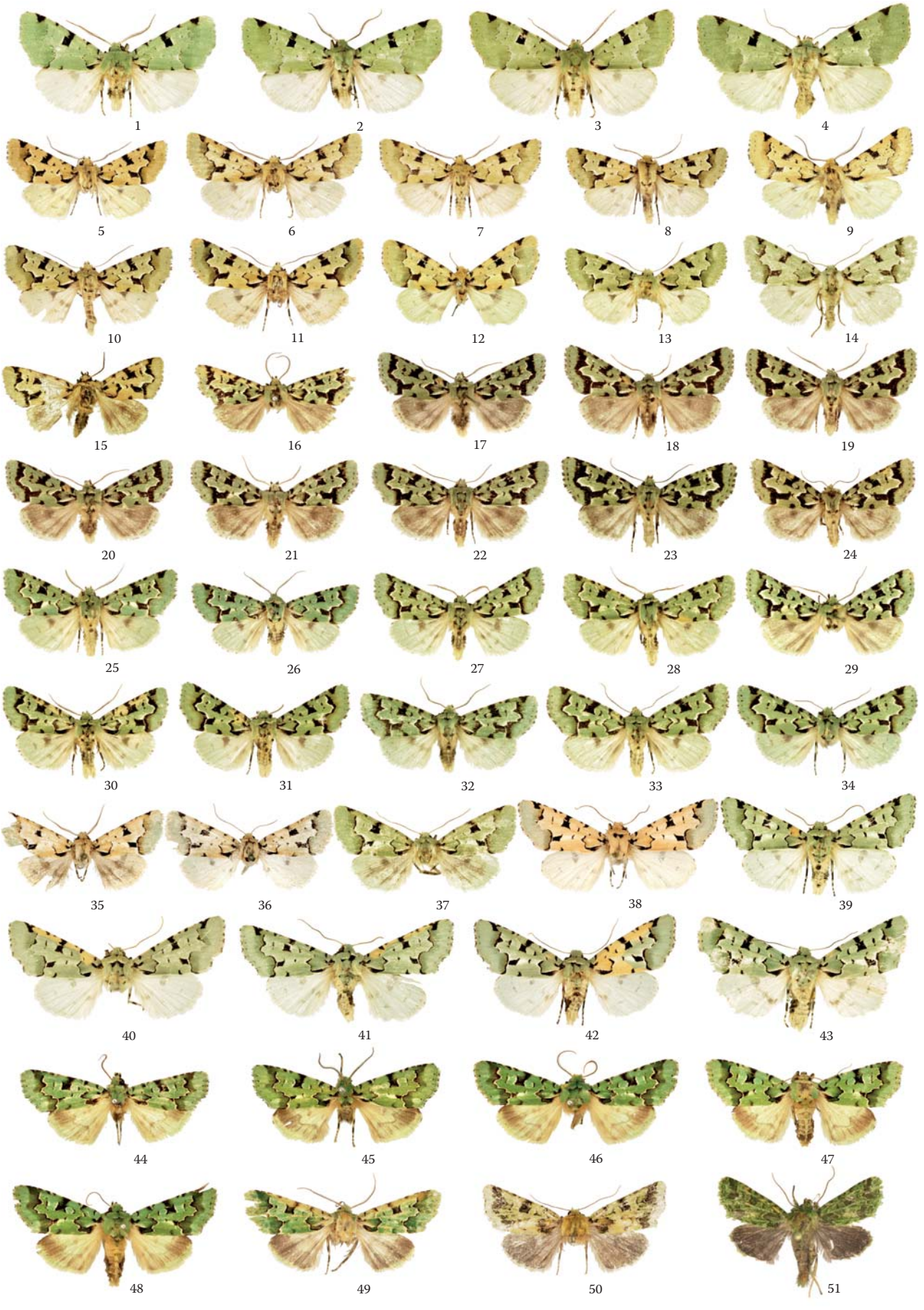
1. *Diphtherocome robusta*, m. – Holotype, China, Prov. Yunnan, Li-kiang, 4000 m, 30.V.1935, H. Höne, slide No.: HM 12407 (coll. ZFMK)
2. *Diphtherocome robusta*, m. – China, Sichuan, Gongga Shan, 2600-3200 m, 23.IV-15.V.2001, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
3. *Diphtherocome robusta*, m. – China, Sichuan, Gongga Shan, 2600-3200 m, 23.IV-15.V.2001, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
4. *Diphtherocome robusta*, m. – China, Ta-tsien-Lou, 1903, Chasseurs Indigénes du P. Dejean (coll. NHMW)
5. *Diphtherocome robusta*, m. – China, Sichuan, Gongga Shan, 2600-3200 m, 23.IV-15.V.2001, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
6. *Diphtherocome robusta*, m. – China, Sichuan, Gongga Shan, 2600-3200 m, 23.IV-15.V.2001, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
7. *Diphtherocome robusta*, f. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
8. *Diphtherocome robusta*, f. – [China] Szetschwan, Tatsienlu, exp. Stötzner (coll. NHMW)
9. *Diphtherocome robusta*, m. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
10. *Diphtherocome robusta*, m. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
11. *Diphtherocome robusta*, m. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
12. *Diphtherocome robusta*, m. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
13. *Diphtherocome robusta*, m. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
14. *Diphtherocome robusta*, f. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
15. *Diphtherocome robusta*, f. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
16. *Diphtherocome robusta*, f. – China, Ta-tsien-Lou, 1903, Chasseurs Indigénes du P. Dejean (coll. NHMW)
17. *Diphtherocome laevis*, m. – Lectotype, [China] Siao-Lou, 1903, Chasseurs Indigénes du P. Dejean, slide No.: RL 12204 (coll. NHMW)
18. *Diphtherocome laevis*, m. – Holotype of *Diphtherocome diverticulata*, China, Prov. Yunnan, Li-kiang, 4000 m, 13.VI.1935, H. Höne, slide No.: ZFMK 1964 (coll. ZFMK)
19. *Diphtherocome laevis*, m. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, 2600-3200 m, 23.VI.-15.V.2001, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
20. *Diphtherocome laevis*, m. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, 2600-3200 m, 23.VI.-15.V.2001, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
21. *Diphtherocome laevis*, m. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, 2600-3200 m, 23.VI.-15.V.2001, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
22. *Diphtherocome laevis*, m. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, 2600-3200 m, 23.VI.-15.V.2001, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
23. *Diphtherocome laevis*, f. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko, slide No.: RL 12154 (coll. G. Ronkay)
24. *Diphtherocome laevis*, f. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, 2600-3200 m, 23.VI.-15.V.2001, V. Sinjaev & A. Plutenko, slide No.: RL 12157 (coll. G. Ronkay)
25. *Diphtherocome fasciata*, m. – Nepal, Annapurna Himal, Banthanti village, 2500 m, 25.VII.1995, Gy.M. László & G. Ronkay (coll. G. Ronkay)
26. *Diphtherocome fasciata*, m. – Nepal, Annapurna Himal, between Nangethanti and Ghorepani, 2600 m, 24.VII.1995, Gy.M. László & G. Ronkay (coll. G. Ronkay)
27. *Diphtherocome fasciata*, m. – Nepal, Ganesh Himal, 7 km W of Godlang, 2950 m, 14.IX.1995, B. Herczig & Gy.M. László (coll. G. Ronkay)
28. *Diphtherocome fasciata*, m. – Nepal, Ganesh Himal, Nesukharka, 12 km S of Somdang, 20-21.V.1995, Gy. Fábián & L. Ronkay (coll. G. Ronkay)
29. *Diphtherocome fasciata*, f. – Holotype, [India] Punjab, Laka, June, J.H. Hocking (coll. BMNH)
30. *Diphtherocome fasciata*, f. – Nepal, Annapurna Himal, 1 km NW Chitre, 2300 m, 23.VII.1995, Gy.M. László & G. Ronkay (coll. G. Ronkay)
31. *Diphtherocome fasciata*, f. – Nepal, Annapurna Himal, Banthanti village, 2500 m, 25.VII.1995, Gy.M. László & G. Ronkay (coll. G. Ronkay)
32. *Diphtherocome fasciata*, f. – Nepal, Ganesh Himal, 5 km S of Godlang, 3100 m, 18.V.1995, Gy. Fábián & L. Ronkay (coll. G. Ronkay)
33. *Diphtherocome hoenei*, m. – Holotype, China, Prov. Shaanxi, Tapaishan in Tsinling, 20.VI.1936, H. Höne, slide No.: ZFMK 1685 (coll. ZFMK)
34. *Diphtherocome hoenei*, m. – Paratype, China, Prov. Shaanxi, Tapaishan in Tsinling, 20.VI.1936, H. Höne (coll. ZFMK)
35. *Diphtherocome hoenei*, m. – China, Ta-tsien-Lou, 1906, Chasseurs Indigénes du P. Dejean (coll. NHMW)
36. *Diphtherocome hoenei*, m. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, 2600-3200 m, 23.VI.-15.V.2001, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
37. *Diphtherocome hoenei*, m. – China, Prov. Shaanxi, Dabashan, 15 km S Shou-man, 1800 m, 25.V.-14.VI.2000, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
38. *Diphtherocome hoenei*, m. – China, Prov. Shaanxi, Dabashan, 15 km S Shou-man, 1800 m, 25.V.-14.VI.2000, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
39. *Diphtherocome hoenei*, m. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, 2600-3200 m, 23.VI.-15.V.2001, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
40. *Diphtherocome hoenei*, m. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)


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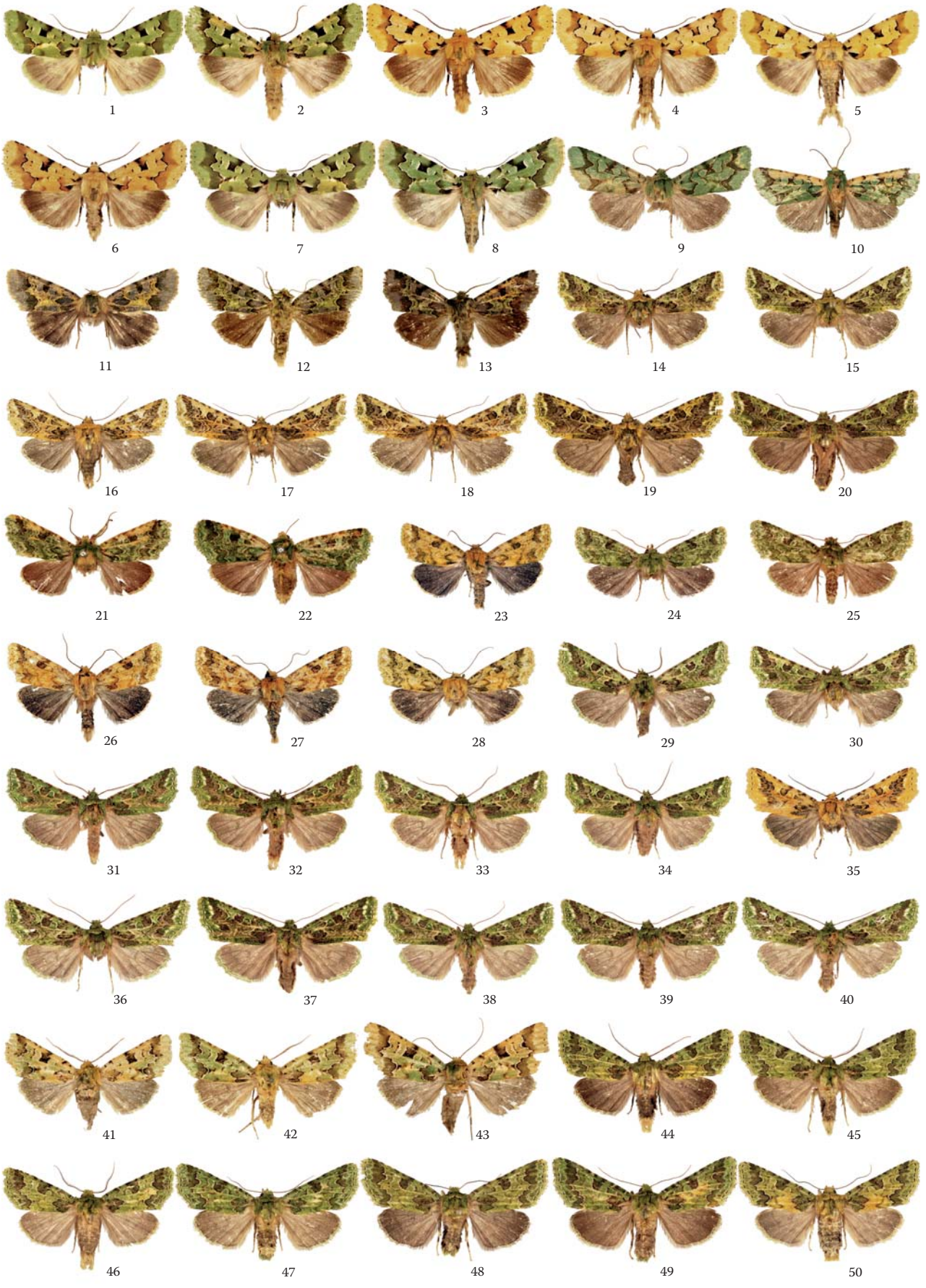
1. *Diphtherocome hoenei*, m. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
2. *Diphtherocome hoenei*, m. – Holotype of *Diphtherocome hoenei likianga*, China, Prov. Yunnan, Li-kiang, 4000 m, 28.V.1935, H. Höne (coll. ZFMK)
3. *Diphtherocome hoenei*, m. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
4. *Diphtherocome hoenei*, f. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
5. *Diphtherocome hoenei*, f. – Paratype, China, Prov. Shaanxi, Tapaishan in Tsinling, 20.VI.1936, H. Höne, slide No.: HM 12070 (coll. ZFMK)
6. *Diphtherocome hoenei*, f. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
7. *Diphtherocome hoenei*, f. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
8. *Diphtherocome hoenei*, f. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
9. *Diphtherocome kuni*, m. – Holotype, Vietnam, Fan-si-pan Mts, 14 km NW of Sa Pa, 1900 m, 29-30.VIII.1998, A. Kun, slide No.: RL 6343 (coll. HNHM)
10. *Diphtherocome kuni*, m. – Paratype, Vietnam, Prov. Lao Cai, Fan-si-pan Mts, Frontier Satellite Camp, 2240 m, 18-22.VIII.1998, A. Kun (coll. HNHM)
11. *Diphtherocome kuni*, f. – Vietnam, Prov. Lao Cai, Fan-si-pan Mts, Frontier Satellite Camp, 2240 m, 18-22.VIII.1998, A. Kun (coll. HNHM)
12. *Diphtherocome kuni*, f. – Paratype, Vietnam, Fan-si-pan Mts, 14 km NW of Sa Pa, 1900 m, 29-30.VIII.1998, A. Kun, slide No.: RL 6681 (coll. HNHM)
13. *Diphtherocome kuni*, f. – Vietnam, Prov. Lao Cai, Fan-si-pan Mts, Frontier Satellite Camp, 2240 m, 18-22.VIII.1998, A. Kun (coll. G. Ronkay)
14. *Diphtherocome kuni*, f. – Paratype, Vietnam, Fan-si-pan Mts, 14 km NW of Sa Pa, 1900 m, 29-30.VIII.1998, A. Kun (coll. HNHM)
15. *Diphtherocome kuni*, m. – Paratype of *Diphtherocome xichangae*, China, S Sichuan, 20 km S of Xichang, 3000 m, 20-22.VII.2005, S. Murzin, slide No.: RL 12169 (coll. G. Ronkay)
16. *Diphtherocome kuni*, m. – Holotype of *Diphtherocome xichangae*, China, S Sichuan, 20 km S of Xichang, 3000 m, 20-22.VII.2005, S. Murzin, slide No.: GYP 3710 (coll. G. Ronkay)
17. *Diphtherocome bigu*, m. – Holotype, Nepal, Kalinchok Mt., 5 km W of Bigu, 2300 m, 3.VII.1997, M. Hreblay, slide No.: HM 10524 (coll. HNHM)
18. *Diphtherocome bigu*, m. – Paratype, Nepal, Ganesh Himal, 5 km S of Somdang, 3100 m, 18.V.1995, Gy. Fábián & L. Ronkay, slide No.: RL 6541 (coll. G. Ronkay)
19. *Diphtherocome brevipennis*, m. – Lectotype, [India] Sikkim, Yatong, Bingham, slide No.: BMNoct 15669 (coll. BMNH)
20. *Diphtherocome brevipennis*, m. – Nepal, Kanchenjunga Himal, Deorali danda, Torontan, 3200 m, 21.VI.1998, M. Hreblay (coll. G. Ronkay)
21. *Diphtherocome brevipennis*, m. – [India] Sikkim, Yatong, Bingham, slide No.: BMNoct 15669 (coll. BMNH)
22. *Diphtherocome brevipennis*, m. – Nepal, Kanchenjunga Himal, Deorali danda, Torontan, 3200 m, 21.VI.1998, M. Hreblay (coll. G. Ronkay)
23. *Diphtherocome brevipennis*, m. – Nepal, Kanchenjunga Himal, Deorali danda, Torontan, 3200 m, 21.VI.1998, M. Hreblay (coll. G. Ronkay)
24. *Diphtherocome brevipennis*, f. – Nepal, Kanchenjunga Himal, Deorali danda, Torontan, 3200 m, 21.VI.1998, M. Hreblay (coll. G. Ronkay)
25. *Diphtherocome vivida*, m. – Holotype, [China] Sichuan, Pu-tsu-fong, 9820 feet, VI-VII.1890, Native collector, slide No.: BMNoct 15665 (coll. BMNH)
26. *Diphtherocome vivida*, m. – Holotype of *Diphtherocome biformis*, China, Prov. Shaanxi, Tapaishan in Tsinling, 1700 m, 07.VII.1936, H. Höne, slide No.: ZFMK 1975 (coll. ZFMK)
27. *Diphtherocome vivida*, m. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
28. *Diphtherocome vivida*, m. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
29. *Diphtherocome vivida*, m. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
30. *Diphtherocome vivida*, f. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
31. *Diphtherocome vivida*, f. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
32. *Diphtherocome vivida*, f. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
33. *Diphtherocome vivida*, f. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
34. *Diphtherocome vivida*, f. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
35. *Diphtherocome pseudovivida*, m. – Holotype, East Nepal, Deorali danda, Torontan, 3200 m, 21.VI.1998, M. Hreblay, slide No.: HM 11520 (coll. HNHM)
36. *Diphtherocome pseudovivida*, f. – Paratype, Kanchenjunga Himal, Jyaudra danda, Phere, 3200 m, 29.VI.1998, M. Hreblay, slide No.: RL 12109 (coll. G. Ronkay)
37. *Diphtherocome trimaculata*, m. – Holotype, China, Prov. Yunnan, Li-kiang, 2000 m, 04.VII.1935, H. Höne, slide No.: ZFMK 1976 (coll. ZFMK)
38. *Diphtherocome trimaculata*, m. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
39. *Diphtherocome trimaculata*, m. – China, Prov. Sichuan, Daxue Shan, 40 km W of Mianning, 2750 m, 07-08.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
40. *Diphtherocome trimaculata*, m. – China, Prov. Sichuan, Daxue Shan, 40 km W of Mianning, 2750 m, 07-08.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)


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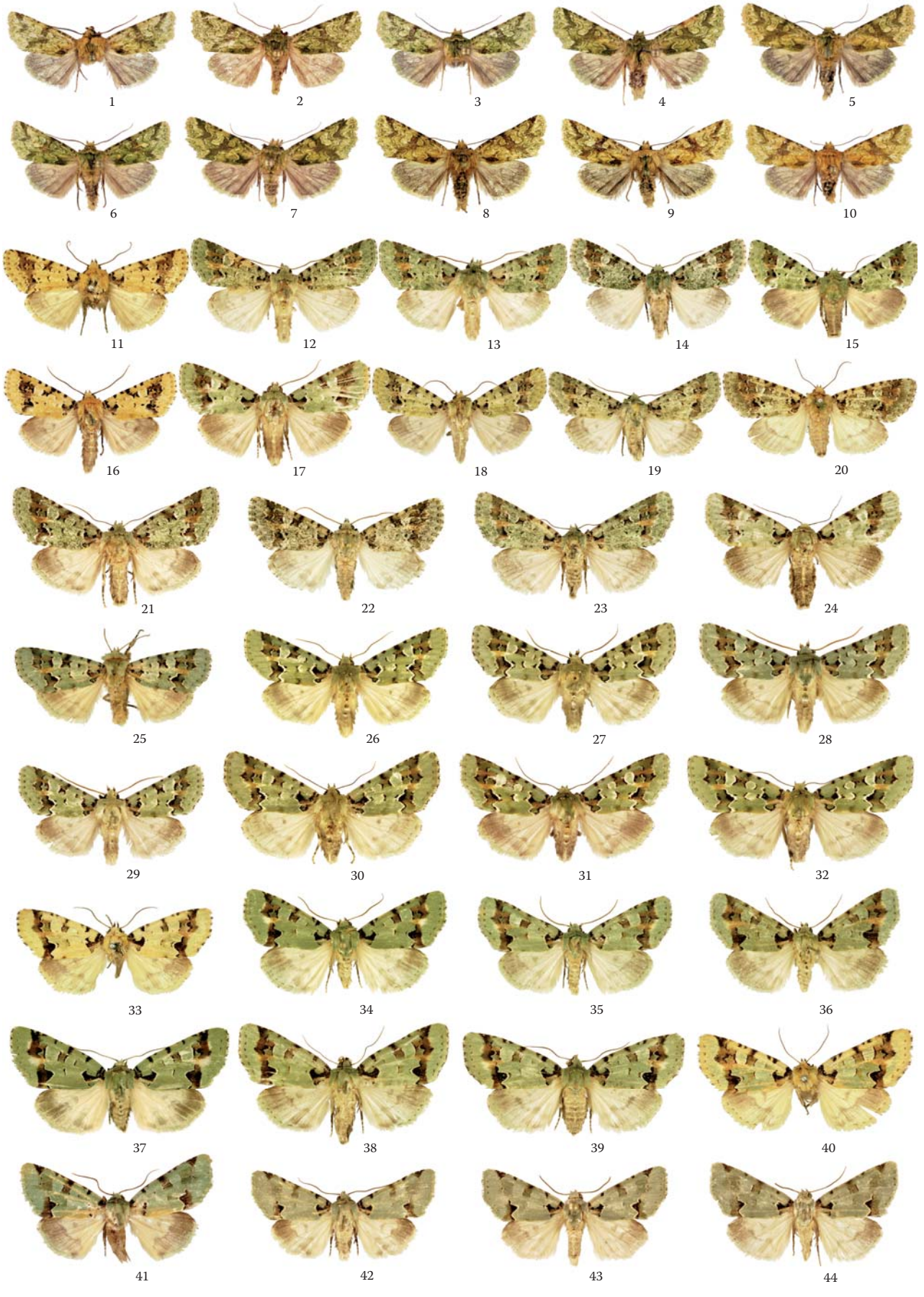
1. *Diphtherocome trimaculata*, m. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
2. *Diphtherocome trimaculata*, m. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
3. *Diphtherocome trimaculata*, m. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
4. *Diphtherocome trimaculata*, f. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
5. *Diphtherocome pallidipennis*, m. – Holotype, East Nepal, Chagam, 2500-2700 m, 29.VI.-07.VII.1994. J.M. Cadiou, slide No.: RL 12316 (coll. HNHM)
6. *Diphtherocome pallidipennis*, m. – Paratype, Nepal, Kanchenjunga Himal, Deorali danda, Torontan, 3200 m, 21.VI.1998, M. Hreblay, slide No.: RL 12049 (coll. HNHM)
7. *Diphtherocome pallidipennis*, m. – Paratype, Nepal, Jiri, J.M. Cadiou (coll. HNHM)
8. *Diphtherocome pallidipennis*, m. – Paratype, East Nepal, Chagam, 2500-2700 m, 29.VI.-07.VII.1994. J.M. Cadiou (coll. G. Ronkay)
9. *Diphtherocome pallidipennis*, m. – Paratype, East Nepal, Kanchenjunga Himal, 2 km S of Ghunsa, 3600 m, 24.VI.1998, M. Hreblay (coll. BMNH)
10. *Diphtherocome pallidipennis*, f. – Paratype, East Nepal, Chagam, 2500-2700 m, 29.VI.-07.VII.1994. J.M. Cadiou (coll. G. Ronkay)
11. *Diphtherocome pallidipennis*, f. – Paratype, East Nepal, Chagam, 2500-2700 m, 29.VI.-07.VII.1994. J.M. Cadiou, slide No.: RL 6560 (coll. G. Ronkay)
12. *Diphtherocome pallidipennis*, f. – Paratype, (Paralectotype of *Diphtherocome brevipennis*) [India] Sikkim, Yatong, Bingham, slide No.: BMNoct 15670 (coll. BMNH)
13. *Diphtherocome pallidipennis*, f. – Paratype, Nepal, Annapurna Himal, between Nangethanti and Ghorepani, 2600 m, 24.VII.1995, Gy.M. László & G. Ronkay (coll. G. Ronkay)
14. *Diphtherocome pallidipennis*, f. – Paratype, Nepal, Annapurna Himal, between Nangethanti and Ghorepani, 2600 m, 24.VII.1995, Gy.M. László & G. Ronkay, slide No.: RL 6557 (coll. G. Ronkay)
15. *Diphtherocome minor*, m. – Holotype, W China, Pu-tsu-fu, 8-10000 feet, Rothschild Bequest (coll. BMNH)
16. *Diphtherocome minor*, m. – Lectotype of *Diphtherocome metaphaea*, [China] Sichuan, Pu-tsu-fong, 9820 feet, VI-VII.1890, Native collector, slide No.: BMNoct 15661 (coll. BMNH)
17. *Diphtherocome minor*, m. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
18. *Diphtherocome minor*, m. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
19. *Diphtherocome minor*, m. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
20. *Diphtherocome minor*, m. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
21. *Diphtherocome minor*, m. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
22. *Diphtherocome minor*, f. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
23. *Diphtherocome minor*, f. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
24. *Diphtherocome minor*, f. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
25. *Diphtherocome petrichkarolyi* **sp. n.**, m. – Holotype, China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
26. *Diphtherocome petrichkarolyi* **sp. n.**, m. – Paratype, China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
27. *Diphtherocome petrichkarolyi* **sp. n.**, m. – Paratype, China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
28. *Diphtherocome petrichkarolyi* **sp. n.**, m. – Paratype, China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
29. *Diphtherocome petrichkarolyi* **sp. n.**, m. – Paratype, China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko, slide No.: RL 12175 (coll. G. Ronkay)
30. *Diphtherocome petrichkarolyi* **sp. n.**, m. – Paratype, China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
31. *Diphtherocome petrichkarolyi* **sp. n.**, m. – Paratype, China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
32. *Diphtherocome petrichkarolyi* **sp. n.**, m. – Paratype, China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
33. *Diphtherocome petrichkarolyi* **sp. n.**, f. – Paratype, China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
34. *Diphtherocome petrichkarolyi* **sp. n.**, f. – Paratype, China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko, slide No.: RL 12171 (coll. G. Ronkay)
35. *Diphtherocome longivalva*, m. – Holotype, China, Prov. Yunnan, Li-kiang, 4000 m, 04.VII.1935, H. Höne, slide No.: ZFMK 1961 (coll. ZFMK)
36. *Diphtherocome longivalva*, f. – Paratype, China, Prov. Yunnan, Li-kiang, 3000 m, 04.VIII.1935, H. Höne, slide No.: HM 12073 (coll. ZFMK)
37. *Diphtherocome longivalva*, f. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko, slide No.: RL 10998 (coll. G. Ronkay)
38. *Diphtherocome serrata*, m. – Holotype, China, Prov. Yunnan, Li-kiang, 4000 m, 27.V.1935, H. Höne, slide No.: ZFMK 1967 (coll. ZFMK)
39. *Diphtherocome serrata*, m. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, 2600-3200 m, 23.VI.-15.V.2001, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
40. *Diphtherocome serrata*, m. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, 2600-3200 m, 23.VI.-15.V.2001, V. Sinjaev & A. Plutenko, slide No.: RL 12116 (coll. G. Ronkay)
41. *Diphtherocome serrata*, m. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, 2600-3200 m, 23.VI.-15.V.2001, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
42. *Diphtherocome serrata*, f. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
43. *Diphtherocome serrata*, f. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
44. *Vigentinocome vigens*, m. – Lectotype, India, Atkinson (coll. BMNH)
45. *Vigentinocome vigens*, m. – [India] Sikkim, IX.1909, F. Möller, slide No.: BMNoct 15667 (coll. BMNH)
46. *Vigentinocome vigens*, m. – [India] Sikkim, (18)88, 7000 feet, slide No.: BMAgrotidae 1828 (coll. BMNH)
47. *Vigentinocome vigens*, f. – [India, Sikkim] Darjeeling, Lidderdale (coll. BMNH)
48. *Vigentinocome vigens*, f. – [India] Sikkim, IX.1909, F. Möller (coll. BMNH)
49. *Vigentinocome daliangi*, m. – Holotype, China, Prov. Sichuan, Daliang Shan, 30 km W of Xide city, 1700 m, 19-21.VIII.1997 (coll. HNHM)
50. *Vigentinocome peregovitsi*, f. – Holotype, Vietnam, Prov. Lao Cai, 3 km NW of Cat Cat, 2000 m, 01.XII.1997, L. Peregovits & L. Ronkay, slide No.: RL 6096 (coll. HNHM)
51. *Vigentinocome peregovitsi*, m. – Vietnam, Prov. Kon Tum, Ngoc Linh Mt., local collector (coll. A. Volynkin) (Photo A. Volynkin)


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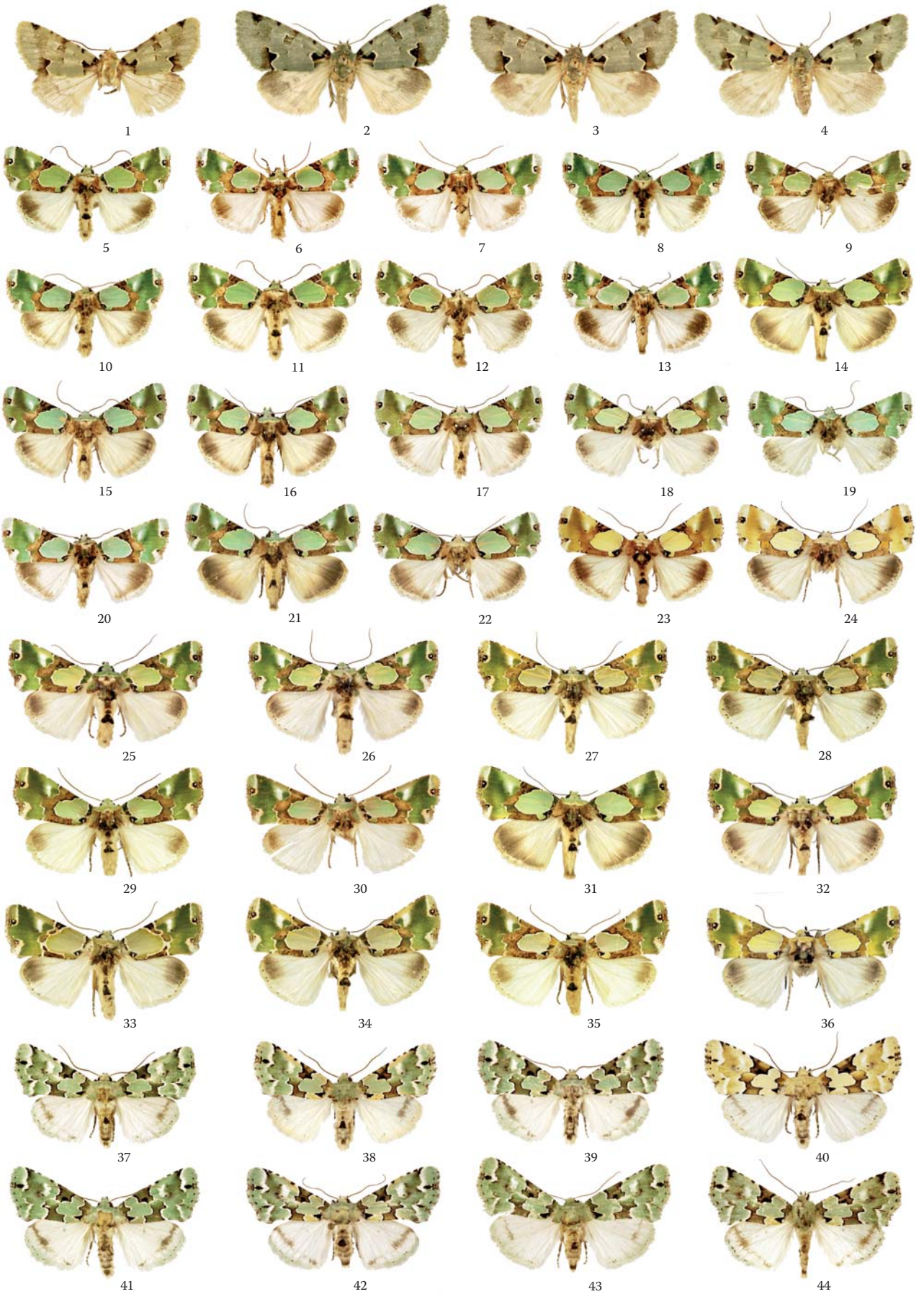
1. *Vigentinocome viridissima*, m. – Holotype, Vietnam, Fan-si-pan Mts, 14 km NW of Sa Pa, 1900 m, 29-30.VIII.1998, A. Kun, slide No.: RL 6311 (coll. HNHM)
2. *Vigentinocome viridissima*, m. – Thailand, Chiang Mai/Mae Ai, Doi Phahompok, 2050 m, 06-10.IX.2005, T. Ihle (coll. A. Becher)
3. *Vigentinocome viridissima*, m. – Paratype, Vietnam, Prov. Lao Cai, Fan-si-pan Mts, Frontier Satellite Camp, 2240 m, 18-22.VIII.1998, A. Kun (coll. HNHM)
4. *Vigentinocome viridissima*, m. – Paratype, Vietnam, Prov. Lao Cai, Fan-si-pan Mts, Frontier Satellite Camp, 2240 m, 18-22.VIII.1998, A. Kun (coll. HNHM)
5. *Vigentinocome viridissima*, m. – Paratype, Vietnam, Prov. Lao Cai, Fan-si-pan Mts, Frontier Satellite Camp, 2240 m, 18-22.VIII.1998, A. Kun (coll. G. Ronkay)
6. *Vigentinocome viridissima*, m. – Paratype, Vietnam, Prov. Lao Cai, Fan-si-pan Mts, Frontier Satellite Camp, 2240 m, 18-22.VIII.1998, A. Kun (coll. HNHM)
7. *Vigentinocome viridissima*, f. – Paratype, Vietnam, Fan-si-pan Mts, 14 km NW of Sa Pa, 1900 m, 29-30.VIII.1998, A. Kun, slide No.: RL 6326 (coll. HNHM)
8. *Vigentinocome viridissima*, f. – Thailand, Chiang Mai/Mae Ai, Doi Phahompok, 2050 m, 06-10.IX.2005, T. Ihle (coll. A. Becher)
9. *Vigentinocome chloronympha*, m. – Holotype, Nepal, Koshi, Terhathum area, Tinjure Phedi, 2900 m, 18.X.1996, Gy.M. László & G. Ronkay, slide No.: RL 5845 (coll. G. Ronkay)
10. *Vigentinocome chloronympha*, m. – [India] Assam, Mishmi Hills, Delai valley, Cha Che, 17.XI.1936, M. Steele (coll. BMNH)
11. *Vigentinocome thaumasia*, f. – Holotype, Nepal, Annapurna Himal, vicinity of Lumle, 1700-2100 m, 05-12.XII.1995, G. Gurung, slide No.: RL 5645 (coll. G. Ronkay)
12. *Vigentinocome thaumasia*, f. – Thailand, Chiang Mai/Mae Ai, Doi Phahompok, 2050 m, 18-22.XI.2005, T. Ihle (coll. A. Becher)
13. *Vigentinocome thaumasia*, m. – Thailand, Chiang Mai/Mae Ai, Doi Phahompok, 2050 m, 12-16.XII.2005, T. Ihle (coll. A. Becher)
14. *Vigentinocome impectinata*, m. – Holotype, Vietnam, Prov. Lao Cai, Fan-si-pan Mts, 14 km NW Sa Pa, 1900-2000 m, 29.XI.1997, L. Peregovits & L. Ronkay, slide No.: 6061 (coll. HNHM)
15. *Vigentinocome impectinata*, m. – Paratype, Vietnam, Fan-si-pan Mts, 14 km NW of Sa Pa, 1900-2000 m, 4-6.XII.1997, L. Peregovits & L. Ronkay (coll. HNHM)
16. *Vigentinocome impectinata*, m. – Paratype, Vietnam, Fan-si-pan Mts, 14 km NW of Sa Pa, 1900-2000 m, 4-6.XII.1997, L. Peregovits & L. Ronkay (coll. G. Ronkay)
17. *Vigentinocome impectinata*, f. – Paratype, Vietnam, Fan-si-pan Mts, 14 km NW of Sa Pa, 1900-2000 m, 4-6.XII.1997, L. Peregovits & L. Ronkay, slide No.: RL 6189 (coll. HNHM)
18. *Vigentinocome impectinata*, f. – Paratype, Vietnam, Fan-si-pan Mts, 14 km NW of Sa Pa, 1900-2000 m, 4-6.XII.1997, L. Peregovits & L. Ronkay, slide No.: RL 6191 (coll. HNHM)
19. *Vigentinocome impectinata*, f. – Paratype, Vietnam, Fan-si-pan Mts, 14 km NW of Sa Pa, 1900-2000 m, 4-6.XII.1997, L. Peregovits & L. Ronkay (coll. G. Ronkay)
20. *Vigentinocome impectinata*, f. – Vietnam, Fan-si-pan Mts, 6 km NW of Sa Pa, 2100 m, 20.XI.1999, A. Kun & L. Ronkay (coll. G. Ronkay)
21. *Vigentinocome chrysochlora chrysochlora*, m. – Holotype, Khasis, slide No.: BMNoct 15671 (coll. BMNH)
22. *Vigentinocome chrysochlora chrysochlora*, f. – Khasis, slide No.: LG 3850 (coll. BMNH)
23. *Vigentinocome chrysochlora thainympha*, m. – Holotype, Thailand, Chiang Mai, Doi Inthanon NP., 2300 m, 11.XI.1998, T. Csővári & L. Mikus, slide No.: HM 11248 (coll. HNHM)
24. *Vigentinocome chrysochlora thainympha*, m. – Thailand, Doi Phahompok, Mae Fang NP., Fang, 2000 m, 20.XI.2003, Á. Kőrösi, L. Peregovits & M. Földvári, slide No.: RL 12086 (coll. HNHM)
25. *Vigentinocome chrysochlora thainympha*, m. – Myanmar, Chin State, 4 km W of Thaing Gnin village, 2100 m, 4-5.XI.2015, Loeffler & Naumann (coll. NHMW)
26. *Vigentinocome chrysochlora thainympha*, m. – Paratype, Thailand, Chiang Mai, Doi Inthanon NP., 2300 m, 2.XII.1998, M. Hreblay (coll. HNHM)
27. *Vigentinocome chrysochlora thainympha*, f. – Paratype, Thailand, Chiang Mai, Doi Inthanon NP., 2300 m, 11.XI.1998, T. Csővári & L. Mikus (coll. HNHM)
28. *Vigentinocome chrysochlora thainympha*, f. – Paratype, Thailand, Chiang Mai, Doi Inthanon NP., 2300 m, 2.XII.1998, M. Hreblay, slide No.: RL 12087 (coll. HNHM)
29. *Vigentinocome nepalichlora*, m. – Holotype, Nepal, Arun valley, 12 km N of Hille, 3.XI.1995, M. Hreblay & L. Bódi, slide No.: HM 8449 (coll. HNHM)
30. *Vigentinocome nepalichlora*, m. – Paratype, Nepal, Koshi, Terhathum area, Deorali, 5 km NE of Suketar, 2700 m, 3.XI.1996, Gy.M. László & G. Ronkay, slide No.: RL 6083 (coll. G. Ronkay)
31. *Vigentinocome nepalichlora*, m. – Paratype, Nepal, Koshi, Terhathum area, Sirumani, 2950 m, 6.XI.1996, Gy.M. László & G. Ronkay (coll. G. Ronkay)
32. *Vigentinocome nepalichlora*, m. – Paratype, Nepal, Koshi, Terhathum area, above Gorja, Tshisopani, 2600 m, 20.X.1996, Gy.M. László & G. Ronkay (coll. G. Ronkay)
33. *Vigentinocome nepalichlora*, m. – Paratype, Nepal, Koshi, Terhathum area, Deorali, 5 km NE of Suketar, 2700 m, 3.XI.1996, Gy.M. László & G. Ronkay (coll. G. Ronkay)
34. *Vigentinocome nepalichlora*, m. – Paratype, Nepal, Koshi, Terhathum area, Deorali, 5 km NE of Suketar, 2700 m, 3.XI.1996, Gy.M. László & G. Ronkay (coll. G. Ronkay)
35. *Vigentinocome nepalichlora*, m. – Paratype, Nepal, Annapurna Himal, 2 km E of Ghorepani, 2900 m, 7.X.1994, G. Csorba & L. Ronkay, slide No.: RL 6084 (coll. G. Ronkay)
36. *Vigentinocome nepalichlora*, f. – Paratype, Nepal, Koshi, Terhathum area, Deorali, 5 km NE of Suketar, 2700 m, 3.XI.1996, Gy.M. László & G. Ronkay, slide No.: RL 6088 (coll. G. Ronkay)
37. *Vigentinocome nepalichlora*, f. – Paratype, Nepal, Koshi, Terhathum area, Deorali, 5 km NE of Suketar, 2700 m, 3.XI.1996, Gy.M. László & G. Ronkay (coll. G. Ronkay)
38. *Vigentinocome nepalichlora*, f. – Paratype, Nepal, Koshi, Terhathum area, Deorali, 5 km NE of Suketar, 2700 m, 3.XI.1996, Gy.M. László & G. Ronkay (coll. G. Ronkay)
39. *Vigentinocome nepalichlora*, f. – Paratype, Nepal, Koshi, Terhathum area, Deorali, 5 km NE of Suketar, 2700 m, 3.XI.1996, Gy.M. László & G. Ronkay (coll. G. Ronkay)
40. *Vigentinocome nepalichlora*, f. – Paratype, Nepal, Koshi, Terhathum area, above Gorja, Tshisopani, 2600 m, 20.X.1996, Gy.M. László & G. Ronkay (coll. G. Ronkay)
41. *Vigentinocome nanlingi*, m. – Holotype, China, Hunan, Nanling Mts, Shikengkong Mt., 1500 m, 10-15.XI.2003, V. Sinjaev, slide No.: GYP 3839 (coll. P. Gyulai)
42. *Vigentinocome nanlingi*, m. – Paratype, China, Hunan, Nanling Mts, Shikengkong Mt., 1500 m, 10-15.XI.2003, V. Sinjaev (coll. G. Ronkay)
43. *Vigentinocome nanlingi*, f. – Paratype, China, Hunan, Nanling Mts, Shikengkong Mt., 1500 m, 10-15.XI.2003, V. Sinjaev, slide No.: GYP 3838 (coll. P. Gyulai)
44. *Vigentinocome autumnalis*, m. – Taiwan, Taichung County, Anmashan Mts, 2650 m, L. Peregovits & L. Ronkay (coll. G. Ronkay)
45. *Vigentinocome autumnalis*, m. – Taiwan, Nantou County, Meifeng, 2100 m, 20.XI.2004, L. Ronkay & H.R. Tzuoo (coll. G. Ronkay)
46. *Vigentinocome autumnalis*, m. – Taiwan, Nantou County, 3 km SW of Tsuifeng, 2100 m, 20.X.1995, T. Csővári & P. Stéger (coll. G. Ronkay)
47. *Vigentinocome autumnalis*, f. – Taiwan, Prov. Nantou, Yuanfeng, 2750 m, 29.XI.1999, A. Kun, L. Peregovits & L. Ronkay (coll. G. Ronkay)
48. *Vigentinocome autumnalis*, f. – Taiwan, Taichung County, Anmashan Mts, 2650 m, L. Peregovits & L. Ronkay (coll. G. Ronkay)
49. *Vigentinocome autumnalis*, f. – Taiwan, Prov. Nantou, Hohuan Mts, Experimental Station, 3100 m, 26-28.IX.1999, G. Csorba & B. Herczig (coll. G. Ronkay)
50. *Vigentinocome autumnalis*, f. – Taiwan, Nantou County, between Meifeng and Tsuifeng, 2100 m, 16.XI.2002, L. Ronkay (coll. G. Ronkay)


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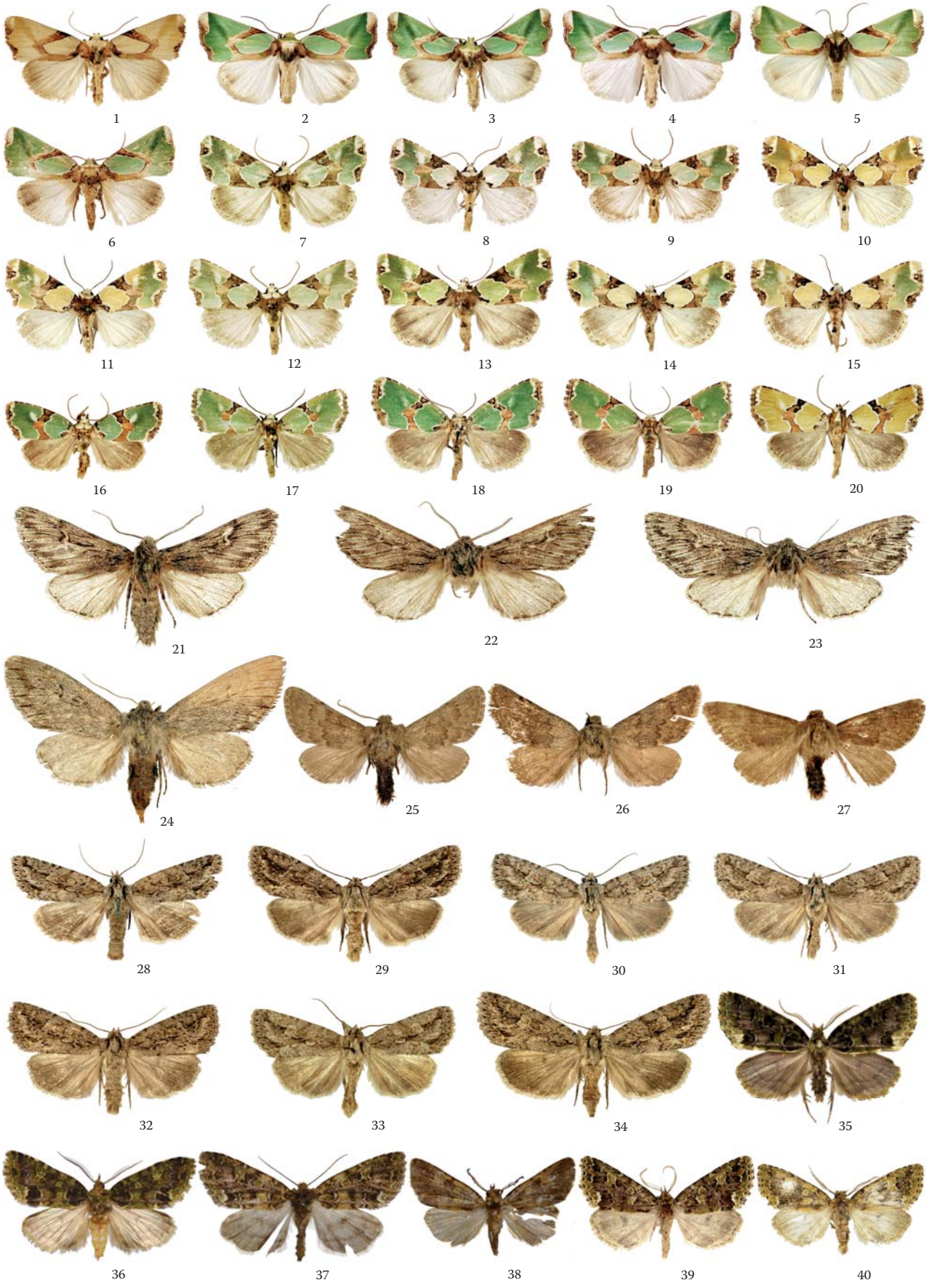
1. *Vigentinocome bryochlora*, m. – Holotype, Vietnam, Prov. Lao Cai, 3 km NW of Cat Cat, 2000 m, 01.XII.1997, L. Peregovits & L. Ronkay, slide No.: RL 6060 (coll. HNHM)
2. *Vigentinocome bryochlora*, m. – Vietnam, Prov. Lao Cai, Fan-si-pan Mts, 6 km W of Sa Pa, 2100 m, 17.XI.1999, A. Kun & L. Ronkay (coll. G. Ronkay)
3. *Vigentinocome bryochlora*, m. – Vietnam, Fan-si-pan Mts, 14 km NW of Sa Pa, 1900-2000 m, 14-15.XI.1999, A. Kun & L. Ronkay (coll. HNHM)
4. *Vigentinocome bryochlora*, f. – Vietnam, Fan-si-pan Mts, 14 km NW of Sa Pa, 1900-2000 m, 14-15.XI.1999, A. Kun & L. Ronkay (coll. HNHM)
5. *Vigentinocome bryochlora*, f. – Paratype, Vietnam, Prov. Lao Cai, Fan-si-pan Mts, 14 km NW of Sa Pa, 1900-2000 m, 29.XI.1997, L. Peregovits & L. Ronkay (coll. HNHM)
6. *Vigentinocome bryochlora*, m. – Vietnam, Prov. Lao Cai, Fan-si-pan Mts, 14 km NW Sa Pa, 1900-2000 m, 14-15.XI.1999, A. Kun & L. Ronkay (coll. G. Ronkay)
7. *Vigentinocome bryochlora*, f. – Vietnam, Prov. Lao Cai, Fan-si-pan Mts, 14 km NW Sa Pa, 1900-2000 m, 14-15.XI.1999, A. Kun & L. Ronkay (coll. G. Ronkay)
8. *Vigentinocome bryochlora*, f. – Paratype, Vietnam, Fan-si-pan Mts, 14 km NW of Sa Pa, 1900-2000 m, 4-6.XII.1997, L. Peregovits & L. Ronkay (coll. HNHM)
9. *Vigentinocome bryochlora*, f. – Paratype, Vietnam, Fan-si-pan Mts, 14 km NW of Sa Pa, 1900-2000 m, 4-6.XII.1997, L. Peregovits & L. Ronkay (coll. HNHM)
10. *Vigentinocome bryochlora*, f. – Paratype, Vietnam, Prov. Lao Cai, 3 km NW of Cat Cat, 2000 m, 01.XII.1997, L. Peregovits & L. Ronkay (coll. HNHM)
11. *Discibocome discibrunnea*, m. – Lectotype, [India, Sikkim] Darjeeling, Russel, slide No.: BMNoct 15674 (coll. BMNH)
12. *Discibocome discibrunnea*, m. – Nepal, Annapurna Himal, Banthanti village, 2500 m, 25.VII.1995, Gy.M. László & G. Ronkay (coll. G. Ronkay)
13. *Discibocome discibrunnea*, m. – Nepal, Ganesh Himal, above Nesim, 2720 m, 21.IX.1995, B. Herczig & Gy.M. László (coll. G. Ronkay)
14. *Discibocome discibrunnea*, m. – Pakistan, Murree, 1700 m, 18-19. VII.1975, W. Thomas (coll. NHMW)
15. *Discibocome discibrunnea*, m. – Thailand, Prov. Nan, Doi Phu Ka NP., 1620 m, 13.IX.1990, I.J. Kitching (coll. BMNH)
16. *Discibocome discibrunnea*, m. – Vietnam, Prov. Lao Cai, Sa Pa district, Orchid Garden, 1550 m, 8.VIII.1998, A. Kun (coll. HNHM)
17. *Discibocome discibrunnea*, m. – China, Sichuan, Chingchenghou Mts, 70 km NW Chengdu, 1400 m, 15-25.VIII.2005, S. Murzin (coll. G. Ronkay)
18. *Discibocome discibrunnea*, m. – Thailand, Chiang Mai, Doi Phahompok, 18 km NW of Fang, 2100 m, 10-11.IX.1999, A. Szabó & Z. Czere (coll. G. Ronkay)
19. *Discibocome discibrunnea*, m. – Nepal, Annapurna Himal, 1 km NW of Chitre, 2300 m, 21-22.VI.1996, Gy.M. László & G. Ronkay (coll. G. Ronkay)
20. *Discibocome discibrunnea*, f. – Holotype of *D. discibrunnea* ab. *punjabensis*, [India, Himachal Pradesh] Dalhousie, 25.VI., Harford (coll. BMNH)
21. *Discibocome discibrunnea*, f. – Nepal, Annapurna Himal, Banthanti village, 2500 m, 25.VII.1995, Gy.M. László & G. Ronkay (coll. G. Ronkay)
22. *Discibocome discibrunnea*, f. – Pakistan, Murree, 1700 m, 18-19. VII.1975, W. Thomas (coll. NHMW)
23. *Discibocome discibrunnea*, f. – Nepal, Annapurna Himal, between Nangethanti and Ghorepani, 2600 m, 24.VII.1995, Gy.M. László & G. Ronkay (coll. G. Ronkay)
24. *Discibocome discibrunnea*, f. – China, Sichuan, Chingchenghou Mts, 70 km NW Chengdu, 1400 m, 15-25.VIII.2005, S. Murzin (coll. G. Ronkay)
25. *Discibocome pulchra*, m. – Holotype, [Taiwan] Formosa, Arizan, 7300 feet, 25.IX.1906, A.E. Wileman (coll. BMNH)
26. *Discibocome pulchra*, m. – Taiwan, Ilan County, Ming Chyr Forest Recreation Area, 1200 m 30-31.III.1997, G. Csorba & L. Ronkay (coll. G. Ronkay)
27. *Discibocome pulchra*, m. – Taiwan, Chiayi County, 3 km S of Alishan, 1950 m, 11.IV.1997, G. Csorba & L. Ronkay (coll. G. Ronkay)
28. *Discibocome pulchra*, m. – Taiwan, Taitung County, Hsiangyang, upper forest zone, 2200 m, 13-14.IV.1997, B. Herczig & L. Ronkay (coll. G. Ronkay)
29. *Discibocome pulchra*, m. – Taiwan, Taitung County, Hsiangyang, upper forest zone, 2200 m, 13-14.IV.1997, B. Herczig & L. Ronkay (coll. G. Ronkay)
30. *Discibocome pulchra*, f. – Taiwan, Chiayi County, Suyuang, 880 m, 27.VI.1997, S.T. Kovács (coll. HNHM)
31. *Discibocome pulchra*, f. – Taiwan, Taitung County, Hsiangyang, upper forest zone, 2200 m, 13-14.IV.1997, B. Herczig & L. Ronkay (coll. G. Ronkay)
32. *Discibocome pulchra*, f. – Taiwan, Taitung County, Hsiangyang, upper forest zone, 2200 m, 13-14.IV.1997, B. Herczig & L. Ronkay (coll. G. Ronkay)
33. *Discibocome marmorea*, m. – Lectotype, [China] Sichuan, Pu-tsu-fong, 9820 feet, VI-VII.1890, Native collector, slide No.: BMNoct 15672 (coll. BMNH)
34. *Discibocome marmorea*, m. – China, Prov. Sichuan, Daxue Shan, 40 km W of Mianning, 2750 m, 07-08.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
35. *Discibocome marmorea*, m. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
36. *Discibocome marmorea*, m. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
37. *Discibocome marmorea*, f. – China, Prov. Sichuan, Daxue Shan, 40 km W of Mianning, 2750 m, 07-08.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
38. *Discibocome marmorea*, f. – China, Prov. Sichuan, Daxue Shan, Gongga Shan, NW Moxi, 2850 m, 14-19.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
39. *Discibocome marmorea*, f. – China, Prov. Sichuan, Daxue Shan, 40 km W of Mianning, 2750 m, 07-08.VII.1999, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
40. *Discibocome marmorea*, f. – Paralectotype, [China] Sichuan, Pu-tsu-fong, 9820 feet, VI-VII.1890, Native collector, slide No.: BMNoct 15673 (coll. BMNH)
41. *Discibocome ligula*, m. – Holotype, China, Sichuan, Siguliang Shan, 01-30.VI.2006, V. Sinjaev, slide No.: GYP 3841 (coll. P. Gyulai)
42. *Discibocome ligula*, m. – Paratype, China, Prov. Shaanxi, Tsinling Mts, Houzhenzi, 1900 m, 15.VI.-15.X.1999, local collector (coll. G. Ronkay)
43. *Discibocome ligula*, m. – Paratype, China, Prov. Shaanxi, Tsinling Mts, Houzhenzi, 1900 m, 15.VI.-15.X.1999, local collector (coll. G. Ronkay)
44. *Discibocome ligula*, m. – Paratype, China, Prov. Shaanxi, Tsinling Mts, Houzhenzi, 1900 m, 15.VI.-15.X.1999, local collector (coll. G. Ronkay)


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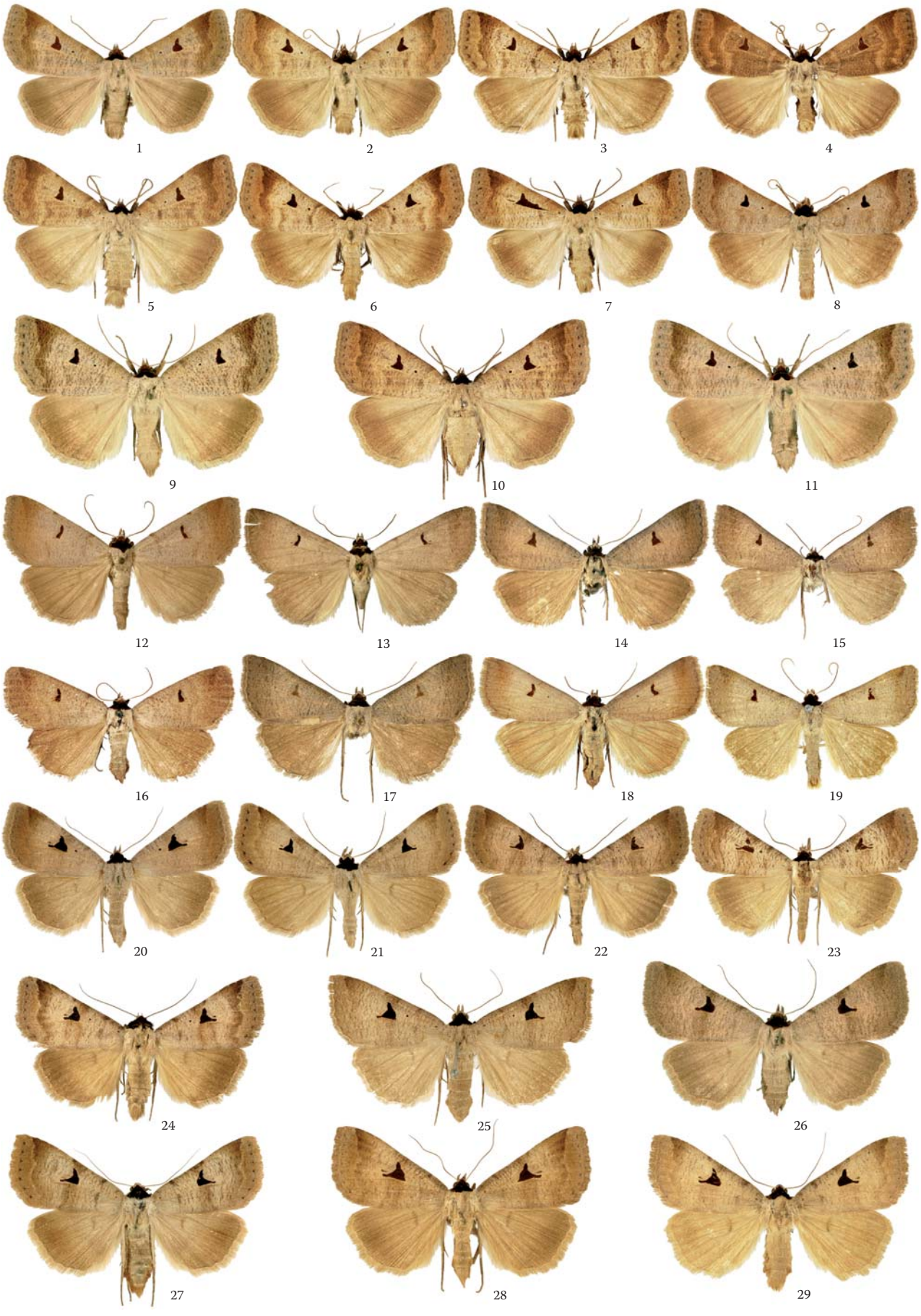
1. *Discibocome ligula*, m. – Paratype, China, Prov. Shaanxi, Tsinling Mts, Houzhenzi, 1900 m, 15.VI.-15.X.1999, local collector, slide No.: RL 11012 (coll. G. Ronkay)
2. *Discibocome ligula*, f. – Paratype, China, Prov. Shaanxi, Tsinling Mts, Houzhenzi, 1900 m, 15.VI.-15.X.1999, local collector (coll. G. Ronkay)
3. *Discibocome ligula*, f. – Paratype, China, Prov. Shaanxi, Tsinling Mts, Houzhenzi, 1900 m, 15.VI.-15.X.1999, local collector (coll. G. Ronkay)
4. *Discibocome ligula*, f. – Paratype, China, Prov. Shaanxi, Tsinling Mts, Houzhenzi, 1900 m, 15.VI.-15.X.1999, local collector (coll. G. Ronkay)
5. *Nacna malachitis*, m. – North Korea, Prov. Pyongan, Myohyang-san, No. 821, 17.VII.1982, L. Forró & L. Ronkay (coll. HNHM)
6. *Nacna malachitis*, m. – [Russian Far East] Ussuri, Korb (coll. NHMW)
7. *Nacna malachitis*, m. – [Russian Far East] Sidemi, M. Jankowski, 1882 (coll. NHMW)
8. *Nacna malachitis*, m. – [Russian Far East] Vladivostok, Suchansky Rudnik, VII. (coll. NHMW)
9. *Nacna malachitis*, m. – Russia, Primorye, Kedrovaya Pjad, Sukhaya river, 5.VI.1991, Obydov (coll. HNHM)
10. *Nacna malachitis*, m. – [Russian Far East] Vladivostok, Suchansky Rudnik, VII. (coll. NHMW)
11. *Nacna malachitis*, m. – North Korea, Prov. Pyongan, Myohyang-san, Hotel Myohyang-san, 17.VII.1982, L. Forró & L. Ronkay (coll. HNHM)
12. *Nacna malachitis*, m. – North Korea, Prov. Pyongan, Myohyang-san, Hotel Myohyang-san, 14.VII.1982, L. Forró & L. Ronkay (coll. HNHM)
13. *Nacna malachitis*, f. – [Russian Far East] Vladivostok, Suchansky Rudnik, VII. (coll. NHMW)
14. *Nacna splendens*, f. – Taiwan, Prov. Taitung, above Liyuan, 1950 m, 15.VI.1997, B. Herczig & L. Ronkay (coll. G. Ronkay)
15. *Nacna splendens*, m. – Nepal, Annapurna Himal, 1 km NW of Chitre, 2300 m, 23.VII.1995, Gy.M. László & G. Ronkay (coll. G. Ronkay)
16. *Nacna splendens*, m. – Nepal, Annapurna Himal, 1 km NW of Chitre, 2300 m, 21-22.VII.1995, Gy.M. László & G. Ronkay (coll. G. Ronkay)
17. *Nacna splendens*, m. – Nepal, Annapurna Himal, 1 km NW of Chitre, 2300 m, 23.VI.1996, Gy.M. László & G. Ronkay (coll. G. Ronkay)
18. *Nacna splendens*, m. – Vietnam, Dalat, 1500 m, 15.X.1988, S. Mahunka, J. Oláh & T. Vásárhelyi, slide No.: RL 12298 (coll. HNHM)
19. *Nacna splendens*, m. – China, Yunnan, Yunlong, Fengshuining Mts, 13 km N of Caojian, 2460 m, 10-20.V.1999, R. Brechlin, slide No.: RL 12280 (coll. G. Ronkay)
20. *Nacna splendens*, m. – Khasis, Native collector (coll. NHMW)
21. *Nacna splendens*, f. – Nepal, Annapurna Himal, 1 km NW of Chitre, 2300 m, 21-22.VII.1995, Gy.M. László & G. Ronkay (coll. G. Ronkay)
22. *Nacna splendens*, f. – Nepal, Annapurna Himal, between Nangethanti and Ghorepani, 2600 m, 24.VII.1995, Gy.M. László & G. Ronkay, slide No.: RL 12276 (coll. G. Ronkay)
23. *Nacna splendens*, f. – Vietnam, Fan-si-pan Mts, 14 km NW of Sa Pa, 1900-2000 m, 4-6.XII.1997, L. Peregovits & L. Ronkay (coll. HNHM)
24. *Nacna splendens*, f. – Malaysia, Pahang state, Cameron Highlands, Tanah Rata, 21.III.-02.IV.1995, G. Csorba, slide No.: RL 12294 (coll. G. Ronkay)
25. *Nacna buschmannferenci* **sp. n.**, m. – Holotype, Taiwan, Prov. Nantou, Hohuan Mts, Experimental Station, 3100 m, 26-28. IX.1999, G. Csorba & B. Herczig (coll. G. Ronkay)
26. *Nacna buschmannferenci* **sp. n.**, m. – Paratype, Taiwan, Prov. Nantou, Hohuan Mts, Experimental Station, 3100 m, 26-28. IX.1999, G. Csorba & B. Herczig (coll. G. Ronkay)
27. *Nacna buschmannferenci* **sp. n.**, m. – Paratype, Taiwan, Taitung County, Hsiangyang, 2200 m, 10.IV.1997, G. Csorba & L. Ronkay (coll. G. Ronkay)
28. *Nacna buschmannferenci* **sp. n.**, m. – Paratype, Taiwan, Taitung County, Hsiangyang, 2200 m, 10.IV.1997, G. Csorba & L. Ronkay (coll. G. Ronkay)
29. *Nacna buschmannferenci* **sp. n.**, m. – Paratype, Taiwan, Nantou County, Yushan NP., Tungpu, 26.IV.1997, S.T. Kovács (coll. HNHM)
30. *Nacna buschmannferenci* **sp. n.**, m. – Paratype, Taiwan, Pingtung County, 10 km SE of Mutan, 470 m, 24-25.IV.1997, S.T. Kovács (coll. HNHM)
31. *Nacna buschmannferenci* **sp. n.**, f. – Paratype, Taiwan, Taitung County, above Liyuan, 1950 m, 15.VI.1997, B. Herczig & L. Ronkay (coll. G. Ronkay)
32. *Nacna buschmannferenci* **sp. n.**, f. – Paratype, Taiwan, Prov. Nantou, Hohuan Mts, Experimental Station, 3100 m, 26-28.IX.1999, G. Csorba & B. Herczig (coll. G. Ronkay)
33. *Nacna buschmannferenci* **sp. n.**, f. – Paratype, Taiwan, Prov. Nantou, Hohuan Pass, 3000 m, 17.VI.1997, B. Herczig & L. Ronkay (coll. G. Ronkay)
34. *Nacna buschmannferenci* **sp. n.**, f. – Paratype, Taiwan, Taitung County, Hsiangyang, 2200 m, 10.IV.1997, G. Csorba & L. Ronkay (coll. G. Ronkay)
35. *Nacna buschmannferenci* **sp. n.**, f. – Paratype, Taiwan, Pingtung County, 10 km SE of Mutan, 470 m, 24-25.IV.1997, S.T. Kovács (coll. HNHM)
36. *Nacna buschmannferenci* **sp. n.**, f. – Paratype, Taiwan, Nantou County, 2 km E of Alishan, 2450 m, 11.IV.1997, L. Peregovits & A. Kun, slide No.: RL 12278 (coll. G. Ronkay)
37. *Nacna prasinaria*, m. – Nepal, Annapurna Himal, Banthanti village, 2500 m, 25.VII.1995, Gy.M. László & G. Ronkay (coll. G. Ronkay)
38. *Nacna prasinaria*, m. – Nepal, Kathmandu valley, Godavari, Phulchoki, 27.V.1992, H. Schnitzler (coll. ZFMK)
39. *Nacna prasinaria*, m. – Nepal, Annapurna Himal, between Nangethanti and Ghorepani, 2600 m, 24.VII.1995, Gy.M. László & G. Ronkay, slide No.: RL 6539 (coll. G. Ronkay)
40. *Nacna prasinaria*, m. – Nepal, Ganesh Himal, Nesukharka, 2700 m, 20-21.V.1995, Gy. Fábián & L. Ronkay (coll. G. Ronkay)
41. *Nacna prasinaria*, f. – Nepal, Annapurna Himal, Banthanti village, 2500 m, 25.VII.1995, Gy.M. László & G. Ronkay (coll. G. Ronkay)
42. *Nacna prasinaria*, f. – Nepal, Annapurna Himal, 1 km NW of Chitre, 2300 m, 21-22.VI.1996, Gy.M. László & G. Ronkay (coll. G. Ronkay)
43. *Nacna prasinaria*, f. – Nepal, Annapurna Himal, 1 km NW of Chitre, 2300 m, 23.VII.1995, Gy.M. László & G. Ronkay (coll. G. Ronkay)
44. *Nacna prasinaria*, m. – [India] Sikkim, Gangtok, 6-12.IX.1938, Exp. Schäfer (coll. ZMHU)


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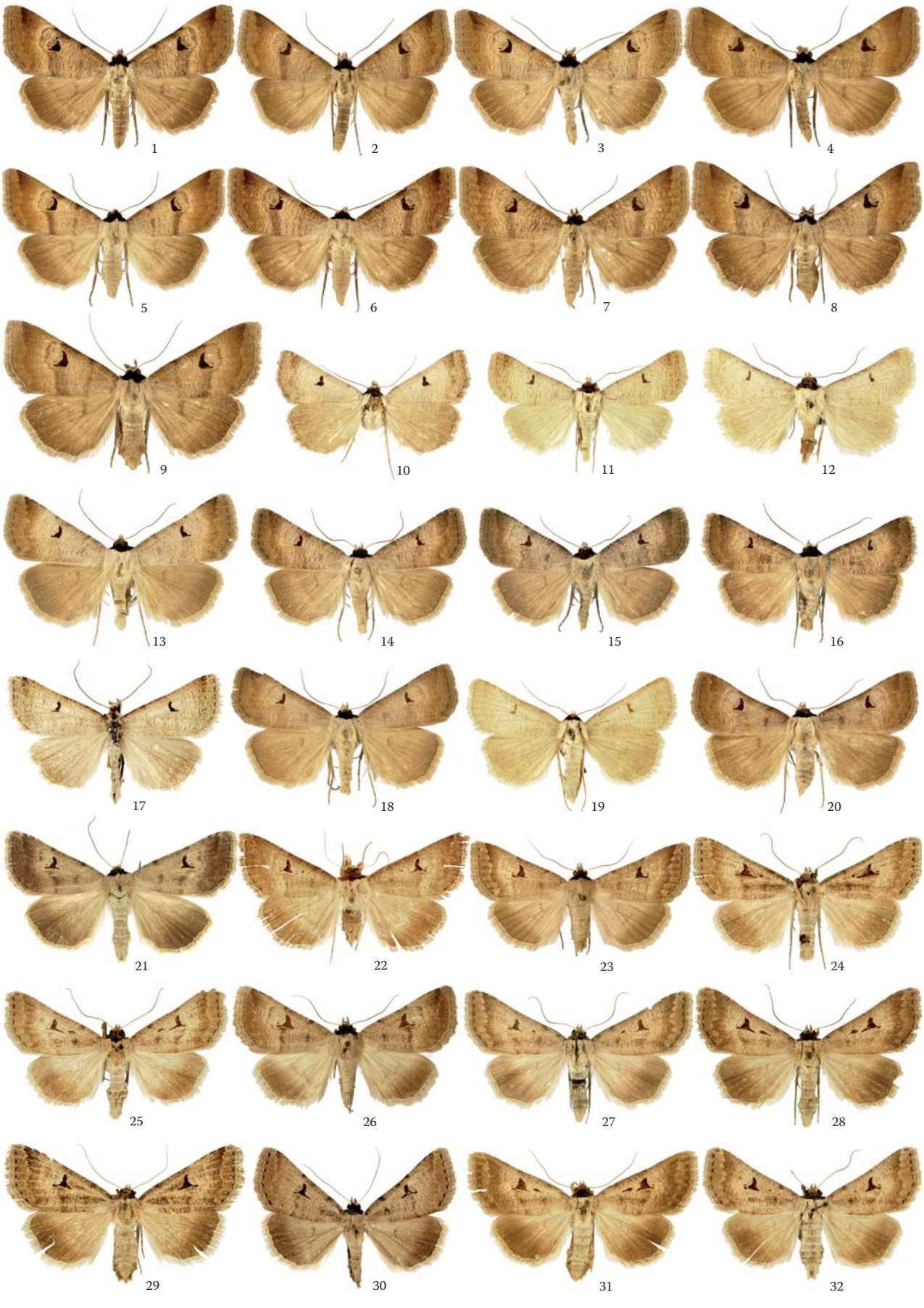
1. *Nacna pulchripicta*, m. – Holotype, [India] Darjeeling, Atkinson (coll. BMNH)
2. *Nacna pulchripicta*, m. – Nepal, Annapurna Himal, Kali Gandaki valley, Kokethanti village, 2650 m, 17.VI.1996, Gy.M. László & G. Ronkay (coll. G. Ronkay)
3. *Nacna pulchripicta*, m. – Nepal, Annapurna Himal, Banthanti village, 2500 m, 25.VII.1995, Gy.M. László & G. Ronkay (coll. G. Ronkay)
4. *Nacna pulchripicta*, m. – Nepal, Annapurna Himal, Kali Gandaki valley, Kokethanti village, 2650 m, 17.VI.1996, Gy.M. László & G. Ronkay (coll. G. Ronkay)
5. *Nacna pulchripicta*, m. – East Nepal, Jiri, 200 km E of Kathmandu, 31.V.1992, H. Schnitzler (coll. ZFMK)
6. *Nacna pulchripicta*, f. – Nepal, Annapurna Himal, 1 km NW of Chitre, 2300 m, 23.VII.1995, Gy.M. László & G. Ronkay (coll. G. Ronkay)
7. *Nacna smaragdina*, m. – China, Prov. Shaanxi, Dabashan, 15 km S Shou-man, 1800 m, 25.V.-14.VI.2000, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
8. *Nacna smaragdina*, m. – China, Prov. Shaanxi, Dabashan, 15 km S Shou-man, 1800 m, 25.V.-14.VI.2000, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
9. *Nacna smaragdina*, m. – China, Prov. Shaanxi, Dabashan, 15 km S Shou-man, 1800 m, 25.V.-14.VI.2000, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
10. *Nacna smaragdina*, m. – China, Prov. Shaanxi, Tapaishan in Tsinling, 3000 m, 3.VII.1936, H. Höne (coll. ZFMK)
11. *Nacna smaragdina*, m. – China, Prov. Shaanxi, Tapaishan in Tsinling, 3000 m, 25.VI.1936, H. Höne (coll. ZFMK)
12. *Nacna smaragdina*, m. – China, Prov. Shaanxi, Dabashan, 15 km S Shou-man, 1800 m, 25.V.-14.VI.2000, V. Sinjaev & A. Plutenko (coll. G. Ronkay)
13. *Nacna smaragdina*, f. – China, Prov. Shaanxi, Tapaishan in Tsinling, 3000 m, 27.VII.1936, H. Höne (coll. ZFMK)
14. *Nacna smaragdina*, f. – China, Prov. Shaanxi, Tapaishan in Tsinling, 3000 m, 25.VII.1936, H. Höne (coll. ZFMK)
15. *Nacna smaragdina*, f. – China, Prov. Shaanxi, Tapaishan in Tsinling, 3000 m, 27.VII.1936, H. Höne (coll. ZFMK)
16. *Nacna sugitanii*, m. – Japan, Honshu, Nara Pref., Kozjidake, 1200 m, 2.VIII.1971, L. Kobes (coll. NHMW)
17. *Nacna sugitanii*, m. – Japan, Nagano, Ohmachi, Ougisawa, 1350 m, 1.VIII.2003, S. Ohshima (coll. G. Ronkay)
18. *Nacna sugitanii*, f. – Japan, Nagano, Ohmachi, Ougisawa, 1350 m, 1.VIII.2003, S. Ohshima (coll. G. Ronkay)
19. *Nacna sugitanii*, f. – Japan, Nagano, Ohmachi, Ougisawa, 1350 m, 1.VIII.2003, S. Ohshima (coll. G. Ronkay)
20. *Nacna sugitanii*, f. – Japan, Wakayama, Hidaka-gun, Ryujin village, 4-5.VI.2002, Y. Ueda (coll. HNHM)
21. *Guntia chorogica*, m. – Tadjikistan, Pamir Mts, Vanch valley, 2000 m, 29-30.VIII.1974, J. Wojtusiak (coll. G. Ronkay)
22. *Guntia chorogica*, m. – Tadjikistan Pamir Mts, Khorog, 2300 m, 8.X.1970, Shchetkin, slide No.: 6806 (coll. HNHM)
23. *Guntia chorogica*, f. – Tadjikistan Pamir Mts, Khorog, 5.X.1978, J. Wojtusiak, , slide No.: 6803 (coll. HNHM)
24. *Guntia iranica*, f. – Holotype, [Iran] "A.B.G. Mohammadi, 9.XI.1975" (coll. G. Ronkay)
25. *Rezahiria marmota*, m. – Holotype, Iran, Prov. Esfahan, 8 km S of Natanz, 12.XI.1985 (coll. G. Ronkay)
26. *Rezahiria marmota*, m. – Paratype, Iran, Prov. Esfahan, 8 km S of Natanz, 2.III.1986, slide No.: RL 10286 (coll. G. Ronkay)
27. *Rezahiria marmota*, m. – Paratype, Iran, Prov. Esfahan, 8 km S of Natanz, 2.III.1986 (coll. P. Gyulai)
28. *Phidrimana amurensis*, m. – Holotype, [Russian Far East] "Ussuri, Dörr(ries)" (coll. ZMHU)
29. *Phidrimana amurensis*, m. – Mongolia, Selenge aimak, 53 km S of Darchan, 3.VIII.2003, K. Gaskó & P. Marosi (coll. G. Ronkay)
30. *Phidrimana amurensis*, m. – Russian Far East, Suchansky Rudnik, IX.1925 (coll. G. Ronkay)
31. *Phidrimana amurensis*, m. – Russian Far East, Primorye, Zanadvorovka, 14-15.VIII.1992, A. Antipin (coll. G. Ronkay)
32. *Phidrimana amurensis*, m. – Russia, East Dauria, Onon valley, Nizhniy Chasuchei, 12-14.VIII.1990, I. Kostyuk (coll. G. Ronkay)
33. *Phidrimana amurensis*, m. – Kazakhstan, Prov. Almaty, 22 km N of Masak, 560 m, 16.VIII.1995, Gy. Fábián (coll. G. Ronkay)
34. *Phidrimana amurensis*, f. – Mongolia, Selenge aimak, 53 km S of Darchan, 3.VIII.2003, K. Gaskó & P. Marosi (coll. G. Ronkay)
35. *Gracilisinensis vaiva*, m. – Paratype, China, Prov. Sichuan, Erlang Shan, road Ya'an/Kangding, 2161 m, 20.VIII.2014, A. Floriani & A. Saldaitis (coll. P. Gyulai)
36. *Gracilisinensis vaiva*, m. – Holotype, China, Prov. Sichuan, Erlang Shan, road Ya'an/Kangding, 2161 m, 20.VIII.2014, A. Floriani & A. Saldaitis, slide No.: GYP 4048 (coll. P. Gyulai)
37. *Gracilisinensis vaiva*, f. – Paratype, China, W Sichuan, Meng Bi Shan, near Meng Bi Shan Pass, 3500 m, 20.VIII.2014, A. Floriani & A. Saldaitis, slide No.: GYP 4049 (coll. P. Gyulai)
38. *Gracilisinensis moha*, m. – Holotype, China, Prov. Shaanxi, Taibaishan Mts, 20.VII-4.IX.1998, Murzin & Sinjaev, slide No.: GYP 4588 (coll. P. Gyulai)
39. *Gracilisinensis moha*, m. – China, Prov. Shaanxi, Tsinling Mts, Taibaishan Mts, 3050 m, VII.2004, V. Sinjaev (coll. G. Ronkay)
40. *Gracilisinensis moha*, m. – China, Prov. Shaanxi, Tsinling Mts, South Taibaishan, 3200 m, VI.2005, local collector (coll. G. Ronkay)


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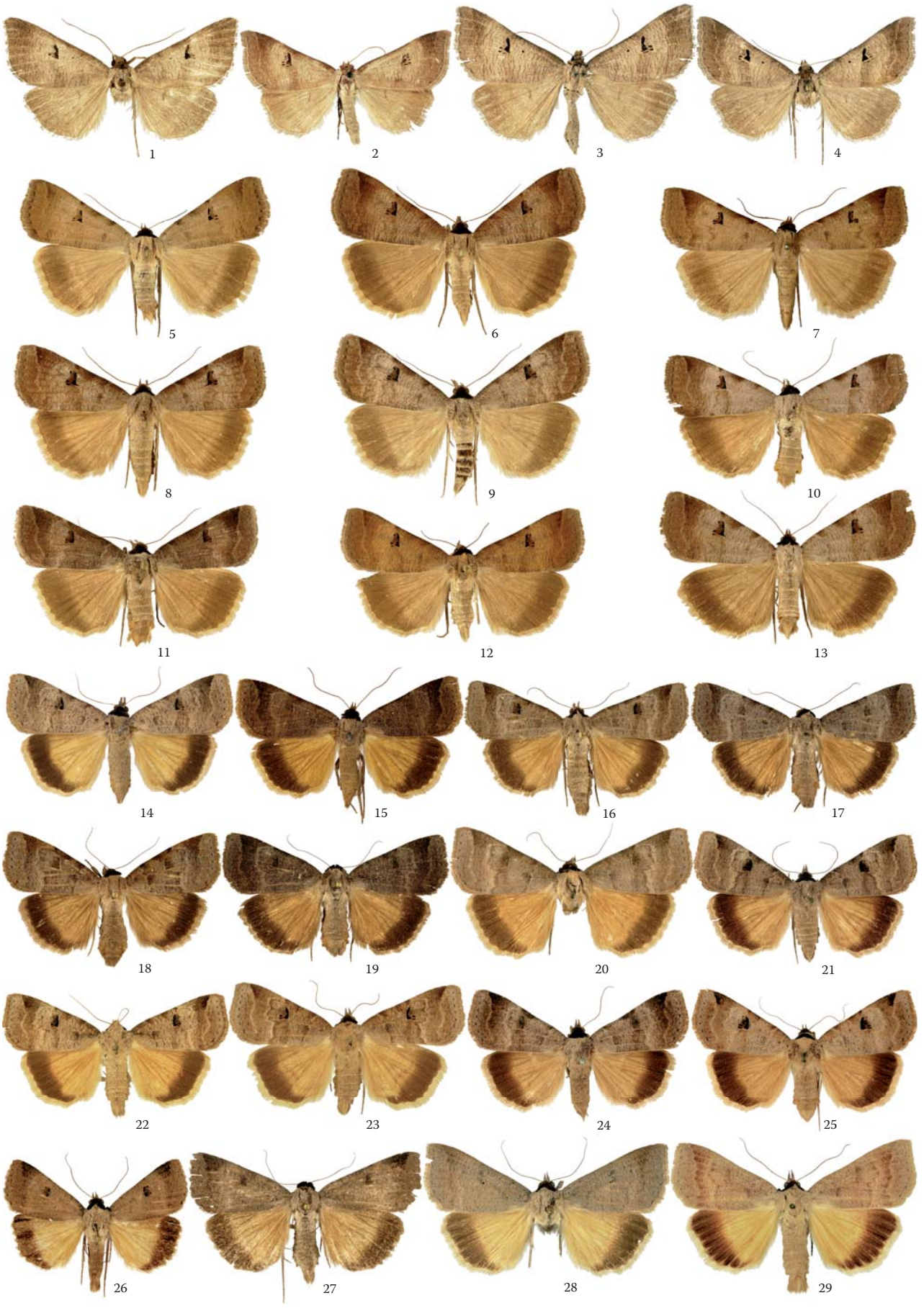
1. *Lygephila lusoria lusoria*, m. – Austria, Dürnstein, 25.VI.1956, H. Aspöck (coll. NHMW)
2. *Lygephila lusoria lusoria*, m. – Austria, Mödling, ex larva, 12.VI.1890, Habich (coll. NHMW)
3. *Lygephila lusoria lusoria*, m. – Austria, Klosterneuburg, C. Höfer (coll. NHMW)
4. *Lygephila lusoria lusoria*, m. – Austria, Bisamberg, ex larva, 20.VI.1882, Habich (coll. NHMW)
5. *Lygephila lusoria lusoria*, m. – Austria, Klosterneuburg, 14.VI., C. Höfer (coll. NHMW)
6. *Lygephila lusoria lusoria*, m. – Austria, Wien, Marchfeld, ex larva, 15.VI.1925, Ehrlich (coll. NHMW)
7. *Lygephila lusoria lusoria*, m. – Austria, Klosterneuburg, C. Höfer (coll. NHMW)
8. *Lygephila lusoria lusoria*, m. – Hungary, Kaposvár, 17-20.VI.1948, Dr. Issekutz (coll. HNHM)
9. *Lygephila lusoria lusoria*, f. – Austria, Deutsche Altenburg, 29.VI.1938, R. Lunak (coll. NHMW)
10. *Lygephila lusoria lusoria*, f. – Austria, Wien, 1901 (coll. NHMW)
11. *Lygephila lusoria lusoria*, f. – Austria, Deutsche Altenburg, 29.VI.1938, R. Lunak (coll. NHMW)
12. *Lygephila lusoria glycyrrhizae*, m. – Spain, Catalunya, Monte Caro, 1.VII.1964, E. v. Mentzer (coll. NRS)
13. *Lygephila lusoria glycyrrhizae*, m. – Spain, Catalunya, Monte Caro, 1.VII.1964, E. v. Mentzer, slide No.: Mentzer 5064 (coll. NRS)
14. *Lygephila lusoria glycyrrhizae*, m. – Spain, Cuenca, Sierra de Tragacete, Tragacete, 17.VII.1985, J.L. Yela, slide No.: BJ 210 (coll. G. Ronkay)
15. *Lygephila lusoria glycyrrhizae*, m. – Spain, ex coll Martens, slide No.: BJ 272 (coll. G. Ronkay)
16. *Lygephila lusoria glycyrrhizae*, f. – Spain, Andalusia, Sierra de Alfacar, 1905, C. Ribbe (coll. NHMW)
17. *Lygephila lusoria glycyrrhizae*, f. – Spain, Granada, Sierra de Baza, Santa Barbara, 1800 m, 30.VI.1994, B. Goater, slide No.: BJ 211 (coll. G. Ronkay)
18. *Lygephila lusoria glycyrrhizae*, f. – Spain, ex coll Martens (coll. G. Ronkay)
19. *Lygephila lusoria glycyrrhizae*, m. – Neotype, Spain, Andalusia, Sierra de Alfacar, 1905, C. Ribbe, slide No.: OP 1977 (coll. ZMHU)
20. *Lygephila amasina*, m. – Turkey, Prov. Malatya, 3 km W of Sarihaci village, 1435 m, 9.VI.2004, T. Csővári (coll. G. Ronkay)
21. *Lygephila amasina*, m. – Turkey, Prov. Malatya, 3 km W of Sarihaci village, 1435 m, 9.VI.2004, T. Csővári (coll. G. Ronkay)
22. *Lygephila amasina*, m. – Turkey, Prov. Erzurum, Kop Pass, 2000 m, 11.VII.2002, T. Csővári (coll. G. Ronkay)
23. *Lygephila amasina*, m. – Turkey, Prov. Agri, 5 km SE of Sarican, 2000 m, 10.VII.2002, T. Csővári (coll. G. Ronkay)
24. *Lygephila amasina*, m. – Turkey, Prov. Agri, 5 km E of Sarican, 1800 m, 20-21.VII.1993, Gy.M. László (coll. G. Ronkay)
25. *Lygephila amasina*, f. – Holotype, [Turkey] Amasia (coll. ZMHU)
26. *Lygephila amasina*, f. – Turkey, Sultan Dagh, Akshehir, 1200 m, 25.VI.1968, E. & A. Vartian (coll. NHMW)
27. *Lygephila amasina*, f. – Turkey, Prov. Bingöl, 2 km E of Kuruca Pass, 1700 m, 17.VII.1990, Gy.M. László & G. Ronkay (coll. G. Ronkay)
28. *Lygephila amasina*, f. – Turkey, Prov. Bingöl, 2 km E of Kuruca Pass, 1700 m, 17.VII.1990, Gy.M. László & G. Ronkay (coll. G. Ronkay)
29. *Lygephila amasina*, f. – Turkey, Prov. Bingöl, 2 km E of Kuruca Pass, 1700 m, 17.VII.1990, Gy.M. László & G. Ronkay (coll. G. Ronkay)


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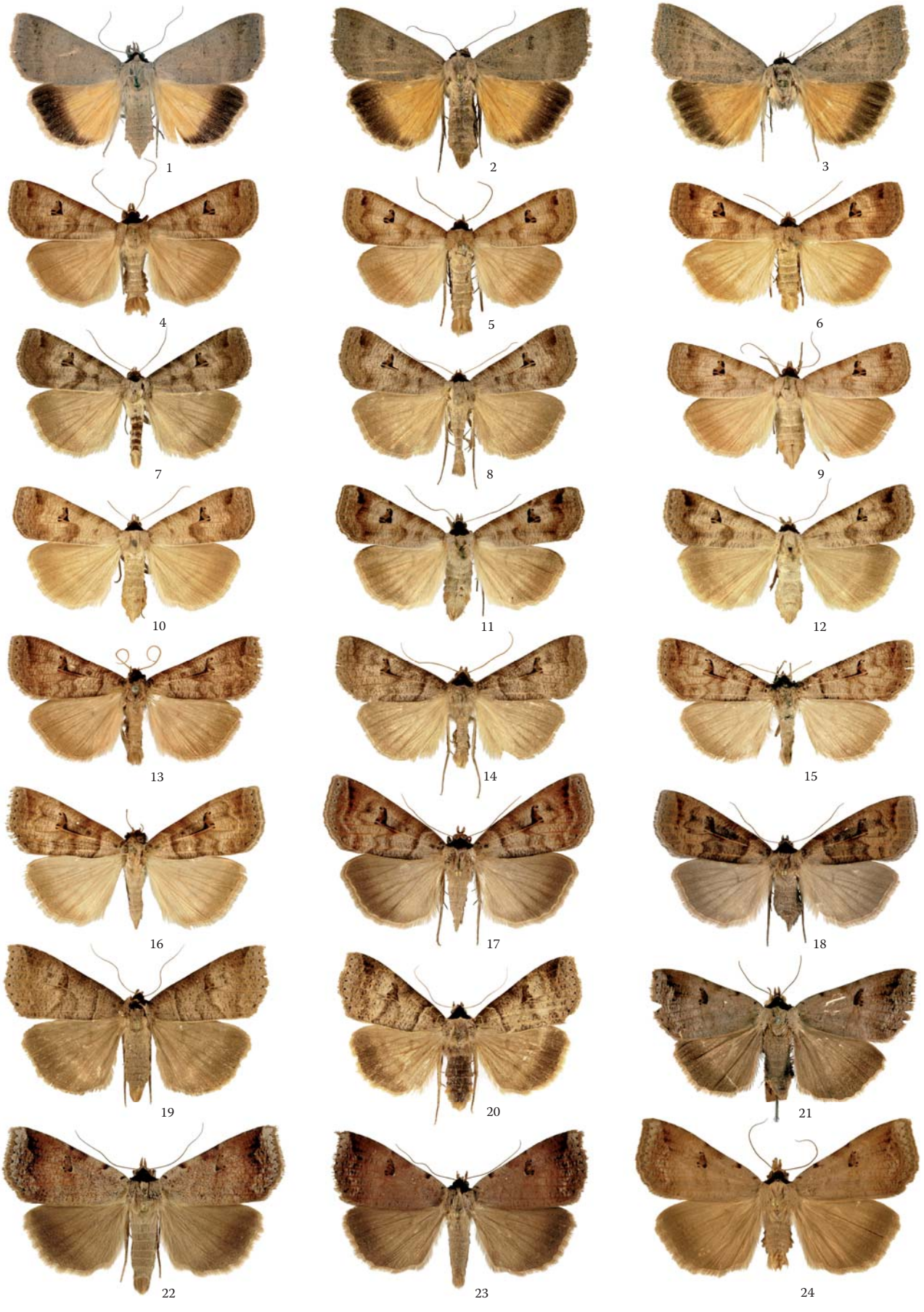
1. *Lygephila colorata*, m. – Holotype, Pakistan, Karakoram Mts, Naltar valley, 2800 m, 30.VI.2000, G. Ronkay & Z. Varga (coll. G. Ronkay)
2. *Lygephila colorata*, m. – Paratype, Pakistan, Hindukush Mts, 3 km W of Pingal, 19.VIII.2001, G. Ronkay (coll. G. Ronkay)
3. *Lygephila colorata*, m. – Paratype, Pakistan, Karakoram Mts, Naltar valley, 2800 m, 30.VI.2000, G. Ronkay & Z. Varga (coll. G. Ronkay)
4. *Lygephila colorata*, m. – Paratype, Pakistan, Karakoram Mts, 40 km N of Gilgit near Juglot village, 2400 m, 26.VII.2001, G. Ronkay (coll. G. Ronkay)
5. *Lygephila colorata*, f. – Paratype, Pakistan, Karakoram Mts, Naltar valley, 2800 m, 18.VII.1998, G. Csorba & L. Ronkay (coll. G. Ronkay)
6. *Lygephila colorata*, f. – Paratype, Pakistan, Karakoram Mts, Naltar valley, 2800 m, 18.VII.1998, G. Csorba & L. Ronkay (coll. G. Ronkay)
7. *Lygephila colorata*, f. – Paratype, Pakistan, Karakoram Mts, Naltar valley, 2800 m, 30.VI.2000, G. Ronkay & Z. Varga (coll. G. Ronkay)
8. *Lygephila colorata*, f. – Paratype, Pakistan, Karakoram Mts, Naltar valley, 2800 m, 30.VI.2000, G. Ronkay & Z. Varga (coll. G. Ronkay)
9. *Lygephila colorata*, f. – Paratype, Pakistan, Karakoram Mts, Naltar valley, 2800 m, 30.VI.2000, G. Ronkay & Z. Varga (coll. G. Ronkay)
10. *Lygephila minima*, m. – Paratype, Russia, Stavropol district, Pjatigorsk, 20.VII.2007, E. Cvetkov, slide No.: OP 1607 (coll O. Pekarsky)
11. *Lygephila pallida*, m. – Turkey, Prov. Sivas, Ziyaret Pass, 2100 m, 27-28.VII.1993, Gy.M. László (coll. G. Ronkay)
12. *Lygephila pallida*, m. – Turkey, Prov. Sivas, Ziyaret Pass, 1900-2050 m, 27.VII.1988, P. Gyulai, M. Hreblay, L. & G. Ronkay (coll. G. Ronkay)
13. *Lygephila pallida*, m. – Turkey, Prov. Sivas, Ziyaret Pass, 2100 m, 27-28.VII.1993, Gy.M. László (coll. G. Ronkay)
14. *Lygephila pallida*, m. – Turkey, Prov. Erzurum, Kop Pass, 2000 m, 11.VII.2002, T. Csővári (coll. G. Ronkay)
15. *Lygephila pallida*, m. – Turkey, Prov. Erzurum, Kop Pass, 2000 m, 11.VII.2002, T. Csővári (coll. G. Ronkay)
16. *Lygephila pallida*, m. – Turkey, Prov. Agri, Tahir Pass, 1900 m, 10.VII.1994, Cs. Szabóky (coll. G. Ronkay)
17. *Lygephila pallida*, m. – Syntype, [Turkey] Aintab (coll. ZMHU)
18. *Lygephila pallida*, m. – Turkey, Prov. Erzurum, Kop Pass, 2000 m, 11.VII.2002, T. Csővári (coll. G. Ronkay)
19. *Lygephila pallida*, f. – Turkey, Prov. Sivas, Ziyaret Pass, 2100 m, 27-28.VII.1993, Gy.M. László (coll. G. Ronkay)
20. *Lygephila pallida*, f. – Turkey, Prov. Agri, 7 km W of Aydintepe, 2200 m, 20-22.VII.1990, Gy.M. László & G. Ronkay (coll. G. Ronkay)
21. *Lygephila moellendorffi*, m. – Lectotype, North Korea, Pungtung village, slide No.: VK 210394-10 (coll. ZIN)
22. *Lygephila subpicata*, m – Holotype, Iran, Alvand Mts, 9000 feet, 30.VI.1938, E.P. Wiltshire (coll. BMNH)
23. *Lygephila subpicata*, m. – Iran, Prov. Fars, Zagros Mts, Küh-e Barm Firuz, between Yasuj and Ardakan, 2500-3000 m, 4-6. VII.2000 (coll. G. Ronkay)
24. *Lygephila subpicata*, m. – Iran, 100 km S of Abadeh, vicinity of Didegan, 2000 m, 9.VI.1969, E. Vartian (coll. NHMW)
25. *Lygephila subpicata*, m. – Paratype, N Iran, Semnan, Teheran, A. Vartian & E. Vartian (coll. NHMW)
26. *Lygephila subpicata*, m. – Iran, 100 km S of Abadeh, vicinity of Didegan, 2000 m, 9.VI.1969, E. Vartian (coll. NHMW)
27. *Lygephila subpicata*, m. – Paratype, N Iran, Semnan, 18.VI.1963, F. Kasy & E. Vartian (coll. NHMW)
28. *Lygephila subpicata*, m. – Paratype, N Iran, Semnan, 18.VI.1963, F. Kasy & E. Vartian (coll. NHMW)
29. *Lygephila subpicata*, f. – Iran, 100 km S of Abadeh, vicinity of Didegan, 2000 m, 9.VI.1969, E. Vartian (coll. NHMW)
30. *Lygephila subpicata*, f. – Iran, Prov. Boyerahmad-va-Kohgiluyeh, SE Zaghros, Kuh-e-Dena, Bijan Pass, 6 km N of Cisakht, 2900 m, 8-9.X.2002, P. Gyulai & A. Garai (coll. P. Gyulai)
31. *Lygephila subpicata*, f. – Paratype, N Iran, Semnan, 18.VI.1963, F. Kasy & E. Vartian (coll. NHMW)
32. *Lygephila subpicata*, m. – Paratype, N Iran, Semnan, 18.VI.1963, F. Kasy & E. Vartian (coll. NHMW)


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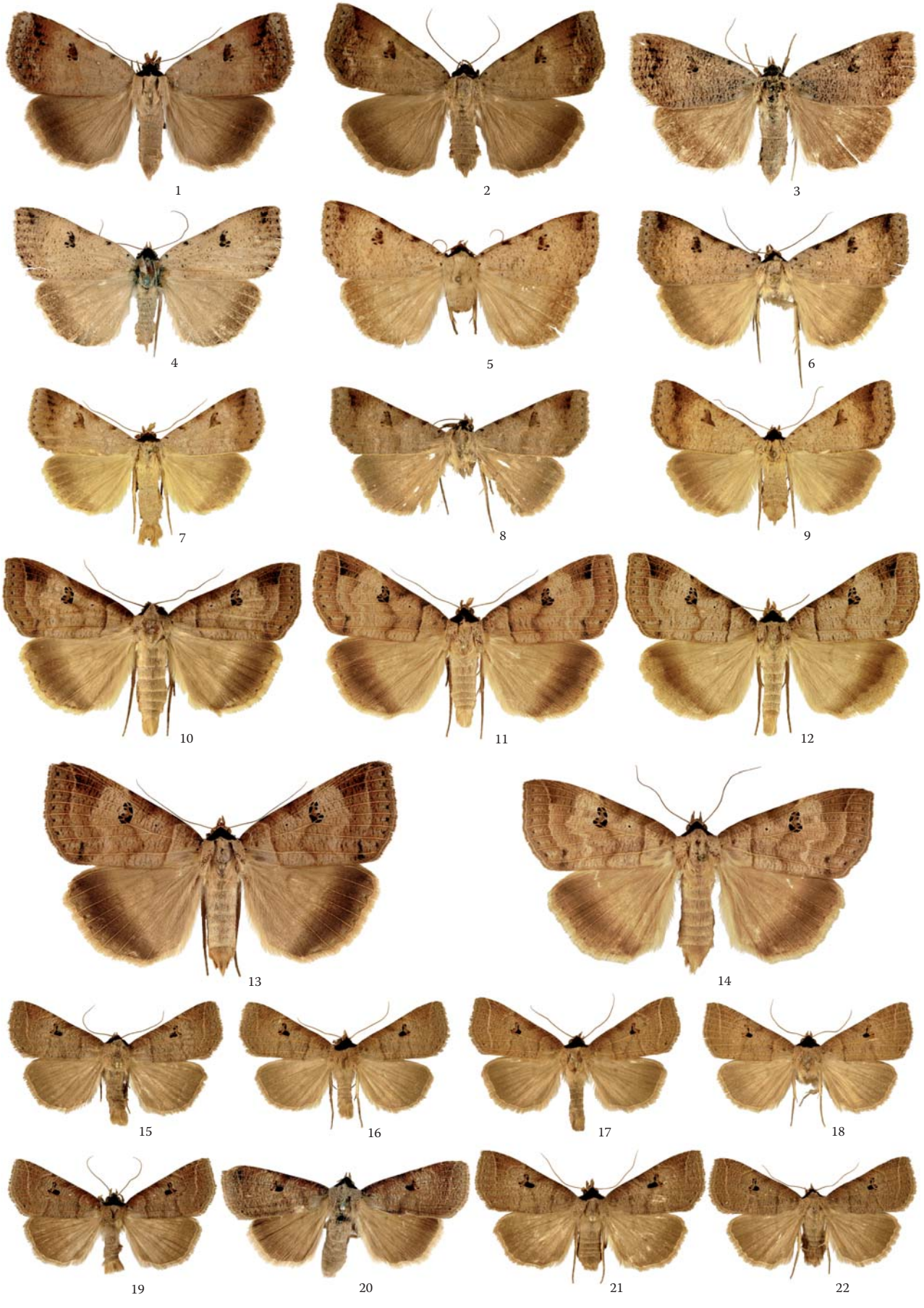
1. *Lygephila alaica*, m. – Tadjikistan, Hissar Mts, Varzob district, Kondara, 17-18.VI.2012, E. Rutjan, slide No.: OP 1819 (coll. O. Pekarsky)
2. *Lygephila alaica*, m. – Tadjikistan, Hissar Mts, Kondara, 15.VI.1986, K. & L. Krusek (coll. G. Ronkay)
3. *Lygephila alaica*, f. – Tadjikistan, Pamir Mts, Dusty, 2100 m, 11.VII.1990, V. Lukhtanov (coll. G. Ronkay)
4. *Lygephila alaica*, f. – Tadjikistan, Khatlonskaya oblast, Muminabad district, Lidzhak, 2000 m, 27.V.2006, O. Pak, slide No.: OP 1568 (coll. O. Pekarsky)
5. *Lygephila lubrica*, m. – Mongolia, Govi Altai aimak, Mongol Altai Mts, Mönkh Khayrkhan, 40 km N of Bulgan, 1430 m, 30.VI.2005, T. Csővári (coll. G. Ronkay)
6. *Lygephila lubrica*, m. – Mongolia, Töv aimak, 46 km E of Lun, 1220 m, 10.VII.2005, T. Csővári (coll. G. Ronkay)
7. *Lygephila lubrica*, m. – Russia, Altai Mts, 1883 (coll. NRS)
8. *Lygephila lubrica*, m. – Mongolia, Khentiy aimak, Öndörhaan, 1200 m, 17-21.VIII.1990, G. Ronkay (coll. G. Ronkay)
9. *Lygephila lubrica*, m. – Mongolia, Govi Altai aimak, Mongol Altai Mts, Mönkh Khayrkhan, 40 km N of Bulgan, 1430 m, 30.VI.2005, T. Csővári (coll. G. Ronkay)
10. *Lygephila lubrica*, f. – Mongolia, Bulgan aimak, 64 km W of Erdenecant, 1260 m, 22.VII.1987, M. Hreblay, L. Peregovits & T. Stéger (coll. G. Ronkay)
11. *Lygephila lubrica*, f. – Mongolia, Bulgan aimak, 64 km W of Erdenecant, 1260 m, 22.VII.1987, M. Hreblay, L. Peregovits & T. Stéger (coll. G. Ronkay)
12. *Lygephila lubrica*, f. – Mongolia, Central aimak, Ulanbaatar Airport, 1350 m, 21.VII.1987, M. Hreblay, L. Peregovits & T. Stéger (coll. G. Ronkay)
13. *Lygephila lubrica*, f. – China, Prov. Qinghai, Daba shan, NW from Datong, near Tawa, 3100 m, 18-20.VII.2014, Floriani (coll. O. Pekarsky)
14. *Lygephila lubrosa*, f. – Lectotype, [Kirghisia] Issyk Kul, 1895, Rückbeil, slide No.: OP 4046 (coll. ZMHU)
15. *Lygephila lubrosa*, m. – Paralectotype, [Kirghisia] Issyk Kul (coll. ZMHU)
16. *Lygephila lubrosa*, m. – SE Kazakhstan, Balkhash Lake Bank, 15 km S of Kashkanteniz, Salsola, 9.VII.2016, P. Gorbunov, (coll. O. Pekarsky)
17. *Lygephila lubrosa*, f. – SE Kazakhstan, Prov. Almaty, Ili river valley, 12 km SW of Akzhar village, 1.VII.2017, P. Gorbunov, (coll. O. Pekarsky)
18. *Lygephila lubrosa*, f. – SE Kazakhstan, Prov. Almaty, Ili river valley, 12 km SW of Akzhar village, 10.VII.2016, P. Gorbunov, (coll. O. Pekarsky)
19. *Lygephila lubrosa*, f. – SE Kazakhstan, Prov. Almaty, Ili river valley, 12 km SW of Akzhar village, 1.VII.2017, P. Gorbunov, (coll. O. Pekarsky)
20. *Lygephila kazachkaratavika*, m. – Neotype, Kazakhstan, Balamurun, Karatau, 21.VI.1909, Kozhanchikov, slide No.: OP 2009 (coll. HNHM)
21. *Lygephila kazachkaratavika*, m. – Syr-Darja Baigacum, 20.VI.-3.VII.1913, Kozhanchikov (coll. ZMHU)
22. *Lygephila kazachkaratavika*, m. – Syr-Darja Baigacum, Kozhanchikov (coll. BMNH)
23. *Lygephila kazachkaratavika*, m. – Syr-Darja Baigacum, Kozhanchikov (coll. BMNH)
24. *Lygephila kazachkaratavika*, f. –[Kirghisia] Asia Centr., Issyk Kul, 1896, slide No.: OP 1981 (coll. ZMHU)
25. *Lygephila kazachkaratavika*, f. – Syr-Darja Baigacum, 21.VI.-4.VII.1913, Kozhanchikov (coll. ZMHU)
26. *Lygephila orbonaria*, m. – Neotype, Tadjikistan, Tigrovaya Balka reserve, stream of Planj river, 1-5.VII.2006 V. Gurko (coll. P. Gyulai)
27. *Lygephila orbonaria*, m. – S Kazakhstan, Prov. Almaty, Ili river valley, 5 km S of Aidarly village, 19.VIII.2015, P. Gorbunov, (coll. O. Pekarsky)
28. *Lygephila orbonaria*, m. – Kazakhstan, slide No.: BJ 471 (coll. G. Ronkay)
29. *Lygephila orbonaria*, m. – Syr-Darja Baigacum, Kozhanchikov (coll. BMNH)


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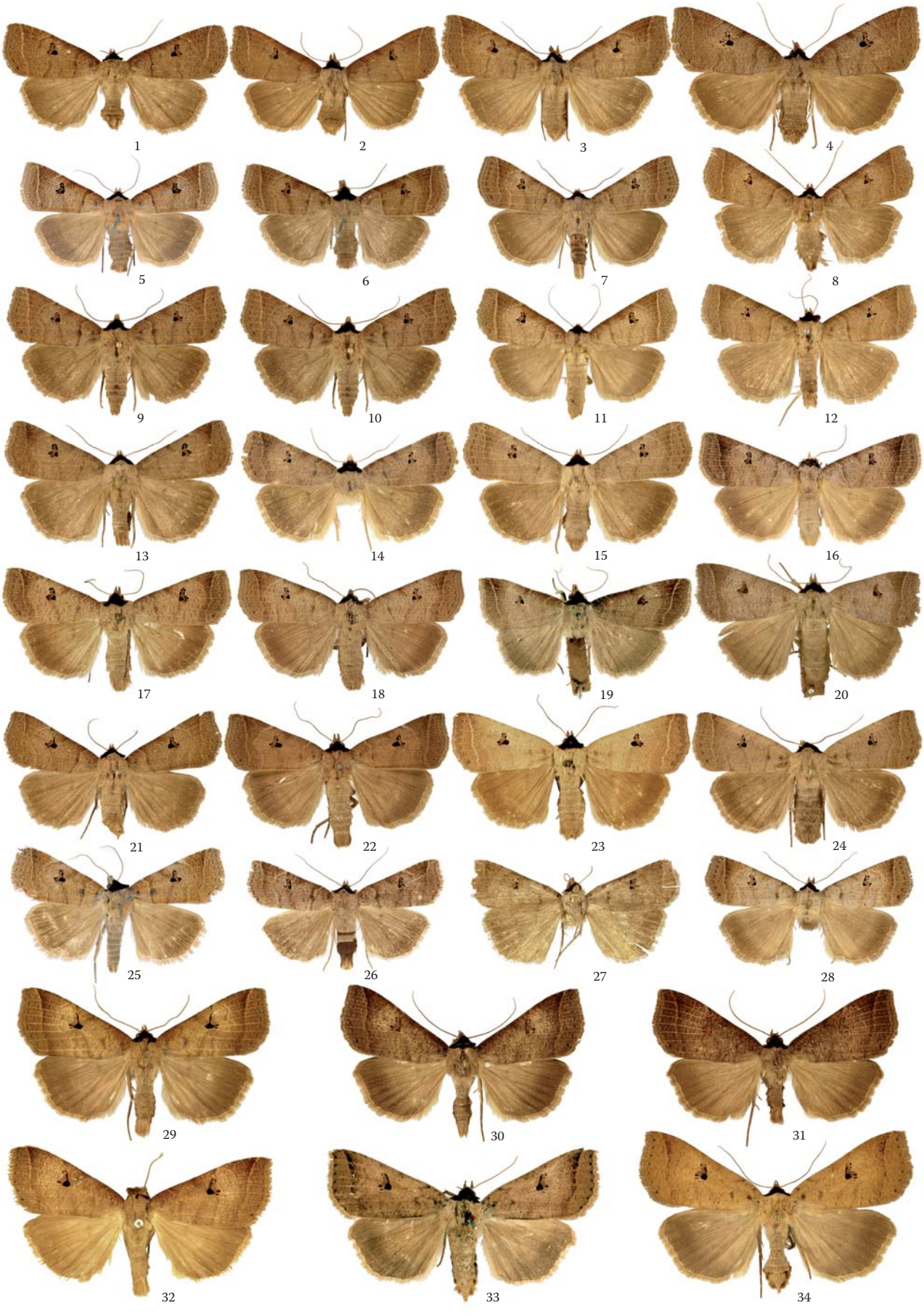
1. *Lygephila orbonaria*, f. – Syr-Darja Baigacum, 23.VI.1913, Kozhanchikov (coll. ZMHU)
2. *Lygephila orbonaria*, f. – SE Kazakhstan, Prov. Almaty, Ili river valley, 12 km SW of Akzhar village, 1.VII.2017, P. Gorbunov, (coll. O. Pekarsky)
3. *Lygephila orbonaria*, f. – Kazakhstan, Ili river valley near Koktal, 506 m, 03.07.2010, leg. S.K. Korb, slide No.: OP 2489 (coll. O. Pekarsky)
4. *Lygephila ludicra*, m. – Austria, Bisamberg, Ruhmann (coll. ZFMK)
5. *Lygephila ludicra*, m. – Hungary, [Budapest] Ofen (coll. ZFMK)
6. *Lygephila ludicra*, m. – Russia, South Ural Mts, Guberla, 27.VI., H. Rangnow (coll. NHMW)
7. *Lygephila ludicra*, m. – Mongolia, Govi Altai aimak, Mongol Altai Mts, Mönkh Khayrkhan, 40 km N of Bulgan, 1430 m, 30.VI.2005, T. Csővári (coll. G. Ronkay)
8. *Lygephila ludicra*, m. – Turkey, Prov. Erzurum, Kop Pass, 2000 m, 11.VII.2002, T. Csővári (coll. G. Ronkay)
9. *Lygephila ludicra*, f. – [Croatia] Dalmatia (coll. ZFMK)
10. *Lygephila ludicra*, f. – Russia, South Ural Mts, Guberla, 29.VI., H. Rangnow (coll. NHMW)
11. *Lygephila ludicra*, f. – Hungary, Budapest (coll. HNHM)
12. *Lygephila ludicra*, f. – Mongolia, Khentiy aimak, Öndörhaan, 1200 m, 17-21.VIII.1990, G. Ronkay (coll. G. Ronkay)
13. *Lygephila stueningi*, m. – Holotype, China, Nord Yunnan, Atuntse, 4500 m, 24.VII.1936, H. Höne (coll. ZFMK)
14. *Lygephila stueningi*, m. – China, W. Sichuan, between Xingcheng and Zhongdian, 3500 m, 18.VII.2009, A. Floriani, I. Floriani & A. Saldaitis (coll. HNHM)
15. *Lygephila stueningi*, m. – Paratype, China, North Yunnan, Atuntse, 4500 m, 18.VIII.1936, H. Höne (coll. ZFMK)
16. *Lygephila stueningi*, f. – Paratype, China, North Yunnan, Atuntse, Talsohle, 3000 m, 4.VII.1937, H. Höne (coll. ZFMK)
17. *Lygephila stueningi*, f. – China, North Yunnan, 5 km SE of Deqin, 3356 m, 19.VI.2009 (coll. HNHM)
18. *Lygephila stueningi*, f. – China, North Yunnan, 5 km SE of Deqin, 3356 m, 19.VI.2009 (coll. HNHM)
19. *Lygephila dubatolovi*, f. – China, Prov. Shaanxi, N of Taibai, 1730 m, 4.VIII.2016, A. Floriani & A. Saldaitis (coll. O. Pekarsky)
20. *Lygephila dubatolovi*, f. – China, Prov. Shaanxi, Tsinling Mts, Fopin, 1800 m, 1-31.VII.2005, V. Sinjaev, slide No.: OP 2035 (coll. P. Gyulai)
21. *Lygephila vulcanea*, m. – Holotype, [Tokyo] Tokei (coll. BMNH)
22. *Lygephila vulcanea*, m. – Japan, Daizozan Mt., Yasukawa, Wakayama, 29.VI.2002, Ueda (coll. G. Ronkay)
23. *Lygephila vulcanea*, m. – Japan, Nagano-ken, Azumino-shi, Akashina, Kemi, 22.VII.2006, K. Ishizuka (coll. J. Babics)
24. *Lygephila vulcanea*, m. – Japan, Yamanashi Pref., Akeno, 14.VII.1985, Y. Kishida (coll. O. Pekarsky)


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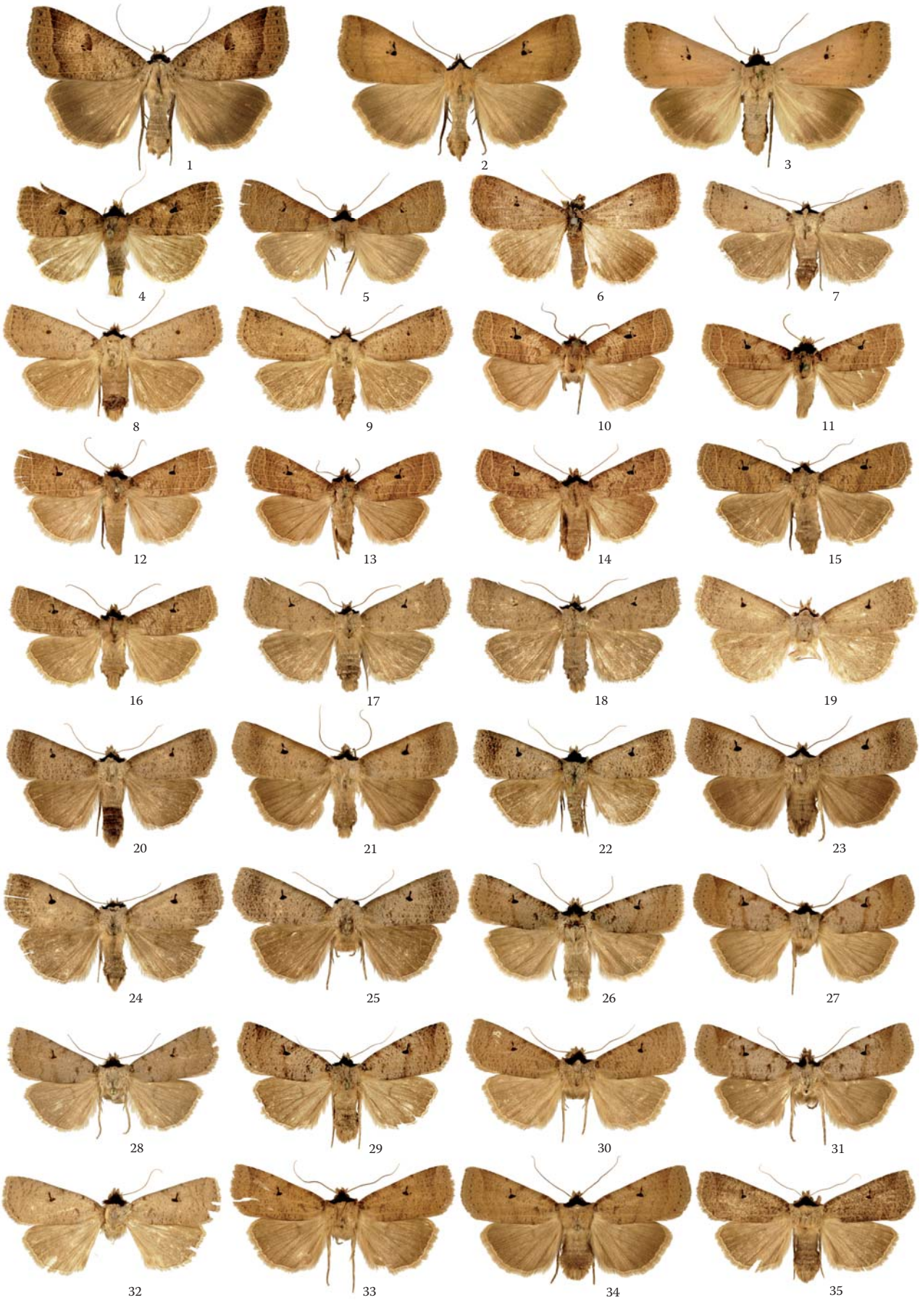
1. *Lygephila vulcanea*, f. – Japan, Nagano-ken, Azumino-shi, Akashina, Iwasu-park, 21.VIII.2007, K. Ishizuka (coll. J. Babics)
2. *Lygephila vulcanea*, f. – Japan, Nagano, Tenryu-mura, 7.VII.1996, K. Eda (coll. O. Pekarsky)
3. *Lygephila vulcanea*, f. – Holotype of *Toxocampa vulcanea ab. strigosata* Warren, 1914, Japan (coll. BMNH)
4. *Lygephila lupina*, f. – Holotype, [Russian Far East] Amur centr. (18)87, Radde, slide No.: OP 1931 (coll. ZMHU)
5. *Lygephila lupina*, m. – Holotype of *Eccrita mirabilis* Bryk, 1949, Korea, Shuotsu, 1935, Sten Bergman, slide No.: RM 9027 (coll. RNS)
6. *Lygephila lupina*, m. – Russian Far East, Primorye, Spassk-Dalny district, Kalinovka, 1-21.VII.2011, A. Kozlov, slide No.: OP 2021 (coll. O. Pekarsky)
7. *Lygephila emaculata*, m. – Russian Far East, Primorye, near Spassk-Dalny town, 13.VII.2013, V. Golovizin (coll. H. Seibald)
8. *Lygephila emaculata*, m. – Russian Far East, Primorye, Spassk-Dalny district, Kalinovka, A. Kozlov, 1-21.VII.2011, slide No.: OP 2020 (coll. O. Pekarsky)
9. *Lygephila emaculata*, f. – Russian Far East, Primorye, near Spassk-Dalny town, 13.VII.2013, V. Golovizin (coll. H. Seibald)
10. *Lygephila maxima*, m. – Russia, Jewish Autonomous Oblast, Leninskiy district, 5 km NE of Babstovo, 8-12.VII.2013, E. Koshkin (coll. O. Pekarsky)
11. *Lygephila maxima*, m. – Japan, Nagano-ken, Azumino-shi, Akashina, Kemi, 22.VII.2006, K. Ishizuka (coll. J. Babics)
12. *Lygephila maxima*, m. – Japan, Nagano-ken, Nagawa-machi, Wada-touge, 5.VIII.2007, A. Hoshiai (coll. J. Babics)
13. *Lygephila maxima*, f. – Japan, Shizuoka-ken, Fujinomiya-shi, Asagirikougen, 28.VII.2007, A. Hoshiai (coll. J. Babics)
14. *Lygephila maxima*, f. – Japan, Janson (coll. NHMW)
15. *Lygephila dorsigera*, m. – Taiwan, Prov. Taitung, Mutien, 1500 m, 21.V.1997, Gy.M. László & G. László (coll. G. Ronkay)
16. *Lygephila dorsigera*, m. – Nepal, Ganesh Himal, 2520 m, near Godlang, 13.X.1995, L. Peregovits & L. Ronkay (coll. G. Ronkay)
17. *Lygephila dorsigera*, m. – Thailand, Prov. Chiang Mai, 23 km NW of Sop Kha, 1 km E of Kop Dong, 1650 m, 14.I.2004, A. Szabó (coll. G. Ronkay)
18. *Lygephila dorsigera*, m. – Nepal, Ganesh Himal, 2 km S of Somdang, 3400 m, 17.V.1995, Gy. Fábián & L. Ronkay, slide No.: RL 5556 (coll. G. Ronkay)
19. *Lygephila dorsigera*, m. – Taiwan, Prov. Nantou, Meifeng, 2300 m, 29.X.-3.XI.1998, W. Mey (coll. ZMHU)
20. *Lygephila dorsigera*, f. – Holotype, [Sri Lanka] Ceylon, slide No.: LG 3055 (coll. BMNH)
21. *Lygephila dorsigera*, f. – Taiwan, Prov. Taitung, Hsiangyang, upper forest zone, 2200 m, 13-14.IV.1997, B. Herczig & L. Ronkay (coll. G. Ronkay)
22. *Lygephila dorsigera*, f. – Vietnam, Prov. Lao Cai, Sa Pa, 1300 m, 15-20.XI.1993, A. Bankovics & G. Csorba (coll. HNHM)


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1. *Lygephila dorsigera*, f. – Thailand, Prov. Chiang Mai, 4 km S of Kop Dong, 1800 m, 29-30.X.2002, B. Herczig & G. Ronkay (coll. G. Ronkay)
2. *Lygephila dorsigera*, f. – Nepal, Ganesh Himal, Yurekharka, 3450m, 16.IX.1995, Gy.M. László & B. Herczig (coll. G. Ronkay)
3. *Lygephila dorsigera*, f. – Nepal, Annapurna Himal, Banthanti village, 2500 m, 25.VII.1995, Gy.M. László & G. Ronkay (coll. G. Ronkay)
4. *Lygephila dorsigera*, f. – Nepal, Prov. Mechi, Taplejung area, Kare Banjang, 2250 m, 2.XI.1996, Gy.M. László & G. Ronkay (coll. G. Ronkay)
5. *Lygephila recta*, m. – Japan, W. Blüthgen, slide No.: OP 1984 (coll. ZMHU)
6. *Lygephila recta*, m. – Japan, Nikko, W. Blüthgen (coll. ZMHU)
7. *Lygephila recta*, m. – S Korea, Prov. Kangwon, Chuncheon University Campus, 400 m. 13.VI.2006, L. Ronkay & M. Tóth-Ronkay (coll. G. Ronkay)
8. *Lygephila recta*, f. – Japan, Gifu Pref., Miyamacyou, Ioudo, 30.X.1994, T. Takamura (coll. G. Ronkay)
9. *Lygephila recta*, m. – S Korea, Prov. Chollanam, Mokpo, Seungdalsan, 200-250 m. 1-6.XI.2012, L. Ronkay & M. Tóth-Ronkay (coll. G. Ronkay)
10. *Lygephila recta*, m. – S Korea, Prov. Chollanam, Mokpo, Seungdalsan, 200-250 m. 1-6.XI.2012, L. Ronkay & M. Tóth-Ronkay (coll. G. Ronkay)
11. *Lygephila recta*, f. – Japan, Shizuokashi, Iwasaki, Ikawa-toge, 13.VII.1996, K. Eda (coll. O. Pekarsky)
12. *Lygephila recta*, m. – Japan, Nagano, Azumimura, 9.V.1991, K. Eda (coll. O. Pekarsky)
13. *Lygephila subrecta*, m. – S Korea, Prov. Kangwon, Chuncheon University Campus, 400 m. 13.VI.2006, L. Ronkay & M. Tóth-Ronkay (coll. G. Ronkay)
14. *Lygephila subrecta*, f. – S Korea, Prov. Kangwon, Chuncheon University Campus, 400 m. 22.III.2006, L. Ronkay & M. Tóth-Ronkay, slide No.: BJ 69 (coll. HNHM)
15. *Lygephila subrecta*, f. – S Korea, Prov. Kangwon, Chuncheon University Campus, 400 m. 13.VI.2006, L. Ronkay & M. Tóth-Ronkay (coll. G. Ronkay)
16. *Lygephila subrecta*, f. – North Korea, Kumgang-san, 16-19. VII.1985, E. Palik, slide No.: OP 2227 (coll. ZFMK)
17. *Lygephila subrecta*, m. – Japan, Yokohama, 1891 (coll. NHMW)
18. *Lygephila subrecta*, f. – Japan, Yokohama, 1891 (coll. NHMW)
19. *Lygephila lilacina*, m. – Lectotype, Japan, slide No.: Noct 13950 (coll. BMNH)
20. *Lygephila lilacina*, f. – Paralectotype, Japan (coll. BMNH)
21. *Lygephila lilacina*, m. – Japan, Aichi Pref., Toyota, Ogyujyousi, 19.XI.1995, T. Takamura (coll. G. Ronkay)
22. *Lygephila lilacina*, m. – [Russian Far East] Amur, 1903 (coll. NHMW)
23. *Lygephila lilacina*, f. – Japan, Yokohama, 1891 (coll. NHMW)
24. *Lygephila lilacina*, f. – S Korea, Prov. Chollanam, Kwangyang, Paekun-san, 7.XI.2002, G. Csorba, B. Papp & L. Ronkay (coll. HNHM)
25. *Lygephila lilacina*, m. – China, Chekiang, Mokan-shan, 8.X.1930, H. Höne, slide No.: OP 2255 (coll. ZFMK)
26. *Lygephila pallidivena*, m. – Holotype, China, N Sichuan, road Wenchuan - Maoxian, 1520 m, 15.XI.2014, A. Floriani & A. Saldaitis, slide No.: OP 2902 (coll. ZSM)
27. *Lygephila pallidivena*, m. – China, Prov. Sichuan, Tonghua, between Wenchuan and Lixian, 1800-2000 m, 24.IV.-29.V.2004, local collector, slide No.: BJ 195 (coll. G. Ronkay)
28. *Lygephila pallidivena*, f. – Paratype, China, N Sichuan, road Wenchuan - Maoxian, 1520 m, 15.XI.2014, A. Floriani & A. Saldaitis, slide No.: OP 2909 (coll. O. Pekarsky)
29. *Lygephila cucullata*, m. – Pakistan, Himalaya Mts, Kaghan valley, Tathabaya, 2400 m, 25.VII.1994, B. Herczig, Gy.M. László & G. Ronkay (coll. G. Ronkay)
30. *Lygephila cucullata*, m. – Pakistan, Himalaya Mts, Kaghan valley, Tathabaya, 2200 m, 23-24.VIII.1998, Z. Varga & G. Ronkay (coll. G. Ronkay)
31. *Lygephila cucullata*, m. – Nepal, Annapurna Himal, Kali Gandaki valley, Ghasa, 2000 m, 21.VII.1995, Gy.M. László & G. Ronkay (coll. G. Ronkay)
32. *Lygephila cucullata*, m. – Holotype of *Toxocampa orientalis* Butler, 1886, [Pakistan] Murree (coll. BMNH)
33. *Lygephila cucullata*, f. – Lectotype, [India, Himachal Pradesh] Dalhousie (coll. BMNH)
34. *Lygephila cucullata*, f. – Pakistan, Himalaya Mts, Kaghan valley, Tathabaya, 2200 m, 23.VIII.1997, GY. Fábián & G. Ronkay (coll. G. Ronkay)


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1. *Lygephila cucullata*, f. – Pakistan, Himalaya Mts, Kaghan valley, Tathabaya, 2400 m, 25.VII.1994, B. Herczig, Gy.M. László & G. Ronkay (coll. G. Ronkay)
2. *Lygephila cucullata*, f. – Pakistan, Himalaya Mts, Kaghan valley, Tathabaya, 2200 m, 9-10.IX.1997, GY. Fábián & G. Ronkay (coll. G. Ronkay)
3. *Lygephila cucullata*, f. – Afghanistan, Nuristan, 25 km N of Barikot, 12-17.VII.1963, F. Kasy & E. Vartian (coll. NHMW)
4. *Lygephila javanica*, m. – Holotype, Indonesia, Java, Djoenggo-Ardjoeno, 1500 m, IX.1939, Kalis, slide No.: OP 3450 (coll. RNH Leiden)
5. *Lygephila javanica*, m. – Paratype, Indonesia, Sulawesi, Gowa district, 6 km E of Malino, Lembanna Base Camp, 1517 m, 11-13. II.2015, J. Hájek & J. Šumpich, slide No.: OP 3574 (coll. O. Pekarsky)
6. *Lygephila javanica*, f. – Paratype, Indonesia, Java, Kawah Tjandra, 850 m, 26.VIII.1934, F. Dupont, slide No.: OP 3451 (coll. RNH Leiden)
7. *Lygephila aphroditae*, m. – Paratype, China, NW Yunnan, near Zhongdian, 23.V.2012, A. Floriani (coll. O. Pekarsky)
8. *Lygephila aphroditae*, f. – Paratype, China, NW Yunnan, near Zhongdian, 23.V.2012, A. Floriani (coll. A. Saldaitis)
9. *Lygephila aphroditae*, f. – Paratype, China, NW Yunnan, Lijiang/Zhongdian, near Tuguancun, 24-25.V.2012, A. Floriani (coll. A. Saldaitis)
10. *Lygephila angustissima*, m. – Neotype, [China] Prov. Yunnan, Li-kiang, 10.X.1934, H. Höne, slide No.: HM 8901 (coll. ZFMK)
11. *Lygephila angustissima*, m. – [China] Prov. Yunnan, Li-kiang, 16.IX.1934, H. Höne (coll. ZFMK)
12. *Lygephila angustissima*, f. – [China] Prov. Yunnan, Li-kiang, 8.V.1935, H. Höne (coll. ZFMK)
13. *Lygephila angustissima*, f. – [China] Prov. Yunnan, Li-kiang, 4.X.1935, H. Höne (coll. ZFMK)
14. *Lygephila angustissima*, f. – China, Prov. Yunnan, 8 km NW of Lijiang, 2590 m, 31.V.2008, slide No.: BJ 857 (coll. HNHM)
15. *Lygephila angustissima*, f. – China, Prov. Sichuan, Erlang Shan, road Ya'an/Kangding, 2100 m, 24-25.IV.2014, A. Floriani & A. Saldaitis (coll. O. Pekarsky)
16. *Lygephila angustissima*, m. – China, Prov. Sichuan, Erlang Shan, road Ya'an/Kangding, 2100 m, 24-25.IV.2014, A. Floriani & A. Saldaitis (coll. O. Pekarsky)
17. *Lygephila vargai*, m. – China, Prov. Sichuan, near Jiuzhaigou, 2161 m, 15-16.IV.2015, A. Floriani & A. Saldaitis (coll. O. Pekarsky)
18. *Lygephila vargai*, m. – China, Prov. Sichuan, near Jiuzhaigou, 2161 m, 15-16.IV.2015, A. Floriani & A. Saldaitis (coll. O. Pekarsky)
19. *Lygephila vargai*, f. – Paratype, China, Prov. Hubei, Daba Shan, Songluohe, 1-31.V.2006, V. Sinjaev, slide No.: BJ 1482 (coll. P. Gyulai)
20. *Lygephila yoshimotoi*, m. – Taiwan, Taitung County, 2 km E of Hsiangyang, 2200 m, 11-13.III.1996, Gy. Fábián & L. Németh (coll. G. Ronkay)
21. *Lygephila yoshimotoi*, m. – Taiwan, Taitung County, 2 km E of Hsiangyang, 2200 m, 11-06.VII.1996, G. Csorba & L. Németh (coll. G. Ronkay)
22. *Lygephila yoshimotoi*, m. – Taiwan, Taitung County, Hsiangyang, 2300 m, 17.II.1999, L. Peregovits & G. Ronkay (coll. G. Ronkay)
23. *Lygephila yoshimotoi*, f. – Taiwan, Prov. Taichung, Anmashan Mts, Tashueshan 2200 m. 19.VI.1997, B. Herczig & L. Ronkay (coll. G. Ronkay)
24. *Lygephila yoshimotoi*, f. – Taiwan, Prov. Hualien, Taroko NP, 1400 m, 2.IV.1997, G. Csorba & L. Ronkay (coll. G. Ronkay)
25. *Lygephila yoshimotoi*, f. – Taiwan, Taitung County, 2 km E of Hsiangyang, 2200 m, 11-13.III.1996, Gy. Fábián & L. Németh, slide No.: RL 7121 (coll. HNHM)
26. *Lygephila vicioides*, m. – Holotype, [India, Himachal Pradesh], Sultanpur, Kulu, 1889, G. Young, slide No.: LG 3056 (coll. BMNH)
27. *Lygephila vicioides*, m. – Pakistan, Kashmir, Himalaya Mts, 30 km N of Murree, Ayubia, 2650 m, 31.VIII.-1.IX.2001, G. Ronkay, slide No.: BJ 276 (coll. G. Ronkay)
28. *Lygephila vicioides*, f. – Pakistan, Himalaya Mts, Kaghan valley, 7 km S of Kaghan, Khanian village, 2500 m, 21.X.1998, Gy.M. László & G. Ronkay, slide No.: OP 3822 (coll. G. Ronkay)
29. *Lygephila vicioides*, m. – Pakistan, Kashmir, Himalaya Mts, 30 km N of Murree, Ayubia, 2650 m, 23.V.1998, Gy.M. László & G. Ronkay (coll. G. Ronkay)
30. *Lygephila vicioides*, m. – Holotype of *Lygephila robusta* Babics & Ronkay, 2009, Nepal, Ganesh Himal, near Godlang, 2520 m, 19.III.1995, Gy.M. László & G. Ronkay, slide No.: OP 3818 (coll. G. Ronkay)
31. *Lygephila vicioides*, f. – Pakistan, Kashmir, Himalaya Mts, 30 km N of Murree, Ayubia, 2650 m, 31.VIII.-1.IX.2001, G. Ronkay, slide No.: OP 3823 (coll. G. Ronkay)
32. *Lygephila vicioides*, f. – Pakistan, Himalaya Mts, Kaghan valley, Naran, 2400-3000 m, 30.VI.-16.VII.1977, J. deFreina, slide No.: OP 2347 (coll. ZSM)
33. *Lygephila vicioides*, m. – Paratype of *Lygephila robusta* Babics & Ronkay, 2009, Nepal, Ganesh Himal, near Godlang, 2520 m, 19.III.1995, Gy.M. László & G. Ronkay, slide No.: RL 5623 (coll. G. Ronkay)
34. *Lygephila vicioides*, f. – Paratype of *Lygephila robusta* Babics & Ronkay, 2009, Nepal, Ganesh Himal, 2 km W Gholjong, 2420 m, 12.X.1995, L. Peregovits & L. Ronkay (coll. G. Ronkay)
35. *Lygephila vicioides*, f. – Paratype of *Lygephila robusta* Babics & Ronkay, 2009, Nepal, Ganesh Himal, near Godlang, 2520 m, 7.V.1995, Gy. Fábián & L. Ronkay, slide No.: OP 4108 (coll. G. Ronkay)


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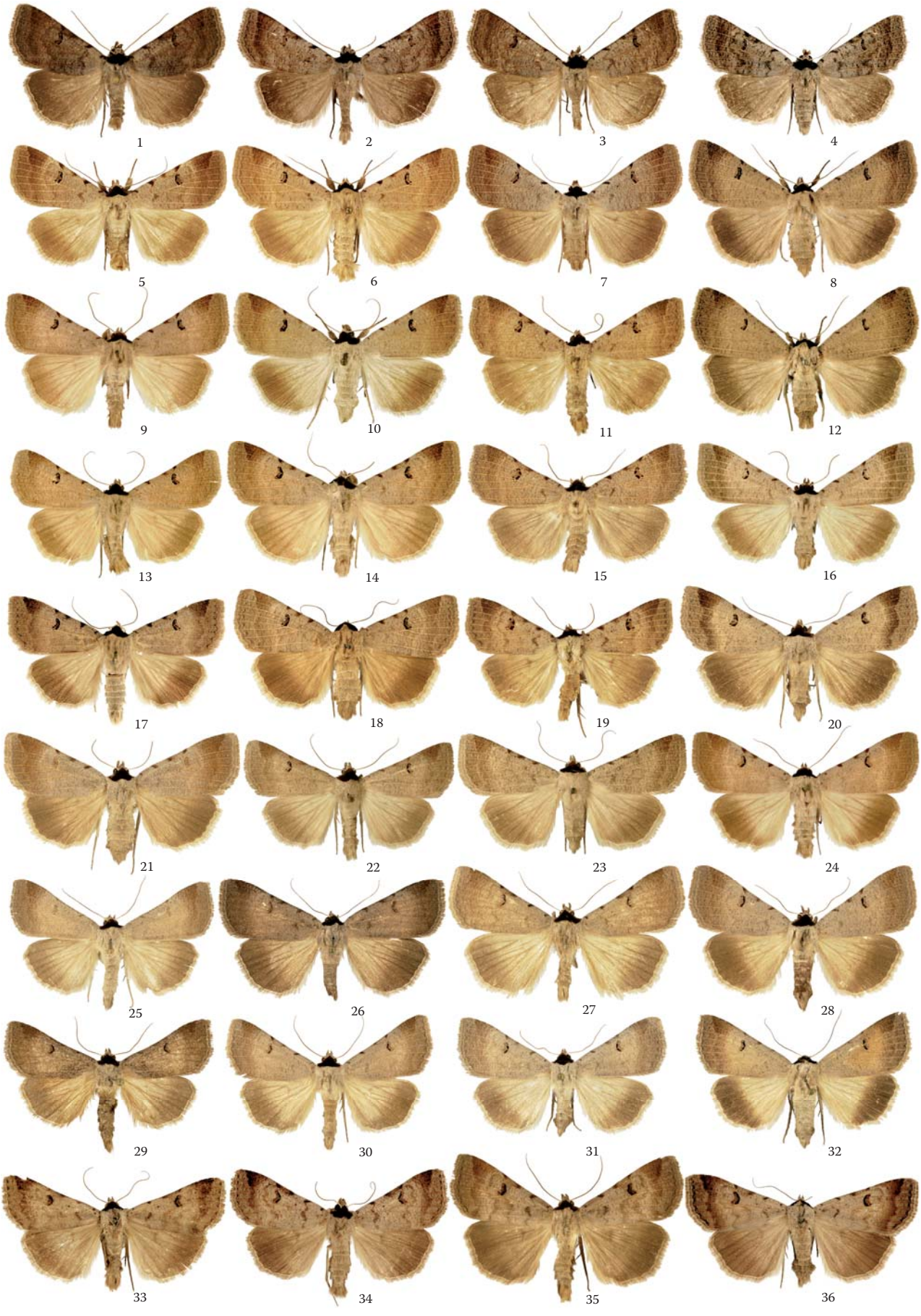
1. *Lygephila pidmanulapidvela*, m. – Holotype, (Paratype of *Lygephila robusta* Babics & Ronkay, 2009), Nepal, Koshi, Terhatum area, Tinjure Phedi, 2900 m, 13.IV.1996, G. Csorba & L. Ronkay, slide No.: RL 7118 (coll. G. Ronkay)
2. *Lygephila pidmanulapidvela*, m. – Paratype, (Paratype of *Lygephila robusta* Babics & Ronkay, 2009), Nepal, Ganesh Himal, near Godlang, 2520 m, 21.X.1995, L. Peregovits & L. Ronkay (coll. G. Ronkay)
3. *Lygephila pidmanulapidvela*, m. – Paratype, (Paratype of *Lygephila robusta* Babics & Ronkay, 2009), Nepal, Ganesh Himal, Nesukharka, 2700 m, 20-21.V.1995, Gy. Fábián & L. Ronkay (coll. G. Ronkay)
4. *Lygephila pidmanulapidvela*, m. – Paratype, (Paratype of *Lygephila robusta* Babics & Ronkay, 2009), Nepal, Ganesh Himal, Nesukharka, 2700 m, 20-21.V.1995, Gy. Fábián & L. Ronkay (coll. G. Ronkay)
5. *Lygephila pidmanulapidvela*, f. – Paratype, (Paratype of *Lygephila robusta* Babics & Ronkay, 2009), Nepal, Ganesh Himal, Nesukharka, 2700 m, 20-21.V.1995, Gy. Fábián & L. Ronkay, slide No.: 4106 (coll. O. Pekarsky)
6. *Lygephila pidmanulapidvela*, f. – Paratype, (Paratype of *Lygephila robusta* Babics & Ronkay, 2009), Nepal, Ganesh Himal, Nesukharka, 2700 m, 20-21.V.1995, Gy. Fábián & L. Ronkay (coll. G. Ronkay)
7. *Lygephila pidmanulapidvela*, f. – Paratype, (Paratype of *Lygephila robusta* Babics & Ronkay, 2009), Nepal, Ganesh Himal, Nesukharka, 2700 m, 20-21.V.1995, Gy. Fábián & L. Ronkay (coll. G. Ronkay)
8. *Lygephila pidmanulapidvela*, f. – Paratype, (Paratype of *Lygephila robusta* Babics & Ronkay, 2009), Nepal, Ganesh Himal, Nesukharka, 2700 m, 20-21.V.1995, Gy. Fábián & L. Ronkay (coll. G. Ronkay)
9. *Lygephila pidmanulapidvela*, f. – Paratype, (Paratype of *Lygephila robusta* Babics & Ronkay, 2009), Nepal, Ganesh Himal, Nesukharka, 2700 m, 20-21.V.1995, Gy. Fábián & L. Ronkay (coll. G. Ronkay)
10. *Lygephila nikolaichuki* **sp. n.**, m. – Holotype, Nepal, Kanchenjunga Himal, Deorali Danda, 6 km NW of Yamphudin, 2900 m, 8-9.VIII.2000, M. Hreblay & T. Csővári, slide No.: OP 2028 (coll. P. Gyulai)
11. *Lygephila nikolaichuki* **sp. n.**, f. – Paratype, Nepal, Gosainkund Lekh, Tarke Banjyang, 3600 m, 27.VIII.1967, Dierl & Schacht, slide No.: OP 2346 (coll. ZSM)
12. *Lygephila nikolaichuki* **sp. n.**, f. – Paratype, Nepal, Kanchenjunga Himal, Koshi, Taplejung area, above Hellok, 2700 m, 3.IV.1996, G. Csorba & L. Ronkay, slide No.: OP 4059 (coll. G. Ronkay)
13. *Lygephila nikolaichuki* **sp. n.**, f. – Paratype, Nepal, 6 km SW of Kalinchok peak, 3160 m, 6.VIII.1995, M. Hreblay & T. Csővári (coll. MNHG)
14. *Lygephila fibigeri*, m. – Holotype, [China] Prov. Yunnan, Li-kiang, 3000 m, 23.X.1934, H. Höne, slide No.: BJ 1448 (coll. ZFMK)
15. *Lygephila fibigeri*, m. – Paratype, China] Prov. Yunnan, Li-kiang, 10.V.1934, H. Höne, slide No.: BJ 1449 (coll. ZFMK)
16. *Lygephila fibigeri*, f. – Paratype, [China] Prov. Yunnan, Li-kiang, 11.VI.1934, H. Höne, slide No.: BJ 1450 (coll. ZFMK)
17. *Lygephila longicoecum*, m. – Holotype, Qin Ling Mts, Hu Zhen Zi vicinity, 1300 m, 4-6.VII.1999, C. Della Bruna, slide No.: VK 2019 (coll. ZFMK)
18. *Lygephila longicoecum*, m. – Paratype, [China] Prov. Shaanxi, Tsinling Mts, Tapaishan, 25.VI.1935, H. Höne (coll. ZFMK)
19. *Lygephila longicoecum*, m. – Paratype, China, Prov. Shaanxi, Tsinling Mts, Houzhenzi, 1900 m, 15.VI.-15.X.1999, local collector (coll. G. Ronkay)
20. *Lygephila longicoecum*, m. – Paratype, China, Prov. Shaanxi, Tsinling Mts, Houzhenzi, 1900 m, 15.VI.-15.X.1999, local collector (coll. G. Ronkay)
21. *Lygephila longicoecum*, m. – China, Prov. Bejing, Mentougou district, Dong-Ling Mts, 100-120 km W of Beijing, 7-8.VI.1999, L. Lőkös & B. Papp, slide No.: BJ 586 (coll. HNHM)
22. *Lygephila longicoecum*, m. – China, Prov. Shaanxi, Tsinling Mts, Houzhenzi, 1800 m, 29-30.VI.2008, C. Della Bruna (coll. H. Seibald)
23. *Lygephila procax*, m. – Hungary, [Budapest] Farkasvölgy, 18.VII.1904, ex larva (coll. NHMW)
24. *Lygephila procax*, m. – Hungary, Tolnai dombság, Bátaapáti, 320 m, 2.VII.2003, T. Csővári & G. Ronkay (coll. G. Ronkay)
25. *Lygephila procax*, m. – Croatia, Istria, Ravni village, 18-24.IX.2003, Gy.M. László (coll. G. Ronkay)
26. *Lygephila procax*, f. – Makedonia, Matka, 25.VII.1971, E. v. Mentzer (coll. RNS)
27. *Lygephila procax*, m. – Hungary (coll. NHMW)
28. *Lygephila procax*, f. – Hungary, Budapest, Szigetcsép (coll. HNHM)
29. *Lygephila procax*, f. – Hungary, [Budapest] Farkasvölgy, 9.VII.1904, ex. larva (coll. NHMW)
30. *Lygephila procax*, f. – Makedonia, Matka, 25.VII.1971, E. v. Mentzer (coll. RNS)
31. *Lygephila procax*, f. – Makedonia, Matka, 25.VII.1971, E. v. Mentzer (coll. RNS)
32. *Lygephila asiatica*, m. – Holotype, Kazakhstan, Zaisan district, SW coast of Zaisan lake, 390 m, 22-24.VIII.2012, A. Volynkin, slide No.: OP 3150 (coll. O. Pekarsky)
33. *Lygephila asiatica*, m. – Paratype, Kazakhstan, Prov. Almaty, Bayseit, 8 km E of Chilik, 7-15.V.1994, Gy. Fábián & I. Retezár (coll. G. Ronkay)
34. *Lygephila asiatica*, m. – Kazakhstan, Prov. Almaty, 22 km N of Masak, 450 m, 21.VI.1996, Gy. Fábián & A. Nádai (coll. Gy. Fábián)
35. *Lygephila asiatica*, m. – Kazakhstan, Prov. Almaty, 22 km N of Masak, 450 m, 27.VII.1995, Gy. Fábián & Z. Varga (coll. G. Ronkay)
36. *Lygephila asiatica*, m. – Paratype, Kazakhstan, Prov. Almaty, Bayseit, 8 km E of Chilik, 7-15.V.1994, Gy. Fábián & I. Retezár (coll. G. Ronkay)


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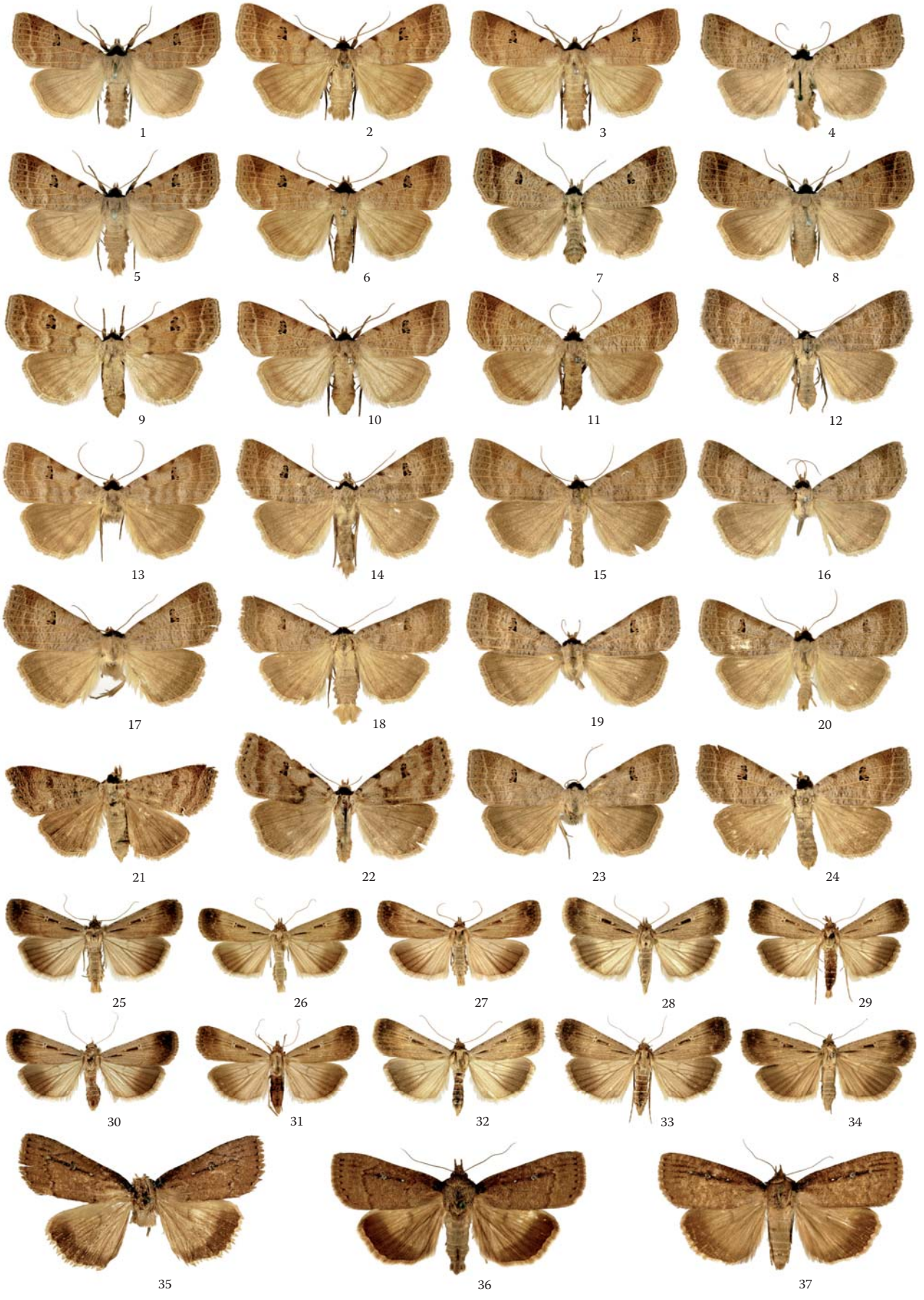
1. *Lygephila asiatica*, f. – Paratype, Kazakhstan (coll. G. Ronkay)
2. *Lygephila asiatica*, f. – Paratype, Kazakhstan, Prov. Almaty, 22 km N of Masak, 450 m, 27.VII.1995, Gy. Fábián & Z. Varga (coll. G. Ronkay)
3. *Lygephila asiatica*, f. – Kazakhstan, Prov. Almaty, 22 km N of Masak, 450 m, 21.VI.1996, Gy. Fábián & A. Nádai (coll. Gy. Fábián)
4. *Lygephila asiatica*, f. – Kazakhstan, Prov. Almaty, 22 km N of Masak, 450 m, 27.VII.1995, Gy. Fábián & Z. Varga (coll. G. Ronkay)
5. *Lygephila asiatica*, f. – Kazakhstan, Prov. Almaty, 22 km N of Masak, 450 m, 27.VII.1995, Gy. Fábián & Z. Varga (coll. G. Ronkay)
6. *Lygephila intermedia*, m. – Holotype, Pakistan, Margalla Hills, 20 km N of Islamabad, Pir Sohawa, 600 m, 29-31.VII.1994, B. Herczig, Gy.M. László & G. Ronkay, slide No.: OP 1820 (coll. G. Ronkay)
7. *Lygephila intermedia*, m. – Paratype, Nepal, Annapurna Himal, Kali Gandaki valley, Ghasa, 2080 m, 4.VI.1996, Gy.M. László & G. Ronkay (coll. G. Ronkay)
8. *Lygephila intermedia*, m. – Paratype, Nepal, Langtang Himal, Chandrabari, 2860 m, 25.IX.1994, G. Csorba & L. Ronkay (coll. G. Ronkay)
9. *Lygephila intermedia*, m. – Paratype, Nepal, Annapurna Himal, Kali Gandaki valley, Ghasa, 2080 m, 18-19.VI.1996, Gy.M. László & G. Ronkay (coll. G. Ronkay)
10. *Lygephila intermedia*, m. – Pakistan, Kashmir, Himalaya Mts, valley of Indus, between Chilas and Dassu, Motel Barseen, 1100 m, 19.X.1998, Gy.M. László & G. Ronkay (coll. O. Pekarsky)
11. *Lygephila intermedia*, f. – Paratype, Nepal, Annapurna Himal, Kali Gandaki valley, Ghasa, 2080 m, 18-19.VI.1996, Gy.M. László & G. Ronkay (coll. G. Ronkay)
12. *Lygephila intermedia*, f. – Paratype, Nepal, Annapurna Himal, Kali Gandaki valley, Ghasa, 2080 m, 18-19.VI.1996, Gy.M. László & G. Ronkay (coll. G. Ronkay)
13. *Lygephila intermedia*, f. – Paratype, Nepal, Annapurna Himal, Kali Gandaki valley, Ghasa, 2080 m, 18-19.VI.1996, Gy.M. László & G. Ronkay (coll. G. Ronkay)
14. *Lygephila intermedia*, f. – Paratype, Nepal, Annapurna Himal, Kali Gandaki valley, Kokethanti village, 2650 m, 17.VI.1996, Gy.M. László & G. Ronkay (coll. G. Ronkay)
15. *Lygephila intermedia*, f. – Paratype, Pakistan, Kashmir, Himalaya Mts, 30 km N of Murree, Ayubia, 2650 m, 23.V.1998, Gy.M. László & G. Ronkay (coll. G. Ronkay)
16. *Lygephila decolor*, m. – Lectotype, [China] Mustagata, Yarkend, slide No.: OP 2753 (coll. ZMHU)
17. *Lygephila decolor*, f. – Paralectotype, [China] Mustagata, Yarkend, slide No.: OP 2754 (coll. ZMHU)
18. *Lygephila decolor*, f. – China, Xinjiang, Taklamakan desert, Yarkan He river valley, 1140 m, 9-12.VI.2013, A. Floriani, slide No.: OP 2272 (coll. O. Pekarsky)
19. *Lygephila frosya*, m. – Holotype, Russia, Dauria, Onon river valley, Nizhniy Tshasuchey, 10.VII.1989, I. Kostjuk, slide No.: OP 3501 (coll. HNHM)
20. *Lygephila frosya*, m. – Paratype, Russia, Dauria, Onon river valley, Nizhniy Tshasuchey, 18.VIII.1989, I. Kostjuk (coll. G. Ronkay)
21. *Lygephila frosya*, m. – Paratype, China, Prov. Shaanxi, Tsinling Mts, Tapaishan, 1000 m, 27.IX.1935, H. Höne, slide No.: OP 2231 (coll. ZFMK)
22. *Lygephila frosya*, f. – Paratype, China, Inner Mongolia, Ulanhot, 300 m, 29.VI.2008, A. Saldaitis & A. Floriani, slide No.: OP 1562 (coll. O. Pekarsky)
23. *Lygephila nigricostata*, m. – Lectotype, [Russian Far East] Amur, Sidemi, 1888, slide No.: OP 1867 (coll. ZMHU)
24. *Lygephila nigricostata*, m. – Russian Far East, Vladivostok district, Nahodka, VII.1994, Kuznetsov (coll. P. Gyulai)
25. *Lygephila nigricostata*, m. – Russian Far East, Suchansky Rudnik, September 1925, local collector, slide No.: OP 1808 (coll. G. Ronkay)
26. *Lygephila nigricostata*, m. – Russian Far East, Kedrovaja Pjad, 3-5. VI.2017, S. Murzin (coll. O. Pekarsky)
27. *Lygephila nigricostata*, f. – Russian Far East, Primorye, Oktabrskiy district, Sinelnikovo, 1200 m, 21.V.2016, K. Prokopenko (coll. O. Pekarsky)
28. *Lygephila nigricostata*, f. – Russian Far East, 8-9.VI.2016, K. Prokopenko (coll. O. Pekarsky)
29. *Lygephila nigricostata*, f. – China, Prov. Shaanxi, South Taibaishan, Tsinling Mts, Houzhenzi, 1900 m, VI-IX.1999, local collector (coll. G. Ronkay)
30. *Lygephila pastinum*, m. – Germany, Jena (coll. NHMW)
31. *Lygephila pastinum*, m. – Austria, Dürnstein, 16.V.1938, R. Lunak (coll. NHMW)
32. *Lygephila pastinum*, m. – Austria, Dürnstein, 5.VI.1938, R. Lunak (coll. NHMW)
33. *Lygephila pastinum*, m. – Hungary, Ócsa, 29.V.1976, L. Ronkay & G. Ronkay (coll. G. Ronkay)
34. *Lygephila pastinum*, f. – Germany, Jena (coll. NHMW)
35. *Lygephila pastinum*, f. – Austria, 1900, Kalchberg (coll. NHMW)
36. *Lygephila pastinum*, f. – Germany (coll. NHMW)
37. *Lygephila pastinum*, f. – Germany, München, Grafing, 630 m, 14.VIII.1971, A.E. Rau (coll. A.E. Rau)
38. *Lygephila pastinum*, m. – Austria, Wien, Donau-Auen (coll. NHMW)
39. *Lygephila pastinum*, f. – Germany (coll. NHMW)
40. *Lygephila fonti*, m. – Holotype, Spain, Jaén, Sierra de Cazorla, Arroy de las Truchas, 10.IX.1986, C.M. Herrera (coll. J.L. Yela) (Photo J.L. Yela)
41. *Lygephila fonti*, m. – Spain, Aragon, Prov. Teruel, Formiche Alto, 1150 m, 27.VIII.2018 (coll. M. Dvořak)
42. *Lygephila fonti*, f. – Spain, Valencia, Font Cota, Porta-Coeli, 29.IX.1989, M. Dominguez (coll. J.L. Yela) (Photo J.L. Yela)
43. *Lygephila fonti*, f. – Spain, Aragon, Prov. Teruel, Formiche Alto, 1150 m, 27.VIII.2018 (coll. M. Dvořak)
44. *Lygephila violaceogrisea*, m. – Holotype, China, Nord Yunnan, Atuntse, Talsohle, 3000 m, 24.V.1937, H. Höne, slide No.: OP 2243 (coll. ZFMK)
45. *Lygephila violaceogrisea*, m. – China, Yunnan, 8 km NNE of Shangri La, 2 km W of Nairi village, 3242 m, 7.VI.2008 (coll. HNHM)
46. *Lygephila violaceogrisea*, m. – China, Prov. Sichuan, 100 km W of Maniganggo city, 3400 m, 26.VI.2004, Nykl (coll. A. Becher)


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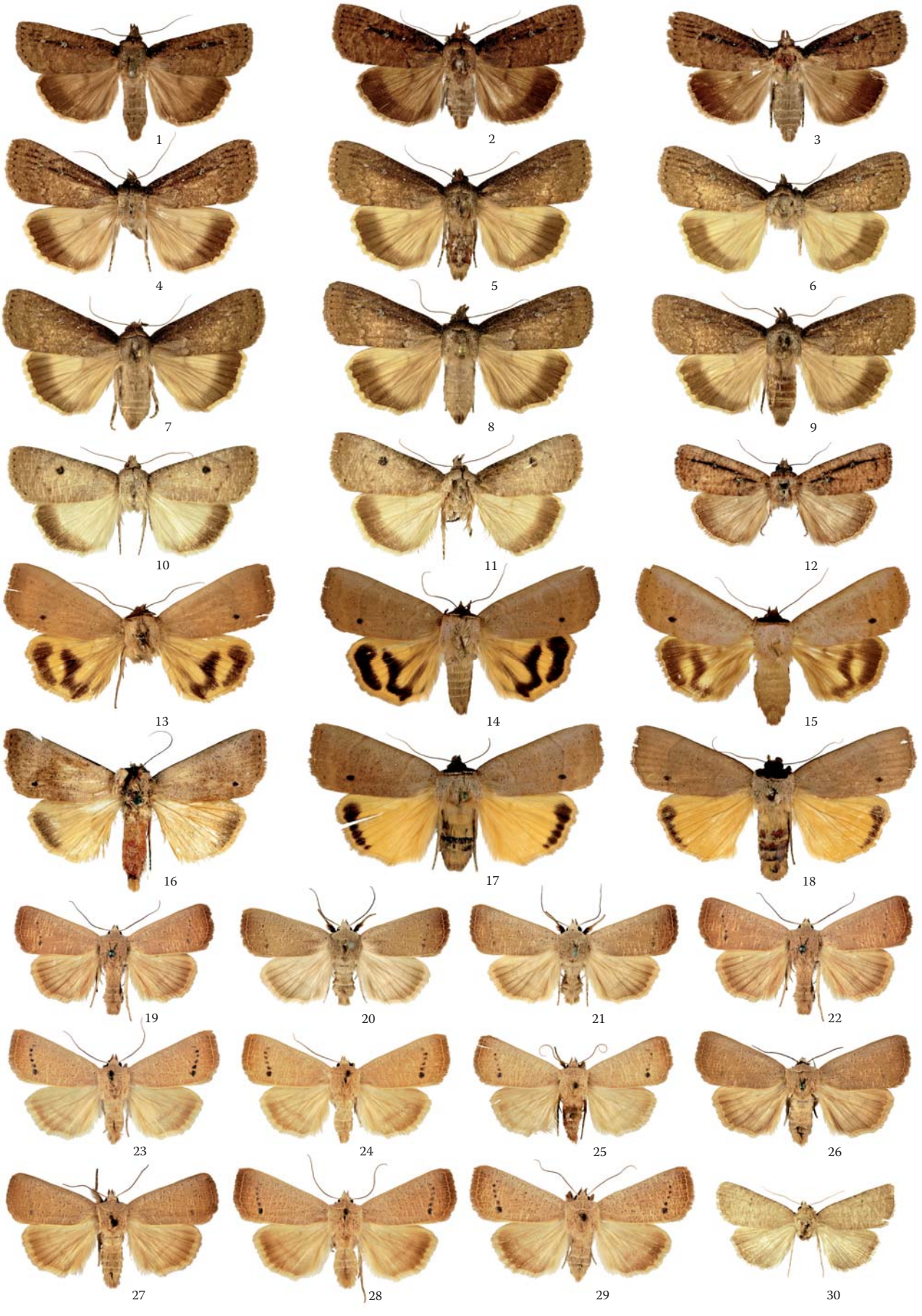
1. *Lygephila violaceogrisea*, m. – China, Yunnan, 8 km NNE of Shangri La, 2 km W of Nairi village, 3242 m, 7.VI.2008 (coll. HNHM)
2. *Lygephila violaceogrisea*, m. – China, Yunnan, 8 km NNE of Shangri La, at Nairi village, 3300 m, 14.VI.2008 (coll. HNHM)
3. *Lygephila violaceogrisea*, m. – China, Yunnan, 8 km NNE of Shangri La, 2 km W of Nairi village, 3242 m, 7.VI.2008 (coll. HNHM)
4. *Lygephila violaceogrisea*, f. – China, Yunnan, 8 km NNE of Shangri La, at Nairi village, 3300 m, 14.VI.2008 (coll. HNHM)
5. *Lygephila craccae*, m. – Austria, Wienerneustadt, 3.VIII.1975, R. Hörl (coll. NHMW)
6. *Lygephila craccae*, m. – Hungary, Budakeszi, 31.VII.1957, L. Kovács (coll. HNHM)
7. *Lygephila craccae*, f. – Hungary, Budai-hegység, Nagykovácsi, Nagyszénás, 25.VI.2006, L. Peregovits (coll. HNHM)
8. *Lygephila craccae*, f. – Italy, South Tyrol, Vinschgau, Sonnenhang bei Staben, 800 m, 8-10.IX.1987, A.E. Rau (coll. A.E. Rau)
9. *Lygephila craccae*, m. – Spain, Prov. Granada, Baza, 110 km NE of Granada, 6.X.1975, M. Glaser & W. Glaser (coll. NHMW)
10. *Lygephila craccae*, f. – Spain, Albarracin, VIII.1933, Predota (coll. NHMW)
11. *Lygephila craccae*, m. – Syntype of *Lygephila craccae* var. *caliginosa* Schawerda, France, Corsica, Monte Ceppo, 1400 m, VII.1929, Schawerda (coll. NHMW)
12. *Lygephila craccae*, m. – Spain, Prov. Gerona, Puig de Ventos, Vidreras, 1-14.VI.1990, A.E. Rau (coll. A.E. Rau)
13. *Lygephila craccae*, m. – Morocco, Middle Atlas Mts, El Ksiba, 940 m, 12.VI.1973, E. Vartian (coll. NHMW)
14. *Lygephila craccae*, m. – Morocco, Middle Atlas Mts, El Ksiba, 940 m, 12.VI.1973, E. Vartian (coll. NHMW)
15. *Lygephila craccae*, m. – Turkey, Prov. Bitlis, Kuskunkiran Pass, 2350-2450 m, 18-19.VII.1990, Gy.M. László & G. Ronkay (coll. G. Ronkay)
16. *Lygephila craccae*, f. – Armenia, 40 km E of Yerevan, Geghard, 1700 m, 3-11.IX.1975, E. Vartian (coll. NHMW)
17. *Lygephila craccae*, m. – Paratype of *Lygephila schachti* Behounek & Hacker, 1986, Turkey, Prov. Hakkari, Tanin Pass, 2000-2300 m, 12-13.VII.1983, J. deFreina (coll. BMNH)
18. *Lygephila craccae*, f. – Paratype of *Lygephila schachti* Behounek & Hacker, 1986, Turkey, Prov. Hakkari, 20 km E of Uludere, 2300-2600 m, 14-15.VII.1983, J. deFreina (coll. G. Ronkay)
19. *Lygephila craccae*, m. – Russia, Caucasus Mts, Itum-kale, 850 m, 11.VIII.1988, B. Herczig, K. Szeőke & Z. Mészáros (coll. B. Herczig)
20. *Lygephila craccae*, f. – Turkmenistan, Kopet-Dagh Mts, 6 km S of Ipay-Kala, 1600 m, 16-23.VIII.1992, M. Hreblay, Gy.M. László & G. Ronkay (coll. G. Ronkay)
21. *Lygephila craccae*, f. – Turkmenistan, Kopet-Dagh Mts, 6 km S of Ipay-Kala, 1600 m, 16-23.VIII.1992, M. Hreblay, Gy.M. László & G. Ronkay (coll. G. Ronkay)
22. *Lygephila craccae*, m. – Iran, Elburs Mts, Keredj, 1400 m, 11.IX.1936, Brandt (coll. RNS)
23. *Lygephila craccae*, f. – Iran, Baluchistan, Kouh-i-Taftan (Khach), 2500 m, 25.V.19Brandt (coll. NHMW)
24. *Lygephila craccae*, m. – Afghanistan, Safed Koh, Kotkai, 2350, 21.VI-1.VII.1969, E. Vartian (coll. NHMW)
25. *Lygephila craccae*, m. – Kazakhstan, Prov. Almaty, 20 km NW of Kapchagai, 606 m, 22.V.2006 (coll. G. Ronkay)
26. *Lygephila craccae*, f. – Pakistan, Kashmir, Deosai Plains, Bubin village, 3150 m, 17.VII.2001, G. Ronkay (coll. G. Ronkay)
27. *Lygephila craccae*, m. – Pakistan, Hindukush Mts, Shandur Pass, 3300 m, 29-31.VIII.1997, Gy. Fábián & G. Ronkay (coll. G. Ronkay)
28. *Lygephila craccae*, f. – Pakistan, Kashmir, Himalaya Mts, 30 km N of Murree, Ayubia, 2600 m, 31.VIII.2001, G. Ronkay (coll. G. Ronkay)
29. *Lygephila craccae*, m. – Pakistan, Kashmir, Deosai Plains, Bubin village, 3150 m, 15-19.VII.1998, Z. Varga & G. Ronkay (coll. G. Ronkay)
30. *Lygephila craccae*, m. – Pakistan, Himalaya Mts, Kaghan valley, Naran village, 2900 m, 17.V.1998, Gy.M. László & G. Ronkay (coll. G. Ronkay)
31. *Lygephila craccae*, f. – Pakistan, Kashmir, Himalaya Mts, valley of Indus, between Chilas and Dassu, Motel Barseen, 1100 m, 10.X.1998, Gy.M. László & G. Ronkay (coll. G. Ronkay)
32. *Lygephila craccae*, f. – Pakistan, Kashmir, Himalaya Mts, 30 km N of Murree, Ayubia, 2600 m, 31.VIII.2001, G. Ronkay (coll. G. Ronkay)
33. *Lygephila craccae*, m. – Holotype of *Toxocampa angustipennis* Warren, 1913, [India, Kashmir] Goorais valley, IX.1887, J.H. Leech (coll. BMNH)
34. *Lygephila craccae*, m. – Pakistan, Himalaya Mts, Kaghan valley, Saiful Muluk 2900 m, 22.VIII.1998, Z. Varga & G. Ronkay (coll. G. Ronkay)
35. *Lygephila craccae*, m. – Pakistan, Himalaya Mts, Kaghan valley, 12 km E of Naran, Battakundi, 3200 m, 26.VII.1994, B. Herczig, Gy.M. László & G. Ronkay, slide No.: BJ 274 (coll. G. Ronkay)
36. *Lygephila craccae*, f. – [India, Kashmir] Goorais valley, 6000 feet, IX.1887, J.H. Leech (coll. BMNH)


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1. *Lygephila viciae viciae*, m. – Germany, Saxonia, Jena, ex larva, 1909, U. Völker (coll. ZMHU)
2. *Lygephila viciae viciae*, m. – France, VI.1907 (coll. NHMW)
3. *Lygephila viciae viciae*, m. – Germany, Jena, K. Höfer (coll. NHMW)
4. *Lygephila viciae viciae*, m. – Germany, München, Grafing, 630 m, 16.VI.1964, A.E. Rau (coll. A.E. Rau)
5. *Lygephila viciae viciae*, m. – Germany, Saxonia, Jena, ex larva, 1909, U. Völker (coll. ZMHU)
6. *Lygephila viciae viciae*, m. – France, IV.1907 (coll. NHMW)
7. *Lygephila viciae viciae*, f. – Hungary, Bükk hegység, Táskás orom, 4.VI.1981, L. Ronkay (coll. HNHM)
8. *Lygephila viciae viciae*, f. – Germany, Saxonia, Jena, ex larva, 1909, U. Völker (coll. ZMHU)
9. *Lygephila viciae viciae*, f. – Germany, Saxonia, Jena, ex larva, 1909, U. Völker (coll. ZMHU)
10. *Lygephila viciae viciae*, f. – Germany, Friesach, Metzger (coll. NHMW)
11. *Lygephila viciae viciae*, f. – Germany (coll. NHMW)
12. *Lygephila viciae viciae*, f. – [Russia] Chechnya, Caucasus Mts, Olgeti, 1500 m, 3-7.VII.1989, B. Herczig, Á. Uherkovich & Gy. Szollát (coll. G. Ronkay)
13. *Lygephila viciae viciae*, m. – China, Prov. Bejing, Mentougou district, Dong-Ling Mts, 100-120 km W of Beijing, 7-8.VI.1999, L. Lőkös & B. Papp, slide No.: BJ 587 (coll. HNHM)
14. *Lygephila viciae viciae*, m. – China, Prov. Bejing, Mentougou district, Dong-Ling Mts, 100-120 km W of Beijing, 7-8.VI.1999, L. Lőkös & B. Papp (coll. G. Ronkay)
15. *Lygephila viciae viciae*, m. – Kazakhstan, Prov. Almaty, Zailiskiy Alatau, 15 km S of Issyk, 1700 m, 30.V.2006 (coll. G. Ronkay)
16. *Lygephila viciae stigmata*, m. – Japan, Hokkaido, Katou district, Kamishihoro-cho, Nukabira, 3.VII.1990, K. Eda, slide No.: OP 4024 (coll. O. Pekarsky)
17. *Lygephila viciae stigmata*, m. – Korea, Prov. North Khamgen, Kumgang, 15 km NW of Chondjin, 5,VI.1991, L. Ronkay & A. Vojnits, slide No.: OP 3983 (coll. HNHM)
18. *Lygephila viciae stigmata*, m. – Russian Far East, Vladivostok, Shamorsky Pass, 11.VIII.2016, K. & A. Prokopenko (coll. O. Pekarsky)
19. *Lygephila viciae stigmata*, m. – Russian Far East, Sakhalin, Chekhov Mts, 600 m, 22.VI.1989, Obydov, slide No.: OP 3987 (coll. HNHM)
20. *Lygephila viciae viciae*, m. – Mongolia, Töv aimak, Gorkhi-Terelj, 6 km S of Terelj, 1660 m, 23.VI.2005, T. Csővári (coll. G. Ronkay)
21. *Lygephila viciae stigmata*, f. – Holotype, Japan, Hokkaido, Andrews (coll. BMNH)
22. *Lygephila viciae stigmata*, f. – Japan, Nagano, Ohmachi, Ougisawa, 1350 m, S. Oshima (coll. G. Ronkay)
23. *Lygephila viciae stigmata*, f. – Russian Far East, Ussuri district, Levada, 12.VI.1988, Obydov, slide No.: OP 3956 (coll. HNHM)
24. *Lygephila viciae stigmata*, f. – Russia, Primorskiy Krai, Shkotovsky district, Anisimovka, 30.VI.-16.VII.2005, Y. Berezhnoy (coll. O. Pekarsky)
25. *Tathorhynchus exsiccata*, m. – Iran, Imam Sade, on the road Shiraz to Kazerun, 1200 m, 3.VI.1969, E. Vartian (coll. NHMW)
26. *Tathorhynchus exsiccata*, m. – Iran, Miyan Kotal, E of Kazerun, 1900 m, 4-7.VI.1969, E. Vartian (coll. NHMW)
27. *Tathorhynchus exsiccata*, m. – Sudan, Wadi Halfa, 26-31.I.1962, Nubien-Exped. Mus. Vindobona (coll. NHMW)
28. *Tathorhynchus exsiccata*, m. – Morocco, Anti Atlas Mts, Sidi M'zal village, 1260 m, 30.IX.2005, Gy.M. László & G. Ronkay (coll. G. Ronkay)
29. *Tathorhynchus exsiccata*, m. – Pakistan, Himalaya Mts, Kaghan valley, Naran village, 2900 m, 17.V.1998, Gy.M. László & G. Ronkay (coll. G. Ronkay)
30. *Tathorhynchus exsiccata*, f. – Iran, Imam Sade, on the road Shiraz to Kazerun, 1200 m, 3.VI.1969, E. Vartian (coll. NHMW)
31. *Tathorhynchus exsiccata*, f. – Iran, 75 km N of Bandar Abbas, 3.IV.1974, E. Vartian (coll. NHMW)
32. *Tathorhynchus exsiccata*, f. – Morocco, Anti Atlas Mts, 19 km SE of Ait Baba, 800 m, 12.IV.1994, Gy.M. László (coll. G. Ronkay)
33. *Tathorhynchus exsiccata*, f. – Nepal, Annapurna Himal, 2 km N of Landrung, 1540 m, 8.IV.1995, Gy.M. László & G. Ronkay (coll. G. Ronkay)
34. *Tathorhynchus exsiccata*, f. – Palaestina, 7.VII.1934 (coll. G. Ronkay)
35. *Perinaenia accipiter*, f. – Holotype, [India, Goa] Pangi, slide No.: Tams 47/87 (coll. BMNH)
36. *Perinaenia accipiter*, m. – Japan, Janson (coll. NHMW)
37. *Perinaenia accipiter*, m. – China, Shanghai, H. Höne (coll. ZFMK)
1. *Perinaenia accipiter*, f. – Japan, Yokohama (coll. ZMHU)


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2. *Perinaenia accipiter*, f. – Japan, Kanagawa Pref., Yokosuka-shi, Ohgusuyama Mt., Ohgusu, 11.VII.2005, Y. Yanagita (coll J. Babics)
3. *Perinaenia accipiter*, f. – Japan, Bokke, Ichikawa-shi, Chiba-ken, 23.VII,1965, K. Ishizuka (coll J. Babics)
4. *Perinaenia mingchyrica*, m. – Holotype, Taiwan, Taoyuan County, Mingchyr Forest Recreation Area, 1160 m, 8-9.VII.1997, S.T. Kovács, slide No.: BJ 212 (coll. HNHM)
5. *Perinaenia mingchyrica*, m. – Paratype, Prov. Hualien, Taroko NP, Hohuan Pass, 3000 m, 3.IV.1997, G. Csorba & L. Ronkay (coll. G. Ronkay)
6. *Perinaenia mingchyrica*, f. – Paratype, Prov. Hualien, Taroko NP, Hohuan Pass, 3000 m, 3.IV.1997, G. Csorba & L. Ronkay, slide No.: BJ 213 (coll. G. Ronkay)
7. *Perinaenia mingchyrica*, f. – Paratype, Taiwan, Prov. Taichung, Anmashan, 1650 m, 20.VI.1997, B. Herczig & L. Ronkay (coll. G. Ronkay)
8. *Perinaenia mingchyrica*, f. – Paratype, Taiwan, Prov. Nantou, Hohuan Mts, 2750 m, 8.VIII.1999, E. Juhász & A. Kun (coll. G. Ronkay)
9. *Perinaenia mingchyrica*, f. – Paratype, Taiwan, Prov. Nantou, 10 km SE of Shenmu, 2200 m, 14.III.1996, Gy. Fábián & L. Németh (coll. G. Ronkay)
10. *Perinaenia atripunctum*, m. – Holotype, China, Shaanxi, South Taibaishan, Tsinling Mts, Houzhenzi, 1400 m, IX.1999, local collector, slide No.: BJ 198 (coll. G. Ronkay)
11. *Perinaenia atripunctum*, m. – Paratype, China, Shaanxi, Tsinling, Foping N.R., 1600 m, 20.IV-11.V.1999, Sinjaev & Plutenko, slide No.: BJ 197 (coll. G. Ronkay)
12. *Perinaenia nigrifascia*, f. – Holotype, Vietnam, Prov. Lao Cai, Fan-si-pan Mts, 16 km NW of Sa Pa, 1800 m, 16-17.III.1998, L. Peregovits & T. Vásárhelyi, slide No.: RL 7664 (coll. HNHM)
13. *Isoura fuscicollis*, m. – Taiwan, Prov. Taitung, 7 km N of Tupan, 500 m, 20.III.1996, T. Csővári & P. Stéger, slide No.: BJ 1064 (coll. G. Ronkay)
14. *Isoura fuscicollis*, f. – Taiwan, Prov. Nantou, 3km SW of Tsuifeng, 2100 m, 25-26.VI.1997, T. Csővári & L. Mikus (coll. G. Ronkay)
15. *Isoura fuscicollis*, f. – Thailand, Changwat Nan, 30 km E of Pua, 1700 m, 1.III.1998, M. Hreblay & Cs. Szabóky (coll. MHNG)
16. *Isoura clara*, m. – Paratype, Indonesia, Sulawesi, Puncak Palopo, 900-1300 m, VI.1998, local collector (coll. G. Ronkay)
17. *Isoura clara*, f. – Holotype, Nepal, Mechi, Taplejung area, Lamite Banjang, 3450 m, 27.X.1996, Gy.M. László & G. Ronkay (coll. G. Ronkay)
18. *Isoura clara*, f. – Paratype, Vietnam, Prov. Lao Cai, Sa Pa, Hotel Cat Cat, 1495 m, 10.XII.2008, L. Papp, L. Peregovits & L. Ronkay (coll. HNHM)
19. *Exophyla rectangularis*, m. – Italy, South Tyrol, Merano, 11.VII. (coll. TLM)
20. *Exophyla rectangularis*, m. – [Italy] Teriol meridionalis, Lana, ex larva, 8.VI. (coll. ZMHU)
21. *Exophyla rectangularis*, m. – [Italy] Teriol meridionalis, Lana, ex larva, 8.VI. (coll. ZMHU)
22. *Exophyla rectangularis*, m. – Italy, South Tyrol, Merano, 11.VII. (coll. TLM)
23. *Exophyla rectangularis*, m. – Armenia, 40 km E of Yerevan, Geghard, 1700 m, 26-27.VII.1976, F. Kasy & E. Vartian (coll. NHMW)
24. *Exophyla rectangularis*, m. – Armenia, 40 km E of Yerevan, Geghard, 1700 m, 26-27.VII.1976, F. Kasy & E. Vartian (coll. NHMW)
25. *Exophyla rectangularis*, m. – Iran, Elburs Mts, Derbend, 25 km N of Teheran, 2000 m, 1-10.V.1963, E. Vartian & A.Vartian (coll. NHMW)
26. *Exophyla rectangularis*, f. – Italy, 1919, Murmann (coll. NHMW)
27. *Exophyla rectangularis*, f. – Croatia, Pula, K. Höfer (coll. NHMW)
28. *Exophyla rectangularis*, f. – Armenia, 40 km E of Yerevan, Geghard, 1700 m, 30-31.VII.1976, F. Kasy & E. Vartian (coll. NHMW)
29. *Exophyla rectangularis*, f. – Armenia, 40 km E of Yerevan, Geghard, 1700 m, 24-25.VII.1976, F. Kasy & E. Vartian (coll. NHMW)
30. *Exophyla dietzelgyulai* **sp. n.**, f. – Holotype, Pakistan, Himalaya Mts, Kaghan valley, 30 km S of Babusar Pass, 3500 m, 27.VII.1994, B. Herczig, Gy.M. László & G. Ronkay, slide No.: BJ 1065 (coll. G. Ronkay)


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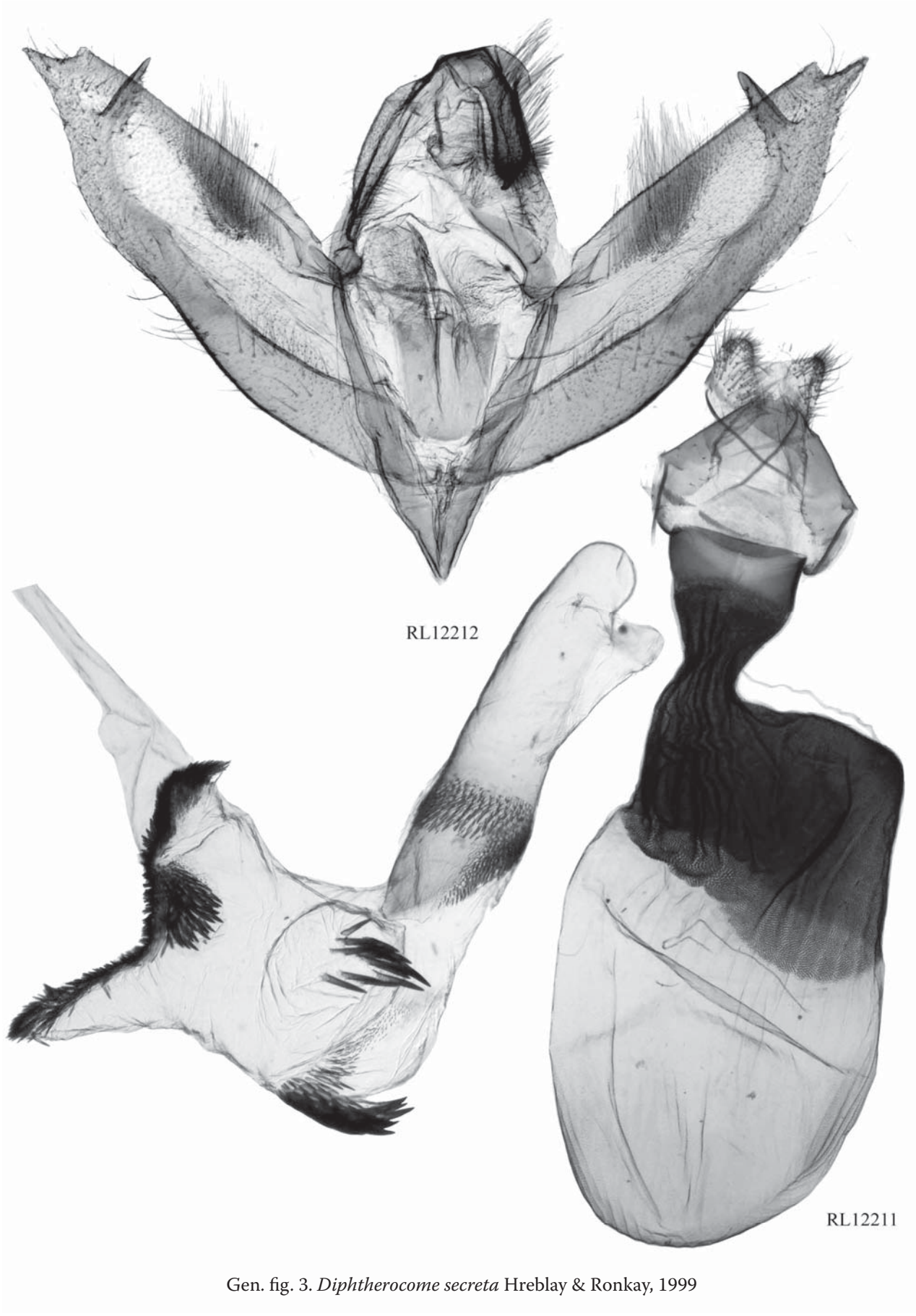
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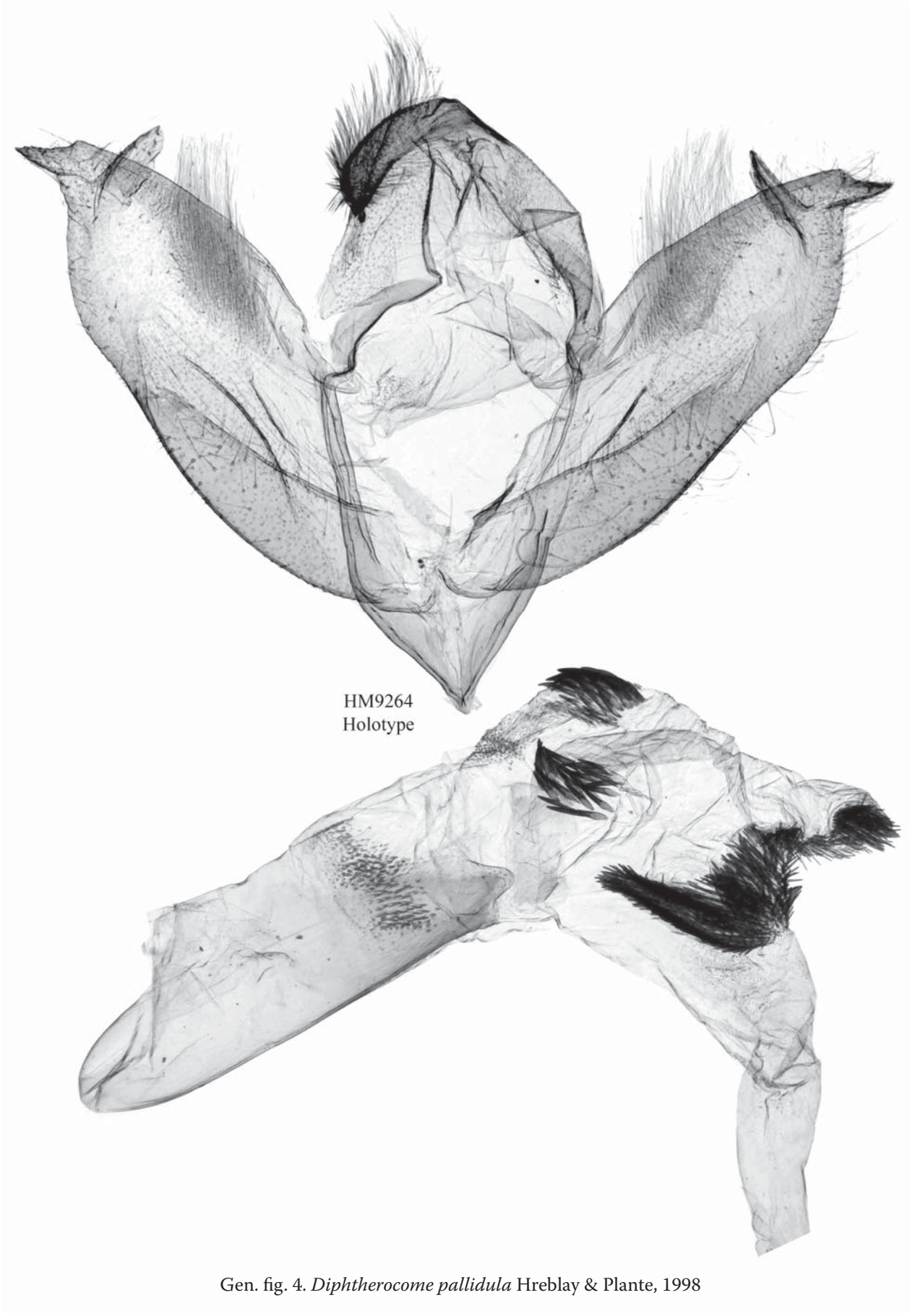
Gen. fig. 1. *Diphtherocome pallida pallida* (Moore, 1867)



Gen. fig. 2. *Diphtherocome pallida bubaceki* Gaal-Haszler, Lödl, Ronkay, Ronkay & Varga, 2012



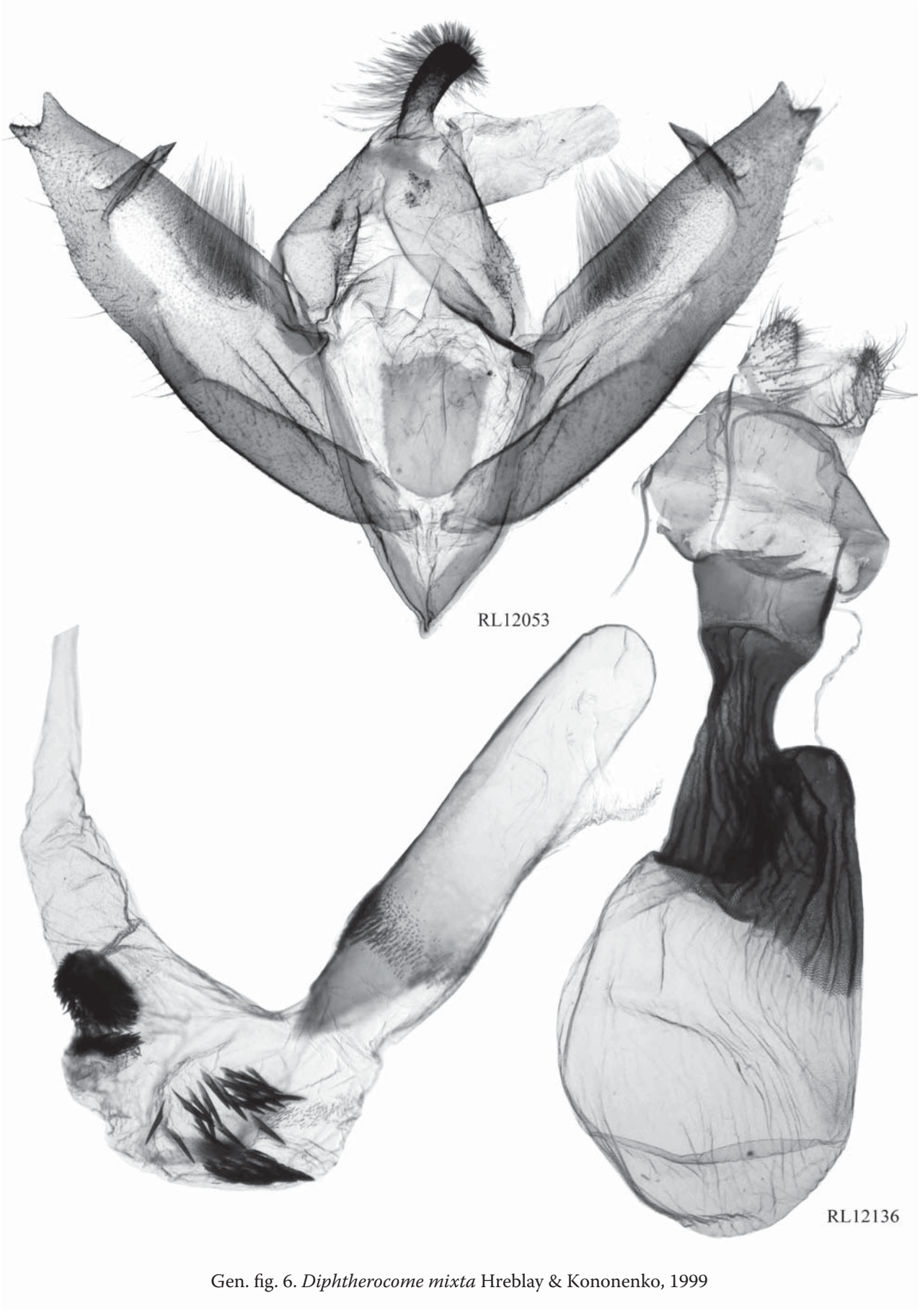
Gen. fig. 3. *Diphtherocome secreta* Hreblay & Ronkay, 1999



Gen. fig. 4. *Diphtherocome pallidula* Hreblay & Plante, 1998



Gen. fig. 5. *Diphtherocome robusta* Hreblay & Kononenko, 1999



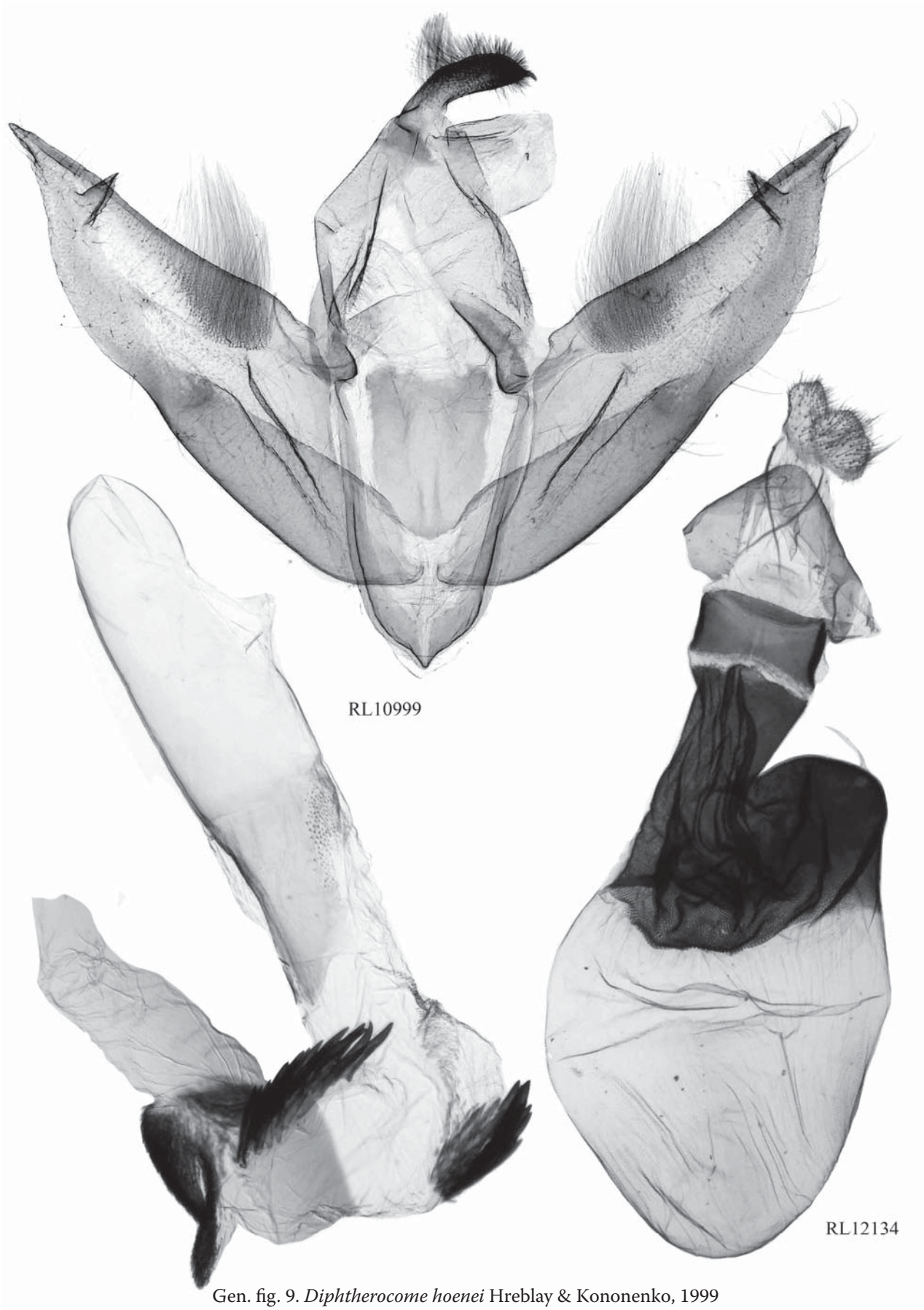
Gen. fig. 6. *Diphtherocome mixta* Hreblay & Kononenko, 1999



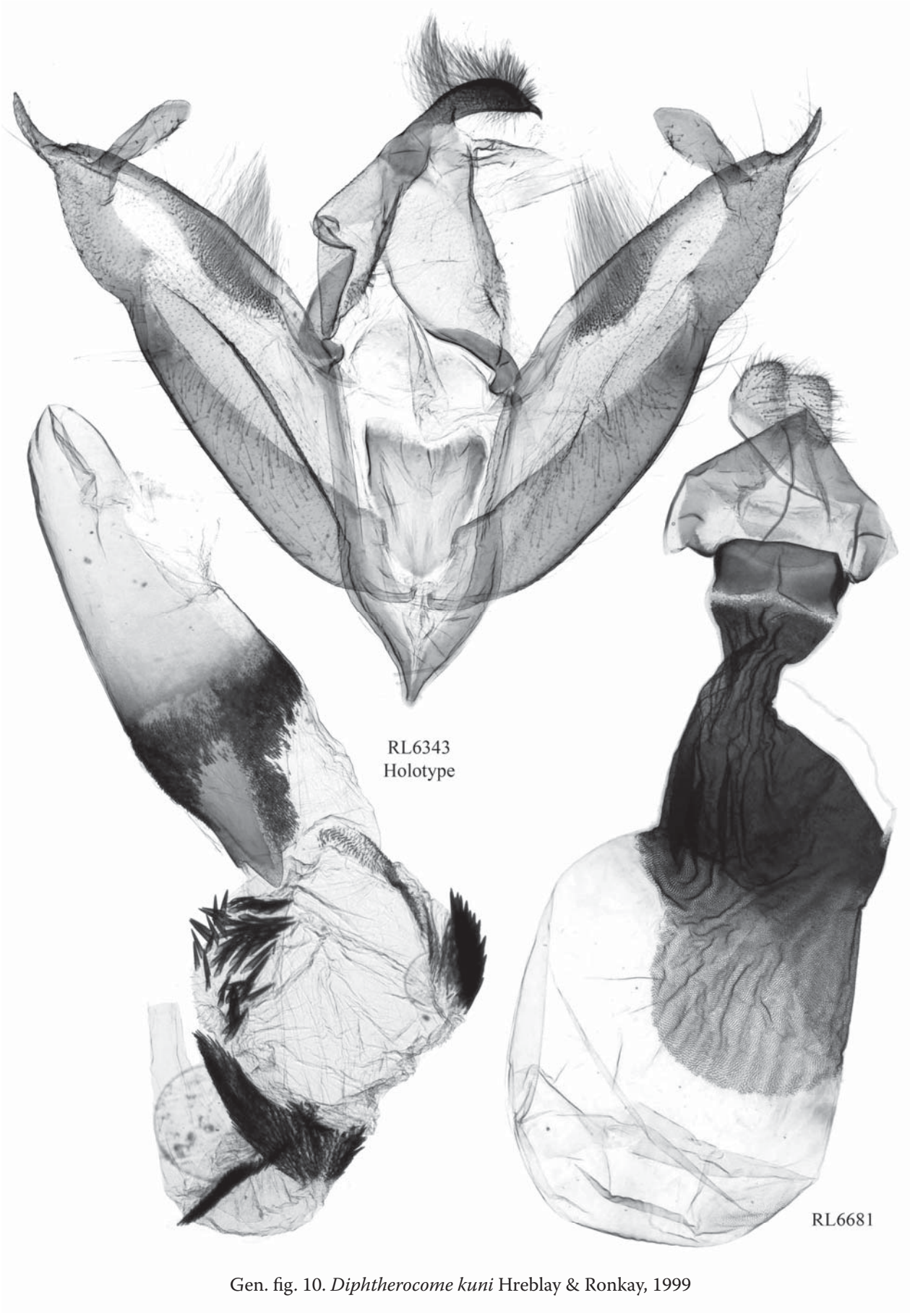
Gen. fig. 7. *Diphtherocome laevis* Warren, 1907



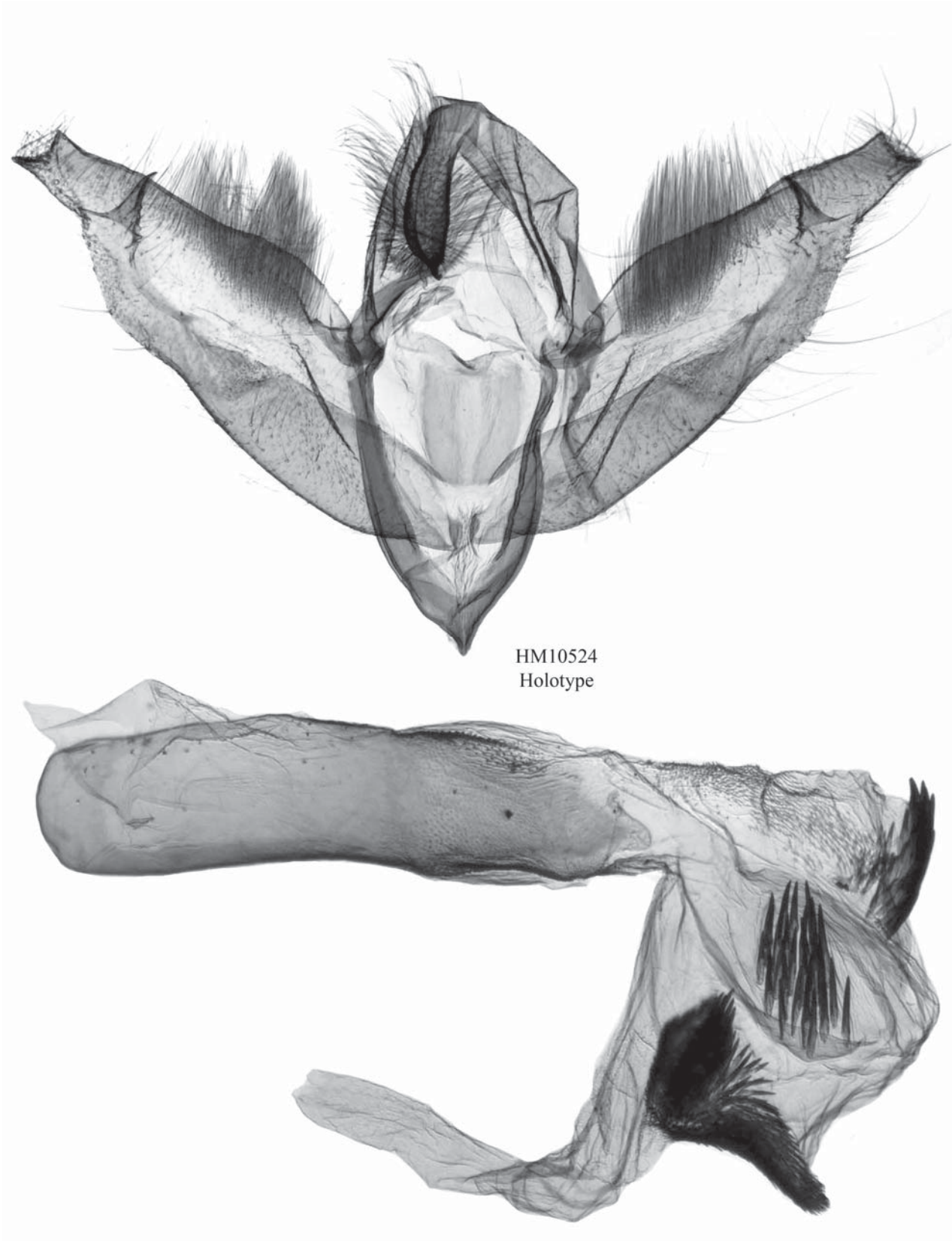
Gen. fig. 8. *Diphtherocome fasciata* (Moore, 1888)



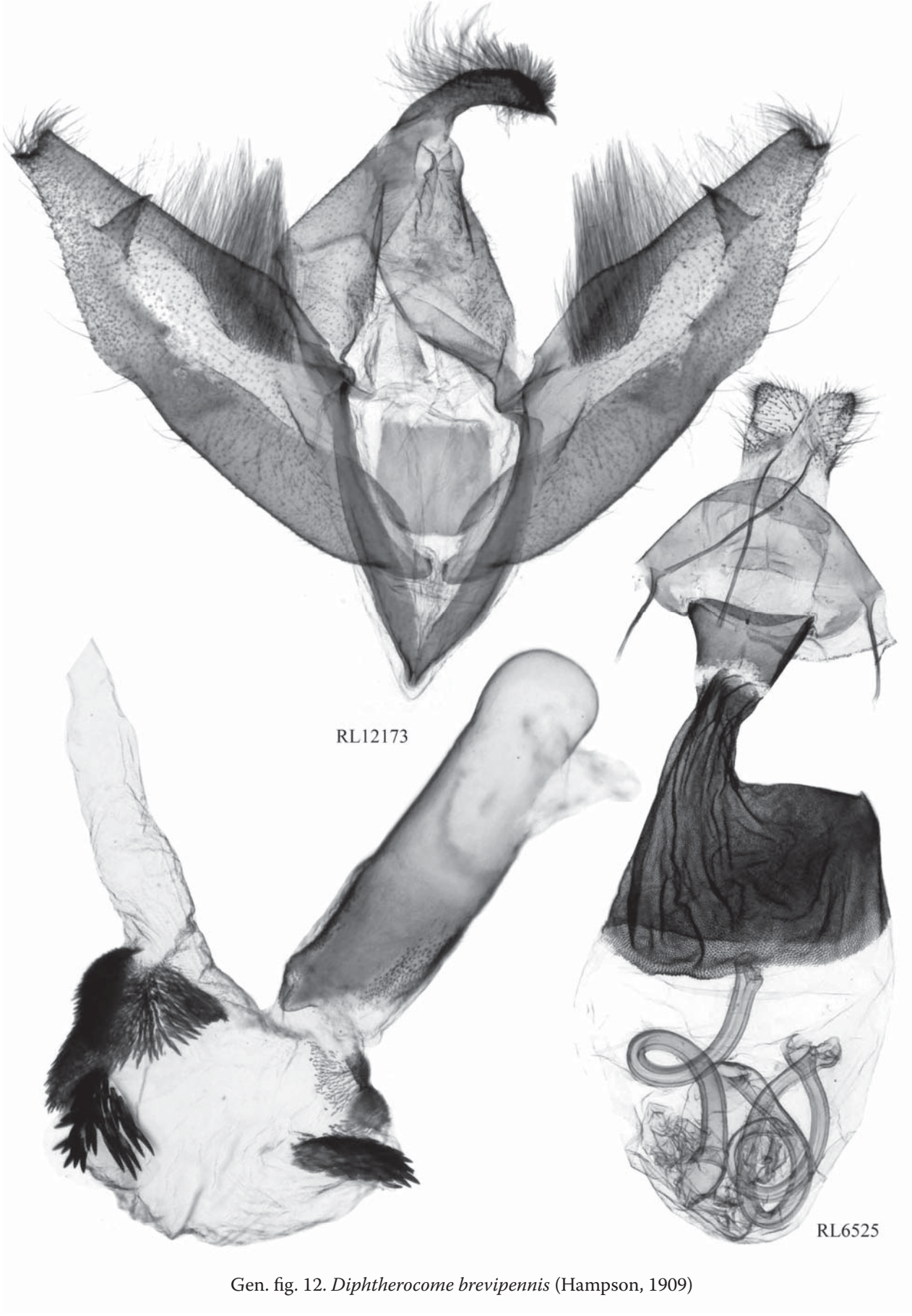
Gen. fig. 9. *Diphtherocome hoenei* Hreblay & Kononenko, 1999



Gen. fig. 10. *Diphtherocome kuni* Hreblay & Ronkay, 1999



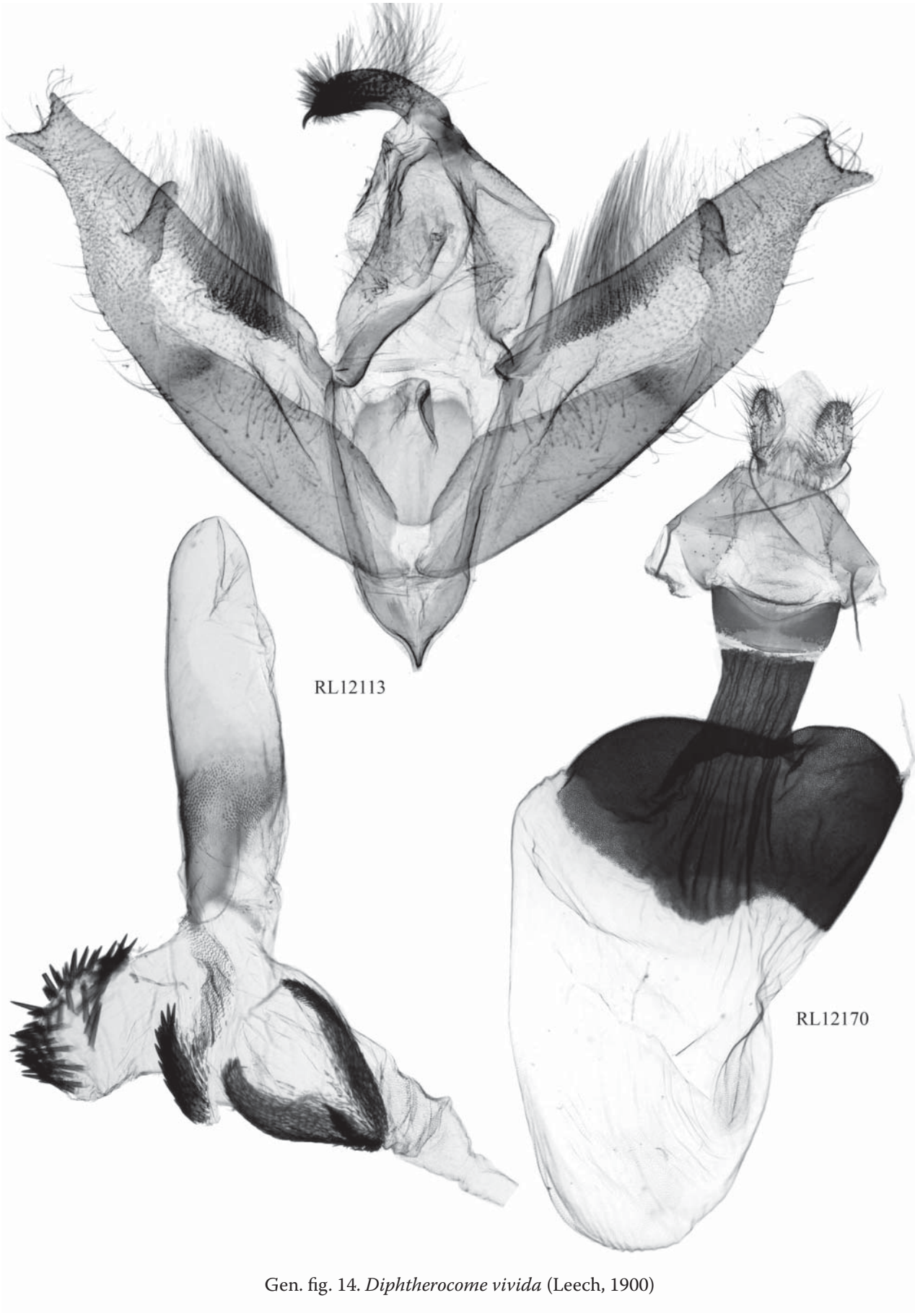
Gen. fig. 11. *Diphtherocome bigu* Hreblay & Ronkay, 1999



Gen. fig. 12. *Diphtherocome brevipennis* (Hampson, 1909)



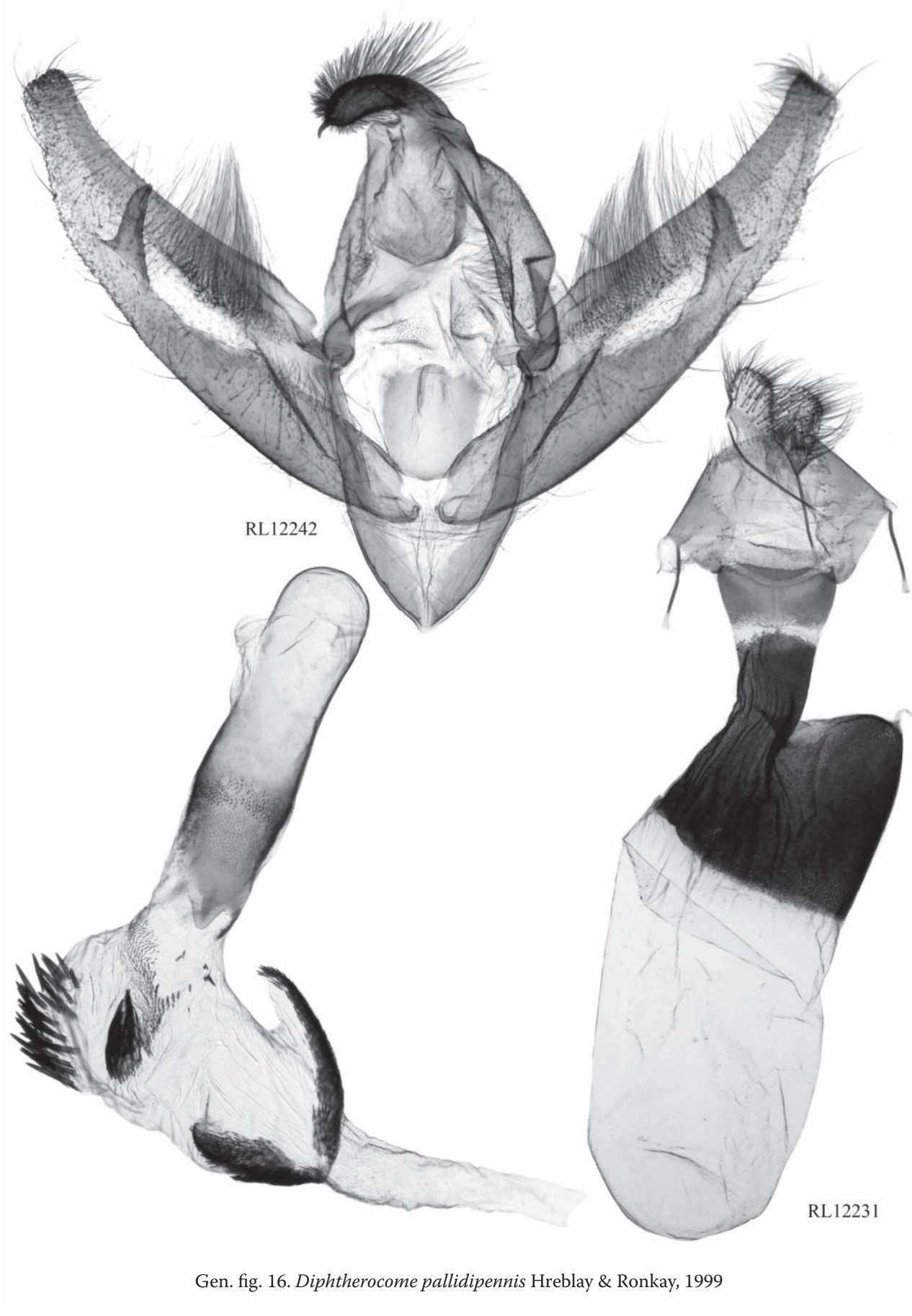
Gen. fig. 13. *Diphtherocome pseudovivida* Hreblay & Ronkay, 1999



Gen. fig. 14. *Diphtherocome vivida* (Leech, 1900)



Gen. fig. 15. *Diphtherocome trimaculata* Hreblay & Kononenko, 1999



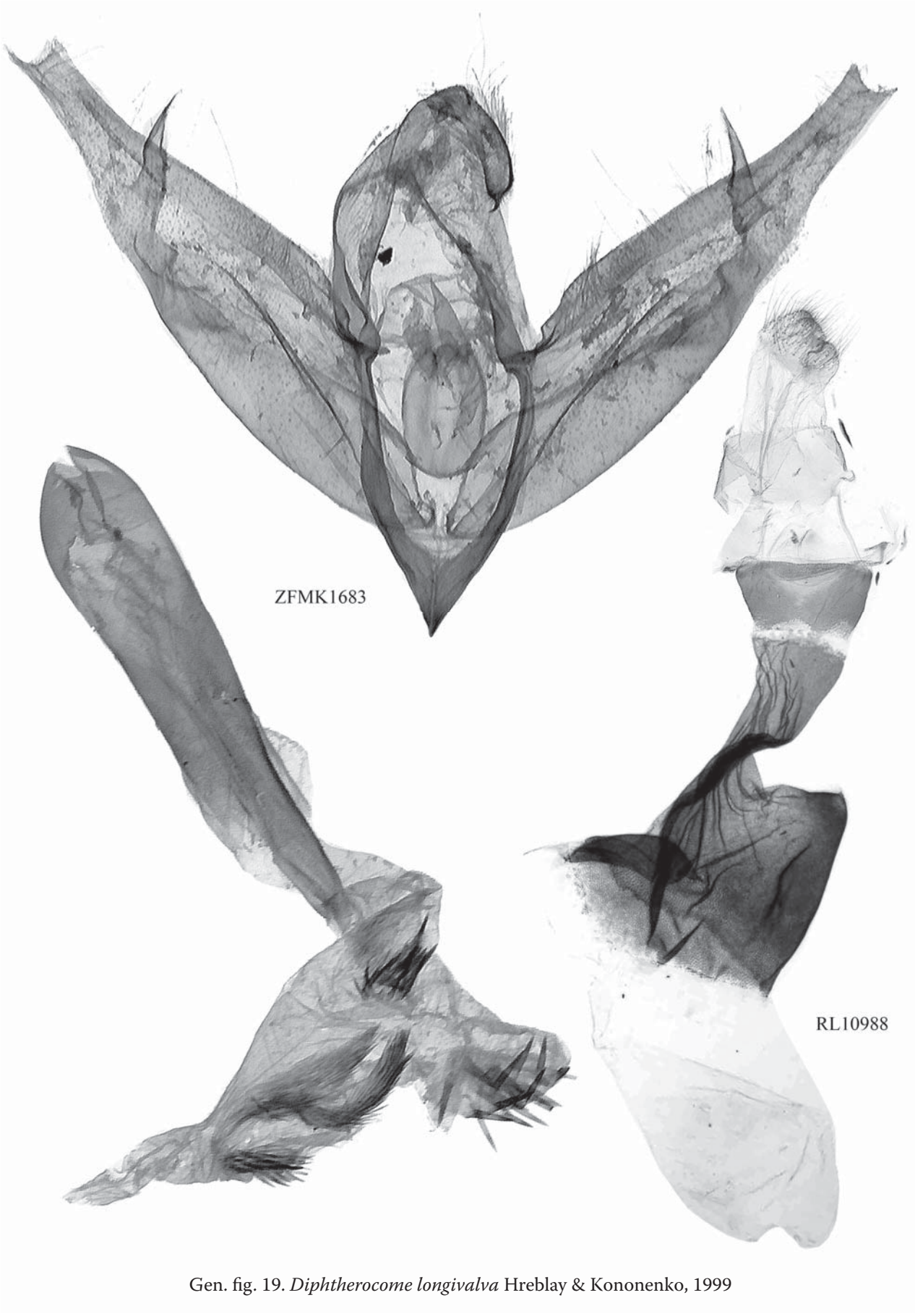
Gen. fig. 16. *Diphtherocome pallidipennis* Hreblay & Ronkay, 1999



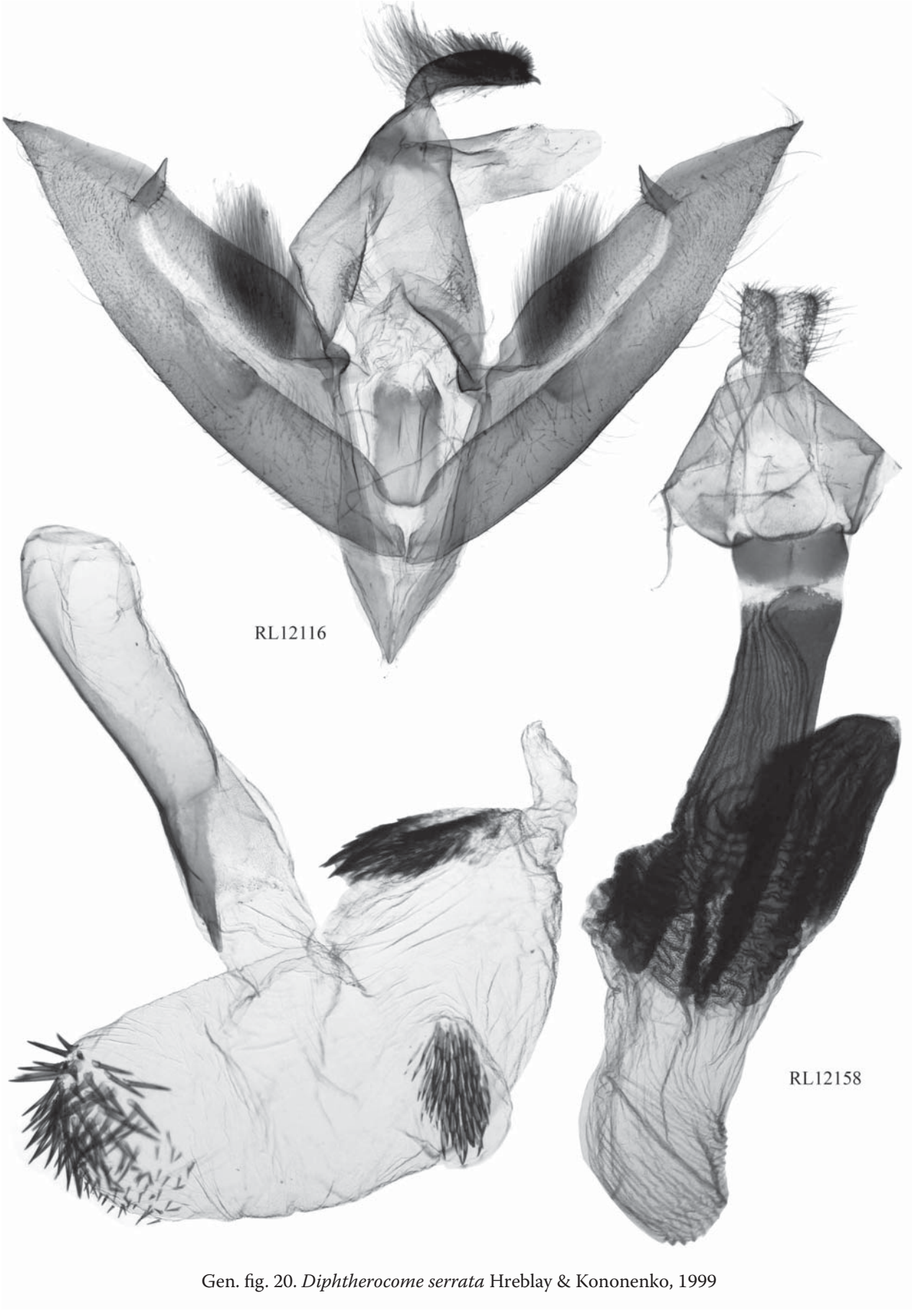
Gen. fig. 17. *Diphtherocome minor* Warren, 1907



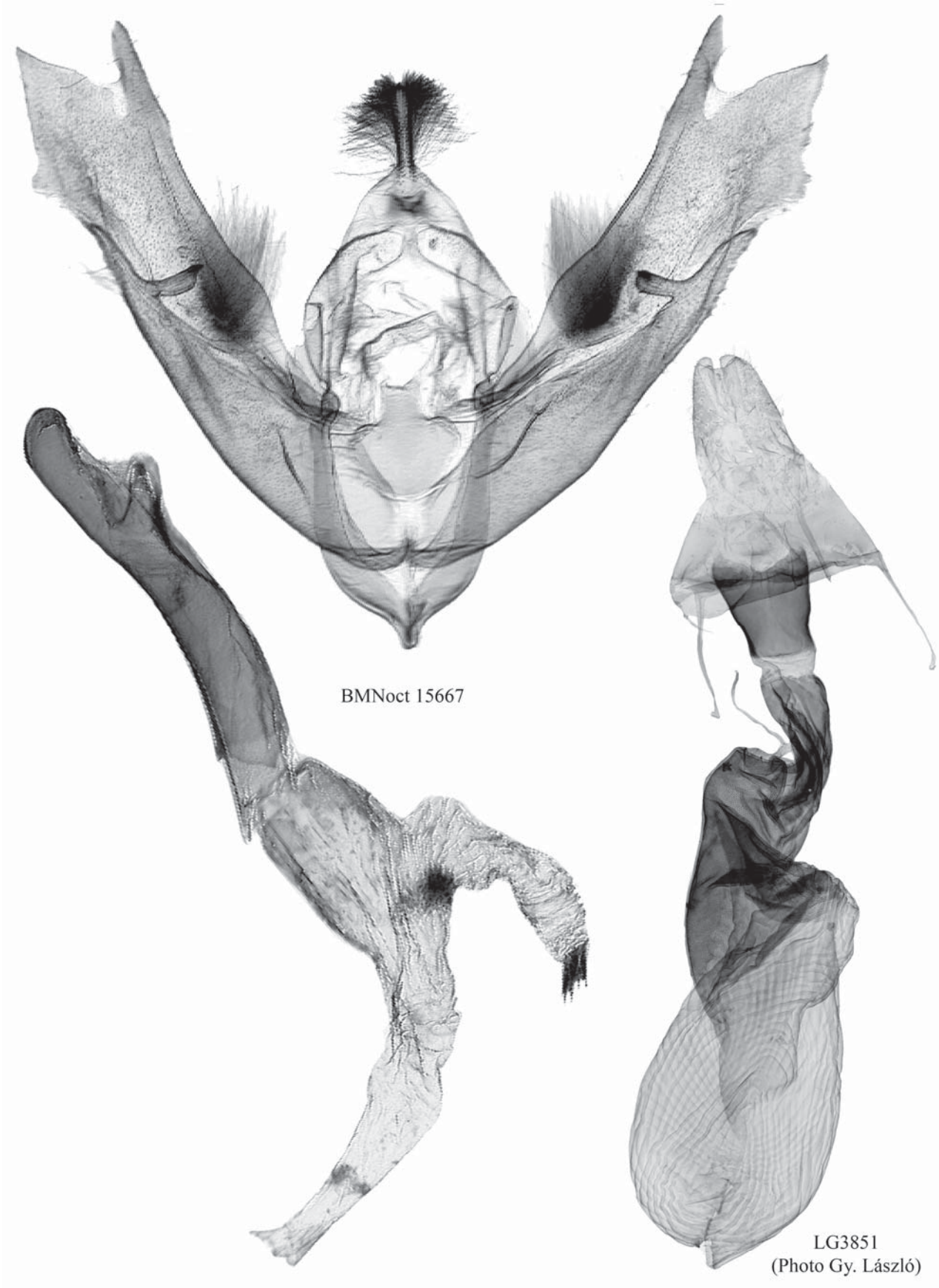
Gen. fig. 18. *Diphtherocome petrichkarolyi* **sp. n.**



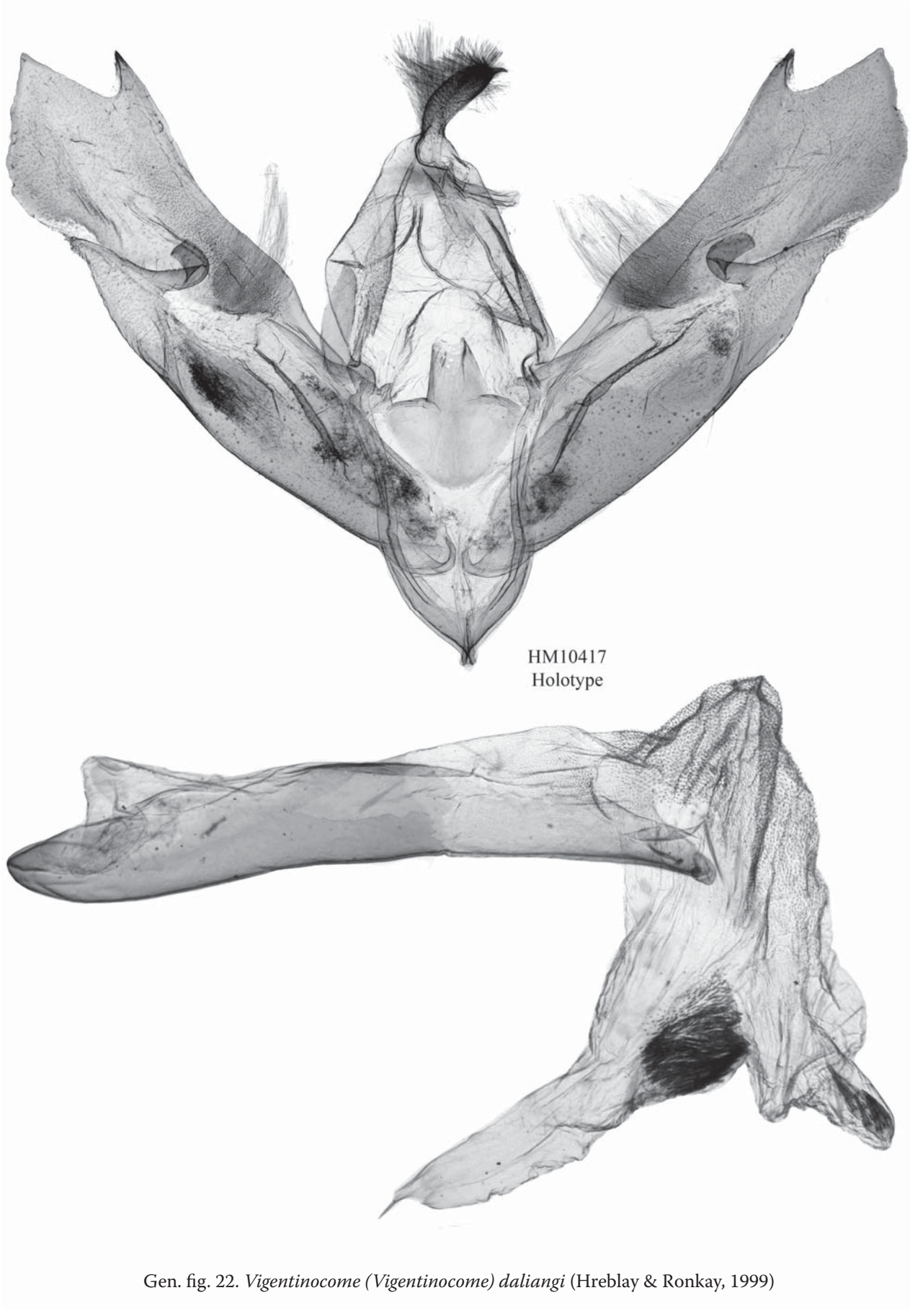
Gen. fig. 19. *Diphtherocome longivalva* Hreblay & Kononenko, 1999



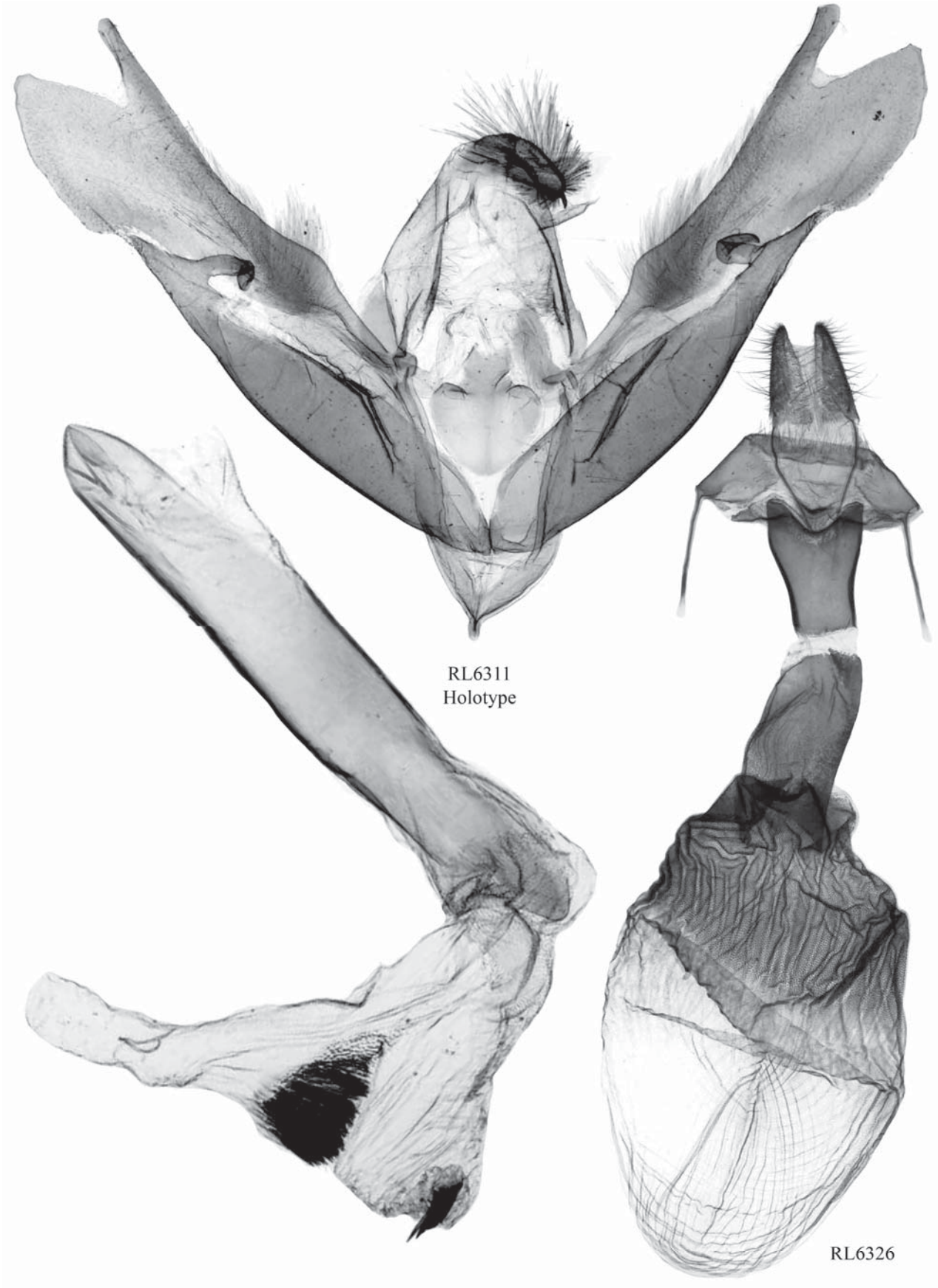
Gen. fig. 20. *Diphtherocome serrata* Hreblay & Kononenko, 1999



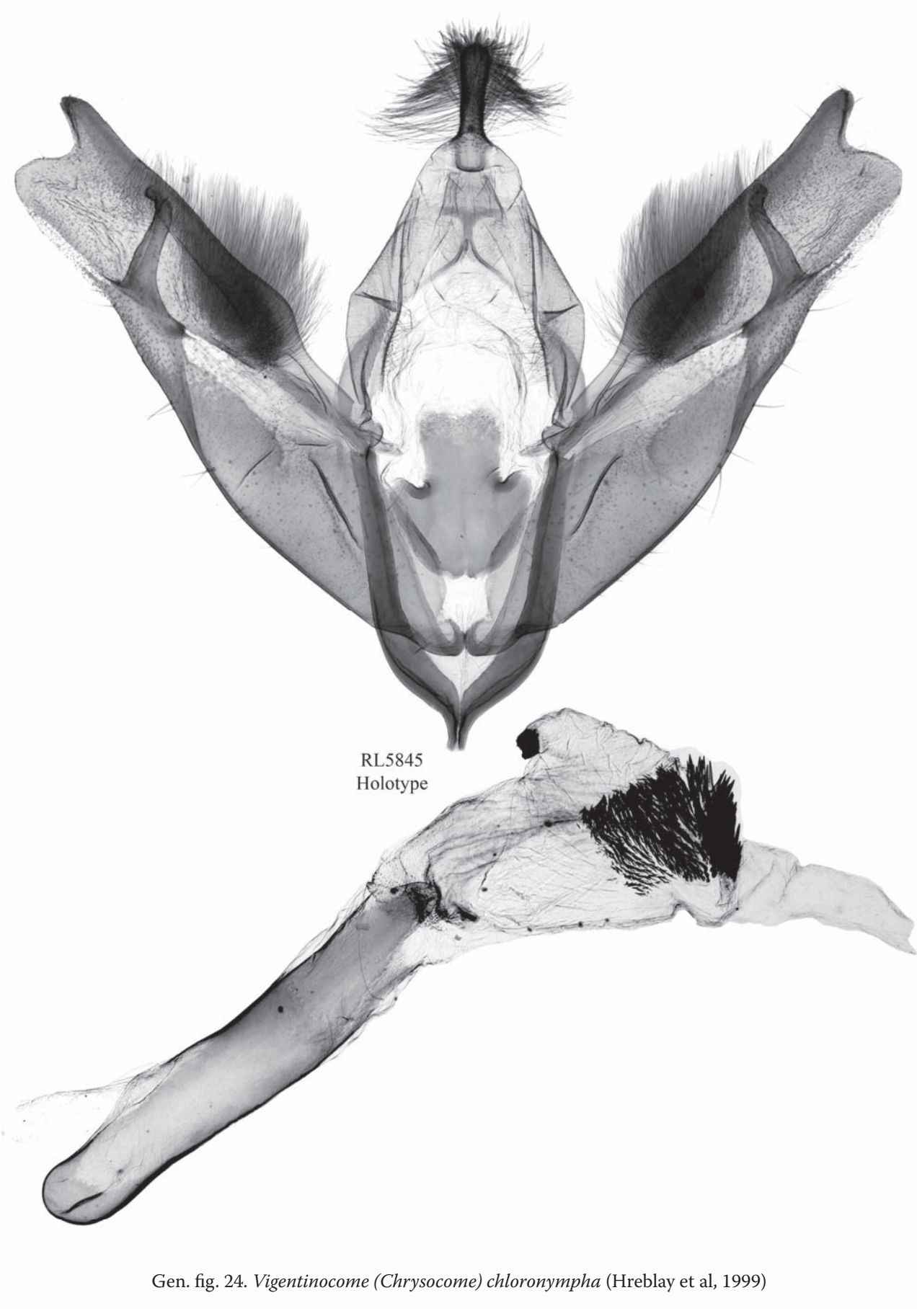
Gen. fig. 21. *Vigentinocome (Vigentinocome) vigens* (Walker, 1865)



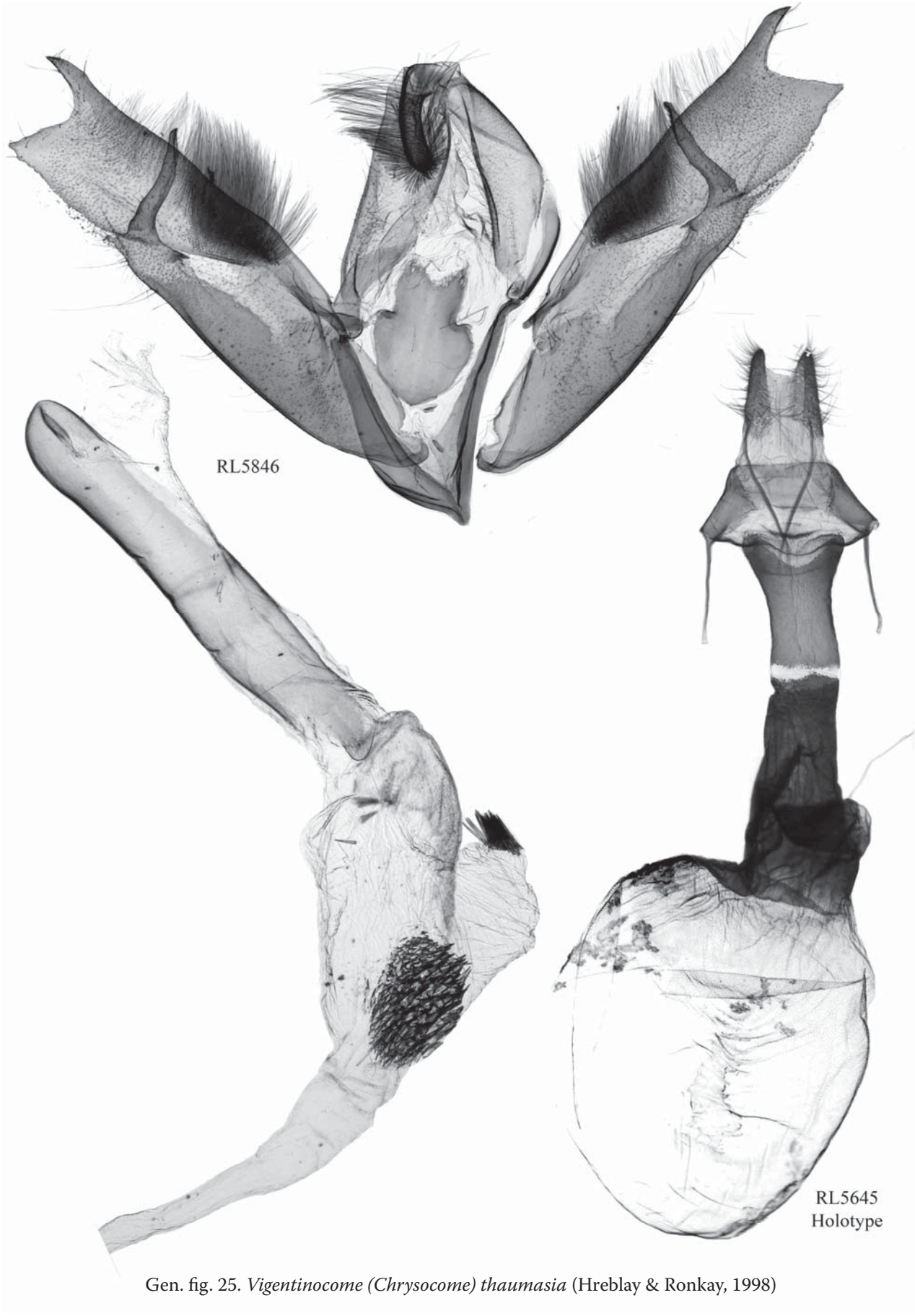
Gen. fig. 22. *Vigentinocome (Vigentinocome) daliangi* (Hreblay & Ronkay, 1999)



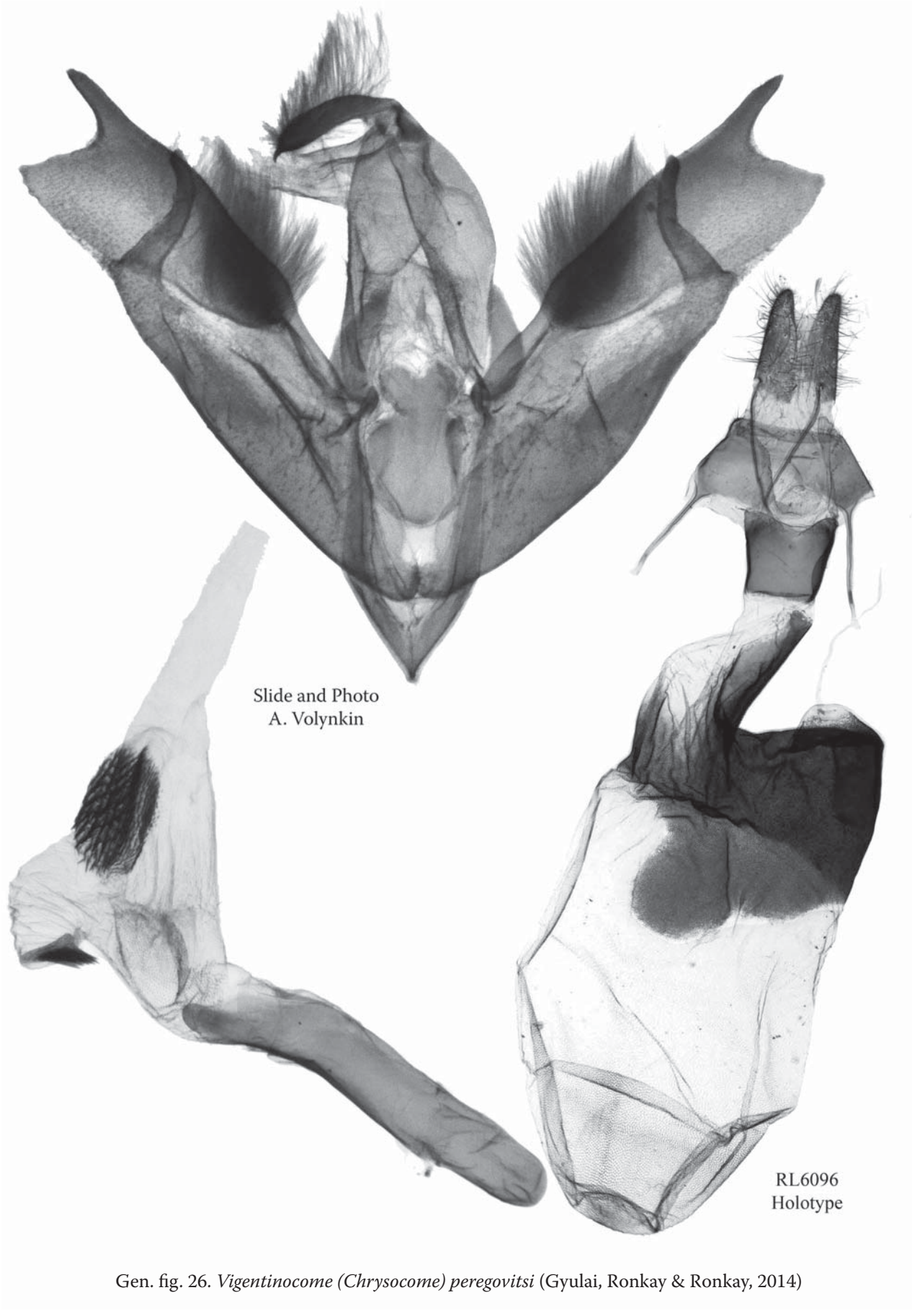
Gen. fig. 23. *Vigentinocome (Vigentinocome) viridissima* (Hreblay & Ronkay, 1999)



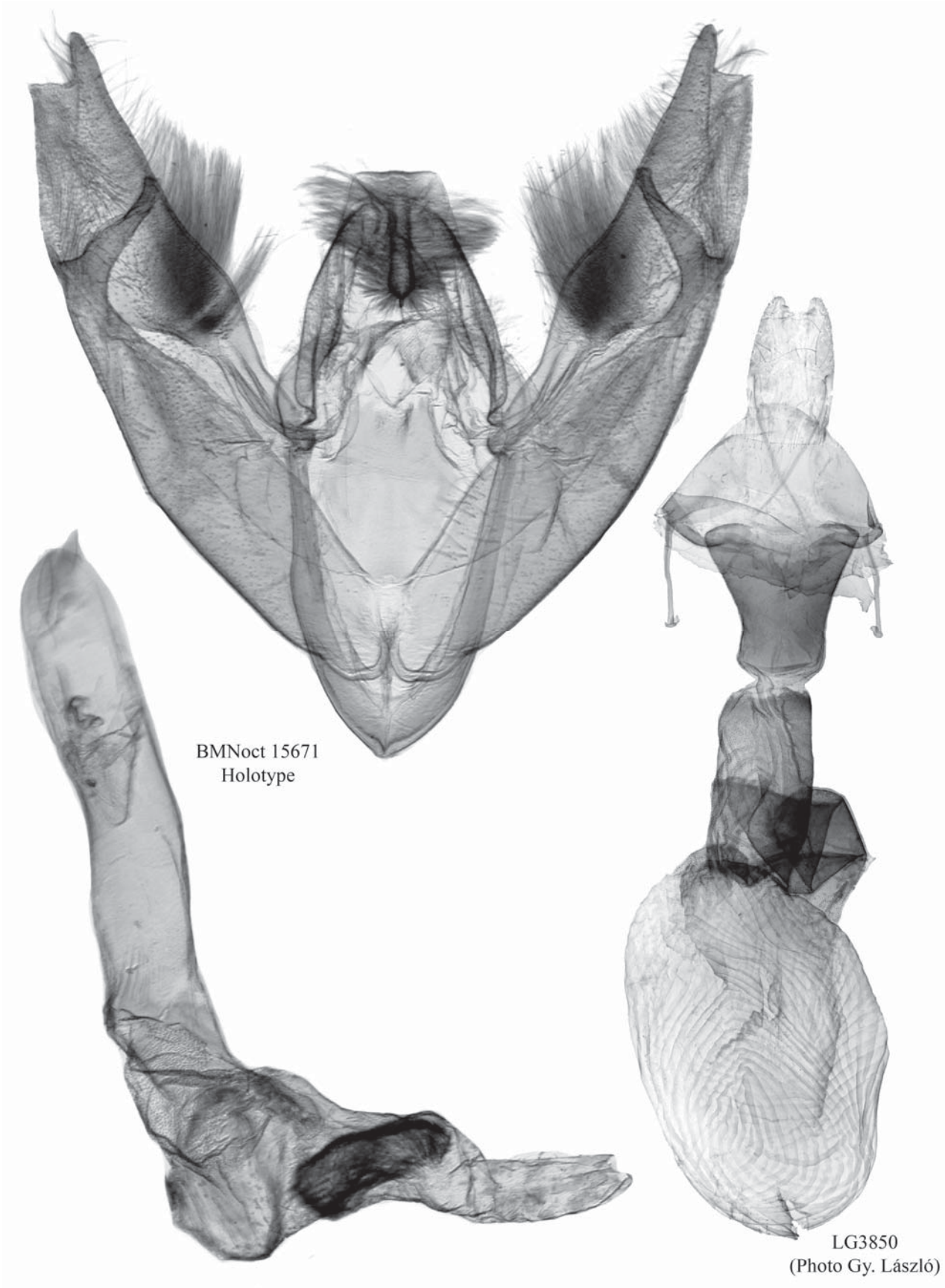
Gen. fig. 24. *Vigentinocome (Chrysocome) chloronympha* (Hreblay et al, 1999)



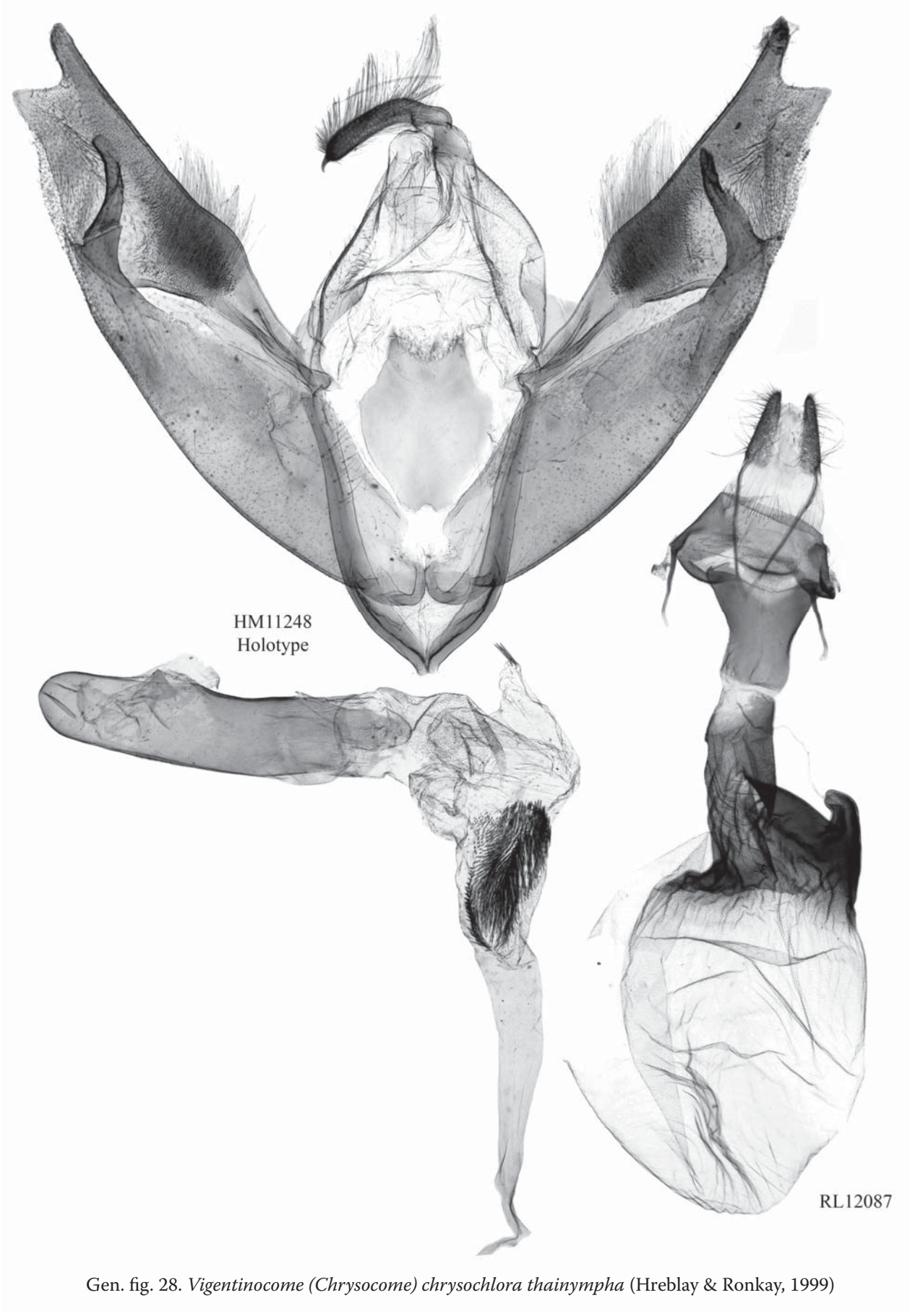
Gen. fig. 25. *Vigentinocome (Chrysocome) thaumasia* (Hreblay & Ronkay, 1998)



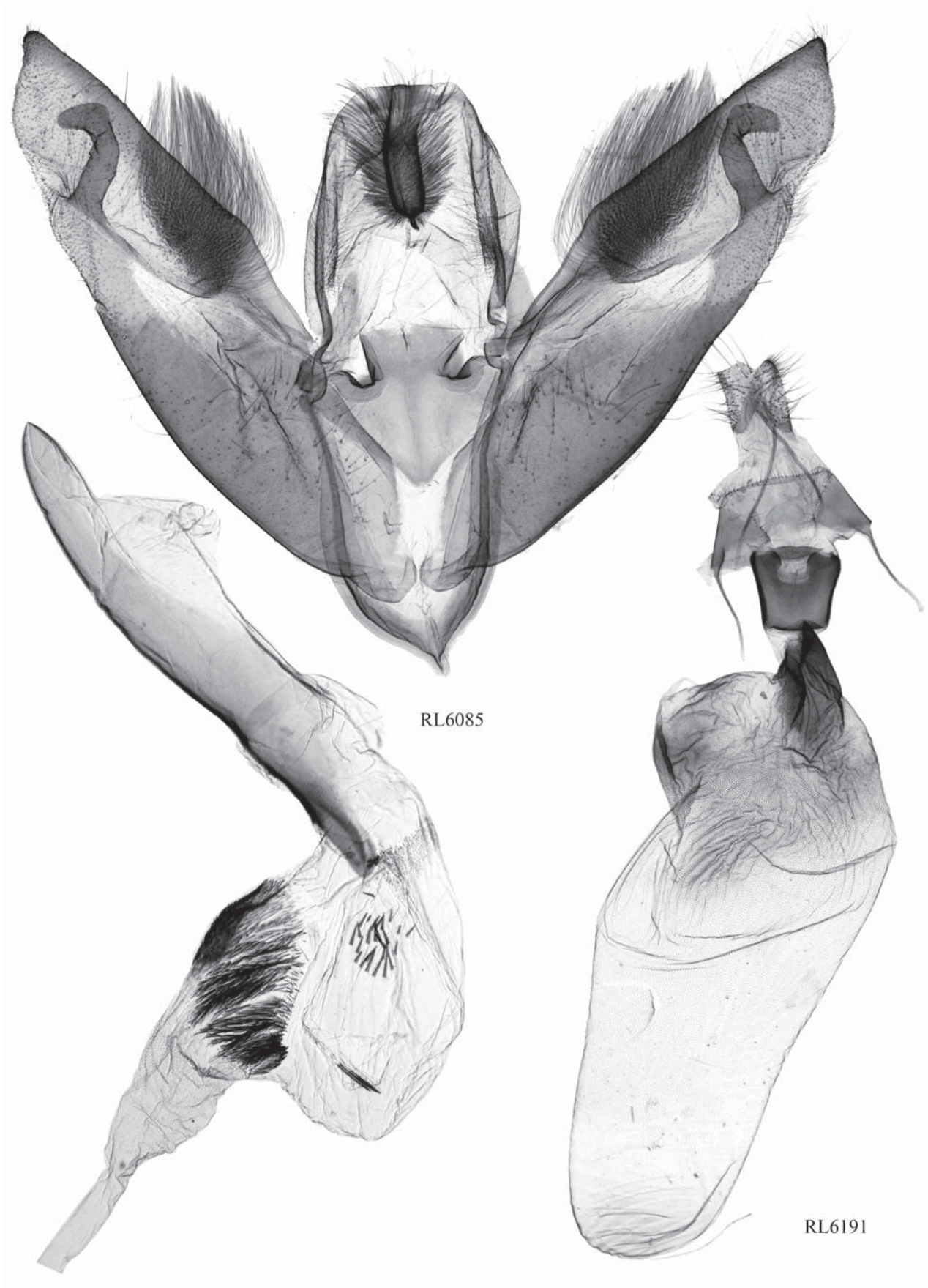
Gen. fig. 26. *Vigentinocome (Chrysocome) peregovitsi* (Gyulai, Ronkay & Ronkay, 2014)



Gen. fig. 27. *Vigentinocome (Chrysocome) chrysochlora chrysochlora* (Hampson, 1898)



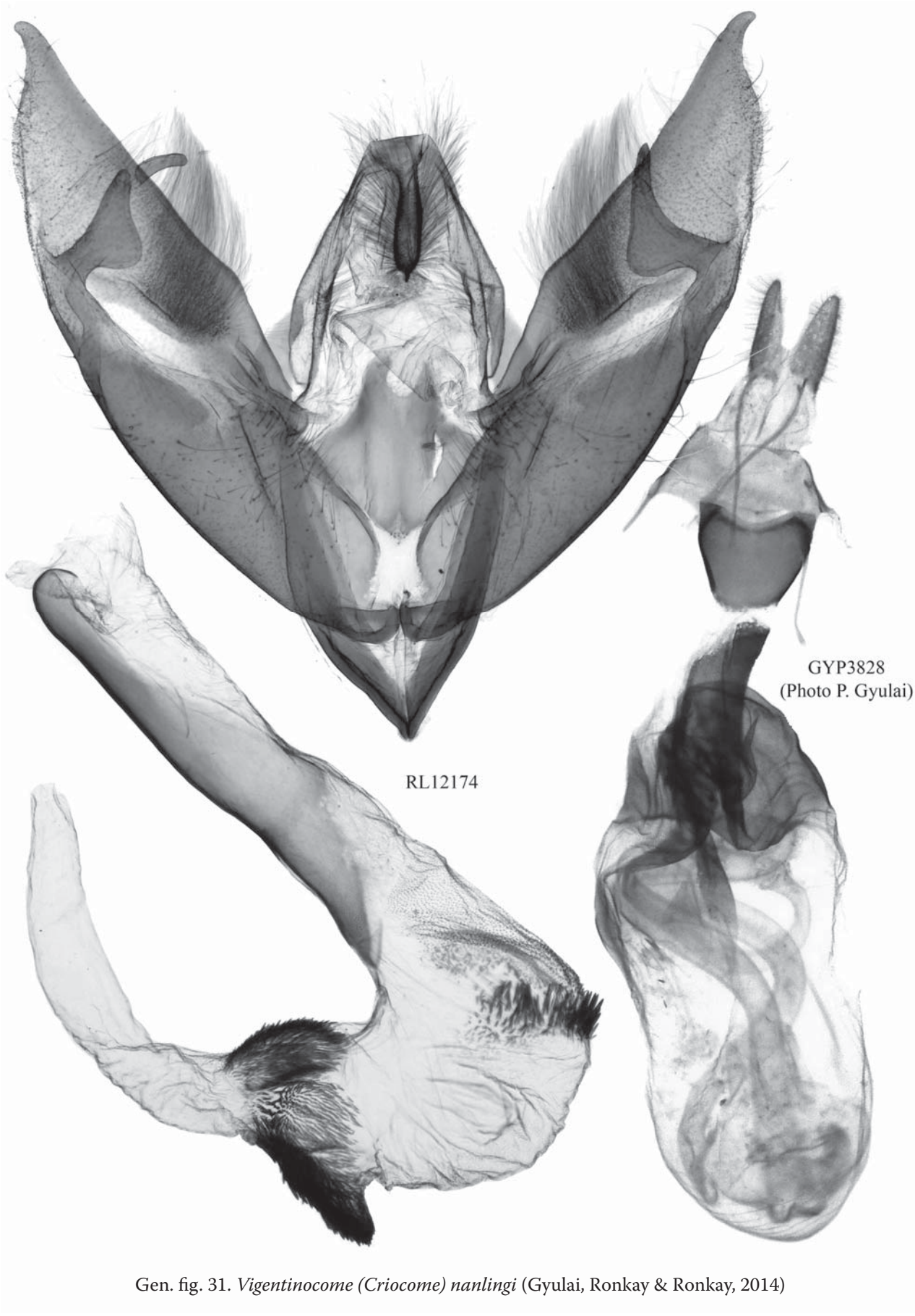
Gen. fig. 28. *Vigentinocome (Chrysocome) chrysochlora thainympha* (Hreblay & Ronkay, 1999)



Gen. fig. 29. *Vigentinocome (Criocome) impectinata* (Hreblay, Peregovits & Ronkay, 1999)



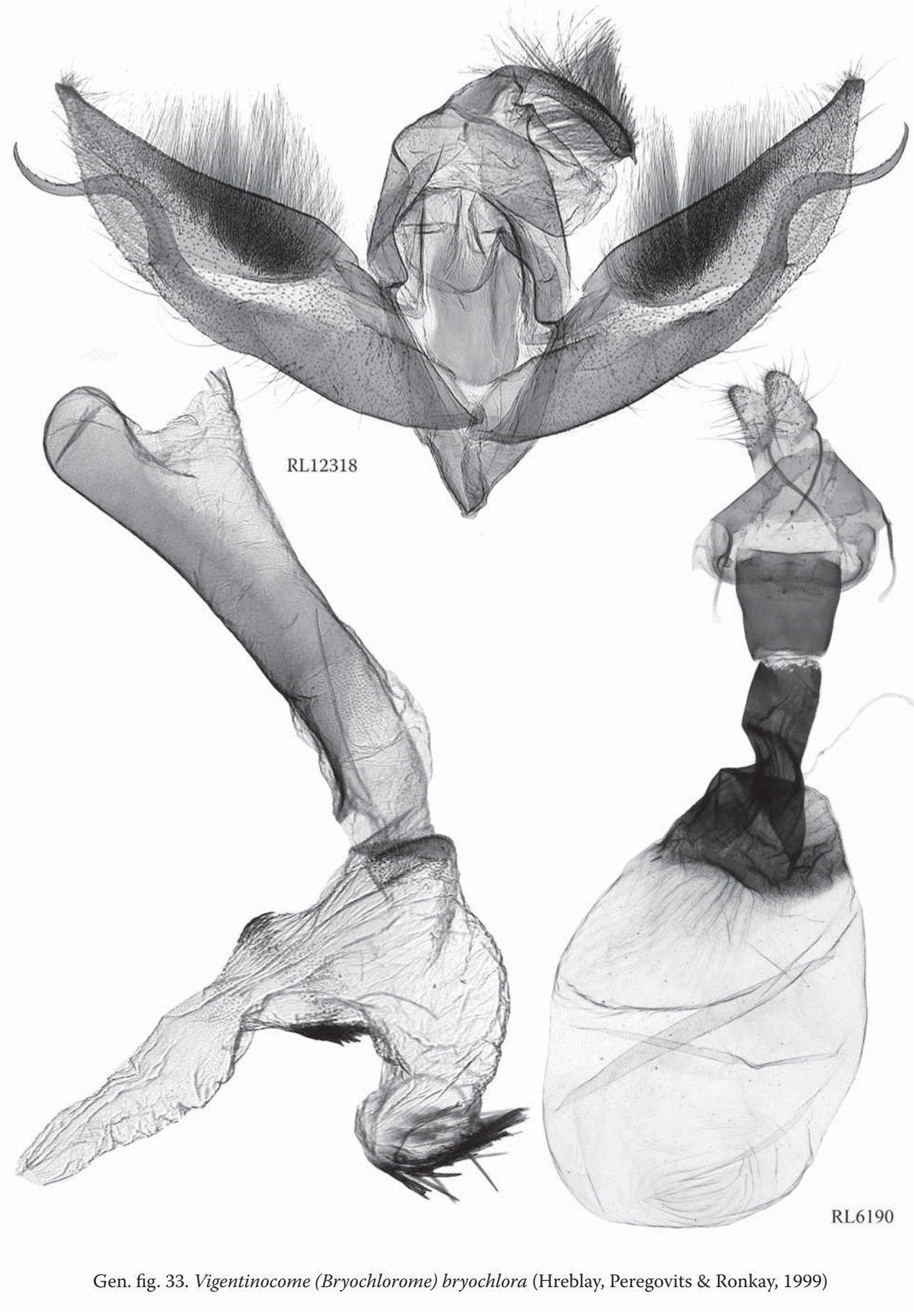
Gen. fig. 30. *Vigentinocome (Criocome) nepalichlora* (Hreblay & Ronkay, 1999)



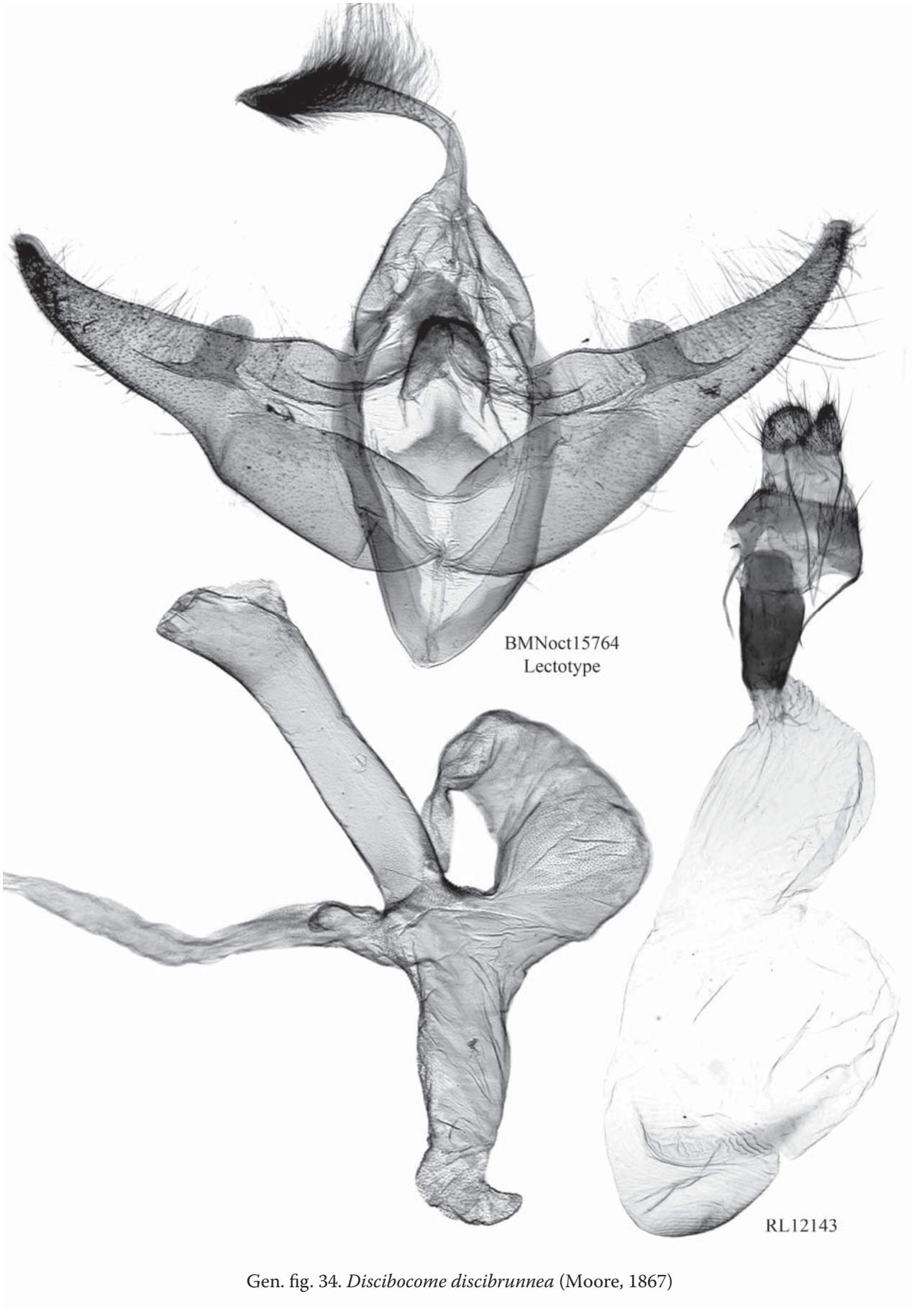
Gen. fig. 31. *Vigentinocome (Criocome) nanlingi* (Gyulai, Ronkay & Ronkay, 2014)



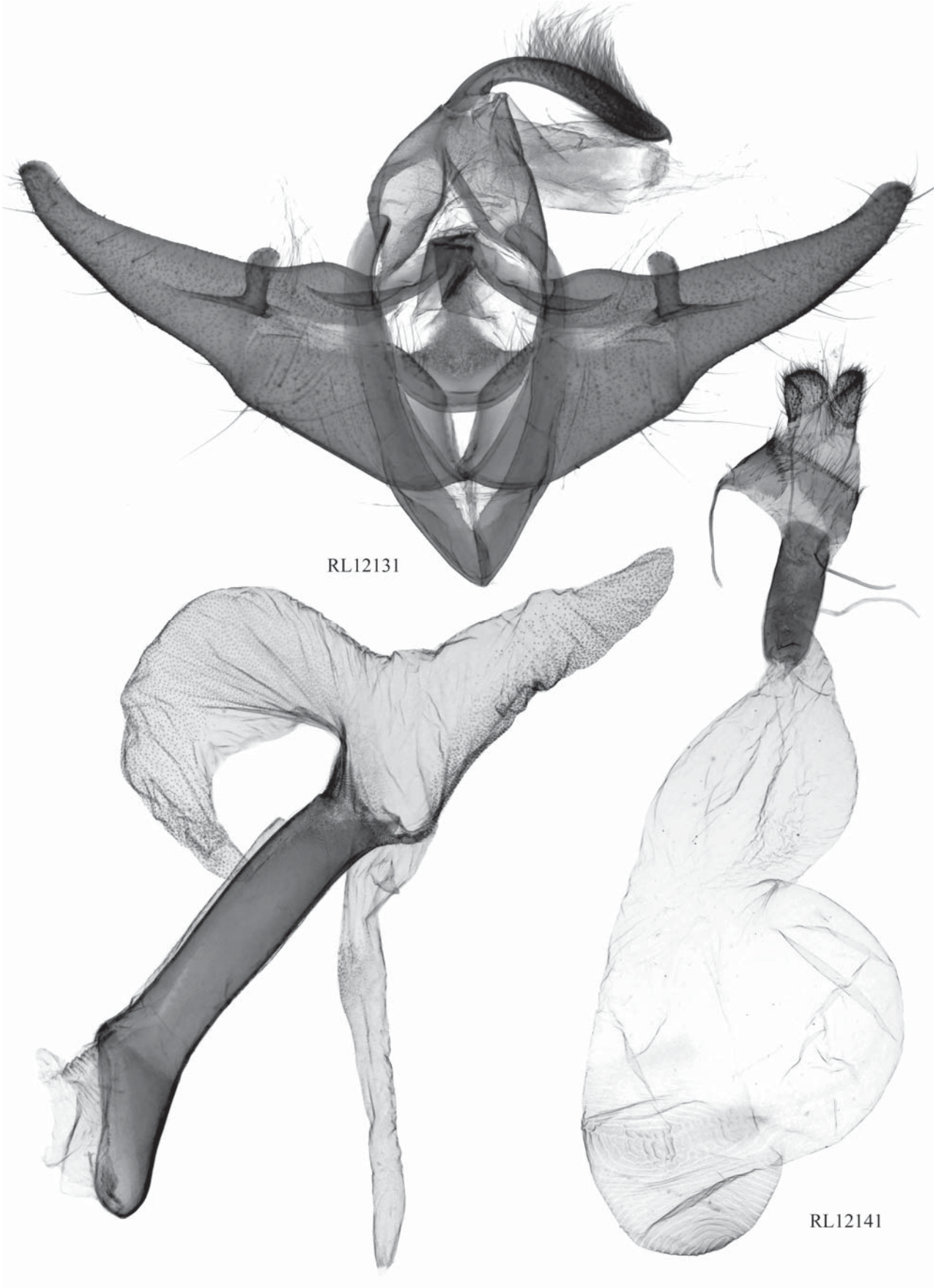
Gen. fig. 32. *Vigentinocome (Criocome) autumnalis* (B.S. Chang, 1991)



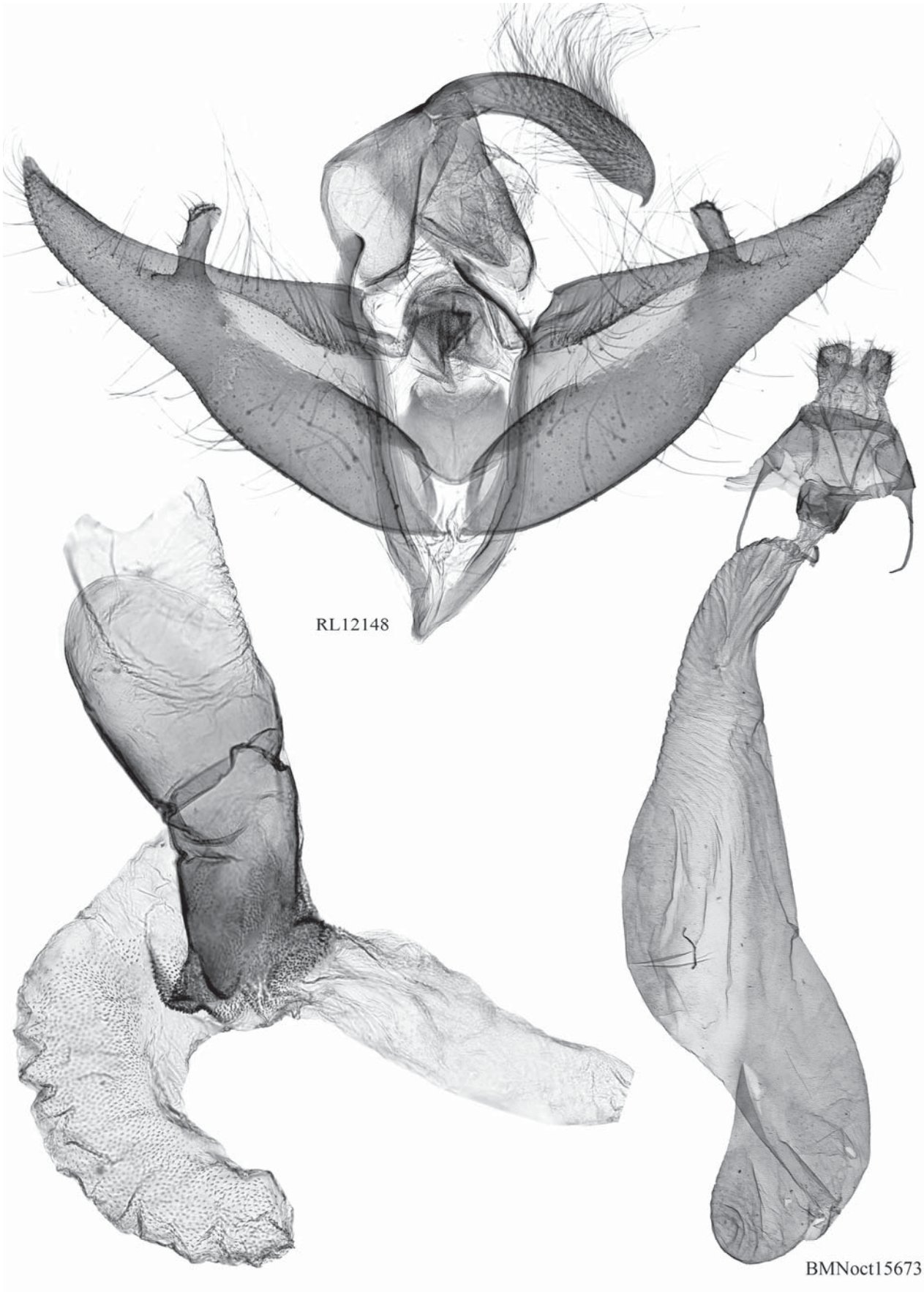
Gen. fig. 33. *Vigentinocome (Bryochlorome) bryochlora* (Hreblay, Peregovits & Ronkay, 1999)



Gen. fig. 34. *Discibocome discibrunnea* (Moore, 1867)



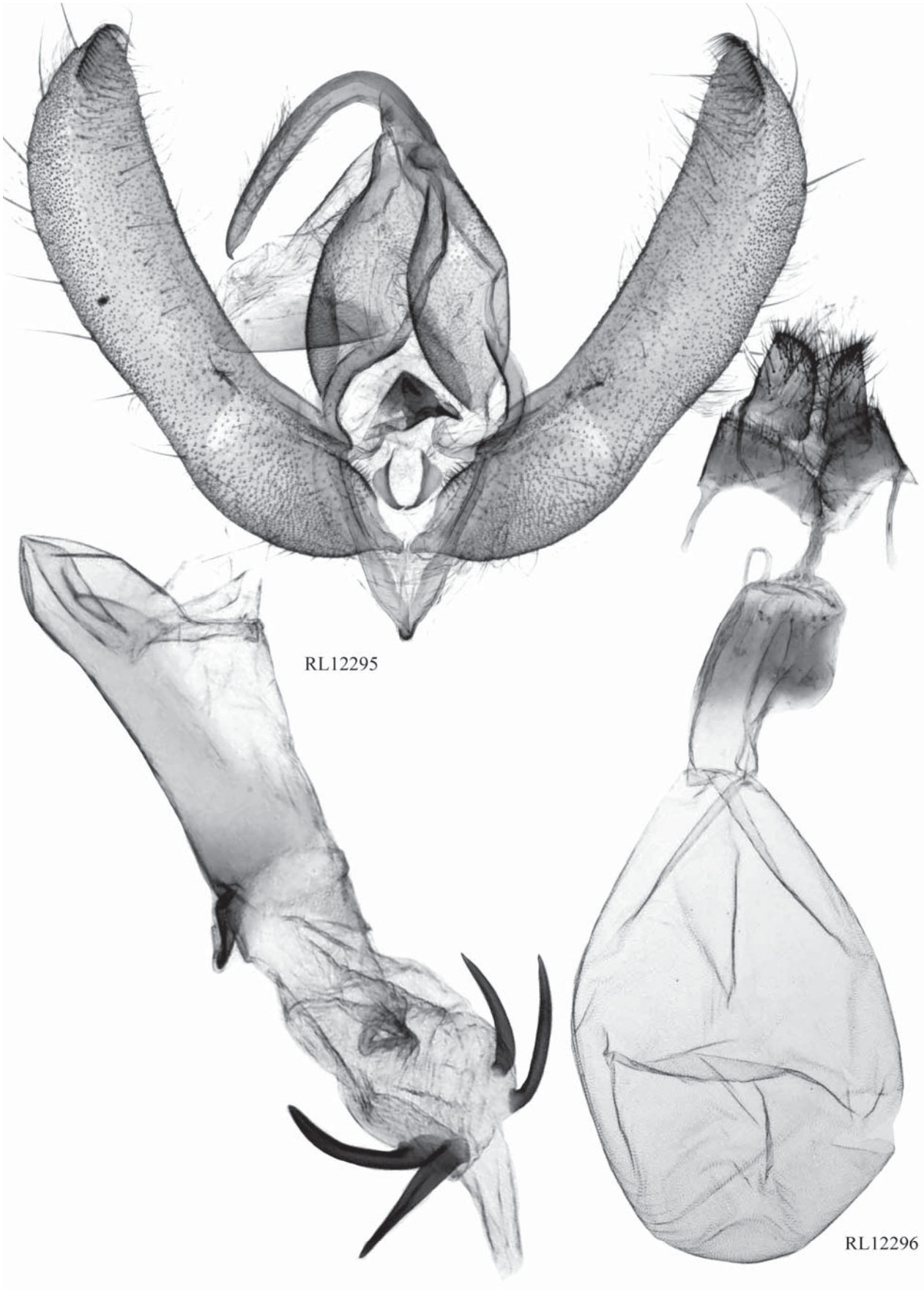
Gen. fig. 35. *Discibocome pulchra* (Wileman, 1912)



Gen. fig. 36. *Discibocome marmorea* (Leech, 1900)



Gen. fig. 37. *Discibocome ligula* (Gyulai, Ronkay & Ronkay, 2014)



Gen. fig. 38. *Nacna malachitis* (Oberthür, 1880)



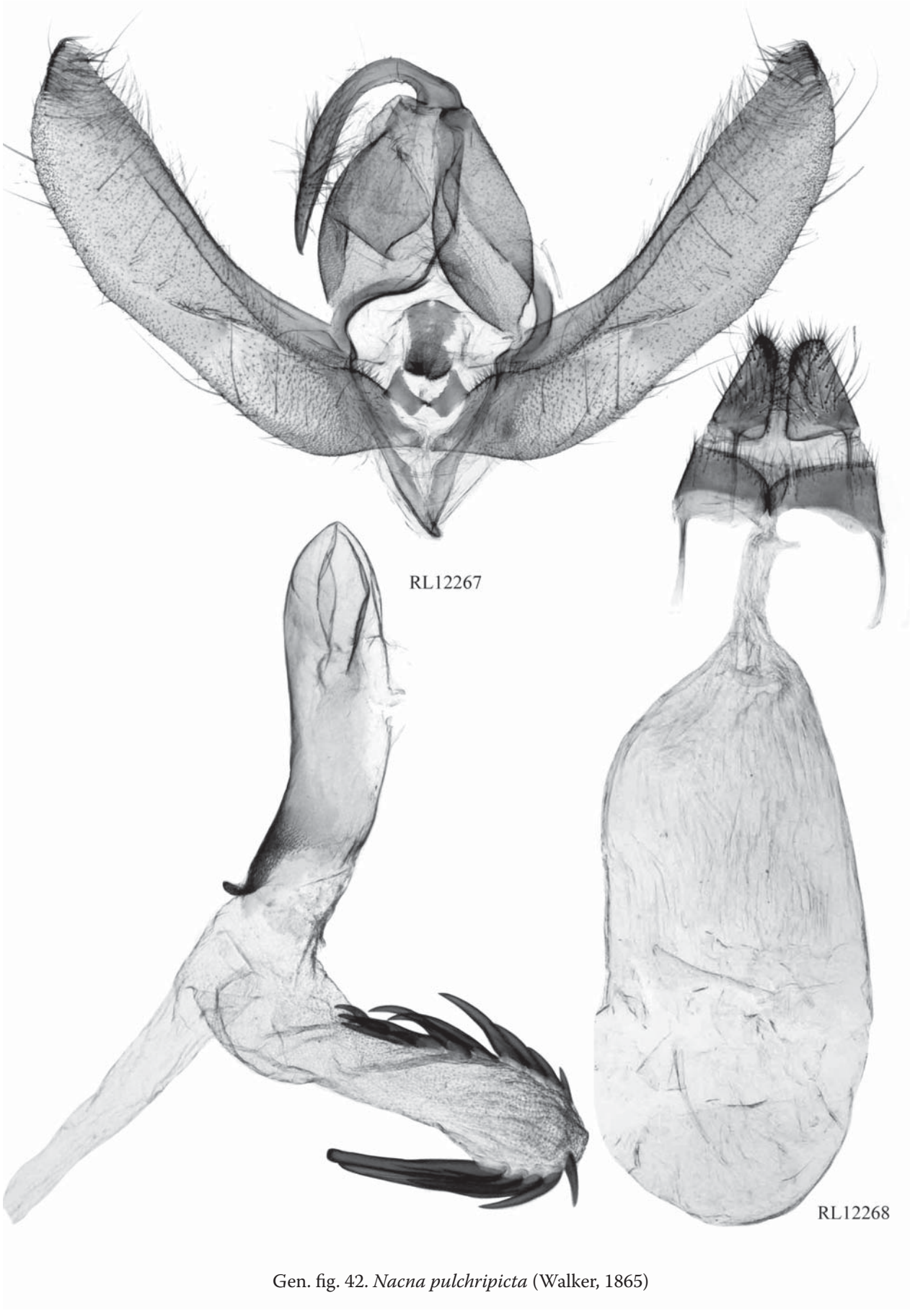
Gen. fig. 39. *Nacna splendens* (Moore, 1888)



Gen. fig. 40. *Nacna buschmannferenci* **sp. n.**



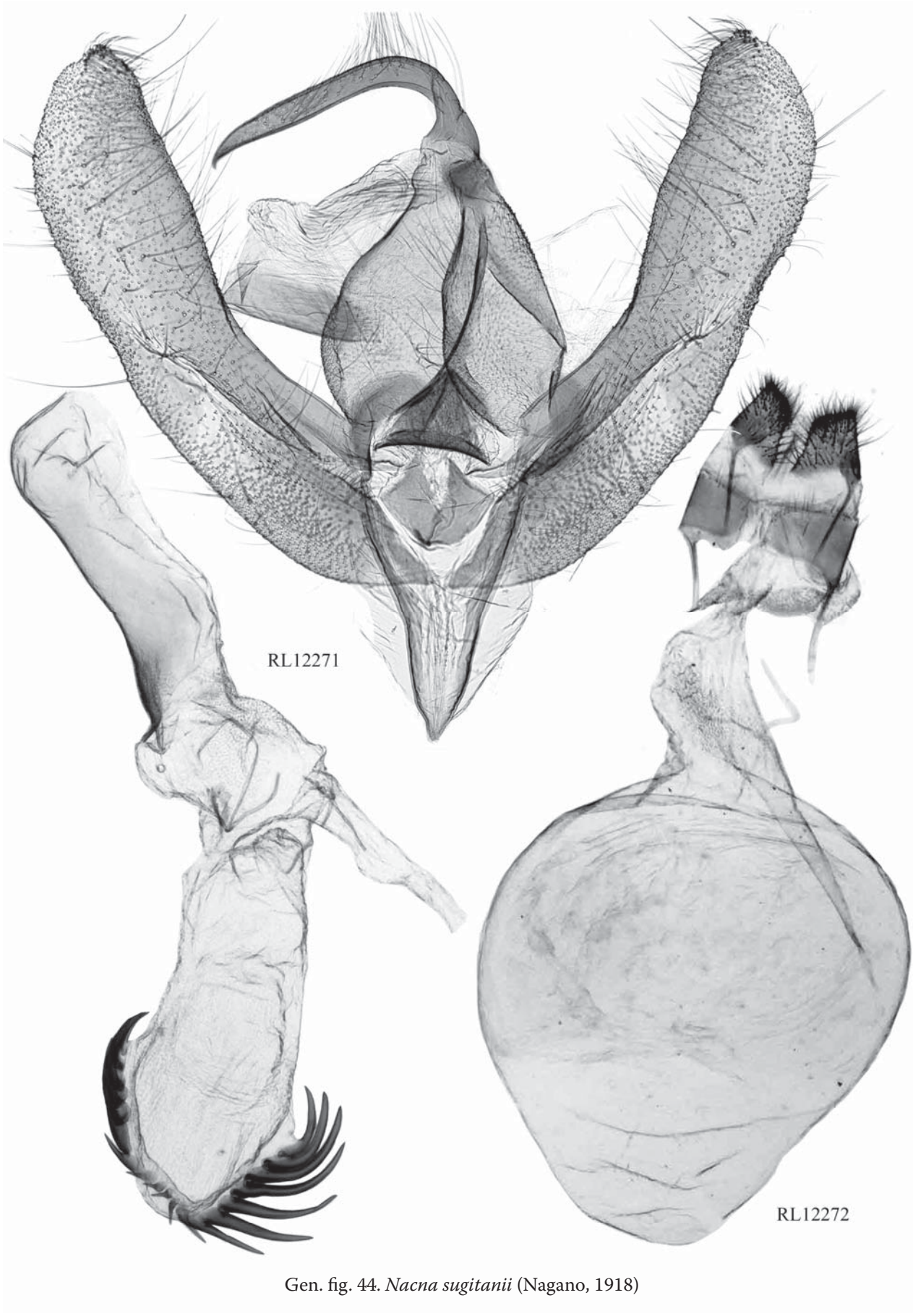
Gen. fig. 41. *Nacna prasinaria* (Walker, 1865)



Gen. fig. 42. *Nacna pulchripicta* (Walker, 1865)



Gen. fig. 43. *Nacna smaragdina* (Draudt, 1937)



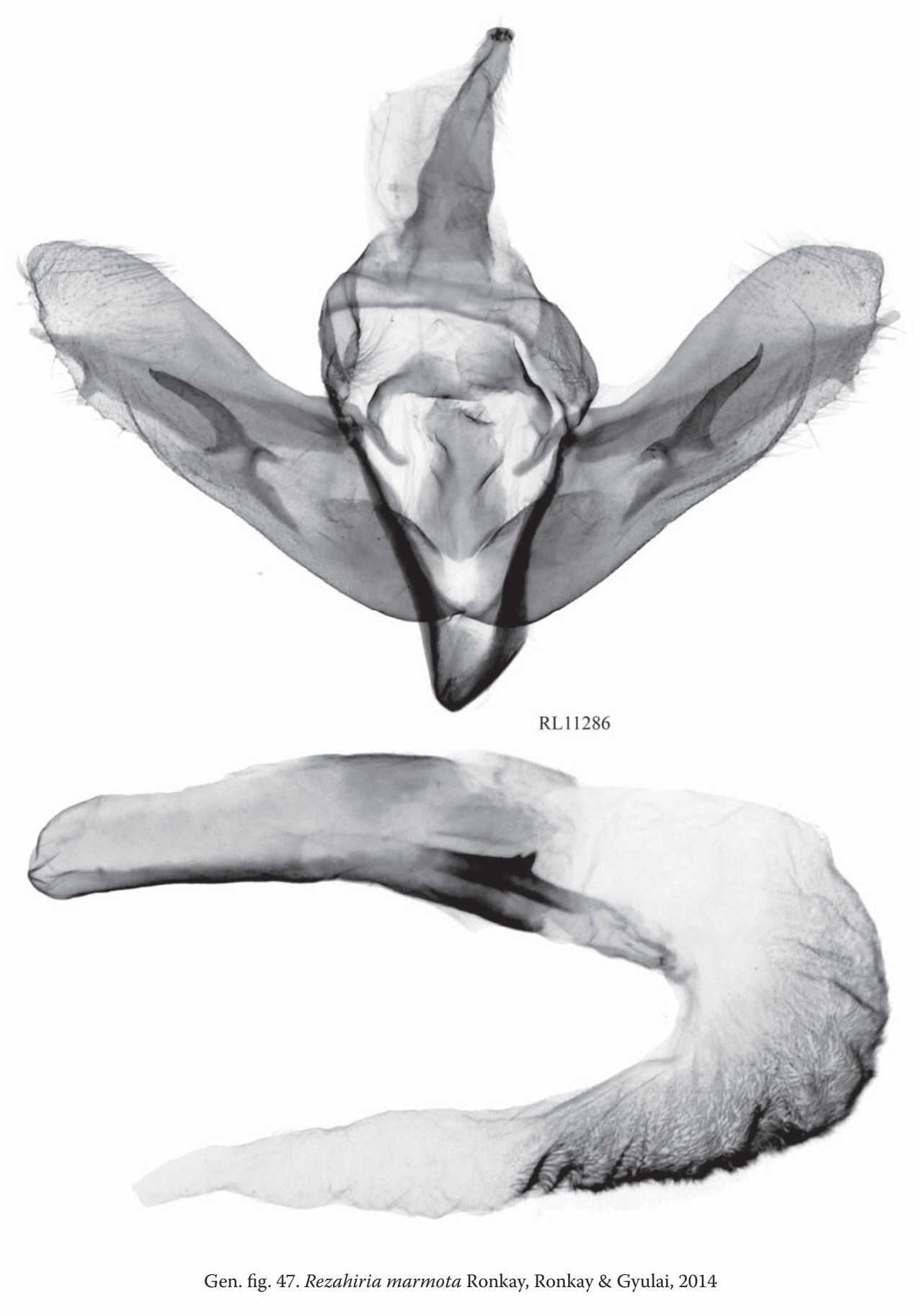
Gen. fig. 44. *Nacna sugitanii* (Nagano, 1918)



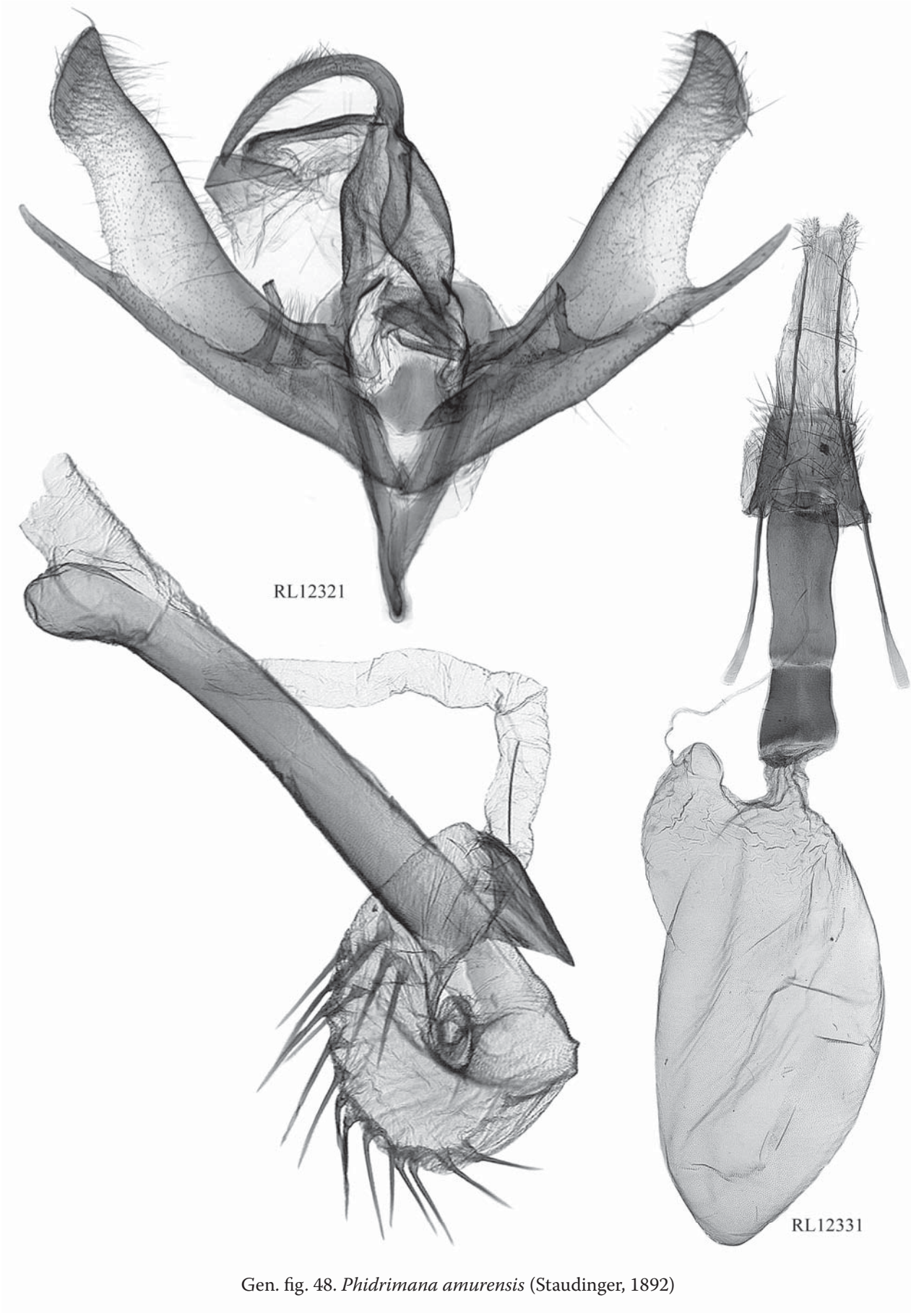
Gen. fig. 45. *Guntia chorogica* Shchetkin, 1980



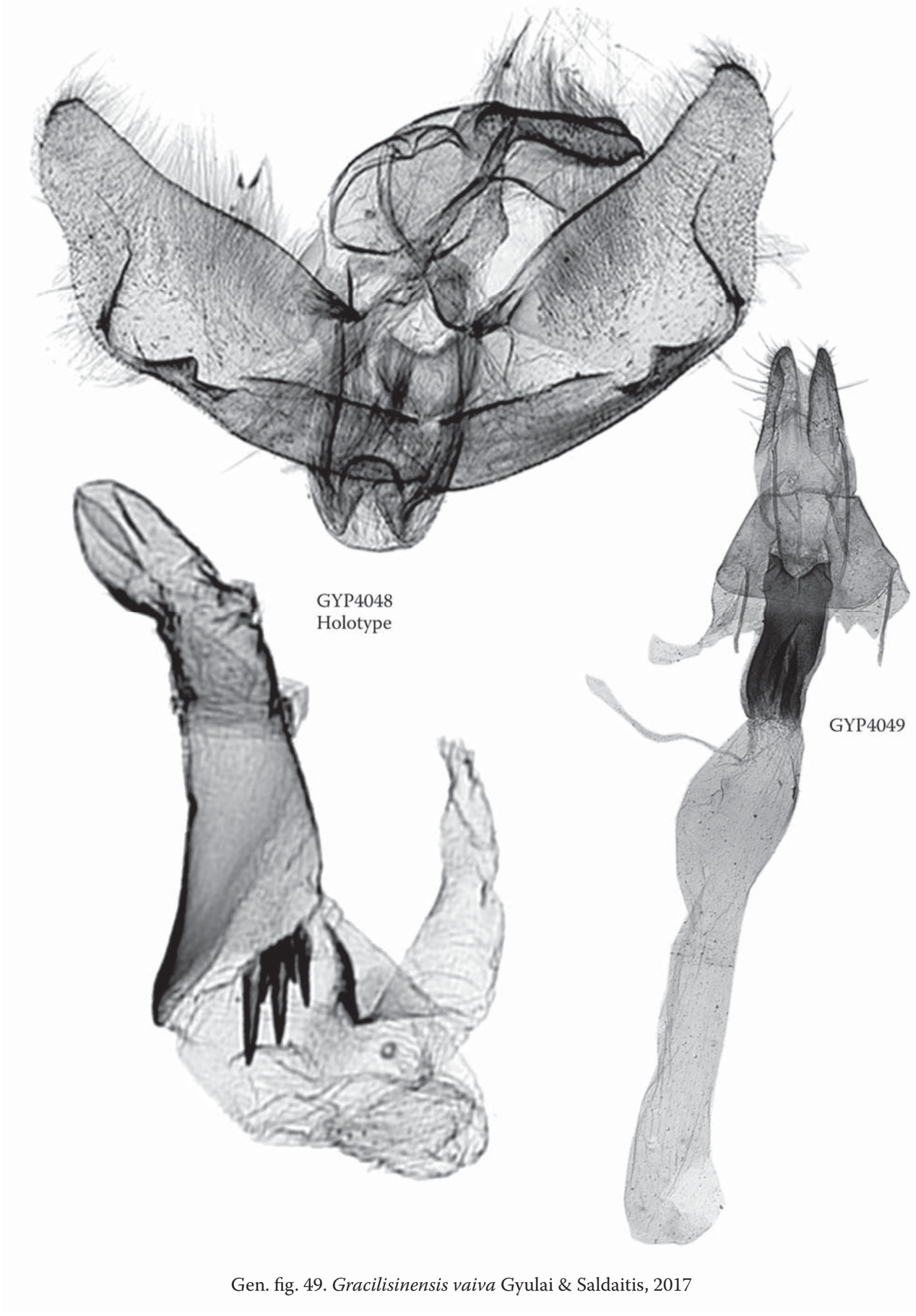
Gen. fig. 46. *Guntia iranica* Ronkay, Ronkay & Gyulai, 2014



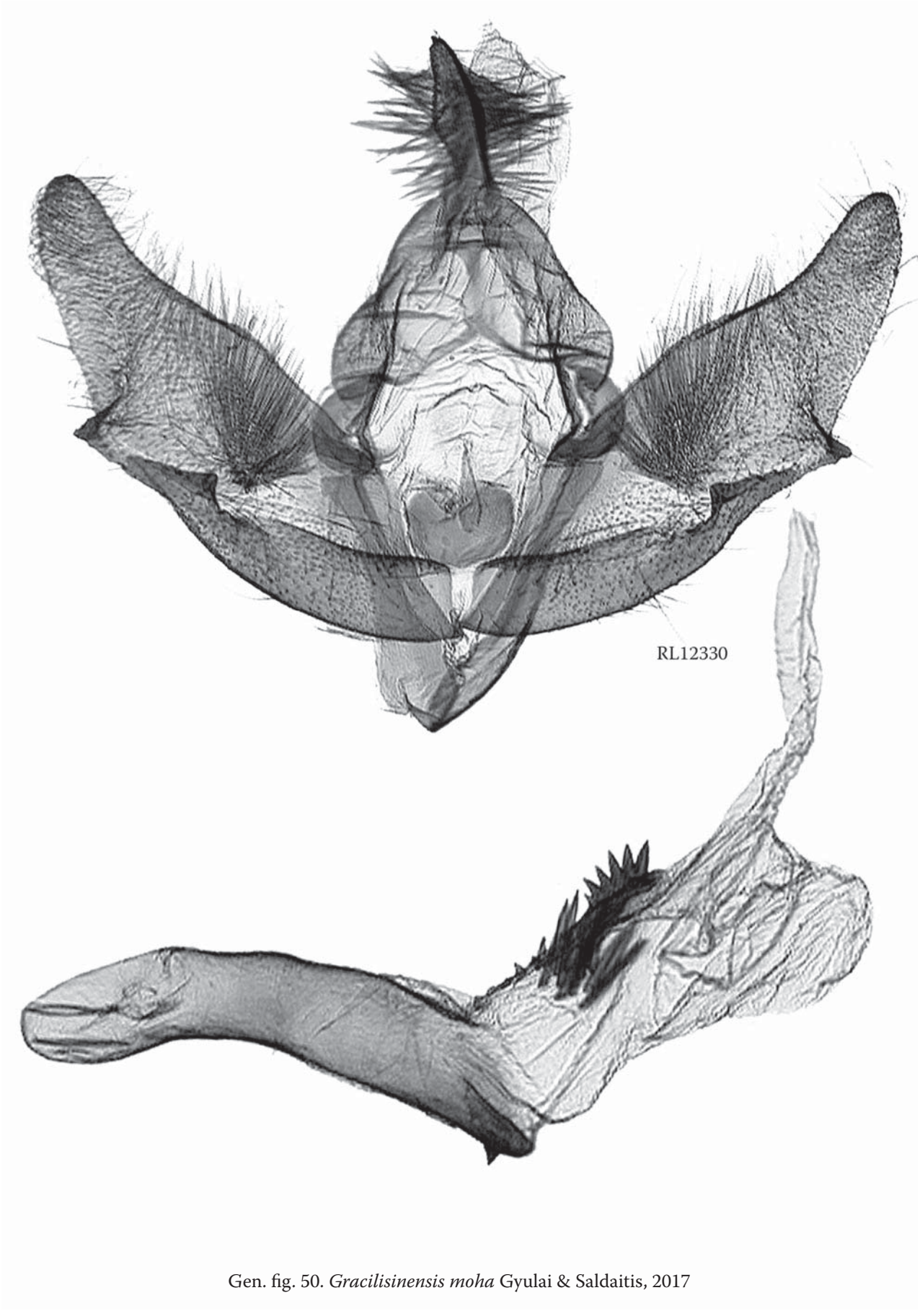
Gen. fig. 47. *Rezahiria marmota* Ronkay, Ronkay & Gyulai, 2014



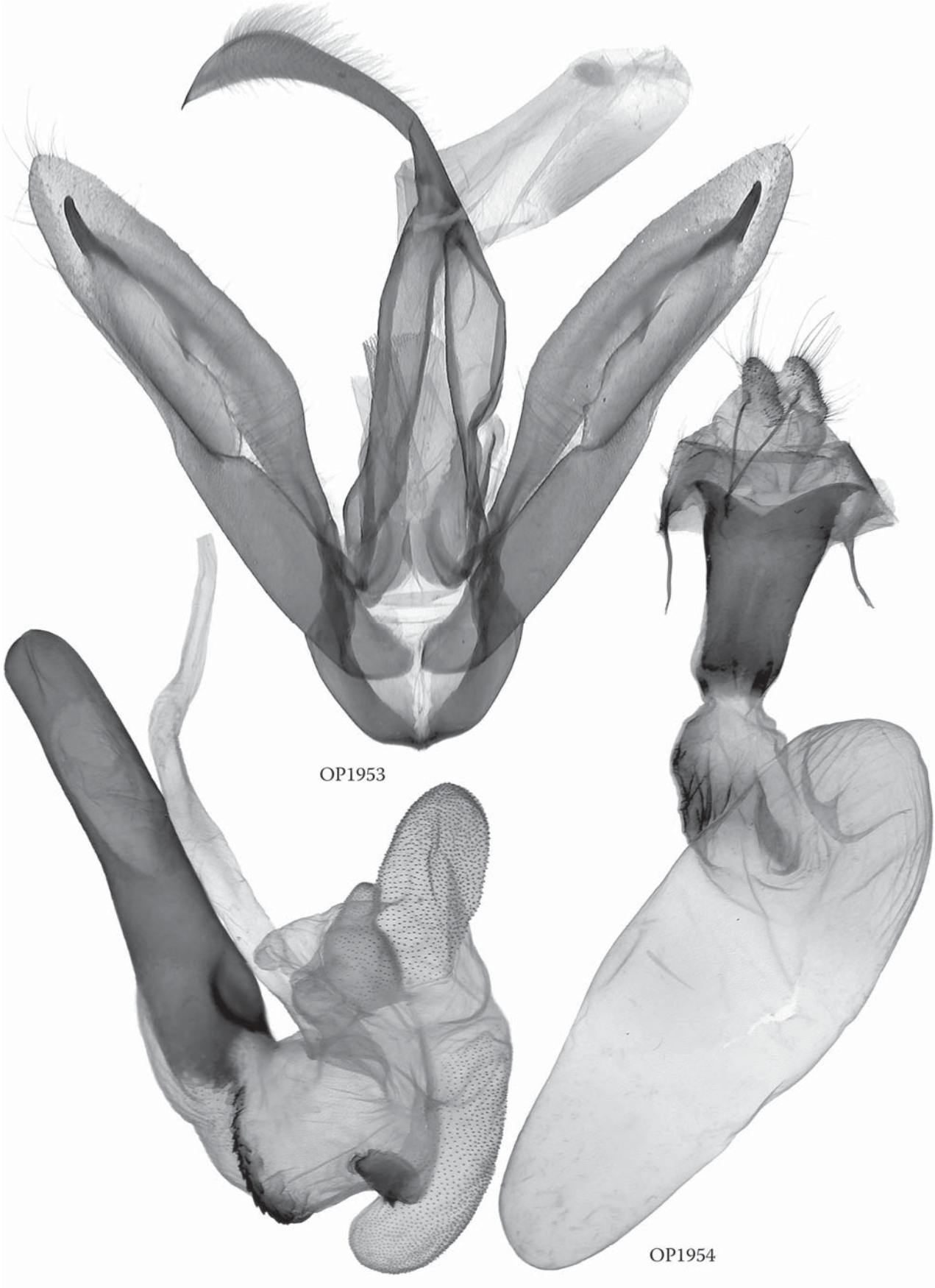
Gen. fig. 48. *Phidrimana amurensis* (Staudinger, 1892)



Gen. fig. 49. *Gracilisinensis vaiva* Gyulai & Saldaitis, 2017



Gen. fig. 50. *Gracilisinensis moha* Gyulai & Saldaitis, 2017



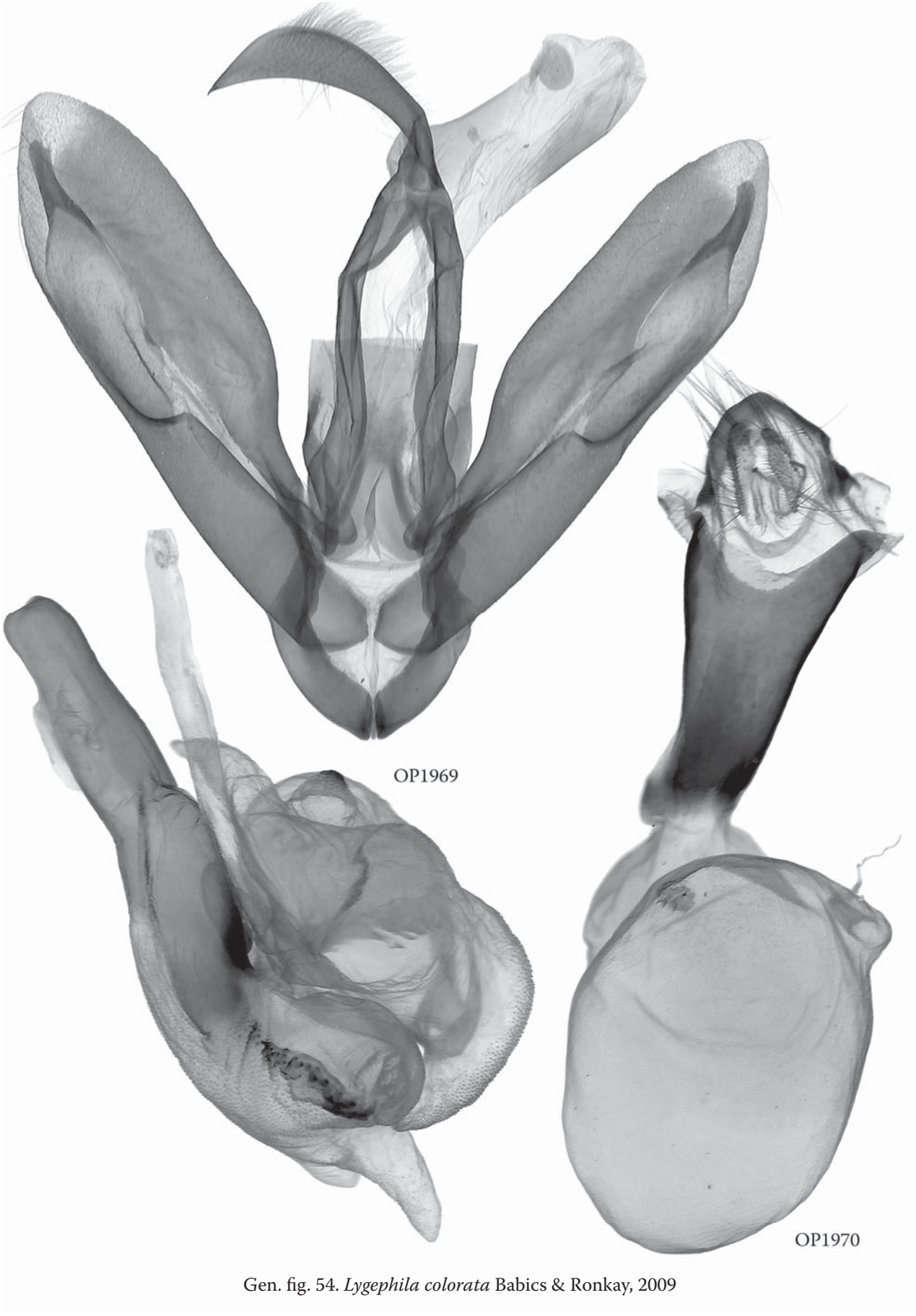
Gen. fig. 51. *Lygephila lusoria lusoria* (Linnaeus, 1758)



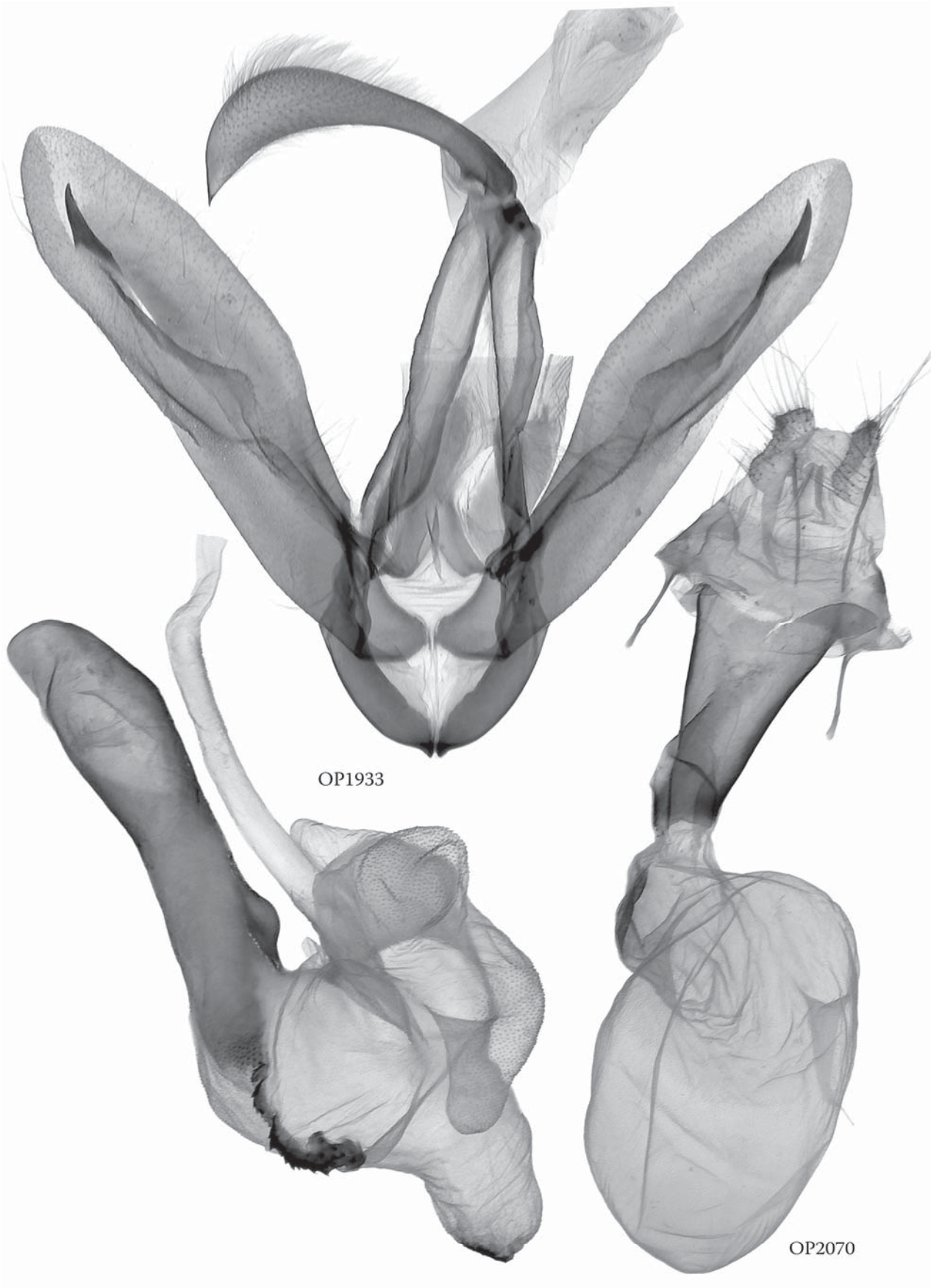
Gen. fig. 52. *Lygephila lusoria glycyrrhizae* (Rambur, 1866)



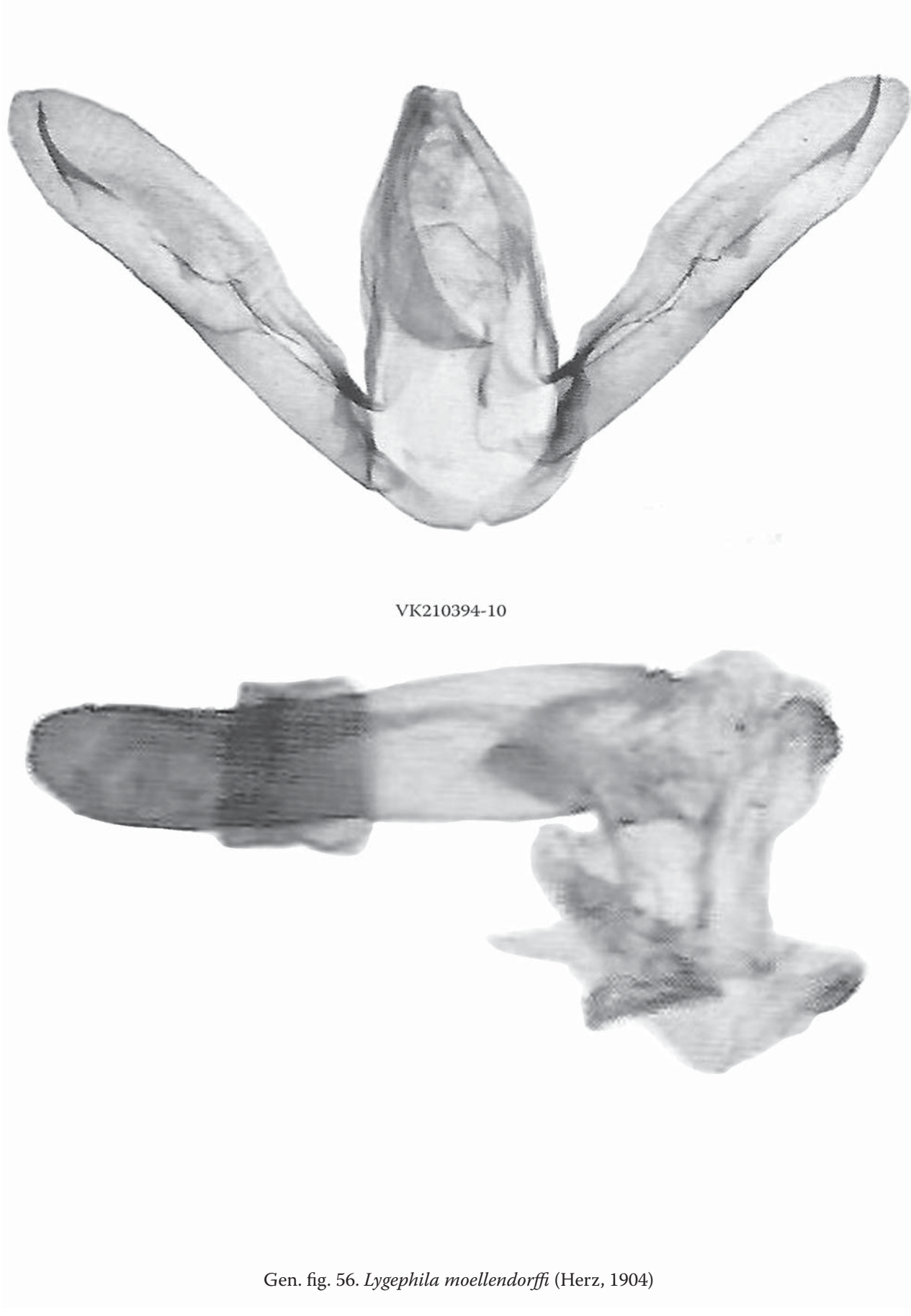
Gen. fig. 53. *Lygephila amasina* (Staudinger, 1878)



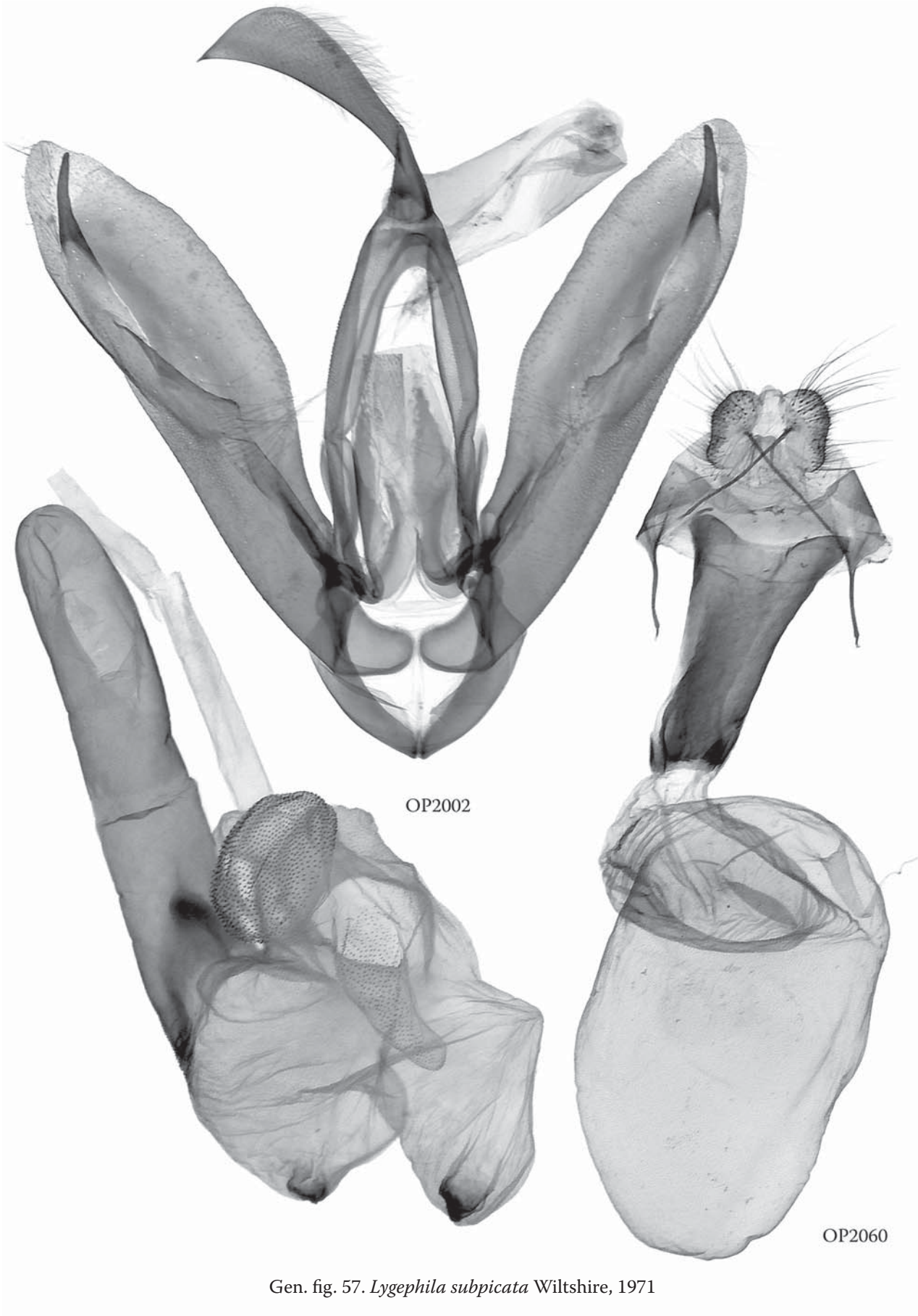
Gen. fig. 54. *Lygephila colorata* Babics & Ronkay, 2009



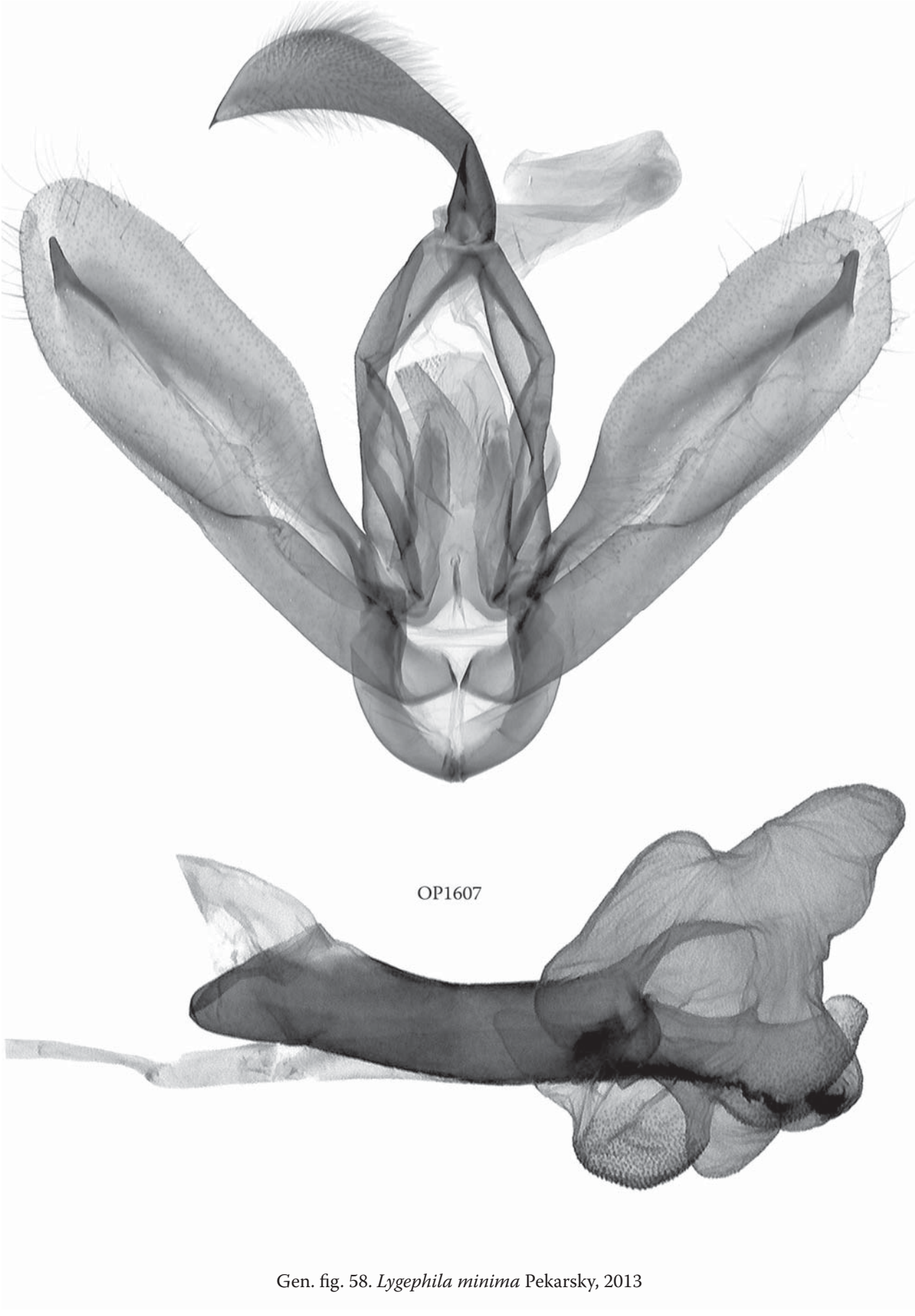
Gen. fig. 55. *Lygephila pallida* (Bang-Haas, 1907)



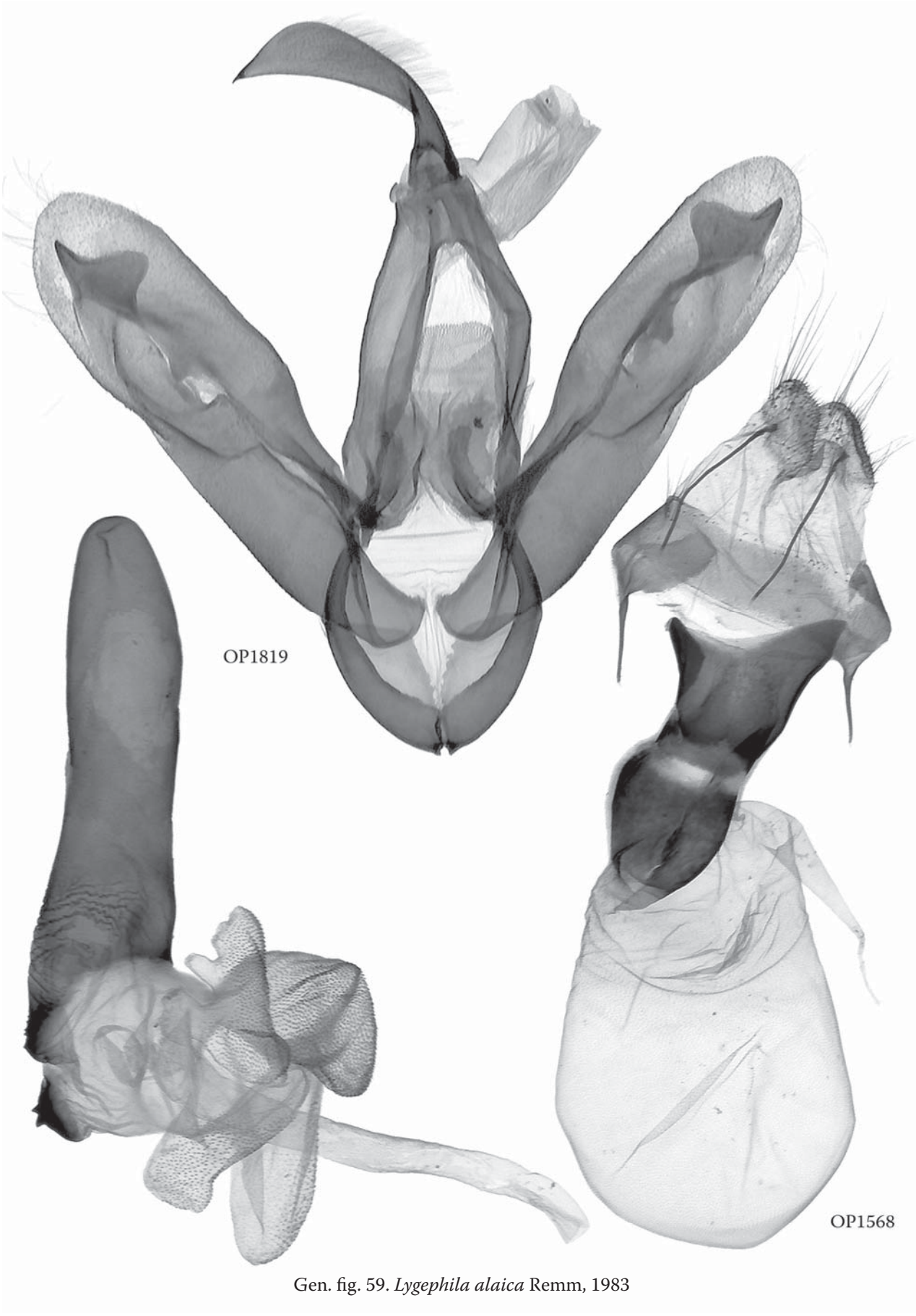
Gen. fig. 56. *Lygephila moellendorffi* (Herz, 1904)



Gen. fig. 57. *Lygephila subpicata* Wiltshire, 1971



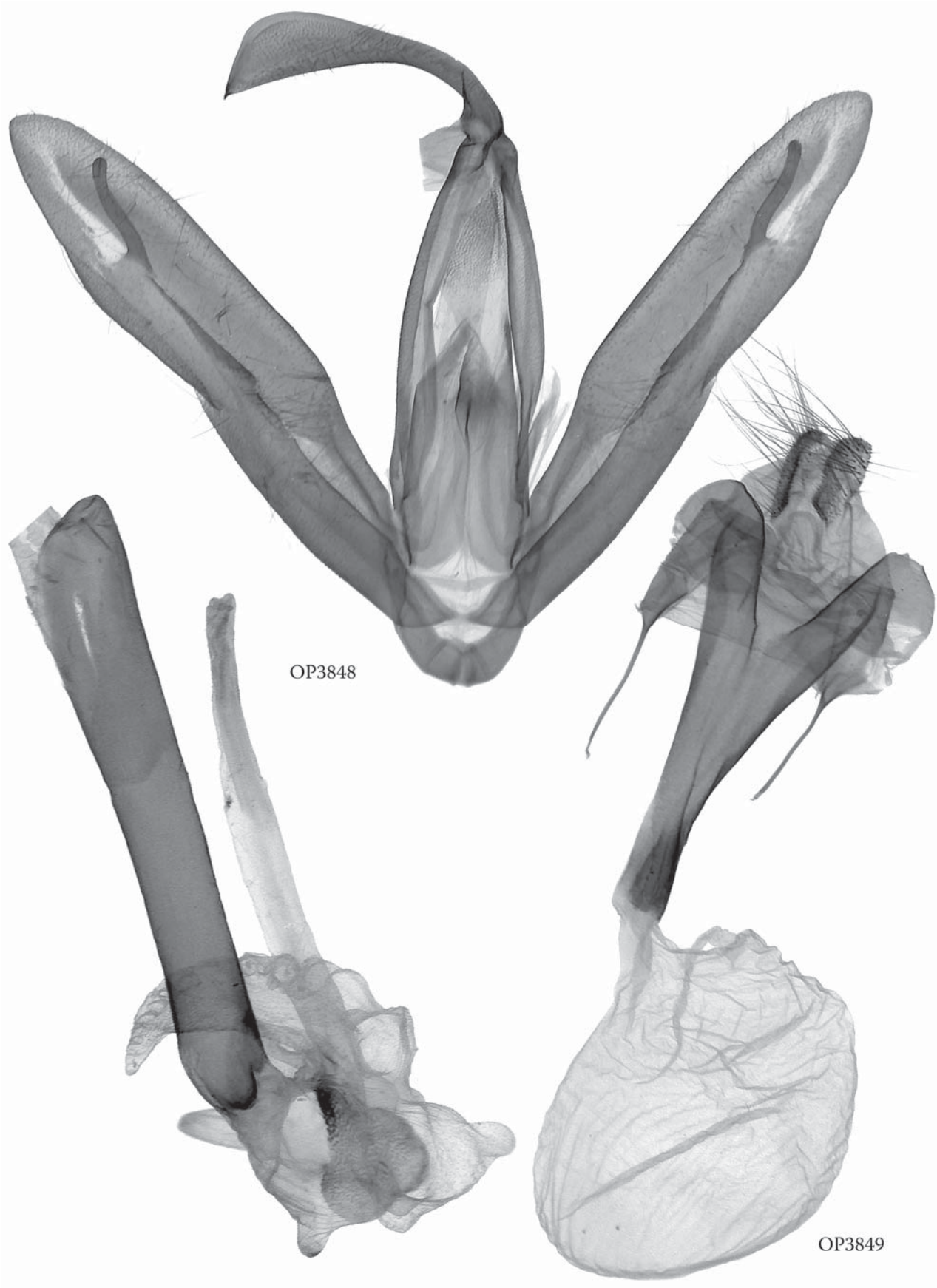
Gen. fig. 58. *Lygephila minima* Pekarsky, 2013



Gen. fig. 59. *Lygephila alaica* Remm, 1983



Gen. fig. 60. *Lygephila lubrica* (Freyer, 1846)



Gen. fig. 61. *Lygephila lubrosa* (Staudinger, 1901)



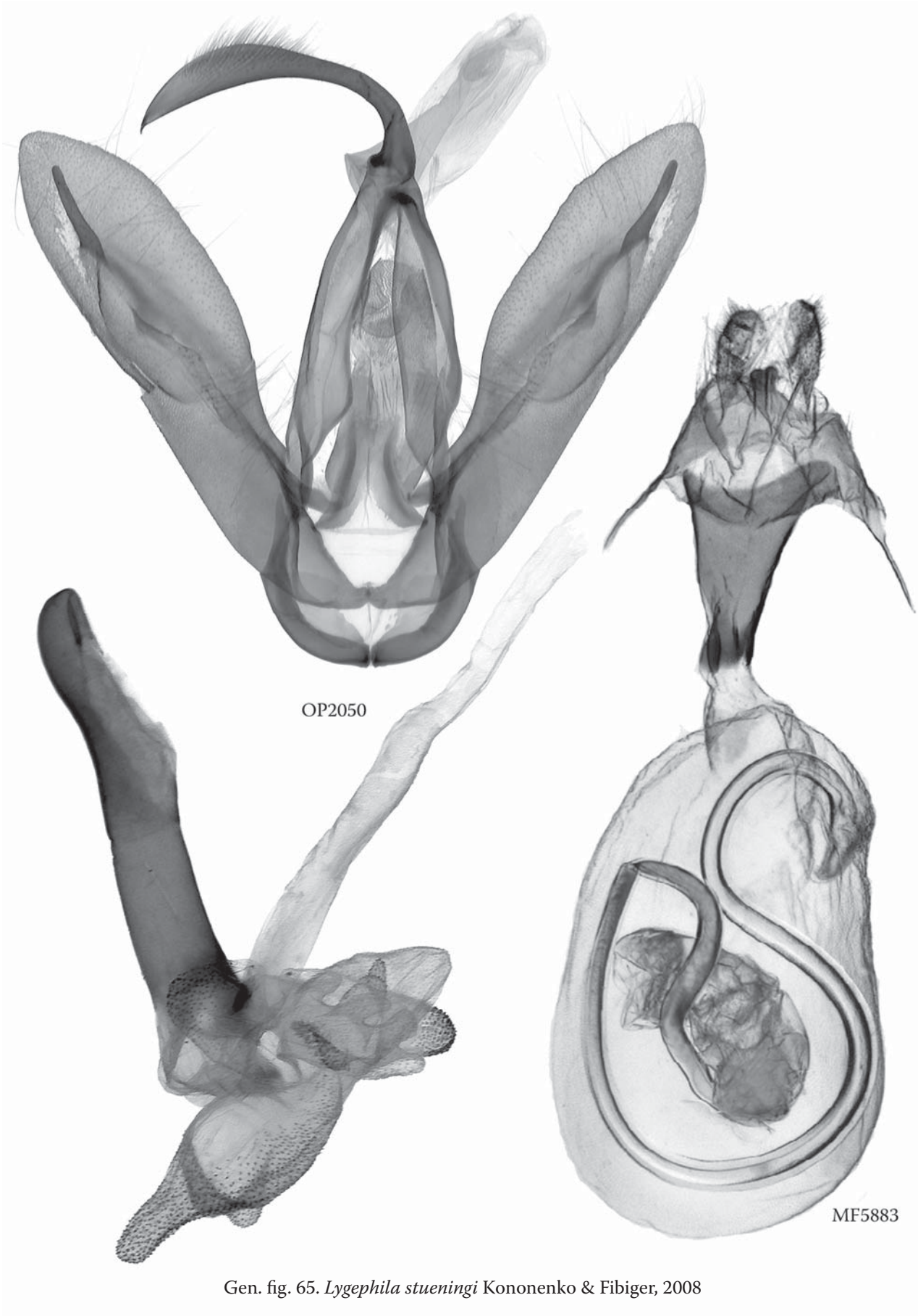
Gen. fig. 62. *Lygephila kazachkaratavika* Shchetkin Yu.L. & Shchetkin Yu.Yu., 1997



Gen. fig. 63. *Lygephila orbonaria* Shchetkin Yu.L. & Shchetkin Yu.Yu., 1997



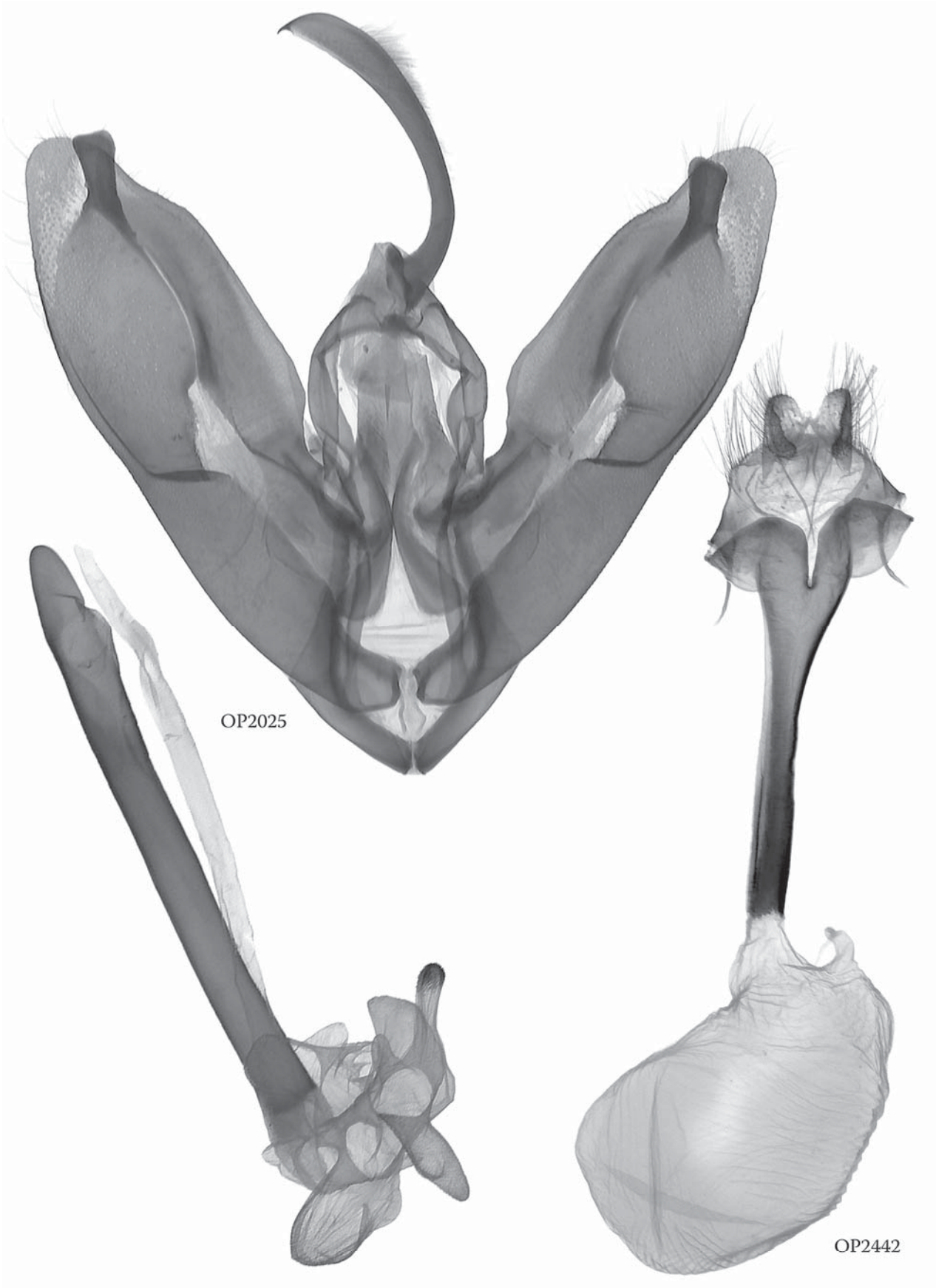
Gen. fig. 64. *Lygephila ludicra* (Hübner, 1790)



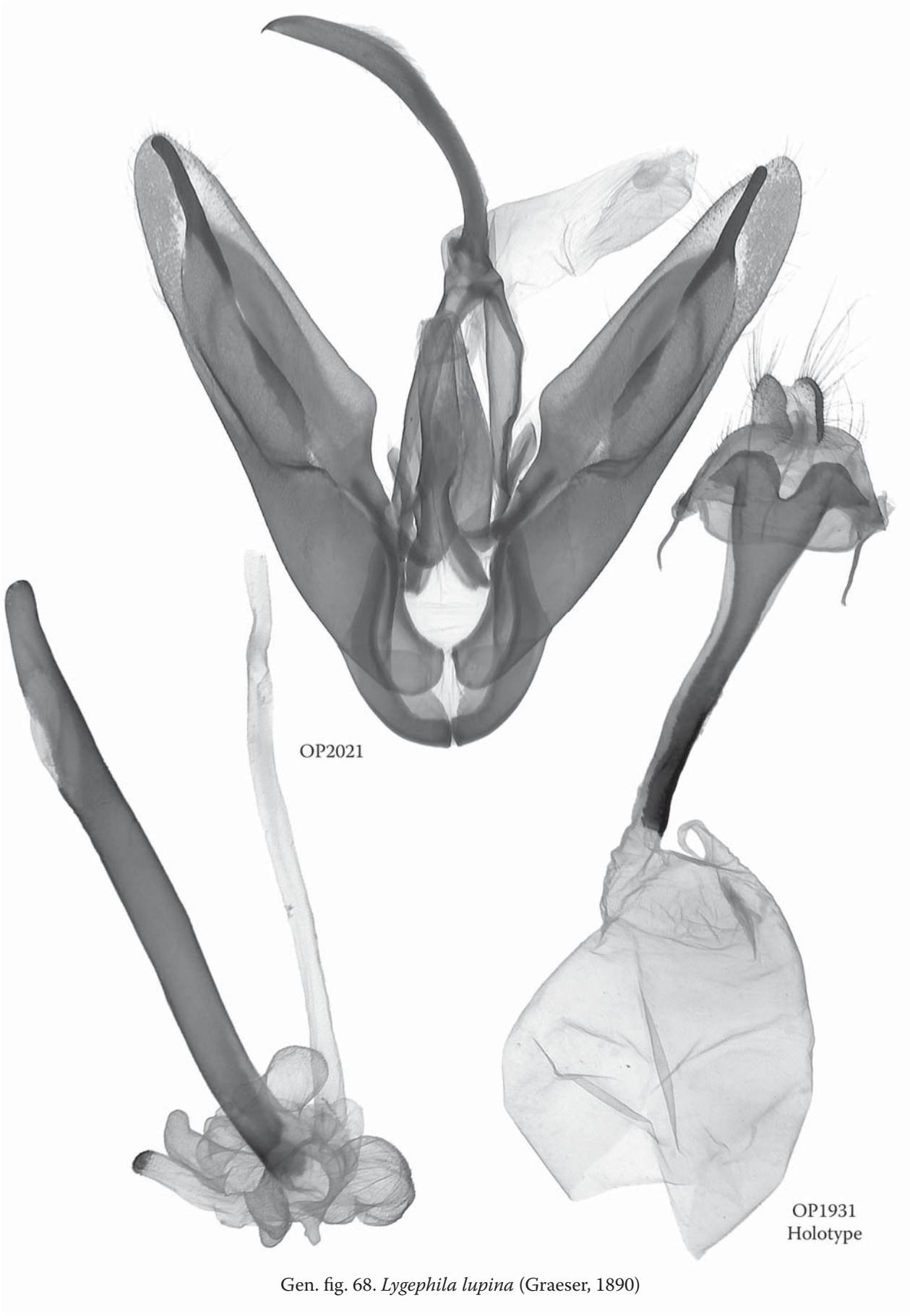
Gen. fig. 65. *Lygephila stueningi* Kononenko & Fibiger, 2008



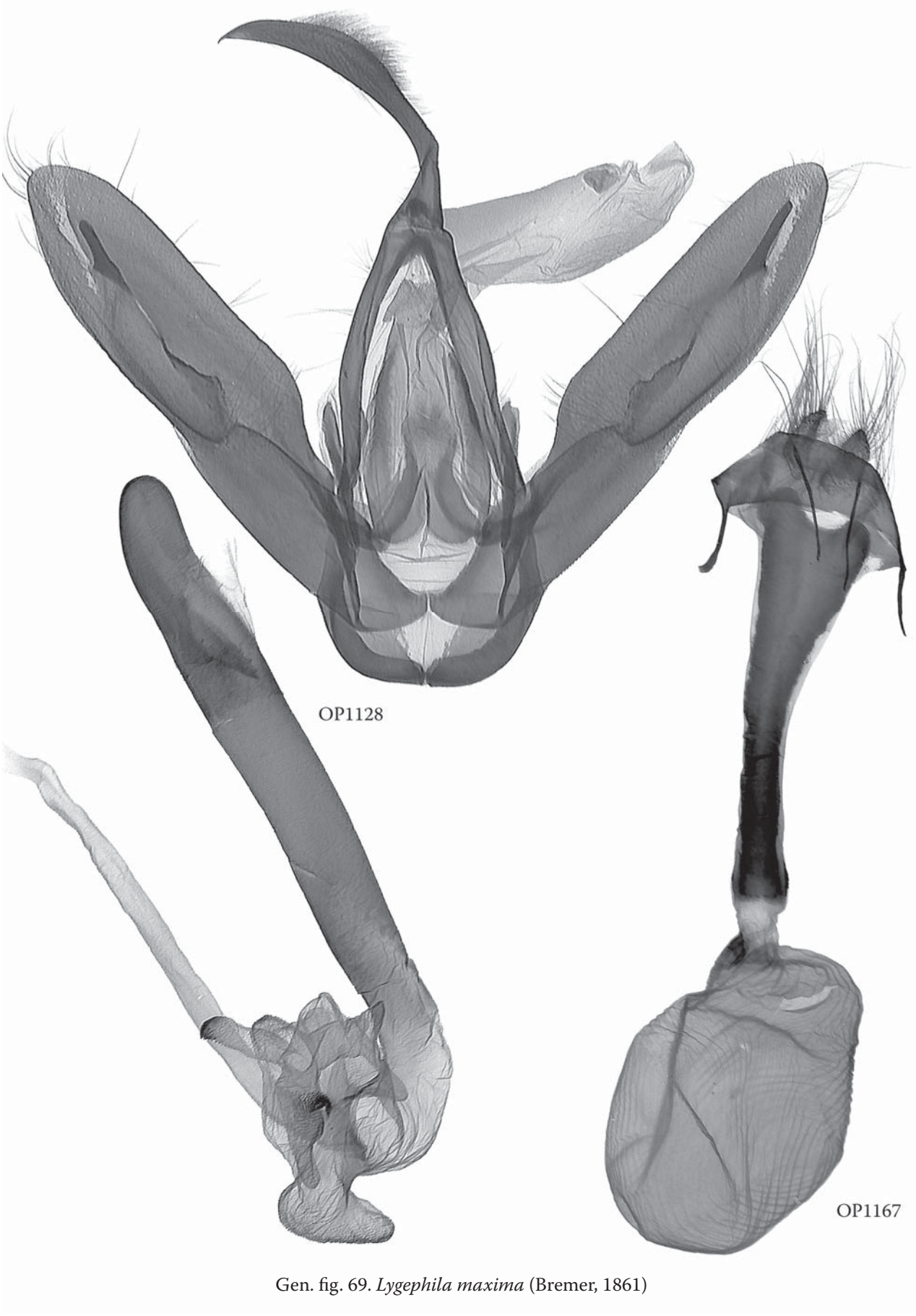
Gen. fig. 66. *Lygephila dubatolovi* Fibiger, Kononenko & Nilsson, 2008



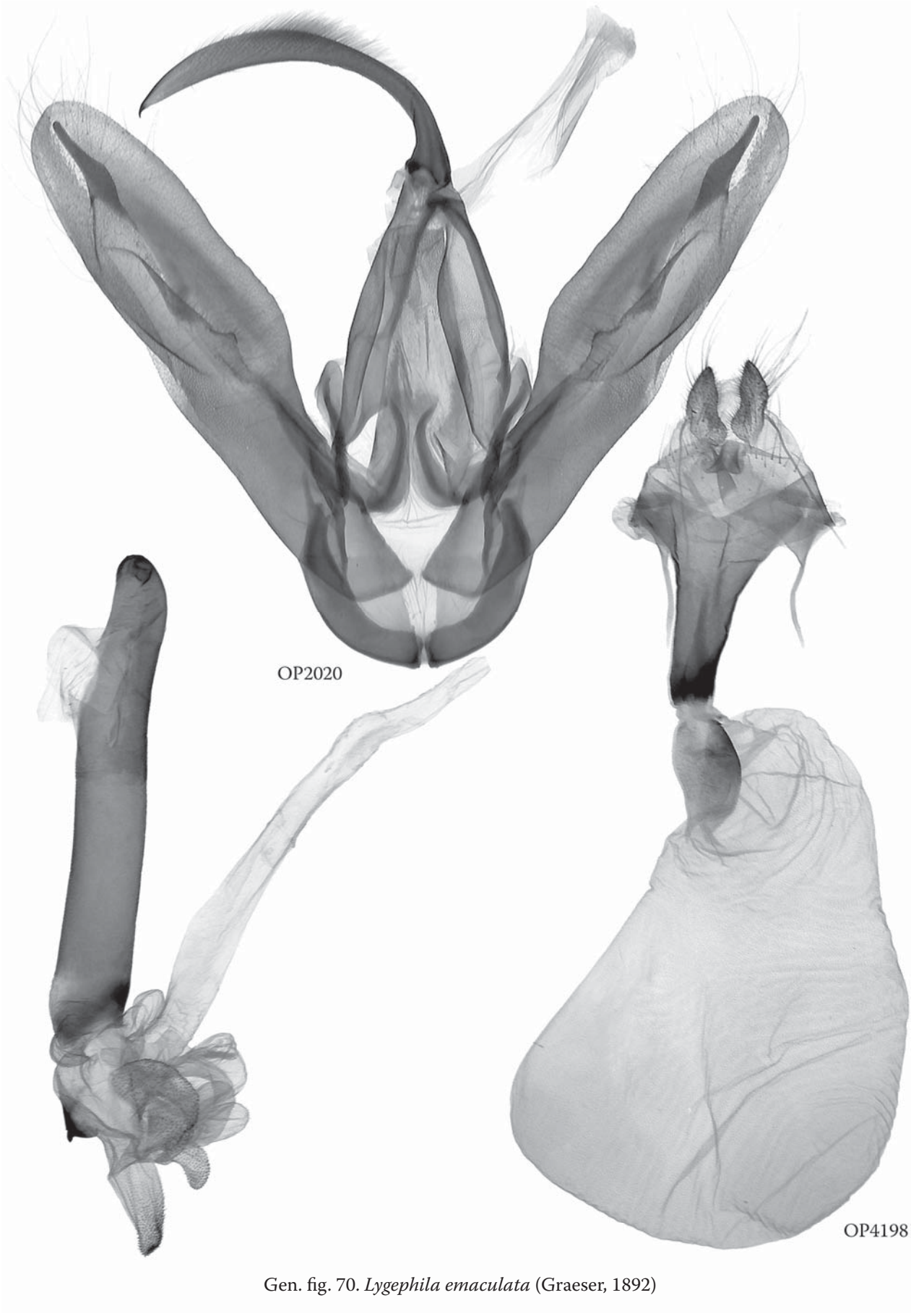
Gen. fig. 67. *Lygephila vulcanea* (Butler, 1881)



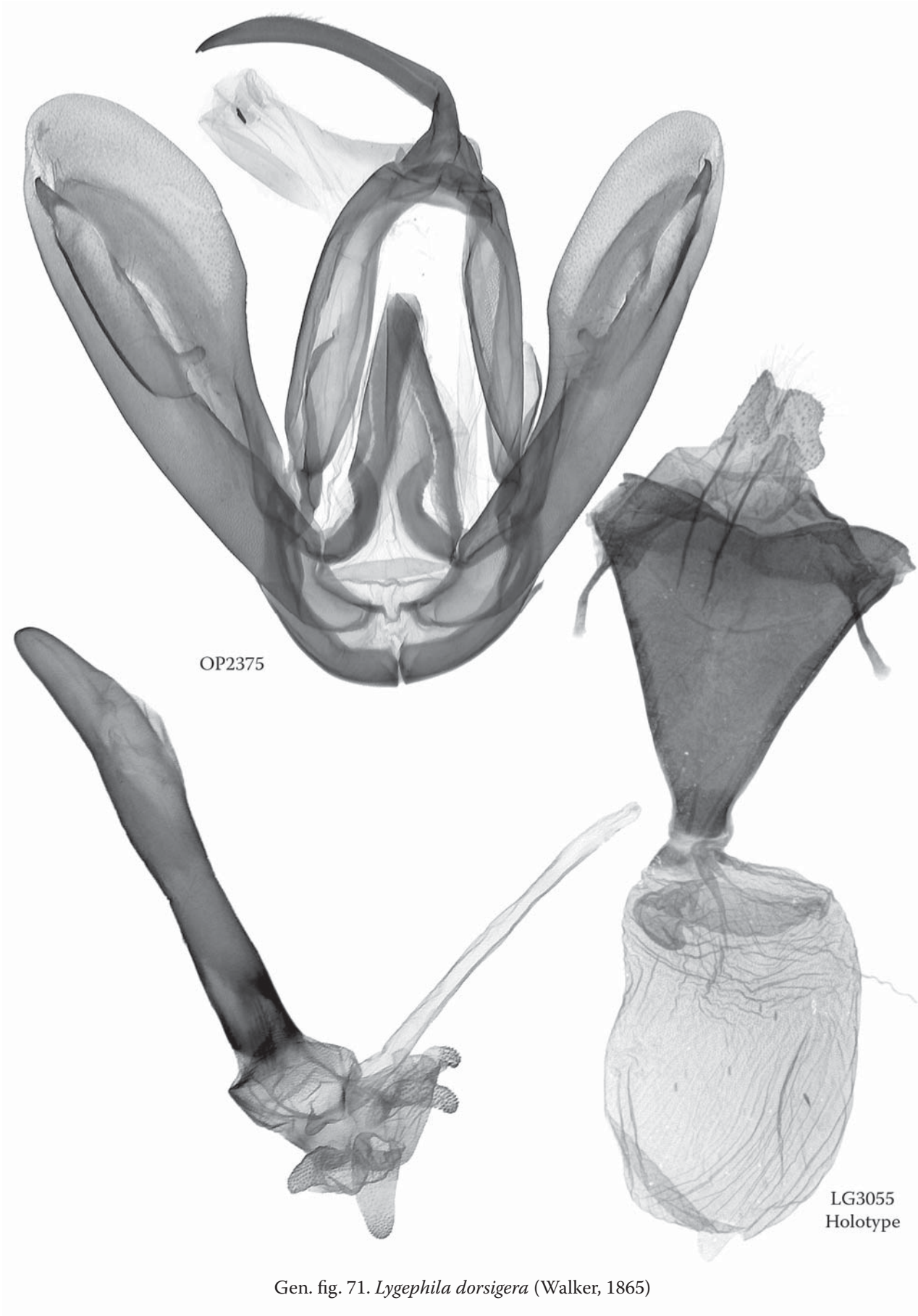
Gen. fig. 68. *Lygephila lupina* (Graeser, 1890)



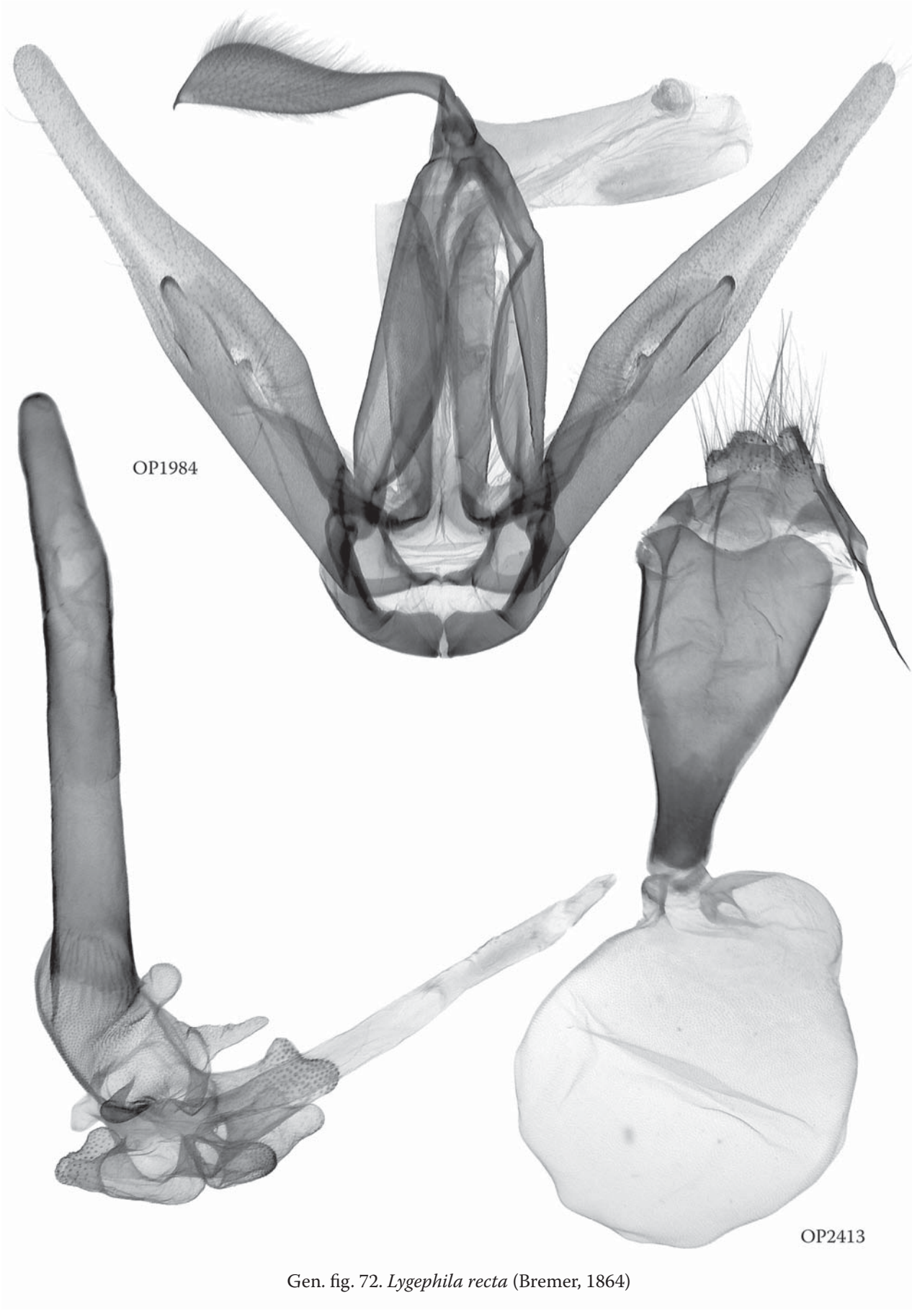
Gen. fig. 69. *Lygephila maxima* (Bremer, 1861)



Gen. fig. 70. *Lygephila emaculata* (Graeser, 1892)



Gen. fig. 71. *Lygephila dorsigera* (Walker, 1865)



Gen. fig. 72. *Lygephila recta* (Bremer, 1864)



Gen. fig. 73. *Lygephila subrecta* Sugi, 1982



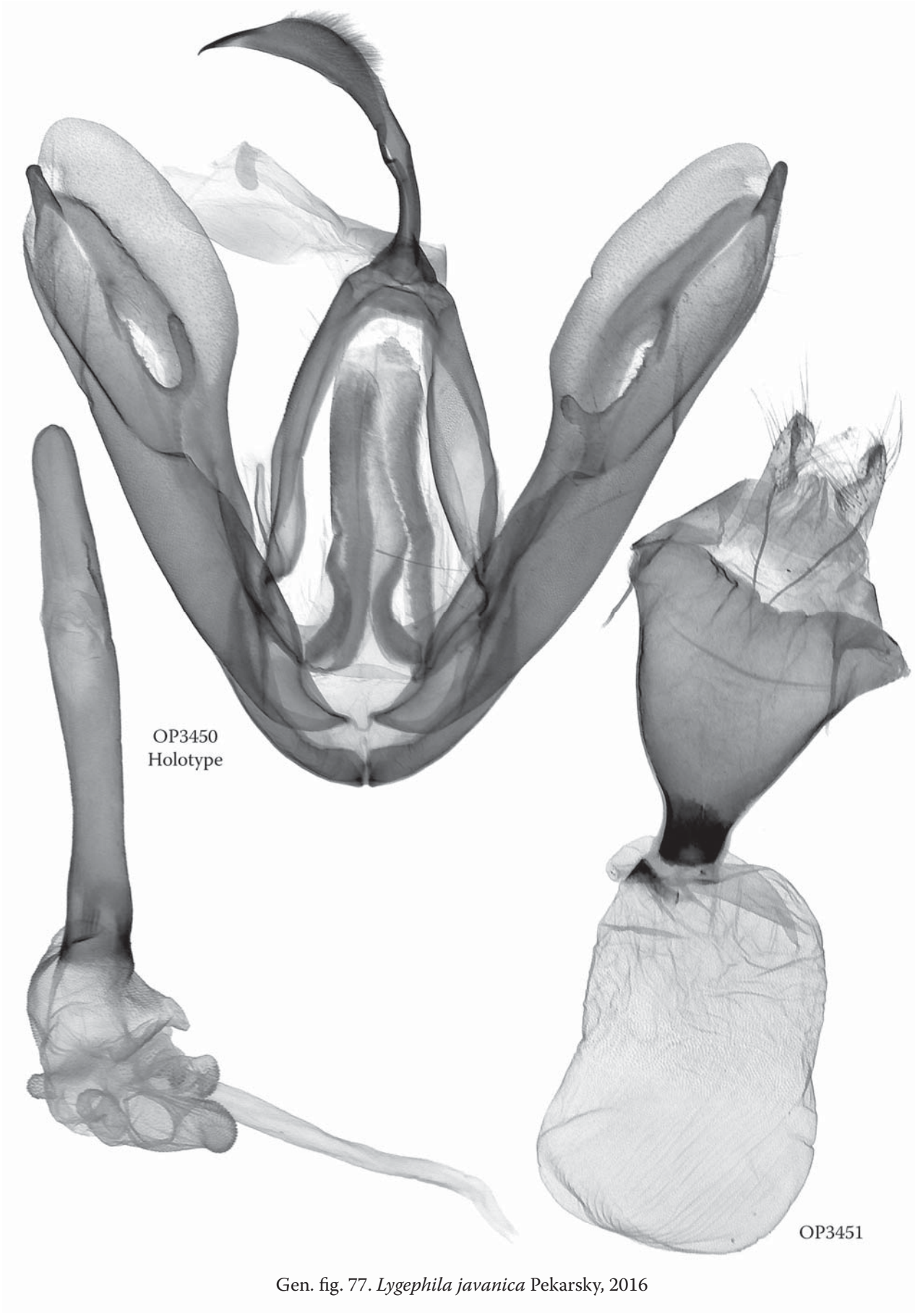
Gen. fig. 74. *Lygephila lilacina* (Butler, 1878)



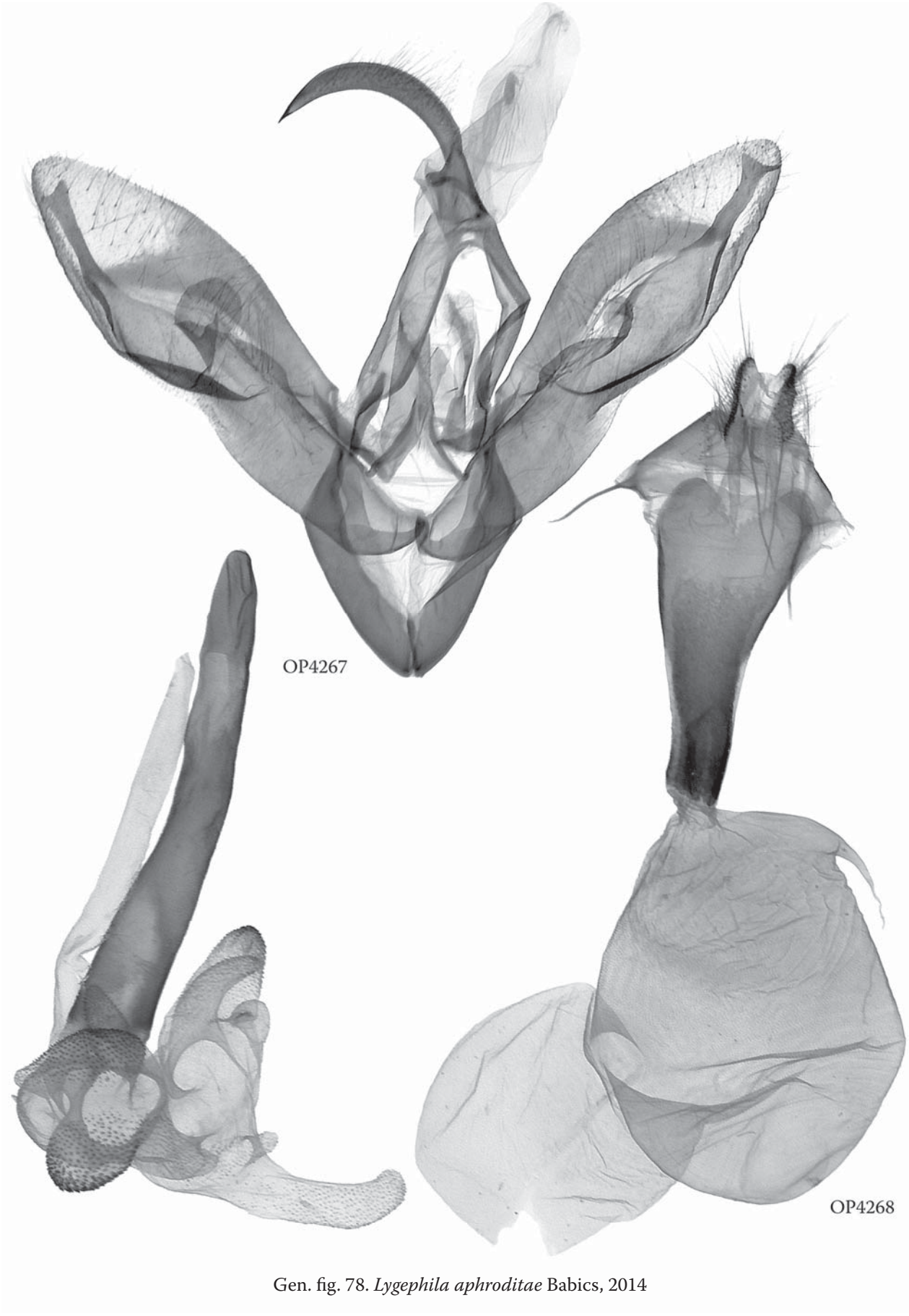
Gen. fig. 75. *Lygephila pallidivena* Pekarsky, 2016



Gen. fig. 76. *Lygephila cucullata* (Moore, 1882)



Gen. fig. 77. *Lygephila javanica* Pekarsky, 2016



Gen. fig. 78. *Lygephila aphroditae* Babics, 2014



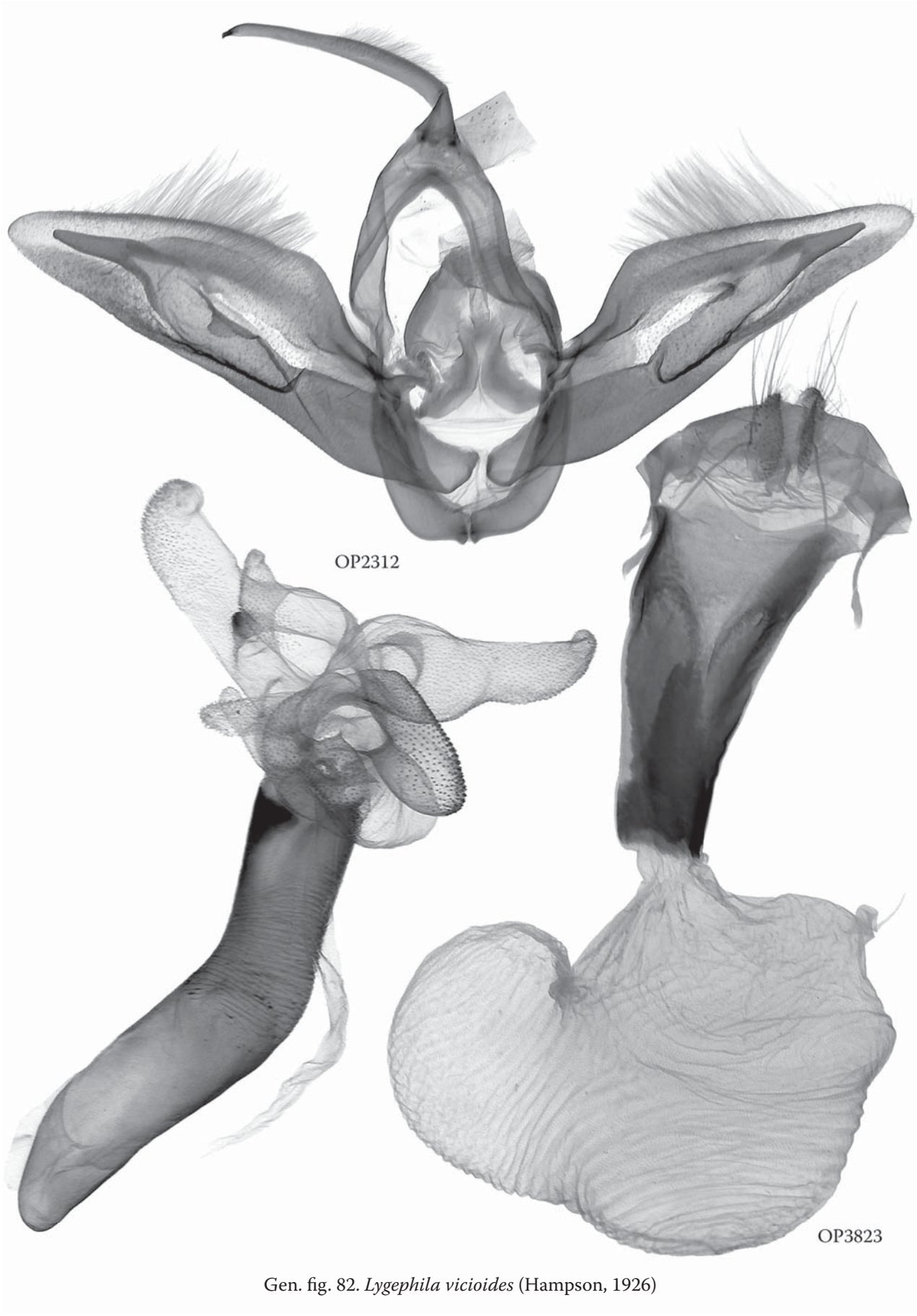
Gen. fig. 79. *Lygephila angustissima* (Draudt, 1950)



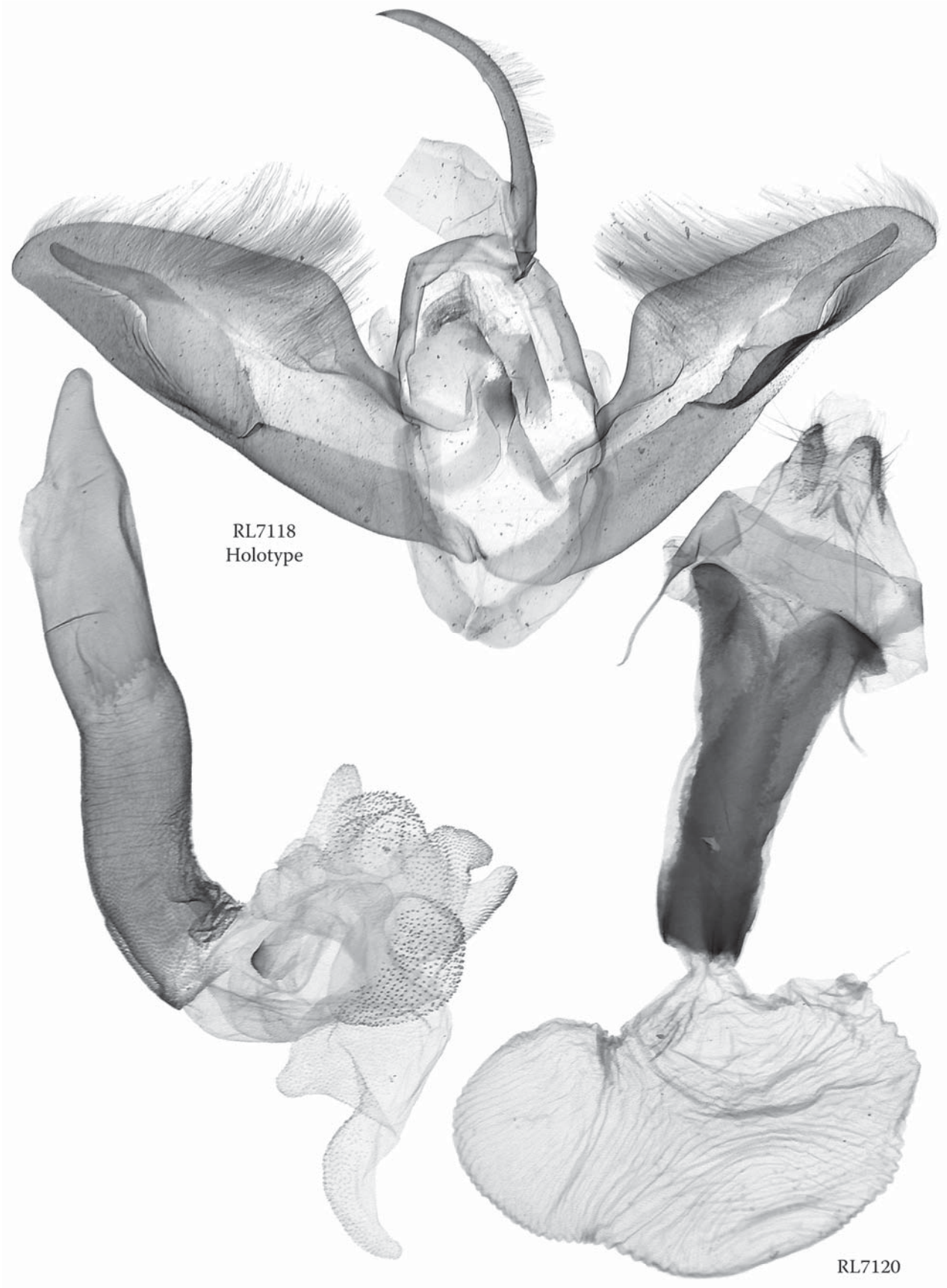
Gen. fig. 80. *Lygephila vargai* Babics, 2014



Gen. fig. 81. *Lygephila yoshimotoi* Kinoshita, 1989



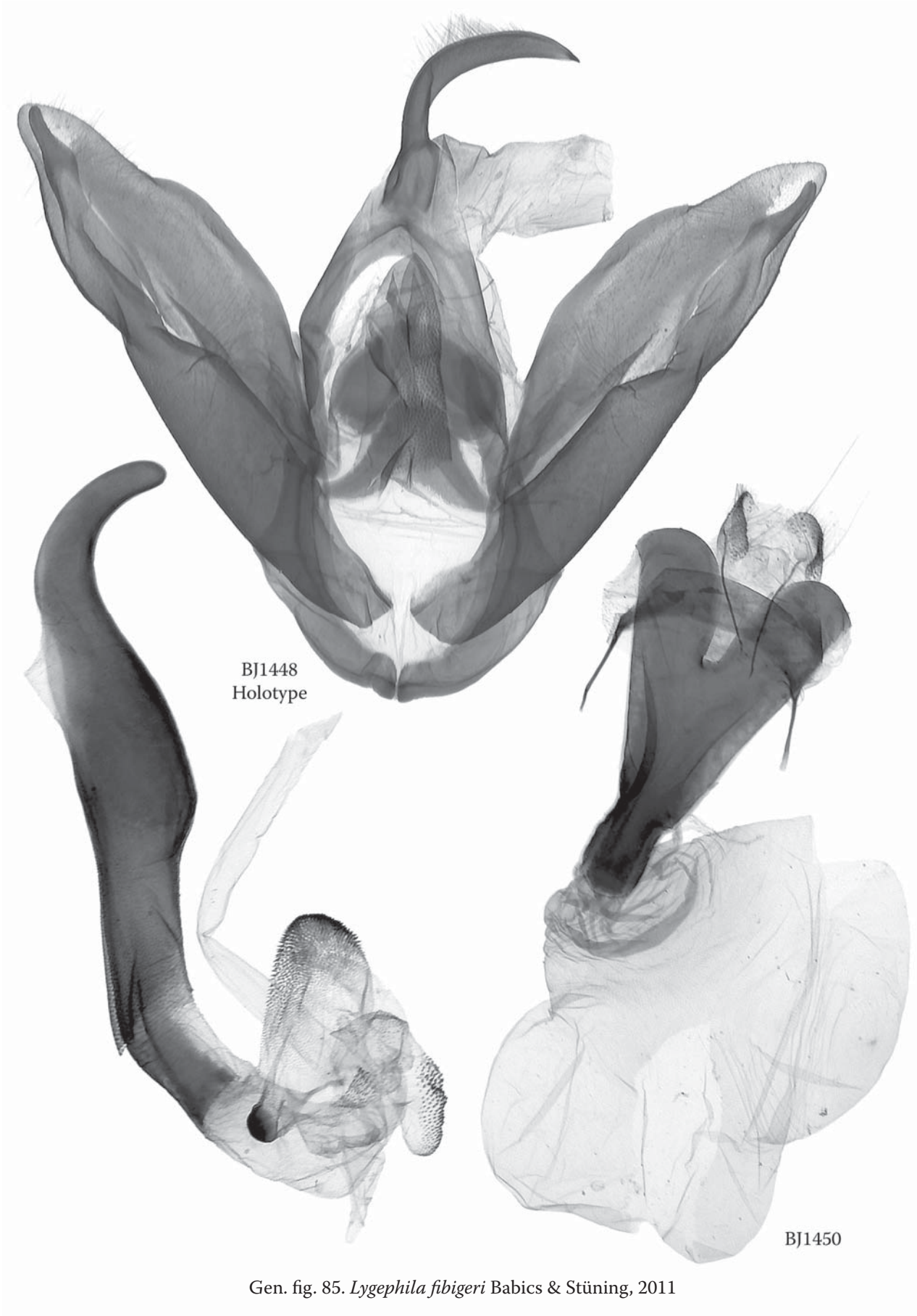
Gen. fig. 82. *Lygephila vicioides* (Hampson, 1926)



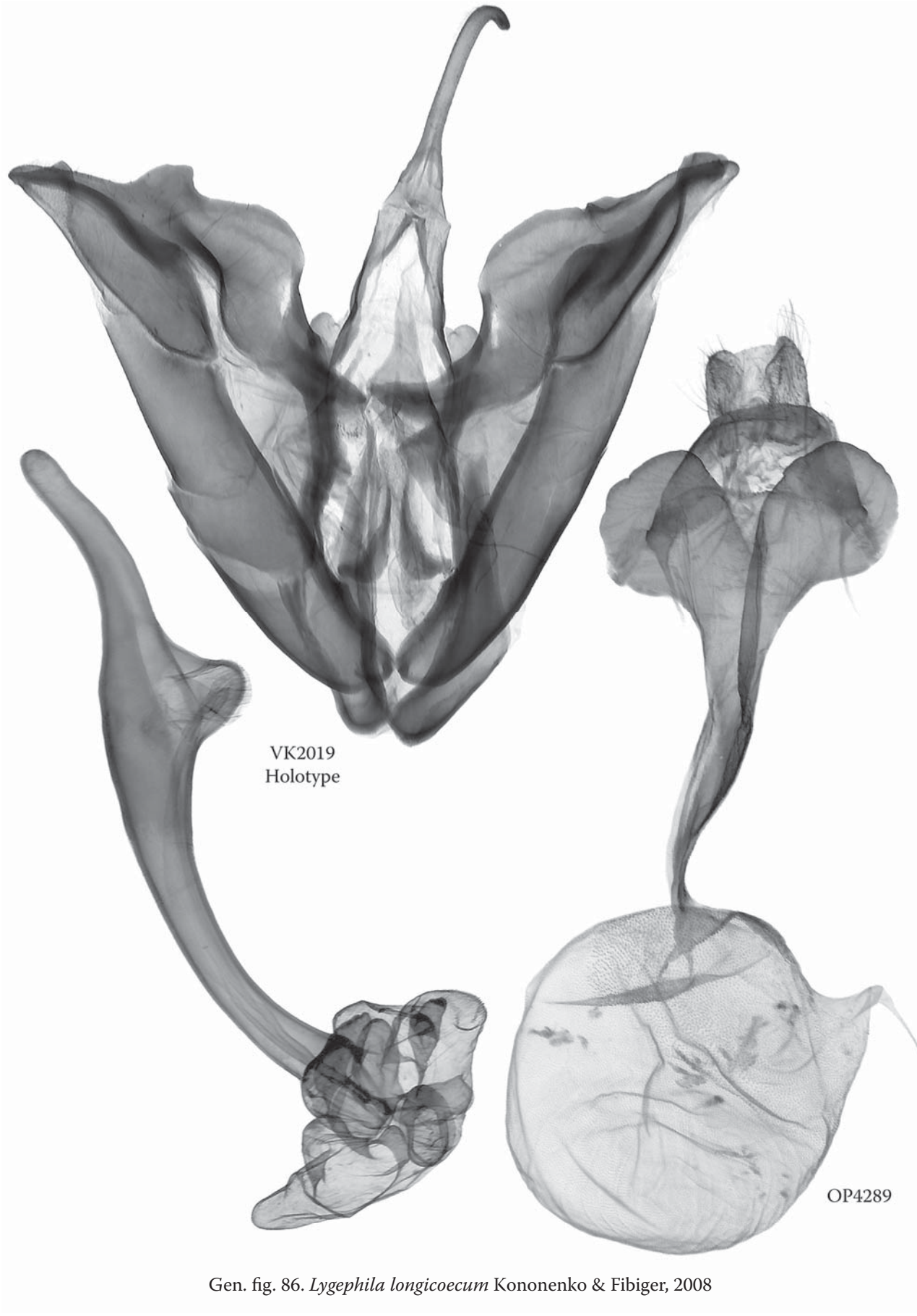
Gen. fig. 83. Lygephila *pidmanulapidvela* Pekarsky, 2018



Gen. fig. 84. *Lygephila nikolaichuki* Pekarsky **sp. n.**



Gen. fig. 85. *Lygephila fibigeri* Babics & Stüning, 2011



Gen. fig. 86. *Lygephila longicoecum* Kononenko & Fibiger, 2008



Gen. fig. 87. *Lygephila procax* (Hübner, 1813)



Gen. fig. 88. *Lygephila asiatica* Pekarsky, 2016



Gen. fig. 89. *Lygephila intermedia* Pekarsky, 2016



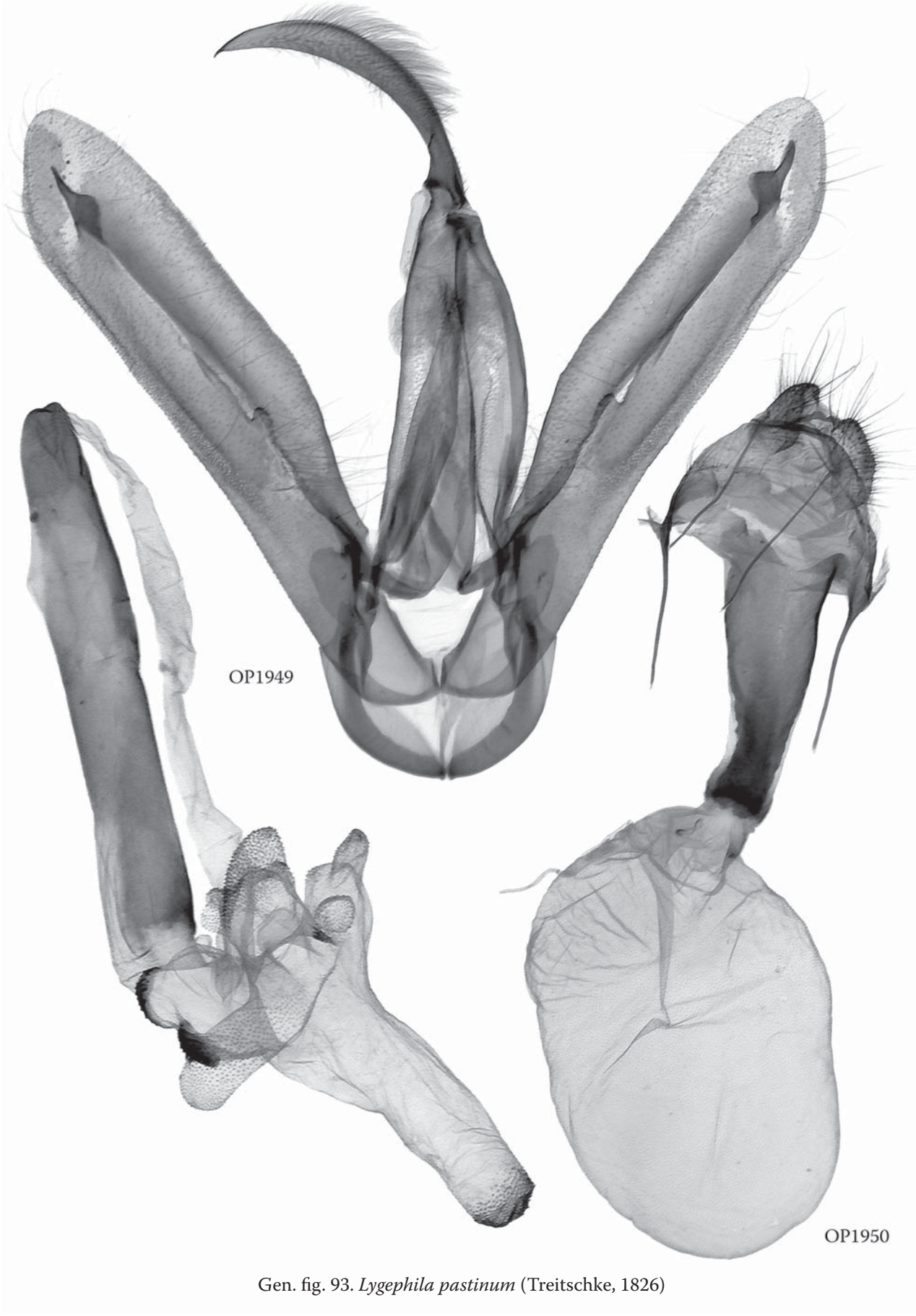
Gen. fig. 90. *Lygephila decolor* (Bang-Haas, 1912)



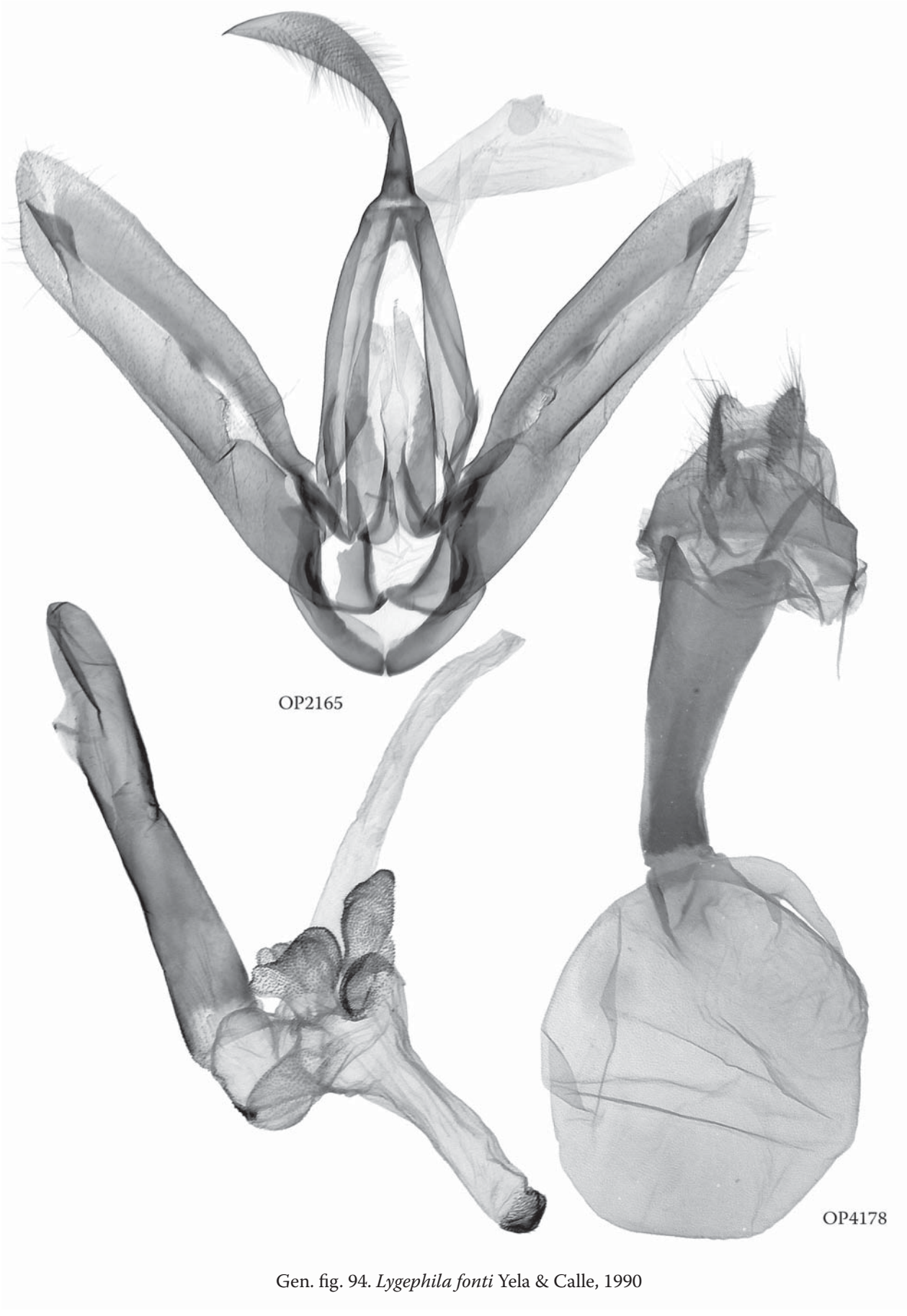
Gen. fig. 91. *Lygephila frosya* Pekarsky, 2016



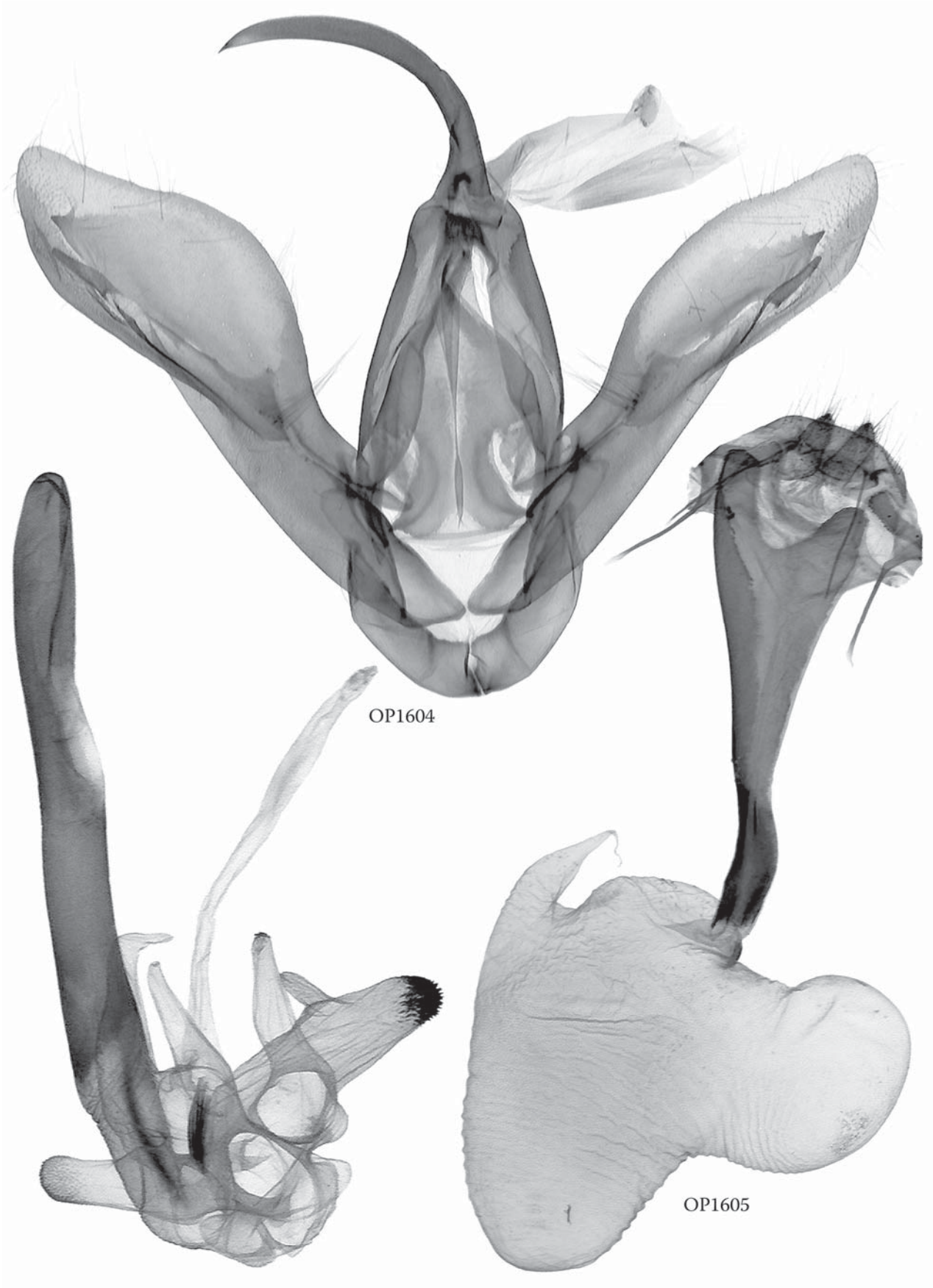
Gen. fig. 92. *Lygephila nigricostata* (Graeser, 1890)



Gen. fig. 93. *Lygephila pastinum* (Treitschke, 1826)



Gen. fig. 94. *Lygephila fonti* Yela & Calle, 1990



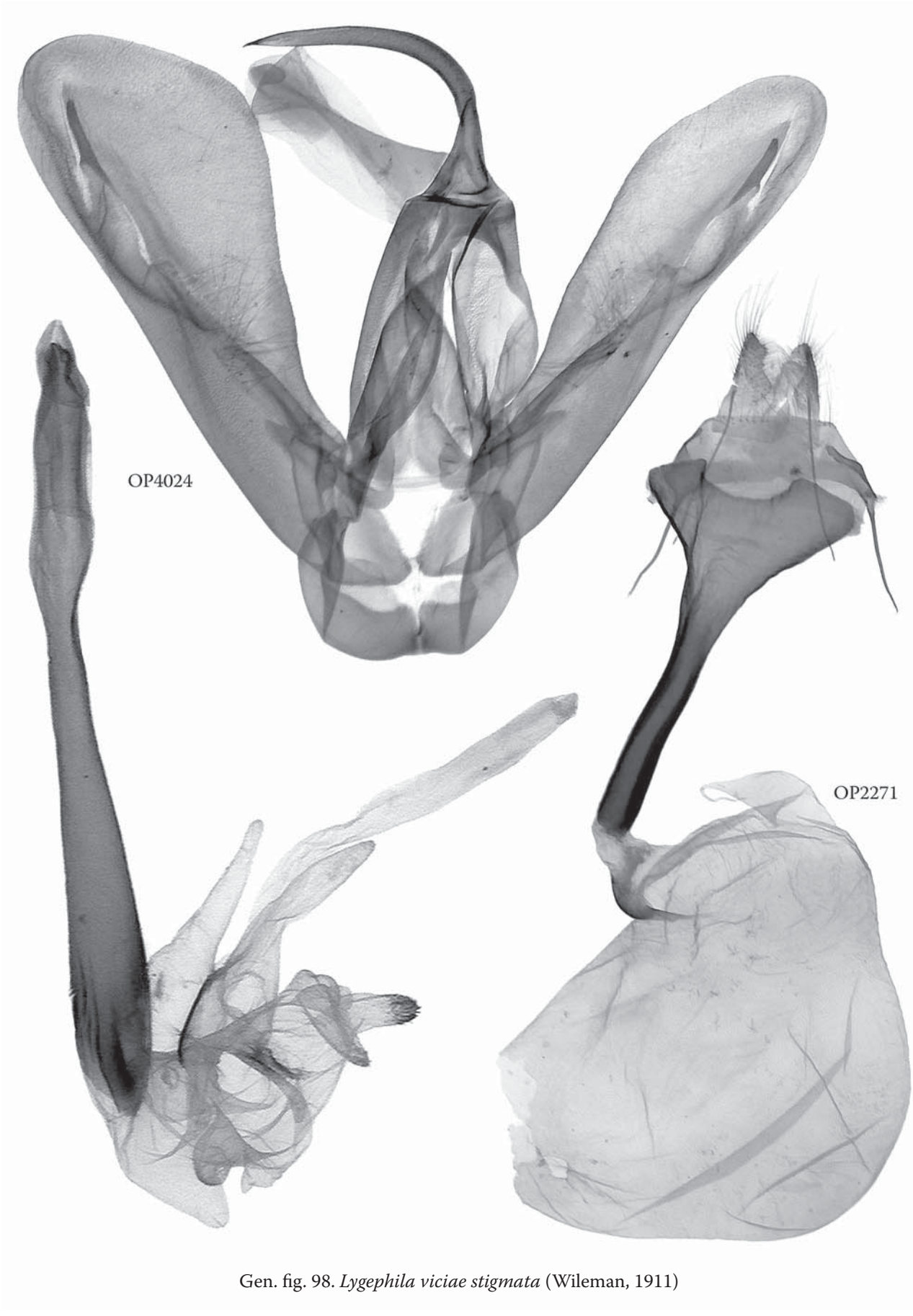
Gen. fig. 95. *Lygephila craccae* ([Denis & Schiffermüller], 1775)



Gen. fig. 96. *Lygephila violaceogrisea* (Draudt, 1950)



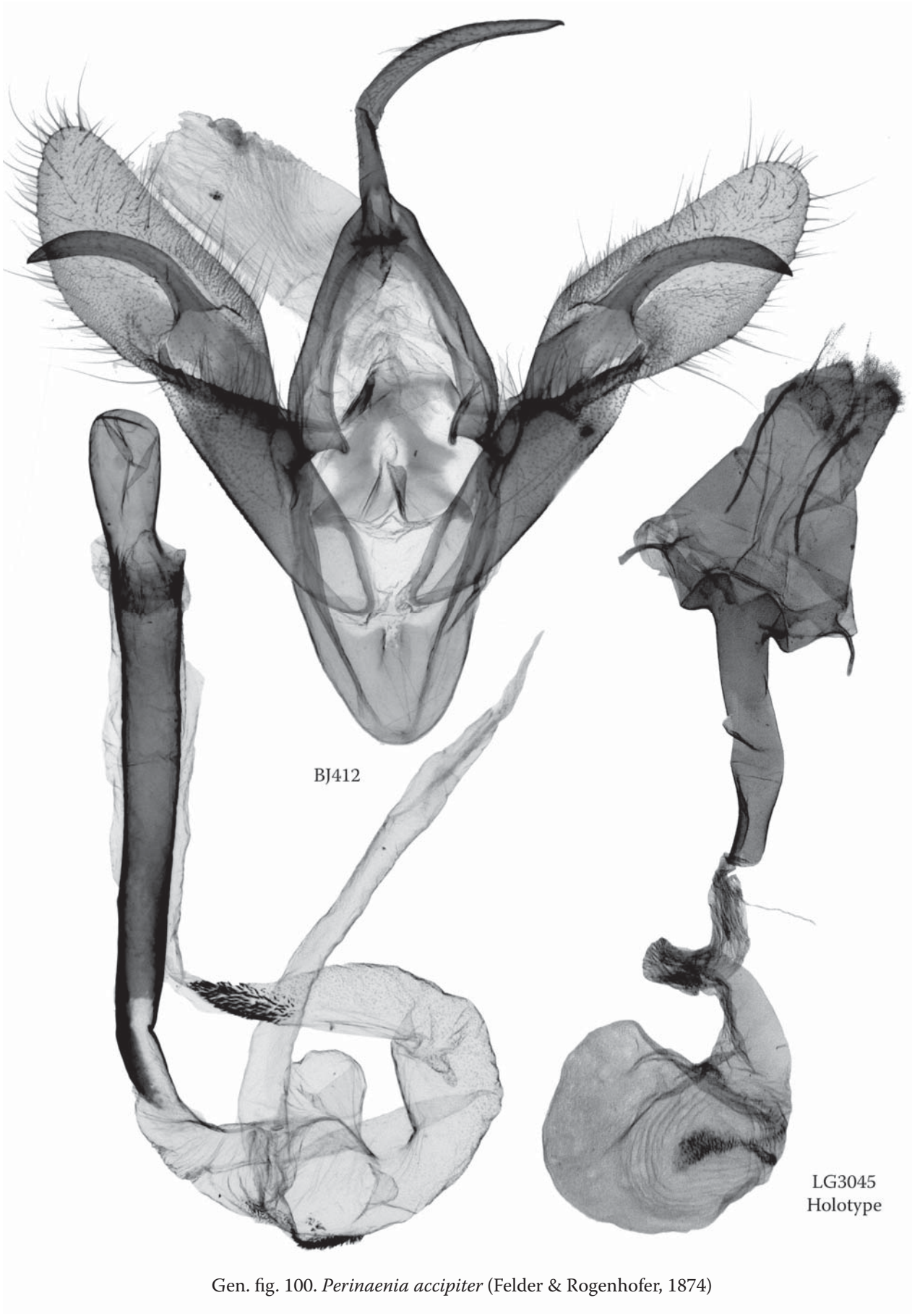
Gen. fig. 97. *Lygephila viciae viciae* (Hübner, 1822)



Gen. fig. 98. *Lygephila viciae stigmata* (Wileman, 1911)



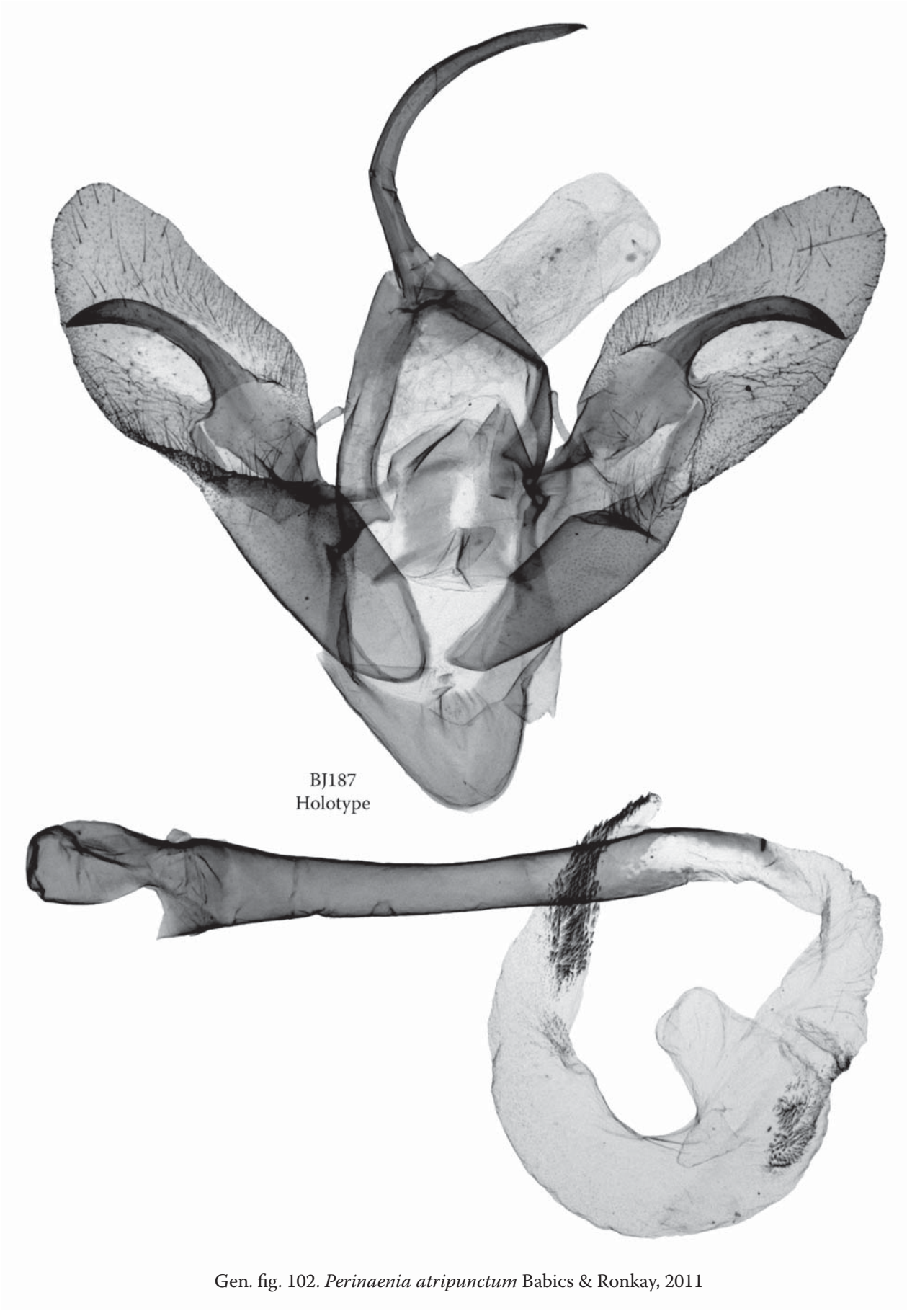
Gen. fig. 99. *Tathorhynchus exsiccata* (Lederer, 1855)



Gen. fig. 100. *Perinaenia accipiter* (Felder & Rogenhofer, 1874)



Gen. fig. 101. *Perinaenia mingchyrica* Babics & Ronkay, 2011



Gen. fig. 102. *Perinaenia atripunctum* Babics & Ronkay, 2011



Gen. fig. 103. *Perinaenia nigrifascia* Babics & Ronkay, 2011



Gen. fig. 104. *Isoura fuscicollis* (Butler, 1889)



Gen. fig. 105. *Isoura clara* Babics & Ronkay, 2011



Gen. fig. 106. *Exophyla dietzelgyulai* **sp. n.**



Gen. fig. 107. *Exophyla rectangularis* (Geyer, 1828)

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