Zootaxa 5423 (1): 001–066
https://www.mapress.com/zt/

Monograph

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

https://doi.org/10.11646/zootaxa.5423.1.1
http://zoobank.org/urn:lsid:zoobank.org:pub:622D5264-DBE2-463B-9A8C-AD1C77C90254

ZOOTAXA

5423

Fairy moths of the genus *Nemophora* Hoffmannsegg, 1798 (Lepidoptera: Adelidae) from Myanmar, Thailand, Laos, Cambodia and Vietnam

MIKHAIL V. KOZLOV
Department of Biology, University of Turku, 20014 Turku, Finland
mikoz@utu.fi; https://orcid.org/0000-0002-9500-4244

Magnolia Press
Auckland, New Zealand

Accepted by B.-K. Byun: 30 Jan. 2024; published: 11 Mar. 2024

MIKHAIL V. KOZLOV
Fairy moths of the genus *Nemophora* Hoffmannsegg, 1798 (Lepidoptera: Adelidae) from Myanmar, Thailand, Laos, Cambodia and Vietnam
(*Zootaxa* 5423)

66 pp.; 30 cm.

11 Mar. 2024

ISBN 978-1-77973-006-0 (paperback)

ISBN 978-1-77973-007-7 (Online edition)

FIRST PUBLISHED IN 2024 BY

Magnolia Press

P.O. Box 41-383

Auckland 1041

New Zealand

e-mail: magnolia@mapress.com

https://www.mapress.com/zt

ISSN 1175-5326 (Print edition)

ISSN 1175-5334 (Online edition)

Table of Contents

Abstract

This study provides a comprehensive account of 40 species (52 valid names and one preoccupied name) of the genus *Nemophora* Hoffmannsegg, 1798 described or recorded from Myanmar, Thailand, Laos, Cambodia and Vietnam. A key to the species based on external characters and on male genitalia is provided; 14 new species are described: *N. auricapitella* Kozlov, **sp. nov.**, *N. chalcoptera* Kozlov, **sp. nov.**, *N. karsholti* Kozlov, **sp. nov.**, *N. kuznetzovi* Kozlov, **sp. nov.**, *N. meyi* Kozlov, **sp. nov.**, *N. nielseni* Kozlov, **sp. nov.**, *N. nieukerkeni* Kozlov, **sp. nov.**, *N. nigripunctella* Kozlov, **sp. nov.**, *N. punctifasciella* Kozlov, **sp. nov.**, *N. rubicunda* Kozlov, **sp. nov.**, *N. szabokyi* Kozlov, **sp. nov.**, *N. thailandensis* Kozlov, **sp. nov.**, *N. vietnamensis* Kozlov, **sp. nov.** and *N. yeni* Kozlov, **sp. nov.** Lectotypes are designated for four species, including one junior synonym: *Nemotois diplophragma* Meyrick, 1938, *Nemotois sinicella* Walker, 1863, *Nemotois cleodoxa* Meyrick, 1922 and *Adela satrapodes* Meyrick, 1894. Eight new synonyms for four species are proposed: *Nemophora badagongshana* Liao, Hirowatari & Huang in Liao, Hirowatari, Yagi, Wang, Wang & Huang, 2023, **syn. nov.** of *Nemophora aurifera* (Butler, 1881); *Nemotois chrysocharis* Caradja, 1938, **syn. nov.** of *Nemophora sinicella* (Walker, 1863); *Nemotois diplophragma* Meyrick, 1938, **syn. nov.** of *Nemophora melichlorias* (Meyrick, 1907); *Nemophora basalistriata* Liao, Hirowatari & Huang in Liao, Hirowatari, Yagi, Wang, Wang & Huang, 2023, **syn. nov.** of *Nemophora melichlorias* (Meyrick, 1907); *Nemotois limenites* Meyrick, 1914, **syn. nov.** of *Nemophora aurifera* (Butler, 1881); *Nemophora quadrata* Liao, Hirowatari & Huang in Liao, Hirowatari, Yagi, Wang, Wang & Huang, 2023, **syn. nov.** of *Nemophora aurifera* (Butler, 1881); *Nemotois rubrofascia formosicola* Matsumura, 1931, **syn. nov.** of *Nemophora sakaii* (Matsumura, 1931); *Nemotois servata* Meyrick in Caradja, 1925, **syn. nov.** of *Nemophora aurifera* (Butler, 1881). Four new combinations are introduced: *Nemophora aglaospila* (Meyrick, 1928), **comb. nov.**; *Nemophora cleodoxa* (Meyrick, 1922), **comb. nov.**; *Nemophora melichlorias* (Meyrick, 1907), **comb. nov.**; and *Nemophora sinicella* (Walker, 1863), **comb. nov.** Of 40 species considered, 16 were recorded in Myanmar, 21 in Thailand, 4 in Laos, 4 in Cambodia and 13 in Vietnam.

Key words: diagnoses, distribution, keys, lectotype designation, new combinations, new species, new synonymy

Introduction

Knowledge about the fairy moth (Lepidoptera: Adelidae) fauna of the northern (continental) part of Southeast Asia, comprising Myanmar, Thailand, Laos, Cambodia and Vietnam, is limited to occasional records of 16 species of the genus *Nemophora* Hoffmannsegg, 1798. Among these, ten species were recorded from Myanmar, four species from Thailand and four species from Vietnam (Meyrick 1894, 1907, 1912a, b, 1922, 1928; Fea 1897; Kozlov 1995, 2020, 2023; Kozlov & Robinson 1996a, b; Hirowatari 2007; Koçak & Kemal 2010), whereas no *Nemophora* species were previously reported from Laos and Cambodia. No keys exist for fairy moths of this region, and the identities of many species remain uncertain. At the same time, investigation of photographs deposited at https://www.inaturalist.org/ and the current description of many new species from China (Sun *et al*. 2022; Liao *et al*. 2023) clearly indicate that the study region exhibits an extraordinary diversity of fairy moths that remains to be documented.

To advance this process, I provide a comprehensive account of all *Nemophora* species that have been found in the northern part of Southeast Asia. As in the previous work on India and Sri Lanka (Kozlov 2023), I revise all species of *Nemophora* described or reported from Myanmar, Thailand, Laos, Cambodia and Vietnam based on an investigation of the type specimens and of additional material from multiple museums worldwide. I provide photographs of all 40 valid species and morphological descriptions of 14 new and 12 insufficiently known species. In these descriptions, whenever possible, I pay particular attention to the within-species variation in diagnostically important traits. Finally, I present a key to the species based on external characters and on male genitalia. This publication is a part of the revision of the fairy moth subfamily Adelinae of the World.

Methods

The methods used in this study are the same as described in previously published revisions of several *Nemophora* species groups (e.g. Kozlov 1995, 1997a, 2016a, b) and regional faunas (Kozlov 2023). For primary types of new and insufficiently known species I report the size and shape of all labels, paper colour (if not white), and the original text (within quotation marks). A vertical line (|) is used to separate parts of labels written on different lines; additional information clarifying the original text is placed in square brackets. Morphological descriptions are based

on all examined specimens, if not stated otherwise (see comments at the end of species descriptions). Names of type localities are given in modern spelling; borders of states and provinces follow https://www.wikipedia.org/ (accessed on 20 July 2023). Distribution is given at the country level; references in this section indicate the oldest records from the listed countries; new records are referenced as 'this study'.

The moths were measured using the ocular scale of a stereomicroscope. The length of the forewing does not include fringe; the width of the forewing is the maximum distance between costal and dorsal wing margins perpendicular to the line connecting the base of the RS stem with wing apex. The interocular index is the ratio between the vertical diameter of the compound eye and the interocular distance measured at a point of the frons midway between the base of the antennal sockets and the anterior tentorial pits. The occipital distance is the ratio between the shortest interocular distance above antennal sockets and the vertical diameter of the compound eye; this character is reported only for males with enlarged compound eyes. The ratio between the length of the labial palpus and vertical eye diameter always refers to males.

Many species of fairy moths are only known from poorly preserved specimens. This justifies simultaneous publication of colour photographs of moths and schematic drawings of their wings. Whenever possible, I refrained from preparation of permanent genitalia slides, because male genitalia of adeloid moths cannot be flattened without loosing important information. This explains absence of male genitalia photographs of several species described in this study. Instead, following the tradition started by Yasuda (1957) and supported by Hirowatari (1995, 2007), I figured male genitalia both from their ventral and lateral sides. These figures, which illustrate a non-deformed shape of male genitalia, contain information which cannot be obtained from photographs of permanent slides. The apical part of phallus, which often demonstrates diagnostically important traits, was usually exposed from an eversible membranous sheath to facilitate detailed investigation of its morphology. Female terminalia in the genus *Nemophora* are lacking robust diagnostic characters, and they have not been examined within the current study.

Plant names follow Plants of the World Online (https://powo.science.kew.org/).

The following abbreviations are used: a.s.l., above sea level; b&w, black and white; FWL, forewing length; gen. prep., genitalia preparation (i.e., permanent slide); Mt., mount; PLB, labial palpus; WLR, width / length ratio. Abbreviations for collections:

APM—Akita Prefectural Museum, Japan;
BPBM—Bernice P. Bishop Museum, Honolulu, Hawaii, USA;
DEIE—Deutsches Entomologisches Institut, Eberswalde, Germany;
FSCA—Florida State Collection of Arthropods, Gainesville, USA;
HNHM—Hungarian Natural History Museum, Budapest, Hungary;
HUNAU—Hunan Agricultural University, Changsha, Republic of China;
MINGA—Muzeul Naţional de Istorie Naturală 'Grigore Antipa', Bucharest, Romania;
MNHN—Museum National d'Historie Naturelle, Paris, France;
MZH—Finnish Museum of Natural History, Helsinki, Finland;
NCHU—National Chung Hsing University, Taichung, Taiwan [Republic of China];
NHM—Natural History Museum, London, U.K.;
NHMW—Naturhistorisches Museum Wien, Austria;
NMNST—National Museum of Natural Science in Taichung, Taiwan [Republic of China];
NMPC—National Museum (Natural History), Prague, Czech Republic;
RMNH—Naturalis Biodiversity Center, Leiden, The Netherlands;
SEHU—Laboratory of Systematic Entomology, Hokkaido University, Sapporo, Hokkaido, Japan;
SMTD—Staatliches Museum für Tierkunde, Dresden, Germany;
TARI—Taiwan Agricultural Research Institute, Taichung, Taiwan [Republic of China];
TFRI—Taiwan Forestry Research Institute, Taipei, Taiwan [Republic of China];
UOP—Osaka Metropolitan University, Osaka, Japan;
USNM—U.S. National Museum of Natural History, Smithsonian Institution, Washington, D.C., U.S.A.;
ZFMK—Zoologisches Forschungsmuseum Alexander Koenig, Bonn, Germany;
ZIN—Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Russia;
ZMB—Museum für Naturkunde der Humboldt-Universität, Berlin, Germany;
ZMUC—Zoological Museum, University of Copenhagen, Denmark;
ZSM—Zoologische Staatssammlung, München, Germany.

Checklist of species

Despite previous delimitation of several morphologically defined species groups within the genus *Nemophora* (Kozlov 1995, 1997a, b; Sun *et al*. 2022; Liao *et al*. 2023), taxonomic affinities of many species considered in the present study remain obscure. Therefore I refrain from designation of new species groups and list the species approximately in the same order, in which they appear in the key below. Several combinations are labelled as new, even if they have been already introduced by several web pages (e.g. those listing described species), because these combinations were created without investigation of the species and because these pages do not qualify as valid publications in terms of the International Code of Zoological Nomenclature (ICZN 1999).

Nemophora bifasciatella Issiki, 1930
Nemophora nieukerkeni Kozlov, **sp. nov.**
Nemophora karsholti Kozlov, **sp. nov.**
Nemophora szabokyi Kozlov, **sp. nov.**
Nemophora augantha (Meyrick, 1907)
Nemophora fluorites (Meyrick, 1907)
= *Nemotois takamukuella* Matsumura, 1932
= *Adela suavis* Caradja, 1938
Nemophora tanakai Hirowatari, 2007
Nemophora aurora Kozlov, 1997
Nemophora aglaospila (Meyrick, 1928), **comb. nov.**
Nemophora sinicella (Walker, 1863), **comb. nov.**
=*Nemotois chrysocharis* Caradja, 1938, **syn. nov.**
Nemophora ahenea Stringer, 1930
Nemophora vietnamensis Kozlov, **sp. nov.**
Nemophora cleodoxa (Meyrick, 1922), **comb. nov.**
Nemophora pyrotechna (Meyrick, 1912)
Nemophora chionites (Meyrick, 1907)
Nemophora griseella (Walsingham, 1880)
= *Nemotois cyphozona* Meyrick, 1922
= *Nemotois tricrates* Meyrick, 1922
Nemophora ischnodesma (Meyrick, 1928)
Nemophora punctifasciella Kozlov, **sp. nov.**
Nemophora satrapodes (Meyrick, 1894)
Nemophora thailandensis Kozlov, **sp. nov.**
Nemophora melichlorias (Meyrick, 1907), **comb. nov.**
= *Nemotois diplophragma* Meyrick, 1938, **syn. nov.**
= *Nemophora basalistriata* Liao, Hirowatari & Huang in Liao, Hirowatari, Yagi, Wang, Wang & Huang, 2023, **syn. nov.**
Nemophora nigripunctella Kozlov, **sp. nov.**
Nemophora chalcoptera Kozlov, **sp. nov.**
Nemophora paradisea (Butler, 1881)
Nemophora decisella (Walker, 1863)
Nemophora caeruliantenna Liao, Hirowatari & Huang in Liao, Hirowatari, Yagi, Wang, Wang & Huang, 2023
Nemophora sakaii (Matsumura, 1931)
= *Nemotois rubrofascia formosicola* Matsumura, 1931, **syn. nov.**
Nemophora auricapitella Kozlov, **sp. nov.**
Nemophora umbripennis Stringer, 1930
Nemophora chrysoprasias (Meyrick, 1907)
Nemophora aurifera (Butler, 1881)
=*Tinachma* (*Adela*) *fasciella* Motschulsky, 1860 (preoccupied)
=*Nemotois limenites* Meyrick, 1914, **syn. nov.**

=*Nemotois servata* Meyrick in Caradja, 1925, **syn. nov.**
=*Nemophora badagongshana* Liao, Hirowatari & Huang in Liao, Hirowatari, Yagi, Wang, Wang & Huang, 2023, **syn. nov.**
=*Nemophora quadrata* Liao, Hirowatari & Huang in Liao, Hirowatari, Yagi, Wang, Wang & Huang, 2023, **syn. nov.**

Nemophora nielseni Kozlov, **sp. nov.**
Nemophora alba Kozlov, 2020
Nemophora maxinae Kozlov & Robinson, 1996
Nemophora meyi Kozlov, **sp. nov.**
Nemophora yeni Kozlov, **sp. nov.**
Nemophora rubicunda Kozlov, **sp. nov.**
Nemophora pecuniosa (Meyrick, 1921)
Nemophora kuznetzovi Kozlov, **sp. nov.**
Nemophora costimaculella Kozlov, 2023

Key to the *Nemophora* species of Myanmar, Thailand, Laos, Cambodia and Vietnam

1. Basal 0.5–0.7 of forewing yellow to ochreous yellow, with several dark brown and/or silver-grey longitudinal stripes 2
- Basal part of forewing either not yellow or without longitudinal stripes (although costal margin can be dark brown) 9

2. Frons glossy: silver, golden or bronze 3
- Frons dull yellow 7

3. Larger (FWL 7.2–10.7 mm); apical quarter of forewing with several distinct spots or stripes. In male genitalia apical part of phallus with two carinae 4
- Smaller (FWL 6.0–6.3 mm); apical quarter of forewing without spots or stripes (Fig. 1). In male genitalia phallus without carinae. . . . . *N. bifasciatella*

4. Apical quarter of forewing with large silver-grey spot parallel or nearly parallel to outer wing margin 5
- Apical quarter of forewing with dark brown longitudinal stripes 6

5. Colour of apical quarter of forewing between silver-grey spot and outer wing margin is much lighter than between fascia and silver-grey spot (Fig. 2). In male genitalia carinae of different length, reaching or almost reaching apex of phallus (Fig. 89) . . . . . *N. nieukerkeni*
- Colour of apical quarter of forewing between silver-grey spot and outer wing margin is the same as between fascia and silver-grey spot (Figs. 3, 4). In male genitalia carinae of similar length, reaching 0.6–0.7 of the distance between their base and apex of phallus (Fig. 90) . . . . . *N. karsholti*

6. Forewing narrow (WLR 0.26); male compound eyes not enlarged (interocular index 0.4) (Fig. 5). In male genitalia vinculum Y-shaped, longer (3.2 × length of valva); carinae articulated at 0.8 × length of phallus (counting from its base) (Fig. 91) . . . . . *N. szabokyi*
- Forewing wide (WLR 0.30–0.33); male compound eyes slightly enlarged (interocular index 0.65–0.75) (Fig. 6). In male genitalia vinculum V-shaped, shorter (2.4 × length of valva); carinae articulated at 0.7 × length of phallus (counting from its base) . . . . . *N. augantha*

7. Yellow band in forewing fascia complete (not divided in two spots) 8
- Yellow band in forewing fascia incomplete (divided medially in two spots, costal and dorsal, so that fascia is X-shaped) (Fig. 7). . . . . *N. fluorites* (males)

8. Larger (FWL 8.5–10.5 mm); margins of apical part of forewing dark brown (Fig. 8) . . . . . *N. tanakai* (males)
- Smaller (FWL 6.7–7.4 mm); margins of apical part of forewing dark ochreous, except for a small part of dorsal margin next to fascia (Fig. 9) . . . . . *N. aurora*

9. Forewing with small yellow U-shaped spot at about middle of costal margin 10
- Forewing without small yellow U-shaped spot at costal margin 11

10. Apical part of forewing with multiple dark brown spots on glossy golden to yellow background; male antenna (except for scape) grey with light golden ring on each flagellomere (Figs. 10, 11). In male genitalia apical part of valva relatively wide (about a half of basal part width); arrow head of juxta with short arms (Fig. 92) . . . . . *N. aglaospila*
- Apical part of forewing uniformly dark brown with coppery tint, without glossy golden or yellow pattern; male antenna (except for scape) uniformly brown to bronze (Figs. 12, 13). In male genitalia apical part of valva relatively narrow (about a third of basal part width); arrow head of juxta with long arms (Fig. 93) . . . . . *N. sinicella*

11. Forewing with fascia at 0.5–0.6 × FWL. 12
- Forewing without fascia 36

12. Medial band of forewing fascia darker than forewing background colour 13
- Medial band of forewing fascia of same colour as forewing background or paler 16

13. Basal and apical quarters of forewing of same colour; basal quarter with large dark brown spot adjacent to costa; apical quarter without tornal spot 14
- Basal and apical quarters of forewing of different colour; basal quarter without large dark brown spot adjacent to costa; apical quarter with tornal spot. 15

14. Frons dull (bright yellow to ochreous brown); male eyes enlarged (interocular index 1.1–1.4); male antenna of moderate length (2.5–3.0 × FWL) (Figs. 14, 15). In male genitalia tips of valvae at about the same level as tip of tegumen; transtilla with short medial process (Fig. 94) . . . . . *N. ahenea*
- Frons glossy golden; male eyes not enlarged (interocular index 0.45); male antenna very long (4.3 × FWL) (Fig. 16). In male genitalia tips of valvae extend beyond tip of tegumen; transtilla with long medial process (Fig. 95). . . . . *N. vietnamensis*

15. Basal 0.4 of forewing glossy golden, remaining part bronze; forewing base with short transverse white stripe; fascia and tornal spot without scattered yellow scales; male compound eyes greatly enlarged (interocular index 0.9–1.1) (Figs. 17, 18). In male genitalia vinculum U-shaped; phallus 1.35 × length of vinculum (Fig. 96). . . . . *N. cleodoxa*
- Entire forewing dark brown with bronze tint; forewing base with two longitudinal yellow stripes; fascia and tornal spot with scattered yellow scales; male compound eyes slightly enlarged (interocular index 0.65) (Figs. 19, 20). In male genitalia vinculum V-shaped; phallus 0.85 × length of vinculum (Fig. 97) . . . . . *N. pyrotechna*

16. Moth grey, with black and white pattern; forewing fascia with white band 17
- Moth not grey; forewing fascia without white band 19

17. Basal part of hindwing white or translucent, clearly contrasting with brown apical part; base of RS stem in forewing with small dark spot; PLB very long (2.0 × vertical eye diameter) (Fig. 21) . . . . . *N. chionites*
- Basal part of hindwing brown, opaque, of same colour as apical part; base of RS stem in forewing without small dark spot; PLB short (0.4–0.6 × vertical eye diameter). 18

18. Forewing fascia consists of three bands (proximal silver-grey, medial dark brown and distal white); dark brown band straight (Fig. 22) . . . . . *N. griseella*
- Forewing fascia consists of two bands (proximal white and distal dark brown); dark brown band angular (Fig. 23) . . . . . *N. ischnodesma*

19. Forewing glossy indigo blue 20
- Forewing light metallic green, bronze, yellow, brown or coppery brown 22

20. Forewing with small yellow spot adjacent to external margin of fascia; hindwing without large yellow transverse spot (Figs. 24, 25). . . . . *N. punctifasciella*
- Forewing outside fascia without small yellow spot; hindwing with large yellow transverse spot 21

21. Larger (FWL 7.0–7.2 mm); forewing wider (WLR 0.38–0.40); forewing base without costal spot; basal and apical parts of hindwing of similar dark brown colour (Fig. 26). Legs ochreous brown; distal parts of tarsomeres 2–5 dark coppery brown; epiphysis at 0.4, not reaching apex of tibia . . . . . *N. satrapodes*
- Smaller (FWL 5.5 mm); forewing narrower (WLR 0.34); forewing base with small dark brown costal spot; basal part of hindwing lighter (grey, nearly translucent) than apical (dark brown) part (Fig. 27). Legs purplish brown; distal parts of tarsomeres 2–5 pale yellow; epiphysis at 0.5, reaching apex of tibia . . . . . *N. thailandensis*

22. Basal part of forewing with large yellow spot or stripe 23
- Basal part of forewing without either yellow spot or stripe 26

23. Apical part of forewing with large spot of same yellow colour as spot or stripe in basal part of forewing. 24
- Apical part of forewing without yellow spot, although its dark brown or bronze background is scattered with yellow scales 25

24. Yellow band in forewing fascia incomplete (divided medially in two spots, costal and dorsal, so that fascia is X-shaped); larger (FWL 8.0–8.6 mm). . . . . *N. fluorites* (females)
- Yellow band in forewing fascia complete (not divided in two spots); smaller (FWL 7.2–7.5 mm) . . . . . *N. tanakai* (females)

25. Basal quarter of forewing with transverse yellow stripe, which reaches costal margin but does not reach wing base (Figs. 28, 29). . . . . *N. melichlorias*
- Basal quarter of forewing with large yellow spot, which does not reach costal margin but reaches wing base (Figs. 33, 35) . . . . . *N. paradisea* and *N. decisella* (females)

26. Frons dull, yellow to ochreous, at least along lateral margins 27
- Frons glossy, golden to bronze 32

27. Medial band of forewing fascia pale yellow to bright yellow; its width at costa is less than 1.5 × its width at dorsum 28
- Medial band of forewing fascia reddish ochreous to red; its width at costa is more than 1.5 × its width at dorsum. 31

28. Smaller (female FWL 4.6 mm); forewing with small black spot adjacent to external margin of fascia at about middle of forewing width (Fig. 30). . . . . *N. nigripunctella*
- Larger (female FWL 6.5–9.8 mm); forewing without small black spot adjacent to external margin of fascia 29

29. Yellow band of forewing fascia on both sides surrounded by relatively wide (0.2–0.4 × width of yellow band) glossy silver-grey bands, which clearly contrast with forewing background; apical part of forewing without diffuse dark brown spot at the outer margin; costal area of hindwing with wide yellow spot 30
- Yellow band of forewing fascia externally (but not internally) surrounded by relatively narrow (0.15–0.18 × width of yellow band) glossy bronze band, which does not contrast with forewing background; apical part of forewing with diffuse dark brown spot at outer margin; costal area of hindwing without wide yellow spot (Fig. 31) . . . . . *N. chalcoptera*

30. Forewing coppery brown (Fig. 32). In male genitalia inner valvar margins form narrow triangular gap between valvae; phallus nearly straight; apical third of carinae nearly straight . . . . . *N. paradisea* (males)
- Forewing greyish brown (Fig. 34). In male genitalia inner valvar margins almost parallel to each other; phallus strongly C-shaped; apical third of carinae strongly S-shaped . . . . . *N. decisella* (males)

31. Forewing light brassy-green with brilliant luster (Fig. 36). In male genitalia valvae fused to each other and to vinculum; apex of phallus spoon-shaped; carinae well sclerotised, with dorsally directed tips (Fig. 100). . . . . *N. caeruliantenna*
- Forewing dark brown with bronze luster (Figs. 37, 38). In male genitalia valvae not fused either to each other or to vinculum; apex of phallus pointed; carinae absent (Fig. 101). . . . . *N. sakaii*

32. Apical third of forewing with ochreous stripes and spots; vertex glossy golden (Figs. 39, 40). In male genitalia phallus with a pair of carinae (Fig. 102, 119) . . . . . *N. auricapitella*
- Apical third of forewing without ochreous stripes and spots, but can be suffused with light scales; vertex dull (pale yellow to dark brown). In male genitalia phallus without carinae 33

33. Basal part of forewing dark brown, densely scattered with bright yellow scales; vertex dark brown; PLB long (1.6–1.9 × vertical eye diameter) (Figs. 41, 42). In male genitalia vinculum U-shaped; arrow head of juxta extremely wide (WLR 1.3) (Figs. 103, 120). . . . . *N. umbripennis*
- Basal part of forewing light metallic green to coppery bronze, not scattered with yellow scales; vertex yellow to ochreous brown; PLB short (0.5–1.1 × vertical eye diameter). In male genitalia vinculum V-shaped; arrow head of juxta moderately wide (WLR 0.40–0.65) 34

34. Basal and apical parts of forewing of same light metallic green colour; apical part of forewing not scattered with yellow scales (Fig. 43). In male genitalia apex of valva widely rounded. . . . . *N. chrysoprasias*
- Basal parts of forewing bronze to coppery bronze; apical part brown, scattered with pale yellow scales. In male genitalia apex of valva narrowly rounded 35

35. Forewing fascia consists of three bands (medial yellow band bordered by dark brown bands); tarsomeres brown except for basal parts, which are yellow (Figs. 44–47). In male genitalia lateral process at apex of phallus long and thin (Figs. 104, 121) . . . . . *N. aurifera*
- Forewing fascia consists of five bands (medial yellow band bordered by dark brown bands and then by silver-grey bands); tarsomeres brown except for apical parts, which are yellow (Figs. 48, 49). In male genitalia lateral process at apex of phallus short and thick (Fig. 105) . . . . . *N. nielseni*

36. Basal and apical parts of forewing of same colour. 37
- Basal and apical parts of forewing of different colours 39

37. Moth white, with light creamy pattern (Fig. 50) . . . . . *N. alba*
- Moth ochreous, brown or dark brown 38

38. Forewing uniformly coppery brown, unpatterned; female antenna with scale-thickening reaching forewing apex (Figs. 51, 52) . . . . . *N. maxinae*
- Forewing with yellow or silver-grey spots; female antenna without scale-thickening or scale-thickening extends only to 0.7 × FWL 39

39. Forewing very narrow (WLR 0.24), dark brown, with a few yellow spots (Figs. 53, 54). In male genitalia tips of valvae at about same level as tip of tegumen; ventral margin of valva without posteroventrally directed lobe; sacculus moderately long (0.6 × length of valva) (Fig. 106) . . . . . *N. meyi*
- Forewing moderately wide (WLR 0.35), ochreous brown, with multiple silver-grey spots (Figs. 55, 57). In male genitalia tip of tegumen extends beyond tips of valvae; ventral margin of valva with large posteroventrally directed lobe (see from side); sacculus long (0.8 × length of valva) (Fig. 107). . . . . *N. yeni*

40. Yellow field in basal part of forewing extends along costa twice more than along dorsum; this yellow field does not contain silver-grey spots (Fig. 58). . . . . *N. rubicunda*
- Yellow field in basal part of forewing extends along costa only slightly more than along dorsum; this yellow field contains silver-grey spots 41

41. Vertex medially glossy golden; yellow basal part of forewing usually with four silver-grey spots, among which only one spot is located at the costal wing margin (Figs. 59, 60). In male genitalia vinculum Y-shaped; phallus apically divided into four pointed hook-shaped processes (Figs. 109, 123). . . . . *N. pecuniosa*
- Entire vertex pale yellow to ochreous brown; yellow basal part of forewing usually with two or seven silver spots, two of which are located at the costal wing margin. In male genitalia vinculum V-shaped; phallus apically pointed or divided into two pointed straight or gently C-shaped processes 42

42. Yellow part of forewing usually with two silver spots; male compound eyes moderately enlarged (interocular index 1.08–1.13); PLB short (0.25–0.40 × vertical eye diameter) (Fig. 61). In male genitalia internal valvar margin with small prong at 0.3 × length of valva (counting from its base); phallus without carinae (Fig. 110) . . . . . *N. kuznetzovi*
- Yellow part of forewing usually with seven silver spots; male compound eyes greatly enlarged (interocular index 1.2–1.3); PLB moderately long (0.4–0.5 × vertical eye diameter) (Fig. 62). In male genitalia internal valvar margin smooth; phallus with two short carinae . . . . . *N. costimaculella*

Species descriptions

Nemophora bifasciatella Issiki, 1930

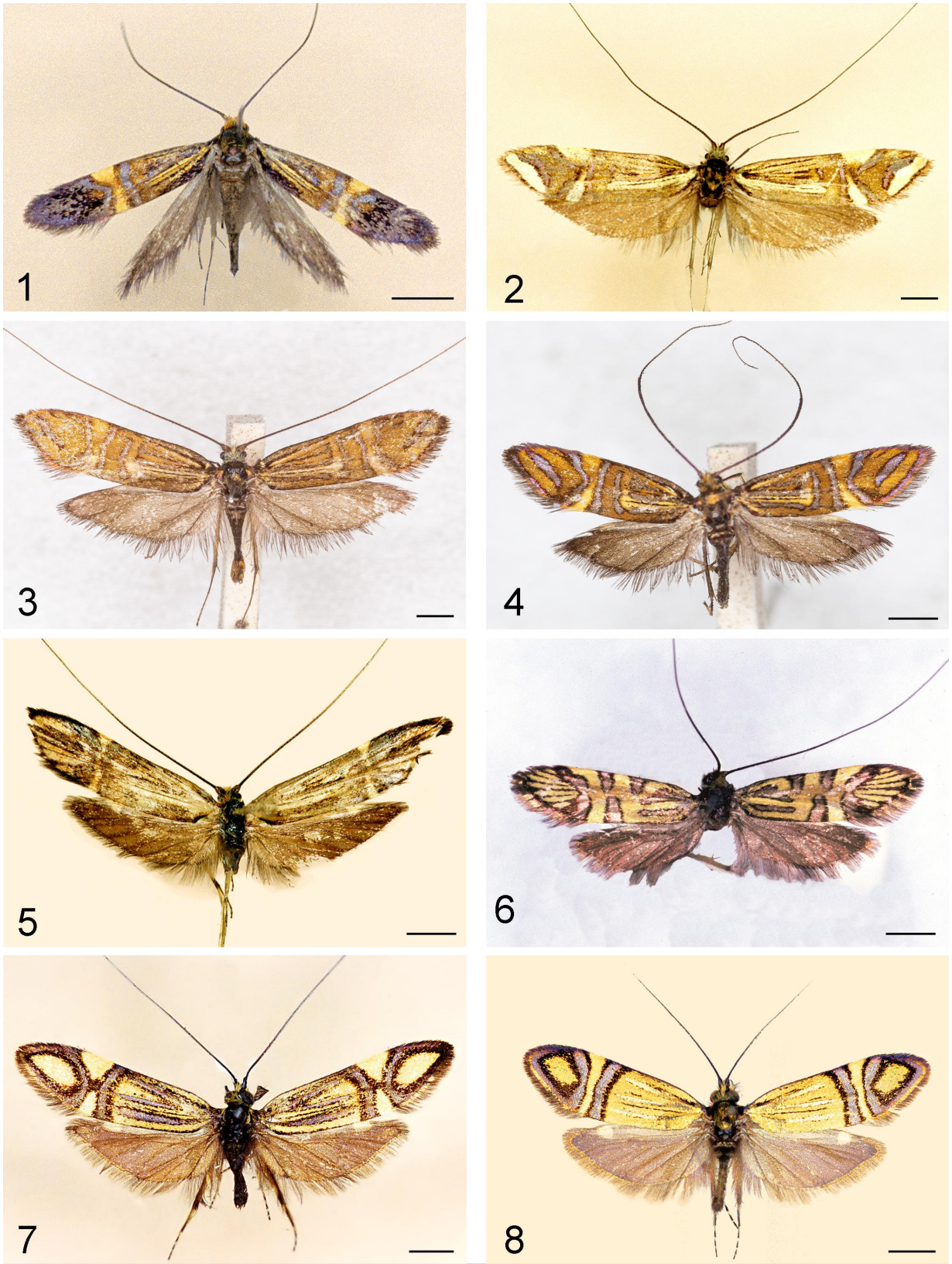
(Fig. 1)

Nemophora bifasciatella: Issiki 1930: 461. Type material and revision: Hirowatari 1995: 96–99, 104. Additional information: Hirowatari 2013: 107, 3-08-18, 3-08-19, 3-08-20 (colour photographs of moths); Liao *et al*. 2023: 54–55, 104 pl. 7 fig. 1 (colour photographs of moths), 124 pl. 17 fig. 5 (photographs of male genitalia), 142 pl. 26 fig. 3 (photograph of female genitalia).

Other material. Thailand. 1 ♀, Chieng Mai Province, Doi Inthanon National Park, 1700 m, 25.–27.viii.1987 (Allen) (NHM); 1 ♀, ibid., 1600 m, 22.–24.x.1984 (Karsholt, Lombolt & Nielsen) (ZMUC). Japan. Honshu. 3 ♂ 1 ♀, Ise, Mt. Gozaisyo, 25.vii.1957 (Yasuda); 5 ♂ 2 ♀, Nagano, Mt. Ontake, 5.viii.1953 (Mutuura); 3 ♂, Nagano, Nakabusa, 24.vii.1951 (Inoue); 1 ♂ 1 ♀, Kaga, Hakusan, 29.vii.1961 (Yasuda); 1 ♂, Koozuke, Kusatu, 28.vii.1959 (Issiki & Yasuda); 1 ♂, Tyubu, Hida, Takayama, 25.vii.1954 (Issiki) (all in USNM).

Distribution. Continental China (Liao *et al*. 2003), Thailand (this study), Japan (Issiki 1930).

Comments. Two specimens from Thailand slightly differ from each other and also from both Japanese and Chinese specimens and may actually represent distinct species. However, the absence of males precludes reliable identification of these specimens.



FIGURES 1–8. Adults of *Nemophora* spp. 1, *N. bifasciatella* Issiki, 1930, female, from Doi Inthanon National Park, Thailand; 2, *N. nieukerkeni* Kozlov, **sp. nov.**, male, holotype, from Phan Xi Pang, Vietnam; 3, *N. karsholti* Kozlov, **sp. nov.**, male, paratype, from Doi Inthanon National Park, Thailand; 4, ditto, female, paratype, from the same locality; 5, *N. szabokyi* Kozlov, **sp. nov.**, male, holotype, from Changwat Nan, Thailand; 6, *N. augantha* (Meyrick, 1907), male, lectotype, from Khasi Hills, Meghalaya, India; 7, *N. fluorites* (Meyrick, 1907), male, from Khasi Hills, Meghalaya, India; 8, *N. tanakai* Hirowatari, 2007, male, paratype, from Tam Dao, Vietnam. Scale: 2 mm.

***Nemophora nieukerkeni* Kozlov, sp. nov.**
urn:lsid:zoobank.org:act:610CBA86-7653-4A07-B1A1-A5502C0ED0FB
(Figs. 2, 63, 89)

Holotype ♂: Vietnam, Phan Xi Pang (22° 19' 08" N, 103° 47' 14" E); labelled: 8 mm circle with red border, print 'Holo- │ type'; 12 × 19 mm, print 'RMNH/EvN no 2001237 │ VIETNAM (Lao Cai) │ Hoang Lien Song, Phan Xi │ Pang (Fansipan) NW slopes │ near Sin Chai; base camp, 2100 │ m; UTM: 48Q UK750686. │ 24.x.2001 │ E.J.v. Nieukerken & J. C. Koster'; 8 × 18, print 'Primary mountain broadleaved │ evergreen forest; at light ML │ 17.30–22.30 hrs │ RMNH │ EvN no 2001237'; 8 × 15, print 'RMNH Microlepidoptera │ Genitalia slide │ E. J. van Nieukerken │ 3588 ♂'; 8 × 17, print '[datamatrix code] RMNH.INS │ 23588'; 7 × 19 mm, print 'HOLOTYPE ♂ │ *Nemophora* │ *nieukerkeni* Kozlov' (RMNH) [examined].

Diagnosis. *Nemophora nieukerkeni* differs from all other *Nemophora* species recorded in Southeast Asia by light yellow spot along the outer forewing margin; this spot is much lighter than the forewing background colour. This new species is similar to *N. recurvatifera* Sun, Wang & Li, 2022, from which it differs by the silver-grey spot in the apical part of forewing connected to the costal forewing margin, long and narrow vinculum (2.9 × length of valva), shape of valva and, likely, the absence of carinae on phallus (this character is not visible in male genitalia illustration published by Sun *et al*. 2022). In the forewing pattern *N. nieukerkeni* resembles *N. karsholti* (Figs. 3, 4), from which it differs by the absence of silver-grey longitudinal stripes on both sides of CuP stem in the basal part of forewing, absence of large (0.7 × forewing width) silver-grey transverse spot between the fascia and the longitudinal pattern in the basal part of forewing, the silver-grey spot in the apical part of forewing not reaching costal forewing margin, longer carinae on phallus (almost reaching apex of its dorsal lobe) and the absence of a hook-shaped process on the dorsal lobe of phallus.

Description. Male (Fig. 2). FWL 10.6 mm, WLR 0.28. Vertex pale yellow, with sparse dark brown scales; frons glossy golden. PLB 1.7 × vertical eye diameter (1.2 × length of scape), pale yellow, with sparse raised dark brown piliform scales. Proboscis dark brown, basally with bronze scales. Eyes not enlarged; interocular index 0.5. Antenna 3.5 × FWL, with simple inwardly directed pegs. Scape dark coppery bronze dorsolaterally, yellow ventrally; basal part of flagellum dark coppery bronze; colour of flagellum at level of forewing fascia gradually changes to silver-grey. Tegulae and thorax glossy bronze. Forewing (Fig. 63) ochreous brown; its basal part with silver-grey longitudinal stripe along costal margin and with several thin dark brown longitudinal lines and with two yellow stripes located along R and CuP stems; small transverse silver-grey spot (0.25 × forewing width) is located between distal ends of these bands and fascia; costal and dorsal margins basally dark brown. Fascia nearly X-shaped, its medial band is ochreous brown in the middle and pale yellow at both costal and dorsal margins; internal margin of this band reaches costa at 0.57 × FWL; this medial band is surrounded on both sides by silver-grey bands. Apical part of forewing with small triangular yellow spot at costa and wide oblique silver-grey spot, which is nearly parallel to outer wing margin; area between this spot and wing margin is pale yellow, clearly contrasting colour of forewing between fascia and this oblique spot. Fringe dark brown to bronze. Hindwing brown; costal area light grey; R and M1 stalked; fringe grey at wing base to brown at apex. Legs bronze dorsally, yellow ventrally. Epiphysis at 0.55, reaching apex of tibia. Colour of abdomen unknown.

Female unknown.

Male genitalia (Fig. 89). Tegumen narrowly dome-shaped, with prominent medial ridge. Socii 1.2 × diameter of phallus. Vinculum 2.9 × length of valva, Y-shaped, with slightly convex lateral margins; distal margin nearly straight. Tip of tegumen extends beyond tips of valvae. Ventral margin of valva gently W-shaped; dorsal margin slightly concave; tip of valva narrow, with straight interior angle. Valvae fused basally up to 0.25 × total length; valvar margins in the fused area indistinct. Anellus 0.25 × length of valva, not reaching its base. Transtilla with long pointed medial process. Anal cone with distinct triangular sclerotisation around tip of medial process of transtilla. Juxta 0.47 × length of phallus; arrow head narrow (WLR 0.4), with pointed tip and long pointed lateral arms. Phallus 1.2 × length of vinculum, almost straight, with two carinae articulated at 0.67 × its length (counting from base); left carina slightly shorter than right carina. Tip of phallus axe-shaped; base of phallus narrowly funnel-shaped.

Biology. The specimen was attracted by light in primary mountain broadleaved evergreen forest (E. J. van Nieukerken, pers. comm.).

Distribution. Vietnam (this study).

Etymology. The species is named after one of its collectors, Erik J. van Nieukerken, a Dutch lepidopterologist intensively studying archaic moths.

Comments. The DNA barcode of the holotype is available from https://www.boldsystems.org/, process identifier LEVIE2605-13.

***Nemophora karsholti* Kozlov, sp. nov.**
urn:lsid:zoobank.org:act:C3861A25-C338-4ED5-A62F-1B62DCC94D03
(Figs. 3, 4, 64, 90)

Holotype ♂: Thailand, Doi Inthanon National Park (18° 32' N, 98° 36' E); labelled: 7 × 18 mm, print 'THAILAND: Chieng Mai Provence │ Doi Inthanon Nat. park │ 22.–23.X.1984, 2200–2500 m │ Karsholt, Lomholdt & Nielsen leg. │ Zool. Mus., Copenhagen'; 7 × 19 mm, print: 'HOLOTYPE ♂ │ *Nemophora karsholti* │ Kozlov' (ZMUC) [examined]. **Paratypes**. 25 ♂ 2 ♀, same label as in holotype; 7 × 19 mm, print: 'PARATYPE ♂ [or ♀] │ *Nemophora karsholti* │ Kozlov' (ZMUC) [examined].

Diagnosis. *Nemophora karsholti* is most similar to *N. nieukerkeni* (Fig. 2), from which it differs by silver-grey longitudinal stripes on both sides of CuP stem in the basal part of the forewing, large (0.7 × forewing width) silver-grey transverse spot between fascia and longitudinal stripes in the basal part of the forewing, the silver-grey spot in the apical part of forewing not reaching costal margin, the similar colour of the apical part of forewing on both sides of silver-grey spot, short carinae on phallus (reaching only 0.2 × of its total length) and hook-shaped process on the dorsal lobe of phallus. In the forewing pattern *N. karsholti* resembles also *N. recurvatifera*, from which it differs by the silver-grey spot in the apical part of forewing not connected to the outer wing margin, long and narrow vinculum (3.4–3.5 × length of valva), shape of valva and, likely, presence of carinae on phallus (this character is not visible in male genitalia illustration published by Sun *et al.* 2022).

Description. Male (Fig. 3). FWL 8.8–10.7 mm, WLR 0.25–0.27. Vertex light yellow to light ochreous, with sparse dark brown piliform scales along occipital margin; frons glossy bronze. PLB 1.1–1.5 × vertical eye diameter (1.2–1.3 × length of scape), pale yellow to light brown, dorsally with appressed yellow scales, ventrally with raised piliform dark brown scales. Proboscis brown to bronze, its base with coppery brown scales. Eyes not enlarged; interocular index 0.55–0.60. Antenna 3.7–4.2 × FWL, with simple inwardly directed pegs. Scape dark coppery brown dorsolaterally, light yellow ventrally; basal part of flagellum dark coppery brown; colour of flagellum at level of forewing fascia gradually changes to silver-grey. Tegulae and thorax glossy bronze. Forewing (Fig. 64) ochreous to ochreous brown; costal and dorsal margins basally dark brown; basal part with three silver-grey longitudinal stripes: first along costal margin, second between M and CuP stems, and third between CuP stem and dorsal margin; distal part of second stripe turns towards costal margin. Transverse silver-grey spot extending to 0.75 × forewing width is located between distal ends of these bands and fascia. Proximal margin of fascia at 0.55–0.60 × FWL; fascia consists of three bands of about same width; medial band ochreous, of same colour as forewing background, but in some specimens its colour changes from ochreous brown at costal margin to pale yellow at dorsal margin; lateral bands glossy grey. Apical part of forewing with thin oblique dark brown spot at costa and elongate (WLR 0.25) glossy grey spot along outer margin; wing margin around apex dark brown. Fringe dark brown at costa, bronze at apex, brown at dorsum. Hindwing brown basally to coppery brown apically; costal area light grey; R and M1 stalked; fringe grey at wing base to brown at apex. Fore and mid legs coppery brown dorsally and yellow ventrally; hind legs bronze dorsally and yellow ventrally; apices of all tarsomeres yellow. Epiphysis at 0.5, almost reaching apex of tibia. Abdomen brown; distal margins of sternites yellow.

Female (Fig. 4). Antenna 1.3 × FWL, its basal part (0.6 × total length) dark brown, distal part of flagellum brown. Otherwise similar to male.

Male genitalia (Fig. 90). Tegumen dome-shaped, with prominent medial ridge. Socii 1.3–1.5 × diameter of phallus. Vinculum 3.4–3.5 × length of valva, Y-shaped, with slightly concave lateral margins; distal margin nearly straight. Tip of tegumen extends far beyond tips of valvae. Ventral margin of valva slightly bent at the middle; dorsal margin nearly straight; tip of valva narrowly rounded. Valvae fused basally up to 0.2–0.3 × total length; valvar margins at place of fusion clearly visible. Anellus 0.3 × length of valva, reaches base of valva. Transtilla with long pointed medial process. Anal cone with distinct triangular sclerotisation around tip of medial process of transtilla. Juxta 0.4 × length of phallus; arrow head moderately wide (WLR 0.4–0.5), with pointed tip and long pointed lateral arms. Phallus 1.15–1.20 × length of vinculum, almost straight; ventrally with two symmetrical carinae attached at 0.68–0.73

× its length (counting from base); tip of phallus funnel-shaped, dorsal wall with finger-like process at the base of apical funnel; base of phallus bell-shaped.

Distribution. Thailand (this study).

Etymology. The species is named after one of its collectors, Ole Karsholt, a Danish entomologist working on taxonomy and faunistics of Microlepidoptera.

Comments. This species was recently photographed at the type locality (https://www.inaturalist.org/observations/193410341).

***Nemophora szabokyi* Kozlov, sp. nov.**

urn:lsid:zoobank.org:act:815E1FFC-0A4B-4467-84D8-B5FC6BDAA014

(Figs. 5, 65, 91)

Holotype ♂: Thailand, Nan (approx. 19° 10' N, 101° 06' E); labelled: 9 × 12 mm, print 'THAILAND │ Changwat Nan │ 30 km E of Pua │ 1700 m, 20.II.1998 │ leg. Márton Hreblay │ & Csaba Szabóky'; 8 × 18 mm, red paper, black ink 'HOLOTYPE ♂ │ Nemophora │ szabokyi Kozlov │ in litt. 2000' (HNHM) [examined]. **Paratype**. 1 ♀, labelled: 9 × 12 mm, print 'THAILAND │ Changwat Nan │ 30 km E of Pua │ 1700 m, 18.II.1998 │ leg. Márton Hreblay │ & Csaba Szabóky'; 8 × 18 mm, red paper, black ink 'PARATYPE ♀ │ Nemophora │ szabokyi Kozlov │ in litt. 2000' (HNHM) [examined].

Diagnosis. In forewing pattern *N. szabokyi* resembles *N. lapikella* Kozlov, 1997, *N. chalybeella* (Bremer, 1864) and *N. biprocessa* Sun, Wang & Li, 2022. From all these species *N. szabokyi* differs by the long (3.2 × length of valva), Y-shaped vinculum and by the two short, thick, serrate hook-shaped carinae articulated to the ventral side of phallus at 0.8 × its length (counting from the base). In forewing pattern *N. szabokyi* likely differs from *N. lapikella* and *N. chalybeella* by the presence of the wide longitudinal spot located along the costal margin in the basal part of forewing and of narrow yellow stripes inside dark brown longitudinal spot in the apical part of forewing; however, the validity of these diagnostic traits remains questionable until their variation is studied in *N. szabokyi*.

Description. Male (Fig. 5). FWL 9.1 mm, WLR 0.26. Vertex straw-yellow, with sparse brown scales; frons glossy golden. PLB 1.0 × vertical eye diameter, straw-yellow, tip light brown. Proboscis light brown. Eyes not enlarged; interocular index 0.4. Antenna 3.3 × FWL, with simple inwardly directed pegs. Scape and proximal third of flagellum dark brown, with bronze luster; then colour of flagellum gradually changes to light grey. Tegulae and thorax coppery brown; dorsum marginally with bands of yellow scales. Forewing (Fig. 65) pale yellow, with ochreous tint; internal border of yellow medial band of fascia at 0.55 × FWL; this yellow band on both sides is bordered by brown fields with indistinct external margins; external brown filed has narrow internal band formed by shining grey scales. Basal field of forewing with characteristically shaped yellow longitudinal spot near costal margin; otherwise the pattern is typical for the *degeerella* species group. Apical field medially with longitudinal dark brown spot containing two yellow stripes and reaching upper part of outer wing margin. Fringe dark brown. Hindwing dark brown; costal area yellowish brown, with distinct triangular spot, external margin of which almost matches internal margin of yellow band in forewing fascia. This spot, best visible from underside, reaches 0.3 × hindwing width; fringe brown. Fore and mid legs dark brown dorsally and pale yellow ventrally; hind legs pale yellow, apices of all leg parts dark brown. Epiphysis at 0.5, not reaching apex of tibia. Abdomen dark brown, dorsally violet shining; distal parts of sternites with pale yellow bands.

Female. FWL 7.0 mm, WLR 0.29. Antenna longer than forewing (tip broken); basal part of flagellum (0.8 × FWL) densely covered with black coppery shining scales. Otherwise similar to male.

Male genitalia (Fig. 91). Tegumen dome-shaped, with small medial ridge. Socii elongate, 1.1 × diameter of phallus. Vinculum 3.2 × length of valva, Y-shaped, with concave lateral margins; proximal half of vinculum narrow (1.5 × diameter of phallus), with parallel lateral margins; distal margin straight. Tip of tegumen extends far beyond tips of valvae. Ventral valvar margin gently S-shaped; dorsal valvar margin with medial indentation; tip of valva rounded. Valvae fused basally up to 0.35 × total length; internal valvar margins distinct. Anellus 0.3 × length of valva. Transtilla with narrow pointed medial process. Juxta 0.55 × length of phallus; arrow head extremely narrow (WLR 0.3), with pointed tip and short pointed lateral arms. Phallus 1.15 × length of vinculum, C-shaped (see from side), with two thick serrate hook-shaped carinae articulated at 0.8 × its length (counting from base); tip of phallus flattened, bifurcate; base narrowly funnel-shaped.

Biology. Moths were collected by a light trap in an old-grown tropical forest.

Distribution. Thailand (this study).

Etymology. The species is named after one of its collectors, Csaba Szabóky, a prominent Hungarian lepidopterologist.

Nemophora augantha (Meyrick, 1907)

(Fig. 6)

Adela augantha: Meyrick 1907: 989–990.

Nemophora augantha, type materials and revision: Kozlov 2023: 20–21, 60 figs. 17, 18 (colour photographs of moths), 67 fig. 79 (drawing of forewing pattern), 70 fig. 117 (drawing of male genitalia), 76 fig. 148 (photograph of male genitalia).

Distribution. India (Meyrick 1907), Vietnam (Kozlov 2023).

Nemophora fluorites (Meyrick, 1907)

(Fig. 7)

Nemotois fluorites: Meyrick 1907: 991–992.

Nemophora fluorites, type materials and revision: Hirowatari 2007: 27–32, 28 figs. 1, 2c, d (colour photographs of moths), 29 figs. 3c, d (colour photographs of moths), 30 figs. 5a, b (photographs and drawings of wing venation), 31 fig. 6 (drawing of male genitalia), 32 fig. 7 (drawing of female genitalia); Kozlov 2023: 15–17. Additional information: Liao *et al*. 2023: 50–51, 102 pl. 6 fig. 3 (colour photographs of moths), 112 pl. 11 fig. 7 (colour photograph of lectotype), 112 pl. 11 fig. 8 (colour photograph of the holotype of *Adela suavis*, junior subjective synonym of *N. fluorites*, erroneously referred to as the lectotype), 124 pl. 17 fig. 1 (photograph of male genitalia), 140 pl. 25 fig. 2 (photograph of female genitalia).

Distribution. India (Meyrick 1907), continental China (Caradja 1938), Taiwan (Wang *et al.* 2000), Myanmar (Hirowatari 2007), Vietnam (Hirowatari 2007).

Nemophora tanakai Hirowatari, 2007

(Fig. 8)

Nemophora tanakai: Hirowatari 2007: 29–30, 28 figs. 2a, b (colour photographs of moths), 29 figs. 3a, b (colour photographs of moths), 29 fig. 4 (drawing of head), 30 figs. 5c, d (photographs and drawings of wing venation), 33 fig. 8 (drawing of male genitalia), 34 fig. 9 (drawing of female genitalia). Additional information: Liao *et al*. 2023: 53, 102 pl. 6 fig. 2 (colour photographs of moths), 124 pl. 17 fig. 4 (photographs of male genitalia), 146 pl. 26 fig. 2 (photograph of female genitalia).

Distribution. Continental China (Wang & Kishida 2011), Vietnam (Hirowatari 2007).

Comments. The morphological difference between *N. tanakai* and *N. fluorites* is rather small (Hirowatari 2007). Liao *et al*. (2023) published one barcode for each of these species; until the variation within each species is documented, the status of *N. tanakai* remains insufficiently supported.

Nemophora aurora Kozlov, 1997

(Fig. 9)

Nemophora aurora: Kozlov 1997b: 14–15, 14 fig. 1 (drawing of forewing pattern), 15 figs. 3–7 (drawings of male genitalia).

Other material. Vietnam. 1 ♀, Sa Pa, Fan Si Pang Mts., 25.–30.iii.1995 (Mey) (ZMB).

Distribution. Taiwan (Kozlov 1997b), Vietnam (this study).

Comments. The female from Vietnam (Fig. 9) differs from type specimens of *N. aurora* by the absence of multiple thin dark brown longitudinal lines in the apical part of the forewing.

***Nemophora aglaospila* (Meyrick, 1928), comb. nov.**
(Figs. 10, 11, 66, 92, 111)

Nemotois aglaospila: Meyrick 1928: 463. **Holotype** ♂ (abdomen missing): Vietnam, Vũng Tàu (approx. 10° 25' N, 107° 08' E); labelled: 4 × 10 mm, red paper, print 'TYPE'; 8 × 14 mm, black ink 'Cap l'Jacqus │ Cochinchine │ X 1910'; 9 × 18 mm, black ink 'Nemotois │ aglaospila Meyr │ type.'; 20 × 27 mm, black ink 'Nemotois │ aglaospila Meyr. │ Exot. Microl., 3, │ 1928, p. 463'; 12 × 21 mm, pink paper, print + black ink 'Holotype ♂ Nemotois │ aglaospila │ Meyrick, 1928 │ M. Kozlov design. 1999' (MNHN) [examined].
Nemotois aglaospila: Viette 1951: 83; Clarke 1955: 38.

Other material. Unknown locality. 1 ♂, 1884 (de Nicéville) (NHM). Thailand. 1 ♂, Kanchanaburi District, Sai Yok, 26.iii.1988 (Allen) (NHM). Laos. 1 ♀, Vientiane Province, Nam-Lik Eco-Village, 5.vi.2016 (Omelko) (MZH). Indonesia. 1 ♂, S. E. Borneo, 1891 (Doherty); 1 ♂, S. E. Borneo, Riam Kiwa, 500–1000 ft., 1891 (Doherty); 12 ♂ 1 ♀, Bali, 1896 (Doherty) (all in NHM); 3 ♂ 1 ♀, Eastern Borneo, Tabang, Bengen River, 125 m, 31.viii.–12.x.1956 (Wegner) (RMNH); 2 ♂, Kedah Langkawi, Hotel Andaman, light trap, 9.–10.iii.2000 (Mikkola) (MZH).

Diagnosis. *Nemophora aglaospila* is nearest to *N. sinicella* (Figs. 12, 13), from which it differs by the glossy golden to yellow apical part of forewing patterned with multiple dark brown spots, and by the light golden ring on each flagellomere in the apical part of male antenna. In male genitalia *N. aglaospila* differs from *N. sinicella* by the relatively wide apical half of valva (about 0.5 × basal half width) and by the short arms of the arrow head of juxta. In forewing pattern *N. aglaospila* also resembles a typical form of *N. engraptes* (Meyrick, 1907), from which it differs by the yellow vertex, smaller size and absence of carinae on phallus. Glossy golden spot at the middle of costal margin occurs also in *N. cleodoxa* (Figs. 17, 18), from which *N. aglaospila* differs by the presence of dark and light semicircular bands surrounding this spot.

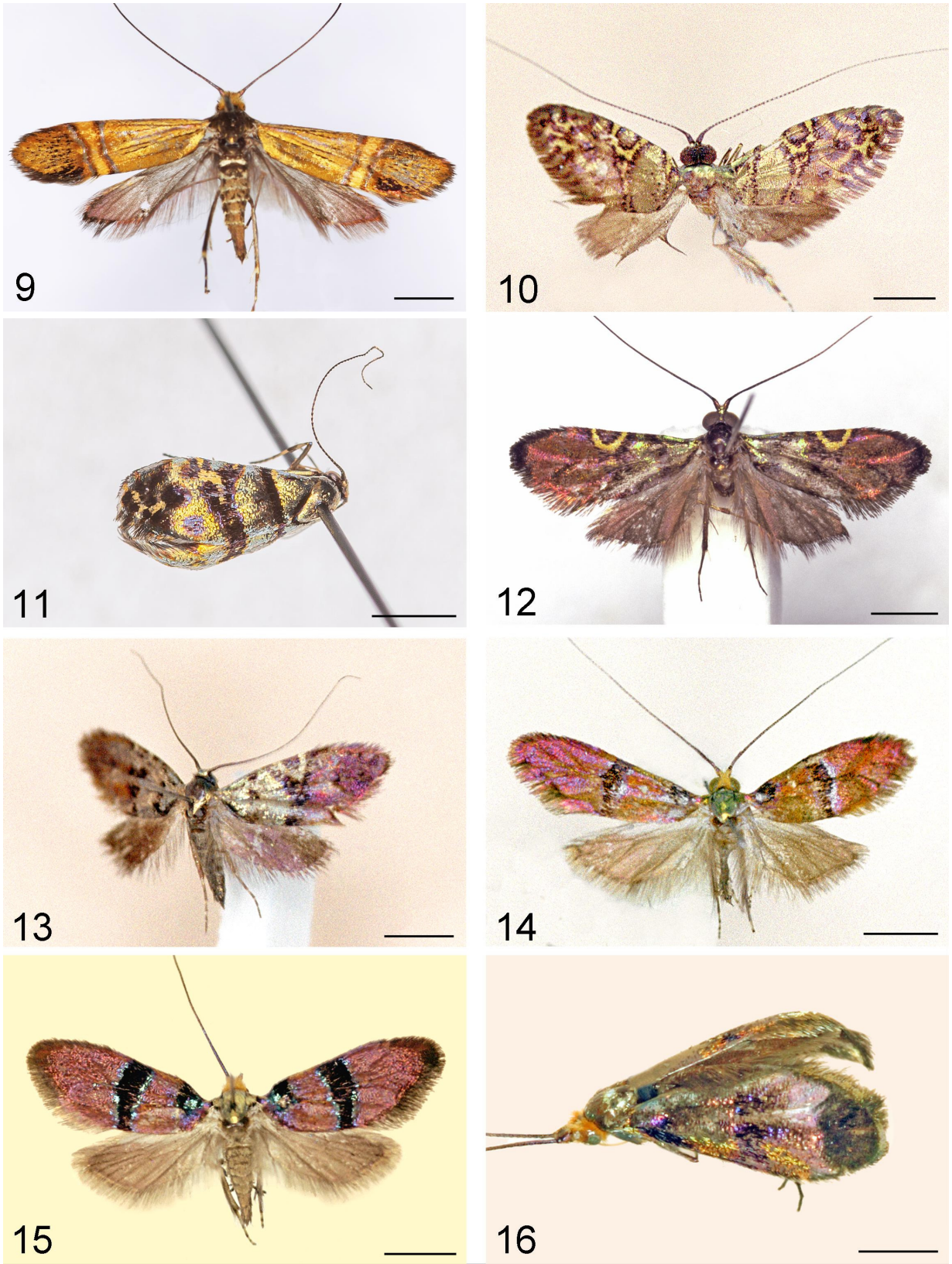
Description. Male (Fig. 10). FWL 5.5–6.5 mm, WLR 0.37–0.42. Vertex golden; occipital margin with a row of long blackish piliform scales; frons golden. PLB 0.3–0.4 × vertical eye diameter (1.0 × length of scape), light ochreous brown, with a few raised dark brown piliform scales. Proboscis light brown, base with golden scales. Eyes enlarged, but not touching each other; interocular index 1.0–1.2; occipital distance 0.1–0.2. Antenna 3.0–3.3 × FWL; 4–5 basal flagellomeres with minute inwardly directed pegs. Scape and base of flagellum bronze to coppery brown; apical part of flagellum grey, with light golden ring on each flagellomere. Tegulae and thorax from light golden to bronze. Forewing (Fig. 66) from light glossy golden to pale yellow; apical part of forewing usually darker than basal part, patterned with multiple brown spots. Base of R stem with brown longitudinal stripe. Basal transverse dark brown band arises from costa at 0.2 × FWL; transverse yellow stripe may be located at its internal margin or within this band; its extent varies from 0.2 to 0.5 × forewing width. Medial transverse dark brown band frequently does not reach dorsal wing margin; its costal part wide, with small golden spot at costa; this spot is surrounded by semicircular yellow line, which sometimes has short appendage directed to dorsal wing margin. Outer wing margin with variable pattern of minute yellow and dark brown spots; yellow spots sometimes form W-shaped figure. Fringe golden, with brown scales matching brown spots on wing margin. Hind wing basally whitish to light grey; distal part from dark grey with bronze lustre to dark coppery brown; costal area grey; fringe light grey. Legs glossy bronze to golden; apices of tibiae and all tarsomeres coppery brown. Epiphysis at 0.6, reaching or almost reaching apex of tibia. Abdomen dorsally light brownish grey to brown, ventrally light bronze to light brown; distal margins of sternites silver-grey.

Female. FWL 5.2–5.5 mm. Antenna 1.5 × FWL. Otherwise similar to male.

Male genitalia (Figs. 92, 111). Tegumen dome-shaped, with prominent medial ridge. Socii elongate, 0.8 × diameter of phallus. Vinculum V-shaped, 2.3–2.7 × length of valva, with almost straight to slightly convex lateral margins; distal margin nearly straight, with minute medial indentation. Tips of valvae at the same level as tip of tegumen or slightly extend beyond it. Both ventral and dorsal margins of valva nearly straight; tip of valva rounded. Valvae fused basally up to 0.40–0.45 × total length; internal margins not visible. Anellus 0.45–0.70 × length of valva. Transtilla with short triangular medial process. Juxta 0.48–0.52 × length of phallus; arrow head extremely narrow (WLR 0.3–0.4), with rounded tip and short or even missing lateral arms. Phallus 1.0–1.1 × length of vinculum; its distal part flattened laterally; base narrowly funnel-shaped.

Distribution. Thailand (this study), Laos (this study), Vietnam (Meyrick 1928), Indonesia (this study).

Comments. The male from Riam Kiwa bears a label with the text '*Chrysothauma annuliferum* W. Typ'; however, this name has never been published by Walsingham.



FIGURES 9–16. Adults of *Nemophora* spp. 9, *N. aurora* Kozlov, 1997, female, from Sa Pa, Vietnam; 10, *N. aglaospila* (Meyrick, 1928), male, from S. E. Borneo, Indonesia; 11, ditto, female, from Nam-Lik Eco-Village, Vientiane Province, Laos; 12, *N. sinicella* (Walker, 1863), male, from Maymyo, Shan Hills, Myanmar; 13, ditto, female, from Huai Nam Dang, Thailand; 14, *N. ahenea* Stringer, 1930, male, holotype, from Iwawakisan, Kii Province, Honshu, Japan; 15, ditto, female, from Mt. Mikusa, Hyogo Prefecture, Honshu, Japan; 16, *N. vietnamensis* Kozlov, **sp. nov.**, male, holotype, from Quảng Chu, Vietnam. Scale: 2 mm.

The species is variable in wing pattern and in the characters of male genitalia (length of valvae, length and shape of anellus); however, I found no consistency in the variation of wing pattern and male genitalia. Although I consider all examined specimens conspecific, they originate from a rather large area, and investigation of additional material may possibly demonstrate that populations from Borneo or Bali belong to another species than 'true' (i.e., continental) *N. aglaospila*.

The specimen collected by C. L. A. de Nicéville in 1884 likely originates from the surroundings of Calcutta, India, where he collected most of his material. Nevertheless, as no locality information is provided on the label of this specimen, I refrain from including India in the distribution range of *N. aglaospila*. This species is common in Thailand, as evidenced by multiple photographs deposited in iNaturalist (https://www.inaturalist.org/observations/21137197, 37156332, 87498516, 97642600, 115353295, 130161428, 131829477, 135069958, 150575602, 168273062).

Nemophora sinicella (Walker, 1863), comb. nov.

(Figs. 12, 13, 67, 93, 112)

Nemotois sinicella: Walker 1863: 505. **Lectotype** ♂ (here designated): China [Xiamen]; labelled: 8 mm circle with violet border, print 'Lecto- | type'; 8 mm circle with red border, print 'Type'; 6 mm circle, black ink 'China', reverse side: '[18]45 | 65 [Lay]'; 14 × 25 mm, wide black frame, black ink + print 'NEMOTOIS | SINICELLA. Wkr. | Cat. Lep. Het. BM. 28 : 505 1863 | TYPE ♂ descr.'; 4 × 34 mm, print '21. Nemotois sinicella.'; 8 × 20 mm, print 'LECTOTYPE ♂ | Nemotois sinicella | Walker, 1863 | M. Kozlov design. 1999' (NHM) [examined]. **Paralectotypes**. 3 ♂, labelled: 8 mm circle with blue border, print 'Para- | lecto- | type'; 7 mm circle, black ink 'China', reverse side: '[18]45 | 65 [Lay]'; 8 × 20 mm, print 'PARALECTOTYPE ♂ | Nemotois sinicella | Walker, 1863 | M. Kozlov design. 1999'. The paralectotype with a head glued on a piece of paper bears additional label: 6 × 16 mm, print 'Head associa- | ted incorrectly. | M. Kozlov 2005'. The paralectotype with metathorax and hind wings in gelatine capsule bears additional label: 8 × 13 mm, print 'B. M. | Genitalia slide | No. 27836' (all in NHM) [examined].

Nemotois sinicella: Meyrick 1912a: 6, 1912b: 8; Kozlov & Robinson 1996a: 42; Hua 2005: 2.

Nemotois chrysocharis: Caradja 1938: 257, **syn. nov. Holotype** ♂: China, Fujian Province, Shaowu (27° 21' N, 117° 27' E); labelled: 9 × 18 mm, black frame, black ink 'Shao-wu | Fukien | 1.7[1937] [Klapperich leg.]'; 14 × 24 mm, black frame, black ink 'Nemotois | chrysocharis | Car. | Type.'; 12 × 20 mm, red border, print + black ink 'ROMÄNIA [along the left margin] | HOLOTYPE | Nemotois | chrysocharis | ♂ Car.' (MINGA type collection no. 176.059) [examined].

Nemotois chrysocharis: Popescu-Gorj 1992: 144; Hua 2005: 2.

Nemophora chrysocharis: Liao *et al*. 2023: 75.

Other material. China. 1 ♂ 1 ♀, Fujian, Shaowu, 500 m, 19.vi.1937 (Klapperich); 1 ♂, ibid., 5.viii.1937 (all in MINGA). Myanmar. 1 ♂, Shan Hills, Maymyo, 1100 m, 4.vi.1988 (Allen) (NHM). Thailand. 1 ♀, Chieng Mai Province, Huai Nam Dang, 1500–1700 m, 25.–27.x.1984 (Karsholdt, Lomholdt & Nielsen) (ZMUC).

Diagnosis. *Nemophora sinicella* is nearest to *N. aglaospila* (Figs. 10, 11), from which it differs by the dark coppery brown apical part of forewing, which is patterned with a couple of diffuse dark spots, and by the uniformly brown to bronze antenna. In male genitalia *N. sinicella* differs from *N. aglaospila* by the relatively narrow apical half of valva (about 0.3 × basal width) and by the long arms of the arrow head of juxta. Glossy golden spot at middle of costal margin occurs also in *N. cleodoxa* (Figs. 17, 18), from which *N. sinicella* differs by the presence of dark and light semicircular bands surrounding this spot.

Description. Male (Fig. 12). FWL 5.0–6.0 mm, WLR 0.36–0.40. Vertex medially with glossy golden scales, occipital margin with row of yellowish brown piliform scales; frons glossy golden. PLB 0.3 × vertical eye diameter (0.8 × length of scape), light yellowish brown. Proboscis light brown, base with yellow to brown scales. Eyes enlarged, but not touching each other; interocular index 0.9–1.0; occipital distance 0.2–0.3. Antenna 2.5–3.0 × FWL. Scape and base of flagellum glossy bronze, apical part of flagellum uniformly brown to bronze. Tegulae and thorax glossy golden. Forewing (Fig. 67) glossy golden in basal half to dark bronze in apical half; basal part with narrow dark brown longitudinal stripe at costal margin; this stripe almost reaches narrow transverse dark brown band at 0.15 × FWL. Although in some specimens this band is scattered by a few yellow scales near costa, these scales never form distinct yellow spot or band. Costal part of medial band wide (ca. 0.3 × FWL), with small glossy golden spot at costa; this spot is surrounded by semicircular dark brown line followed by bright yellow line placed between arms of Y-shaped dark coppery brown transverse band. In some specimens this glossy spot is dark bronze or even absent, being replaced by dark brown spot. Apical part of forewing with variable pattern of diffuse dark brown spots in discal zone and near outer margin. Fringe bronze. Hindwing light brown to bronze; costal area grey; fringe yellowish grey dorsally

to brown around apex. Legs glossy silver to light brown; apices of tibiae and all tarsomeres dark brown. Epiphysis at 0.6, reaching apex of tibia. Abdomen dorsolaterally light brown, ventrally glossy silver.

Female (Fig. 13). FWL 5.2 mm, WLR 0.42. Antenna 1.1 × FWL. Distal margins of abdominal sternites dark bronze. Otherwise similar to male.

Male genitalia (Figs. 93, 112). Tegumen widely dome-shaped, with medial ridge. Socii elongate, 1.2 × diameter of phallus. Vinculum 2.4 × length of valva, V-shaped, with almost straight lateral margins and straight distal margin with minute medial indentation. Tips of valvae extend far beyond tip of tegumen. Basal parts of valvae (0.35 × valvar length) extended ventrally, forming semicircular protrusion (see from side); ventral valvar margin concave; dorsal valvar margin almost straight; distal half of valva very narrow, finger-like; tip of valva pointed. Valvae not fused basally. Anellus 0.25 × length of valva. Transtilla with short triangular medial process. Juxta 0.5 × length of phallus; arrow head narrow (WLR 0.45), with narrowly rounded tip and pointed lateral arms. Phallus 1.05 × length of vinculum, gently S-shaped, with two thin carinae articulated ventrally at 0.55 × length of phallus (counting from its base); base of phallus bell-shaped, tip pointed.

Distribution. Continental China (Walker 1863), Myanmar (Meyrick 1912a), Thailand (this study).

Comments. The English description and localities of *N. sinicella* in Walker (1863) appear under the name *N. decisella*; the Latin diagnoses are correct (Meyrick 1912a). Strangely, this species was not included in the list of Chinese fauna by Liao *et al*. (2023).

The previous record of *N. sinicella* from Myanmar (Meyrick 1912a, as Burma) is likely based on one bad quality female specimen of *N. ahenea* misidentified as *N. sinicella* in the Meyrick's collection (NHM). Nevertheless, recent findings (see above) confirm the occurrence of *N. sinicella* in Myanmar.

Nemophora ahenea Stringer, 1930

(Figs. 14, 15, 68, 94, 113)

Nemophora ahenea: Stringer 1930: 422. **Holotype** ♂: Japan, Honshu, Wakayama Prefecture, Iwawakisan (34° 22' N, 135° 33' E), labelled: 8 mm circle with red border, print 'Type'; 7 × 10 mm, print 'Iwawaki- | san, Kii 8- | VIII 1919 | S. Issiki'; 5 × 11 mm, black ink 'B. M. | 1930-435'; 13 × 22 mm, black ink + print 'Nemophora | ahenea Strgr. | Ann Mag N. H. 10^{s} 6 p. 422 | TYPE ♂ (1930)' (NHM) [examined]. **Paratypes**. 1 ♂, labelled: 8 mm circle with yellow border, print 'Para- | type'; 6 × 10 mm, print 'JAPAN. | Pryer Coll. | 188 . '; 8 × 10 mm, print 'Walsingham | Collection | 1910-427'; 13 × 22 mm, black ink + print 'Nemophora | ahenea Strgr. | PARATYPE'. 1 ♀, labelled: 8 mm circle with yellow border, print 'Para- | type'; 7 × 9 mm, print 'Iwawaki- | san, Kii | 19-8-1920 | S. Issiki'; 4 × 11 mm, black ink 'B. M. | 1930-435'; 13 × 22 mm, black ink + print 'Nemophora | ahenea Strgr. | PARATYPE' (both in NHM) [examined].

Nemophora ahenea: Inoue 1954: 9; Kuroko 1957: 1; Issiki 1957: 13, pl. 2 fig. 30 (colour photograph of moth); Okano 1959: 277, pl. 183 fig. 14 (colour drawing of moth); Moriuti 1982: 54, 156, pl. 1 fig. 28 (colour photograph of moth); Kawamura 1984: 3; Sugi 1989: 889; Kozlov 1997c: 278, 279 fig. 182.2 (drawing of forewing), 281 fig. 184.1 (drawing of male genitalia); Hirowatari 1998: 29; Hirowatari & Kametani 1999: 85–92 figs. 1–12 (moth appearance, daily rhythms, copulation, head structure); Hirowatari 2000: 12 fig. 11.7 (colour photograph of male), 13 figs. 12.1–2 (moths in nature), 28–29; Wang *et al*. 2000: 5 (colour photographs of moths); Hirowatari 2005: 312–313, 314 fig. 1a, b (colour photographs of moths), 315 fig. 2 (distribution map), 317 fig. 4 (drawing of male genitalia), 323 fig. 10 (drawing of female genitalia); Hirowatari 2013: 104–105, figs. 3-07-17, 3-07-18, 3-07-19 (colour photographs of moths); Mishima 2021: 80; Liao *et al*. 2023: 74, 112 pl. 11 fig. 6 (colour photograph of holotype).

Other material. China. Taiwan. 1 ♂, Nantou County, 1300 m, Chun-Yang, near Lushan Hot Spring, 18.ix.2002 (Chen & Buchsbaum) (ZSM); 1 ♂ 1 ♀, Tainan County, Kanshirei, 300 m, 16.iv.1906 (Wileman) (NHM); 1 ♂, Wushe, on flowers of *Reynoutria multiflora*, 11.iii.1997 (Lin); 1 ♂, Dongbu 1300 m, Nantou County, 10.iv.1992 (Chang) (both in NCHU); 1 ♀, Kaoshiung County, Sanpin Forest Station, 9 km SE Lukuei, 700 m, 25.ix.2001 (Stange & Wang) (FSCA); 1 ♂, Liouguei, 60 km NE Kaoshiung, 900 m, 30.iv.2001 (Kozlov) (NHM); 1 ♂ 1♀, Chipon (Taito), 16.v.1921 (Shiraki) (TARI); 1 ♀, I-Lan County, Yuanshan, Fushan, Botanical Garden, 800 m, 29.v.1995 (Yen) (NMNST); 3 ♂, Baibara, 23.–25.iii.1943 (Issiki); 1 ♂, Raisya, 19.v.1947 (Issiki); 1 ♂, Rarasan, 27.vi.1943 (Issiki); 1 ♂, Sankakuho, 25.v.1928 (Issiki); 1 ♂, Kiirun, 11.v.1935 (Issiki); 1 ♂, Kao Hsiung County, 10–11 km NE Chiahsien, ca. 300 m, forest, 3.–8.vii.1980 (Davis) (all in USNM). Myanmar. 1 ♀, Nyaungshwe (formerly Fort Stedman), x.1888 (Manders) (NHM). Japan. Honshu. 1 ♂, Oomi, Tahisankei, 7.viii.1956 (Yasuda) (ZMUC); 1 ♀, Kii, Iwawakisan, 19.viii.1920 (Issiki) (TFRI); 1 ♂, Kii, 9.viii.1918 (Issiki) (NHMW); 1 ♀, Mt. Mikusa, Hyogo Prefecture, 23.vii.1997 (Hirowatari & Kametani) (UOP); 5 ♂, Kyoto Prefecture, Hanase, 7.viii.1956 (Issiki); 3 ♂, Kyoto Prefecture, Sanzyoga

Mts., 29.–30.vii.1951 (Issiki); 2 ♂ 1 ♀, Mie Prefecture, Iwawaki Mt., 19.viii.1920 (Issiki); 1 ♂ 1 ♀, Nara Prefecture, Dorogawa, 29.–30.vii.1951 (Mutuura); 1 ♂, Nara Prefecture, Oto-mura, 13.viii.1952 (Issiki) (all in USNM). Kyushu. 4 ♂, Fukuoka Prefecture, Mt. Hiko, Biological station, 10.–11.viii.1980 (Mikkola) (MZH); 1 ♂, Kagoshima Prefecture, Sata, Misaki, 21.v.1952 (Issiki); 1 ♂, Oita Prefecture, Sobosan, 5.vii.1937 (Issiki) (both in USNM).

Diagnosis. *Nemophora ahenea* externally resembles *N. vietnamensis* (Fig. 16), from which it differs by the dull (bright yellow to ochreous brown) frons, enlarged male eyes (interocular index 0.85–1.40), moderate length of male antenna (2.5–3.0 × FWL), forewing fascia consisting of three bands, tips of valvae at about the same level as the tip of tegumen, and short medial process of transtilla.

Description. Male (Fig. 14). FWL 5.2–6.6 mm, WLR 0.33–0.38. Vertex and frons bright yellow to ochreous brown. PLB 0.4–0.5 × vertical eye diameter (1.0–1.3 × length of scape), bright yellow to ochreous, densely covered with relatively short protracted yellow to ochreous piliform scales. Proboscis light brown, base covered with ochreous yellow scales. Eyes enlarged, but not touching each other; interocular index 0.85–1.40; occipital distance 0.15–0.45. Antenna 2.5–3.0 × FWL. Scape bronze to ochreous brown; base of flagellum dark coppery bronze; 10–12 proximal flagellomeres dorsally with semi-erect coppery black scales, which mask minute inwardly directed pegs; distal part of flagellum greyish bronze to silver-grey. Tegulae and thorax glossy golden. Forewing (Fig. 68) dark coppery bronze, with large dark brown spot at base of costa reaching 0.6 × forewing width, and medial fascia (0.04–0.17 × FWL) with oblique internal margin reaching costa at 0.38–0.40 × FWL; width of this fascia usually decreases from costa to dorsum. Forewing base at costa with purplish to indigo blue iridescent spot adjacent to dark brown spot; fascia consists of dark brown medial band bordered on both sides by narrow glossy lead bands. Fringe bronze to dark brown. Hindwing brown, apically with bronze or coppery tint; costal area grey; R and M1 stalked; fringe brown to grey. Legs bronze; apices of fore and mid tibiae with tufts of raised coppery black scales; hind tibia with dense cover of long greyish brown piliform scales; apices of all tarsomeres brown. Epiphysis at 0.4, not reaching apex of tibia. Abdomen dorsally brown with slight bronze lustre, ventrally bright bronze.

Female (Fig. 15). FWL 4.7–5.5 mm. Antenna 1.7–2.0 × FWL; scape and proximal 8–10 flagellomeres ochreous yellow (in some specimens, dorsal parts of scape and proximal flagellomeres dark coppery bronze), dorsally with narrow line of short semi-erect yellow scales (absent in some specimens); distal part of flagellum bronze. Otherwise similar to male.

Male genitalia (Figs. 94, 113). Tegumen from almost triangular to dome-shaped, wide, with small medial ridge. Socii oval, 1.0–1.4 × diameter of phallus. Vinculum 2.0–2.6 × length of valva, V-shaped, with slightly convex lateral margins and gently wave-shaped to straight distal margin. Tips of valvae at about same level as tip of tegumen. Ventral valvar margin with prominent lobe reaching 0.6–0.7 × length of valva; tip of this lobe directed ventrally, and in lateral view this lobe looks like triangular ventral protuberance in middle of valva. Dorsal margin of valva straight to slightly concave; tip of valva narrowly rounded. Valvae fused basally up to 0.25 × total length; internal valvar margins indistinct. Anellus 0.3 × length of valva. Transtilla with short medial process. Juxta 0.55–0.60 × length of phallus; arrow head moderately wide (WLR 0.5), with pointed to narrowly rounded tip and long pointed lateral arms. Phallus 1.0 × length of vinculum, in lateral view gently S-shaped, with two long carinae articulated ventrally at 0.6 × length of phallus (counting from its base); tip of phallus forms dorsoventrally flattened lobe; base of phallus funnel-shaped.

Biology. Occurs from early summer (Taiwan) to late summer (Japan), inhabiting mountain regions; flies actively only around sunset. In Japan, moths were observed nectaring on flowers of *Erigeron annuus* (L.) Pers. (Asteraceae) and *Reynoutria japonica* Houtt. (Polygonaceae); swarms of males (maximum of five individuals) were observed 10–30 cm above flowers of these plants and of flowers of *Rhus chinensis* Mill. (Anacardiaceae). Moth copulate aerially, then land to foliage. Females were observed to oviposit into flower buds of *R. japonica* (Hirowatari & Kametani 1999). In Taiwan, moths were collected from flowers of *Mallotus japonicus* (pers. obs.) and *R. multiflora* (Thunb.) Moldenke (specimen deposited in NCHU).

Distribution. Taiwan (Wang *et al*. 2000), Myanmar (this study; questionable record), Thailand (this study; photograph-based records: https://www.inaturalist.org/observations/132395186, 183085460, 184475541), Cambodia (this study; photograph-based record: https://www.inaturalist.org/observations/38211105), Japan (Stringer 1930).

Comments. Specimens of *N. ahenea* from Taiwan slightly differ from Japanese specimens by wider forewing, greater extent of basal spot towards dorsal wing margin, larger compound eyes in males, more approaching each other occipitally, and longer vinculum (relative to length of valva). However, keeping in mind the previously reported morphological variation of this species in Japan (Hirowatari 2005) I think that populations from Taiwan and Japan are conspecific.

The only poor quality female specimen of *N. ahenea* from Myanmar was found among specimens of *N. sinicella* in the Meyrick's collection (NHM). The origin of this specimen is questionable, because it is not mentioned by Meyrick (1894) in the revision of moths collected by N. Manders in Fort Stedman (now Nyaungshwe) in the summer of 1888, despite the claim that Tineina from this collection 'are worked out in full'; thus, mislabelling is possible. Furthermore, the quality of the moth makes my identification tentative; thus, I consider the record of *N. ahenea* from Myanmar questionable.

Photographs of several specimens of *N. pyrotechna* deposited in iNaturalist (see below) were misidentified as *N. ahenea*. Due to the external similarities of these two species with *N. cleodoxa* and *N. vietnamensis* the photograph-based records of *N. ahenea* should be considered with caution.

Nemophora vietnamensis Kozlov, sp. nov.

urn:lsid:zoobank.org:act:D158838A-D5CF-4C51-AFC3-CCB00DD80E44
(Figs. 16, 69, 95)

Holotype ♂: Vietnam, Quảng Chu (21° 51' N, 105° 49' E); labelled: 8 mm circle with red border, print 'Holo- │ type'; 10 × 14 mm, print + black ink 'N. Vietnam │ prov. Bacthai │ Quangchu │ 23.4.1986 │ V. Kuznetzov leg.'; 7 × 18 mm, print 'HOLOTYPE ♂ │ *Nemophora* │ *vietnamensis* Kozlov' (ZIN) [examined].

Diagnosis. *Nemophora vietnamensis* externally resembles *N. ahenea* (Figs. 14, 15), from which it differs by the glossy golden frons, not enlarged compound eyes in males (interocular index 0.45), very long male antenna (4.3 × FWL), forewing fascia consisting of single dark band, tips of valvae extending beyond tip of tegumen, and long medial process of transtilla. *Nemophora vietnamensis* also resembles *N. pyrotechna* (Figs. 19, 20), from which it markedly differs by the absence of yellow longitudinal stripes at the forewing base.

Description. Male (Fig. 16). FWL 6.5 mm, WLR 0.42. Vertex ochreous; frons glossy golden, with row of ochreous scales below antennal sockets. PLB 1.0 × vertical eye diameter (0.5 × length of scape), pale yellow. Proboscis yellowish brown, base with golden scales. Eyes not enlarged; interocular index 0.45. Antenna 4.3 × FWL, with simple inwardly directed pegs. Scape and base of flagellum dark bronze; at about 0.5 × FWL colour of flagellum sharply changes to silver-white. Tegulae and thorax glossy golden. Forewing (Fig. 69) dark bronze with coppery tint; pattern dark brown, consists of large, oblique, nearly rectangular costal spot at base and moderately wide (0.10–0.12 × FWL) medial fascia, internal margin of which reaches costa at 0.55 × FWL. Fringe bronze. Hindwing dark brown; costal area grey; fringe brown. Legs bronze dorsolaterally, pale yellow ventrally. Epiphysis at 0.55, reaching apex of tibia. Colour of abdomen unknown.

Female unknown.

Male genitalia (Fig. 95). Tegumen dome-shaped, with weak medial ridge. Socii elongate, 1.3 × diameter of phallus. Vinculum 2.3 × length of valva, narrowly U-shaped, with nearly straight lateral margins; distal margin W-shaped. Tips of valvae extend beyond tip of tegumen. Ventral margin of valva medially with long narrow lobe reaching 0.75 × length of valva; dorsal margin almost straight; tip of valva narrowly rounded. Bases of valvae fused to medial part of vinculum; valvar margins distinct. Anellus 0.4 × length of valva. Transtilla with long pointed medial process. Juxta 0.35 × length of phallus; arrow head extremely wide (WLR 1.0), with widely rounded tip and short pointed lateral arms. Phallus nearly equal to length of vinculum, almost straight; distal third of phallus bifurcate (see from ventral side); base of phallus widely funnel-shaped.

Biology. The holotype was collected in day time along a trail in a secondary tropical forest (Kuznetzov 1988).

Distribution. Vietnam (this study).

Etymology. Named after the type locality (Vietnam).

Nemophora cleodoxa (Meyrick, 1922), comb. nov.

(Fig. 17, 18, 70, 96, 114)

Nemotois cleodoxa: Meyrick 1922: 535. **Lectotype** ♂ (here designated): Myanmar, Minbu (21° 10' N, 94° 53' E); labelled: 8 mm circle with blue border, print 'Lecto- │ type'; 5 × 10 mm, black ink 'Minbu │ L. Burma │ TBF[letcher] 7.8.[19]14'; 13 × 14 mm, black ink + print 'Nemotois │ cleodoxa │ 1/2 Meyr. │ E. Meyrick det. │ in Meyrick Coll.'; 6 × 13 mm, print 'Meyrick

Coll. | B. M. 1938-290'; 4 × 13 mm, blue paper, print 'Abdomen missing'; 8 × 18 mm, print 'LECTOTYPE ♂ | *Nemotois cleo-* | *doxa* Meyrick, 1922 | M. Kozlov design. 2003' (NHM) [examined]. **Paralectotype**. 1 ♀, labelled: 8 mm circle with blue border, print 'Para- | lecto- | type'; 5 × 10 mm, black ink 'Minbu | L. Burma | TBF[letcher] 7.8.[19]14'; 13 × 14 mm, black ink + print 'Nemotois | cleodoxa | 2/2 Meyr. | E. Meyrick det. | in Meyrick Coll.'; 3 × 18 mm, black ink 'cleodoxa Meyr.'; 8 × 18 mm, print 'PARALECTOTYPE ♀ | *Nemotois cleo-* | *doxa* Meyrick, 1922 | M. Kozlov design. 2003' (NHM) [examined].

Nemotois cleodoxa: Clarke 1955: 93.

Other material. Myanmar. 2 ♂ 1 ♀, Minbu, 6.–8.viii.1914 (Fletcher) (NHM).

Diagnosis. *Nemophora cleodoxa* is similar to *N. pyrotechna* (Figs. 19, 20), from which it differs by the absence of yellow scales in both forewing fascia and apical spot, presence of white transverse stripe at the forewing base and enlarged compound eyes in males (interocular index 0.9–1.1). Glossy golden spot at the middle of the costal margin occurs also in *N. sinicella* (Figs. 12, 13) and *N. aglaospila* (Figs. 10, 11), from which *N. cleodoxa* differs by the absence of dark and light semicircular bands surrounding this spot. From all mentioned species *N. cleodoxa* also differs by the U-shaped vinculum and long (1.35 × length of vinculum) phallus with strongly sclerotised horn-like symmetrical carinae on its ventral wall.

Description. Male (Fig. 17). FWL 5.3–5.6 mm, WLR 0.34–0.38. Vertex ochreous; frons glossy golden. PLB 0.30–0.35 × vertical eye diameter (0.45–0.75 × length of scape), grey to light brown. Proboscis light brown, base with dark bronze scales. Eyes enlarged, but not touching each other; interocular index 0.9–1.1; occipital distance 0.4–0.5. Antenna 3.2–3.6 × FWL. Scape and base of flagellum dark coppery brown, apical part of flagellum bronze to brown. Tegulae and thorax bronze. Forewing base (Fig. 70; approximately 0.4 × FWL) light glossy golden; apical part of forewing bronze, with coppery tint at apex. Basal quarter of forewing with distinct triangular brown spot between Sc and M stems, and with diffuse brown band reaching costa at 0.25 × FWL; this band is separated from basal triangular spot by transverse white stripe reaching 0.3–0.4 × forewing width. Fascia wide (from 0.20 × FWL at costa to 0.15 × FWL at dorsum), diffuse; reaches costa at 0.35 × FWL; consists of dark brown spots scattered over bronze background, in some specimens with a few white scales near costa. Apical part of forewing with diffuse oval brown spot located along outer margin. Fringe bronze. Hindwing dark brown, apically with slight coppery tint; costal area grey; fringe grey to brown. Legs bronze to brown; bases of all tarsomeres yellow. Epiphysis at 0.5, almost reaching apex of tibia. Abdomen bronze dorsally, coppery brown ventrally; distal parts of sternites silver-white.

Female (Fig. 18). FWL 5.0–5.5 mm. Antenna 1.0–1.1 × FWL, scape and flagellum uniformly bronze. Otherwise similar to male.

Male genitalia (Figs. 96, 114). Tegumen dome-shaped, wide, without medial ridge. Socii elongate, 0.8 × diameter of phallus. Vinculum 1.8 × length of valva, U-shaped, with almost parallel lateral margins; distal margin nearly straight. Tips of valvae at about same level as tip of tegumen. Ventral margin of valva sharply bent at 0.65 × length of valva; basal part of valva much wider than its apical part; dorsal margin nearly straight; tip of valva rounded. Valvae not fused basally. Anellus 0.2 × length of valva. Transtilla wide, with small triangular medial process. Juxta 0.4 × length of phallus; arrow head wide (WLR 0.75), with pointed tip and pointed lateral arms. Phallus 1.35 × length of vinculum; distal half ventrally with two strongly sclerotised symmetrical carinae, which in ventral view form lyre-shaped figure; apex of phallus membranous; base widely funnel-shaped.

Distribution. Myanmar (Meyrick 1922).

Nemophora pyrotechna (Meyrick, 1912)

(Figs. 19, 20, 71, 97, 115)

Nemotois pyrotechna: Meyrick 1912a: 6.

Nemophora pyrotechna, type material and revision: Kozlov 2023: 39, 63 figs. 47, 48 (colour photographs of moths), 68 fig. 97 (drawing of forewing pattern).

Other material. Myanmar. 2 ♂ 1♀, Kadan Kyun (formerly King Island), ii.1924 (Archibald) (NHM).

Diagnosis. *Nemophora pyrotechna* is similar to *N. cleodoxa* (Figs. 17, 18), from which it differs by the presence of yellow scales in both forewing fascia and apical spot, the presence of two yellow longitudinal stripes at the forewing base, not enlarged compound eyes in males (interocular index 0.60–0.65), V-shaped vinculum and short (0.85 × length of vinculum) phallus lacking strongly sclerotised carinae. Glossy golden spot at the middle of the

costal margin occurs also in *N. sinicella* (Figs. 12, 13) and *N. aglaospila* (Figs. 10, 11), from which *N. pyrotechna* differs by the absence of dark and light semicircular bands surrounding this spot. In forewing pattern *N. pyrotechna* also resembles a dark form of *N. engraptes*, from which it differs by the small compound eyes in males.

Description. Male (Fig. 19). FWL 6.0–6.8 mm, WLR 0.35–0.37. Vertex bright ochreous; frons glossy golden to glossy bronze, with a row of ochreous yellow piliform scales below antennal sockets. PLB 0.8–1.0 × vertical eye diameter (0.9 × length of scape), ochreous yellow to yellowish brown. Proboscis light brown to ochreous brown; frontal surface basally with dark bronze scales. Eyes not enlarged; interocular index 0.60–0.65. Antenna 4.0–4.1 × FWL; scape and basal part of flagellum (up to 0.6–0.7 × FWL) dark coppery brown; distal part of flagellum light bronze to white. Tegulae dark coppery brown to bronze; thorax dark bronze. Forewing (Fig. 71) dark brown with bronze tint; basal field (0.25 × FWL) dark brown, with external margin almost perpendicular to wing margins; two longitudinal yellow spots in basal field are of similar width. Both fascia (reaching costa between 0.35 and 0.60 × FWL) and tornal spot consist of mixture (generally 1 : 2 to 2 : 3, in dorsal part of fascia 1 : 10 to 1 : 5) of yellow and dark brown scales; margins of fascia almost parallel to each other, and width of fascia at costa is 1.4–2.0 × width at dorsum. Tornal spot variable in size, from small (with anterior margin reaching M1 vein) to large (with anterior margin reaching RS4 vein). Fringe bronze. Hindwing dark brown, with bronze to coppery lustre; costal area grey; fringe light brown to bronze. Legs glossy bronze to dark coppery brown; apices of tibiae and all tarsomeres brown. Epiphysis at 0.4–0.5, reaching or almost reaching apex of tibia. Abdomen dorsally dark brown with bronze lustre, ventrally bronze, in some specimens with coppery tint.

Female (Fig. 20). FWL 5.0–6.0 mm. Antenna 1.8 × FWL, scape and proximal part of flagellum (up to 0.8 × FWL) dark bronze; distal part of flagellum white. Forewing fascia darker than in male, with dominance of brown scales over yellow scales (10 : 1). Abdomen brown to bronze, ventrally with coppery tint. Otherwise similar to male.

Male genitalia (Figs. 97, 115). Tegumen dome-shaped, without medial ridge. Socii oval, 1.6 × diameter of phallus. Vinculum 2.5 × length of valva, with convex lateral margins and almost straight distal margin. Tips of valvae slightly extend beyond tip of tegumen. Ventral margin of valva with smooth lobe reaching 0.6 × length of valva; dorsal margin slightly concave; tip of valva narrowly rounded. Valvae not fused basally. Anellus 0.35 × length of valva. Transtilla with long medial process. Juxta 0.55 × length of phallus; arrow head wide (WLR 0.60), with widely rounded tip and short lateral arms. Phallus 0.85 × length of vinculum, almost straight; base widely funnel-shaped.

Distribution. India (Meyrick 1912a), Myanmar (this study), Thailand (this study; photograph-based records: https://www.inaturalist.org/observations/21470657, 132395186 and 135130275), Cambodia (this study; questionable photograph-based record: https://www.inaturalist.org/observations/143334145).

Comments. The description of external features of *N. pyrotechna* (provided above) combines data from type specimens (revised by Kozlov 2023) and specimens collected in Myanmar, which differ from type specimens in the smaller size, larger tornal spot and shape of the forewing fascia. The description of male genitalia is based on a specimen from Myanmar, because the holotype lacks the abdomen.

All specimens of *N. pyrotechna* from Thailand and Cambodia (photographs deposited at https://www.inaturalist.org/) were misidentified as *N. ahenea*.

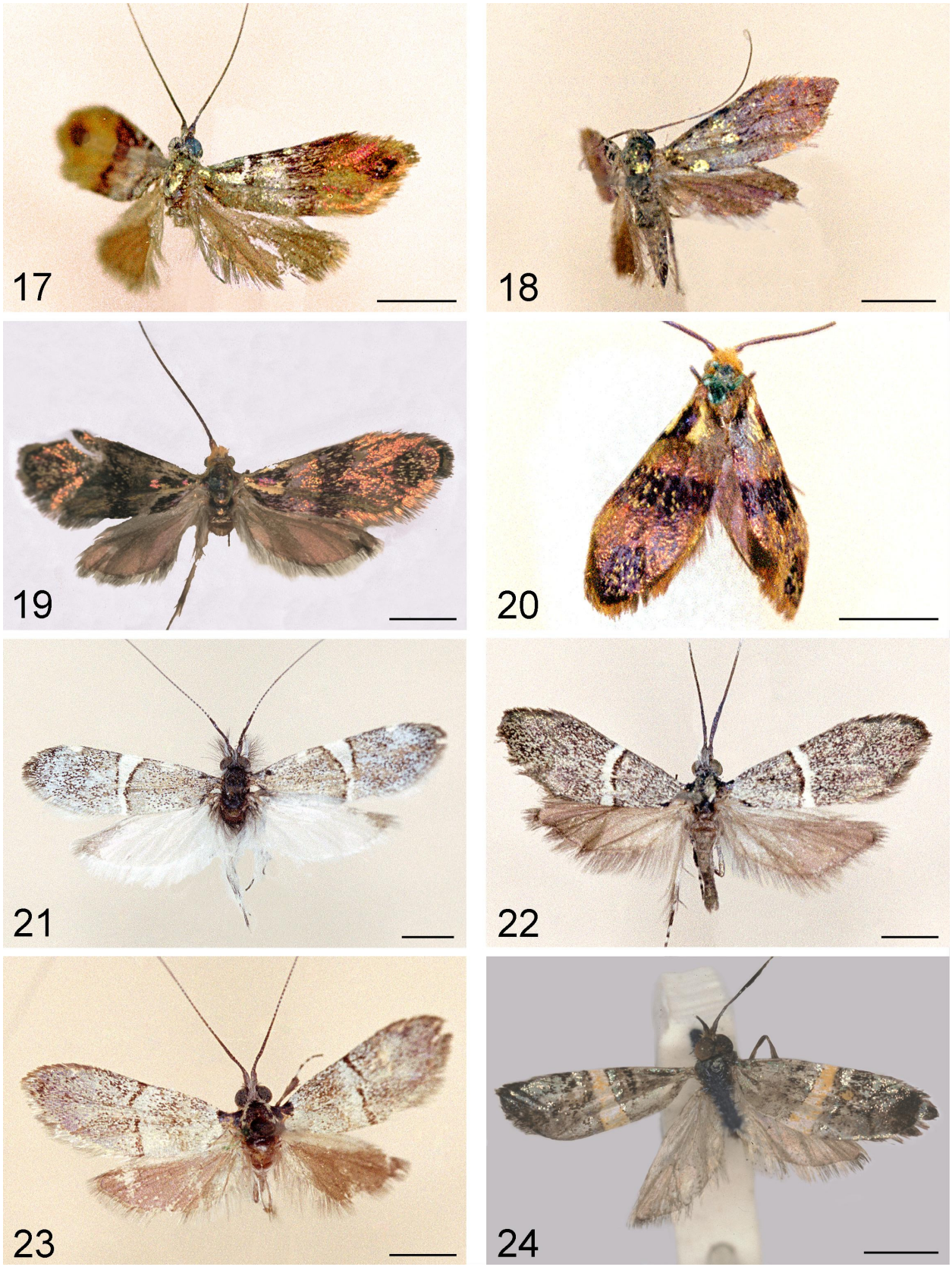
Nemophora chionites (Meyrick, 1907)

(Fig. 21)

Nemotois chionites: Meyrick 1907: 990.

Nemophora chionites, type materials and revision: Kozlov 1995: 471–472, 461 figs. 9, 10 (b&w photographs of moths), 463 fig. 12 (distribution map), 464 fig. 13 (drawing of male head), 464 fig. 19 (drawing of forewing base), 467 figs. 40–44 (drawings of male genitalia); Kozlov 2023: 21–22, 60 figs. 19, 20 (colour photographs of moths), 67 fig. 80 (drawing of forewing pattern). Additional information: Liao *et al*. 2023: 8, 21–23, 94 pl. 2 fig. 3 (colour photographs of moth), 116 pl. 13 fig. 3 (photographs of male genitalia), 131 pl. 21 fig. 3 (photograph of female genitalia).

Distribution. India (Meyrick 1907), continental China (Liao *et al*. 2023), Thailand (Kozlov 1995).



FIGURES 17–24. Adults of *Nemophora* spp. 17, *N. cleodoxa* (Meyrick, 1922), male, lectotype, from Minbu, Myanmar; 18, ditto, female, paralectotype, from the same locality; 19, *N. pyrotechna* (Meyrick, 1912), male, from Kadan Kyun, Myanmar; 20, ditto, female, from the same locality; 21, *N. chionites* (Meyrick, 1907), male, from Cherrapunji, Meghalaya, India; 22, *N. griseella* (Walsingham, 1880), male, from Shillong, Meghalaya, India; 23, *N. ischnodesma* (Meyrick, 1928), male, from Pidaung, Myanmar; 24, *N. punctifasciella* Kozlov, **sp. nov.**, male, holotype, from Sumbawa Island, Indonesia. Scale: 2 mm.

Nemophora griseella (Walsingham, 1880)

(Fig. 22)

Adela griseella: Walsingham 1880: 82, pl. 11 fig. 9.

Nemophora griseella, type materials and revision: Kozlov 1995: 464–465, 460 figs. 1–2 (b&w photographs of moths), 463 fig. 12 (distribution map), 464 fig. 15 (drawing of forewing base), 466 figs. 20–24 (drawings of male genitalia); Kozlov 2023: 22–23, 60 figs. 23, 24 (colour photographs of moths), 67 fig. 82 (drawing of forewing pattern).

Distribution. Nepal (Kozlov 1995), India (Walsingham 1880), Myanmar (Kozlov 1995).

Nemophora ischnodesma (Meyrick, 1928)

(Fig. 23)

Nemotois ischnodesma: Meyrick 1928: 464.

Nemophora ischnodesma, type materials and revision: Kozlov 1995: 466–468, 460 figs. 3–4 (b&w photographs of moths), 463 fig. 12 (distribution map), 464 fig. 16 (drawing of forewing base), 466 figs. 25–29 (drawings of male genitalia); Kozlov 2023: 23–24, 61 figs. 25, 26 (colour photographs of moths), 67 fig. 83 (drawing of forewing pattern).

Distribution. India (Meyrick 1928), Myanmar (Kozlov 1995), Malaysia (Kozlov 1995).

Nemophora punctifasciella Kozlov, sp. nov.

urn:lsid:zoobank.org:act:F581327C-E0C6-4A86-A05D-41E6DD3B08FD

(Figs. 24, 25, 72, 98, 116)

Holotype ♂: Indonesia, Sumbawa Island (approx. 9° S, 118° E); labelled: 8 mm circle with red border, print 'Holo- | type'; 7 × 12 mm, print + black ink 'SAMBAWA, | above 3000 ft. | Doherty, 1891. | No. 41702'; 7 × 10 mm, print 'Walsingham | Collection. | 1910-427.'; 7 × 17 mm, black frame, black ink + print 'Nemotois Typ | punctifasciata ♂ | W | Named by Wlsm.'; 8 × 13 mm, print 'B. M. | Genitalia slide | No. 29481'; 8 × 20 mm, print 'HOLOTYPE ♂ | *Nemophora punctifas-* | *ciella* Kozlov, 1999' (NHM). **Paratype**. 1 ♂, labelled: 6 × 19 mm, print 'Thailand, | Sam Ngao | at Bhumipol Dam | 6. –8.xi. 1979 | Zool. Mus. Copenhagen Exped.'; 6.5 × 20 mm, print 'PARATYPE ♂ | *Nemophora punctifa-* | *sciella* Kozlov, 2023' (ZMUC) [examined].

Diagnosis. *Nemophora punctifasciella* is similar to *N. chrysocrossa* (Meyrick, 1922), from which it differs by the presence of small ochreous spot at the outer margin of the forewing fascia, more distant position of the ochreous band of forewing fascia, internal margin of which reaches costa at 0.43–0.46 × FWL, larger interocular index (1.45–1.55) and the presence of light grey rings on the medial part of flagellum in male antenna. The differences in male genitalia between *N. punctifasciella* and *N. chrysocrossa* are less pronounced than in external traits; they include widely rounded apices of valvae (see from ventral side; pointed in *N. chrysocrossa*), wide medial process of transtilla (narrow in *N. chrysocrossa*), and smooth, U-shaped connection between ventral valvar margins (nearly rectangular in *N. chrysocrossa*). *Nemophora punctifasciella* also resembles *N. nigripunctella* (Fig. 30), from which it differs by the ochreous colour of small spot adjacent to the external margin of fascia (this spot is dark brown to black in *N. nigripunctella*), the presence of large yellow spot at the costal margin of hindwing, and the presence of silver-grey band at the inner side of fascia.

Description. Male (Figs. 24, 25). FWL 5.6–6.5 mm; WLR 0.39. Vertex dark ochreous; frons almost completely naked, marginally with dark ochreous scales. PLB 0.3–0.4 × vertical eye diameter (0.8–0.9 × length of scape), dark brown. Proboscis brown. Interocular index 1.45–1.55; occipital distance <0.05. Antenna 2.3–2.7 × FWL. Scape ochreous brown; basal part of flagellum (up to 0.4 × FWL) with blackish scales; distal part of flagellum brown, with distinct light grey rings within 0.65 × length of antenna. Tegulae and thorax dark brown, brilliant shining. Forewing (Fig. 72) indigo blue, scattered with matt dark brown scales; dark brown spot at base of costa almost indistinguishable. Fascia consists of medial ochreous band bordered on both sides by shining silver-grey bands with dark brown margins; external borders of these margins rather suffuse. Internal margin of ochreous band reaches costa at 0.43–0.46 × FWL; width of ochreous band at costal margin 0.06–0.15 × FWL, at the dorsal margin 0.12–0.13 × FWL. Apical part of forewing with small ochreous spot adjacent to external margin of fascia at 0.35–0.38 × forewing width. Fringe purplish

brown. Hindwing brown, basally grey; costal area grey; R and M1 stalked; fringe grey. Legs brown; distal parts of tarsomeres light ochreous brown. Epiphysis at 0.4, not reaching apex of tibia. Abdomen light brown dorsally, dark brown ventrally.

Female unknown.

Male genitalia (Figs. 98, 116). Tegumen dome-shaped, wide, with small medial ridge. Socii elongate, 1.0 × diameter of phallus. Vinculum 2.9–3.4 × length of valva, V-shaped, with slightly convex lateral margins and W-shaped distal margin. Tip of tegumen extends beyond tips of valvae. Ventral valvar margin with prominent (0.55–0.65 × length of valva) ventrally directed lobe (see from side); dorsal valvar margin almost straight; tip of valva narrowly rounded. Valvae fused basally up to 0.1–0.2 × total length; internal valvar margins indistinct. Anellus 0.2 × length of valva, with narrow proximal margin (1.0–1.5 × diameter of phallus, see from ventral side). Transtilla with short medial process. Juxta 0.40–0.45 × length of phallus; arrow head narrow to moderately wide (WLR 0.4–0.6), with rounded tip and short rounded lateral arms. Phallus 1.1 × length of vinculum, nearly straight to gently C-shaped, with two well-sclerotised, apically hook-shaped carinae articulated at 0.60–0.65 × length of phallus (counting from its base). Tip of phallus spoon-shaped, directed ventrally; base narrowly funnel-shaped.

Distribution. Thailand (this study), Indonesia (this study).

Etymology. The specific epithet is derived from punctum (Latin: point) and fascia (Latin: band) and refers to a diagnostic trait of forewing pattern.

Comments. Although Walsingham clearly labelled the holotype, he never published the description of this species. According to a notebook by Walsingham (kept in NHM), the holotype was not collected in 1891 but in 1892. The paratype (from Thailand) is in bad condition (mouldy) and may actually belong to another species than the holotype (from Indonesia).

Nemophora satrapodes (Meyrick, 1894)

(Figs. 26, 73)

Adela satrapodes: Meyrick 1894: 26. **Lectotype** ♀ (here designated): Myanmar, Nyaungshwe (20° 35' N, 96° 57' E); labelled: 8 mm circle with violet border, print 'Lecto- | type'; 5 × 10 mm, black ink 'Fort Stedman | Burma | NM[anders]. 6.[18]88'; 13 × 14 mm, black ink + print 'Nemotois | satrapodes | 1/3 Meyr. | E. Meyrick det. | in Meyrick Coll.'; 6 × 13 mm, print 'Meyrick Coll. | B. M. 1938-290'; 8 × 20 mm, print 'LECTOTYPE ♀ | *Nemotois satra-* | *podes* Meyrick, 1894 | teste M. Kozlov 2005' (NHM) [examined]. **Paralectotype**. 1 ♀, labelled: 8 mm circle with blue border, print 'Para- | lecto- | type'; 5 × 10 mm, black ink 'Fort Stedman | Burma | NM[anders]. .[18]88'; 13 × 14 mm, black ink + print 'Nemotois | satrapodes | 2/3 Meyr. | E. Meyrick det. | in Meyrick Coll.'; 6 × 13 mm, print 'Meyrick Coll. | B. M. 1938-290'; 8 × 20 mm, print 'PARALECTOTYPE ♀ | *Nemotois satra-* | *podes* Meyrick, 1894 | teste M. Kozlov 2005' (NHM) [examined].

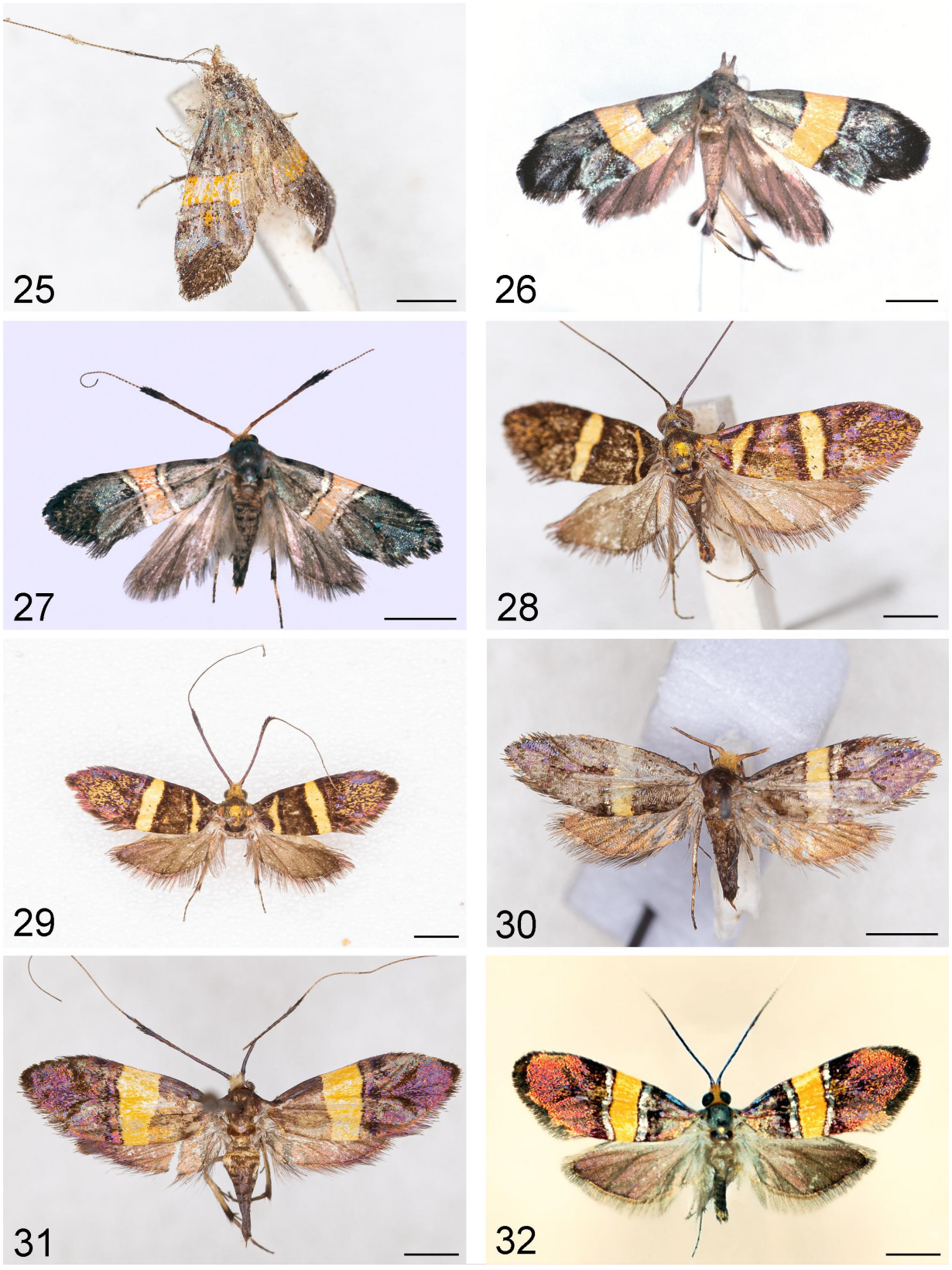
Nemotois satrapodes: Meyrick 1912a: 6, 1912b: 8; Clarke 1955: 277.

Nemophora satrapodes: Robinson *et al.* 1995: 162; Kozlov 2023: 43–44, 52.

Diagnosis. *Nemophora satrapodes* externally is most similar to *N. nitidulella* Kozlov, 2023, from which it differs by the glossy indigo blue frons, absence of an internal silver-grey band in forewing fascia and presence of large yellow spot at the costal margin of hindwing. In the study region, three more species (*N. punctifasciella*, *N. thailandensis* and *N. caerulea* Liao, Hirowatari & Huang in Liao *et al.*, 2023) share glossy indigo blue forewings with *N. satrapodes*. From the first of these species *N. satrapodes* differs by the absence of small ochreous spot at the external margin of forewing fascia; from the second species it differs by the absence of internal silver-grey band in forewing fascia, larger size and wider forewing; and from the third species it differs by the glossy indigo blue frons.

Description. Male unknown.

Female (Fig. 26). FWL 7.0–7.2 mm; WLR 0.38–0.40. Vertex pale yellow; frons glossy indigo blue. PLB short, brown. Scape and basal part of flagellum dark brown; base of flagellum covered with raised scales. Tegulae and thorax glossy indigo blue. Forewing (Fig. 73) glossy indigo blue. Bright ochreous yellow band of forewing fascia at costa is wider than at dorsum (0.23 vs. 0.17 × FWL, respectively); its proximal margin reaches costa at 0.3 × FWL. On both sides this ochreous yellow band is bordered by narrow dark brown lines; the external line (but not the internal one) is followed by weakly expressed narrow silver-grey band. Fringe dark brown, with blue iridescence. Hindwing dark brown; costal area grey; medial spot light yellow, wide between costal margin and M stem, but very narrow between M stem and CuP vein; fringe dark brown. Legs ochreous brown; tips of tibiae and of tarsomeres 2–5 dark coppery brown. Epiphysis at 0.4, not reaching apex of tibia. Abdomen ventrally brown, with light ochreous brown distal margins of sternites IV–VII; dorsolaterally light ochreous brown.



FIGURES 25–32. Adults of *Nemophora* spp. 25, *N. punctifasciella* Kozlov, **sp. nov.**, male, paratype, from Sam Ngao, Thailand; 26, *N. satrapodes* (Meyrick, 1894), female, lectotype, from Nyaungshwe, Myanmar; 27, *N. thailandensis* Kozlov, **sp. nov.**, female, holotype, from Khao Yai Mt., Thailand; 28, *N. melichlorias* (Meyrick, 1907), male, from Doi Inthanon National Park, Thailand; 29, ditto, female, from the same locality; 30, *N. nigripunctella* Kozlov, **sp. nov.**, female, holotype, from Phou Pane Mt., Laos; 31, *N. chalcoptera* Kozlov, **sp. nov.**, female, holotype, from Phou Pane Mt., Laos; 32, *N. paradisea* (Butler, 1881), male, from Kanzanji, Yogo-cho, Shiga Prefecture, Honshu, Japan. Scale: 2 mm.

Distribution. Nepal (Robinson *et al*. 1995; questionable record), Myanmar (Meyrick 1894).

Comments. The original description of *N. satrapodes* is based on two specimens from Myanmar, and both of these specimens are damaged to such extent that several characters could not be investigated. However, the collection of E. Meyrick (kept in NHM) contained three specimens identified as *N. satrapodes*, two from Myanmar and one from India. Previously, I demonstrated that the specimen from India actually belongs to another species, *N. nitidulella* Kozlov, 2023. Therefore, the record of *N. satrapodes* from India (Meyrick 1912a, b) is likely based on a misidentification. I failed to discover the specimen on which the record from Nepal (Robinson *et al*. 1995) is based in the NHM collection. I consider the latter record problematic, because it may also refer to *N. nitidulella*, which occurs in Nepal (Kozlov 2023).

Nemophora thailandensis Kozlov, sp. nov.

urn:lsid:zoobank.org:act:D2A1F1A1-147F-4900-BB93-BB70F91D8AB2
(Figs. 27, 74)

Holotype ♀: Thailand, Khao Yai National Park (15° 93' N, 99° 22' E); labelled: 8 mm circle with red border, print 'Holo- │ type'; 6 × 12 mm, print 'C. THAILAND: 720 m │ Khao Yai NP │ Park HQ │ 7.iii.1988'; 4 × 10 mm, print 'M. G. Allen │ BM 1988-162'; 8 × 20 mm, print 'HOLOTYPE ♀ │ *Nemophora thailand-* │ *ensis* Kozlov, 1999' (NHM) [examined].

Diagnosis. *Nemophora thailandensis* is most similar to *N. satrapodes* (Fig. 26), from which it differs by the presence of the internal silver-grey band in forewing fascia, narrower ochreous band of fascia, presence of small dark brown costal spot near the forewing base, smaller size and narrower forewing. In shape and position of the forewing fascia *N. thailandensis* resembles *N. xizangensis* Liao, Hirowatari & Huang in Liao *et al.*, 2023, from which it differs by the indigo blue forewing colour, presence of basal spot in forewing and brown labial palpi. In forewing colour and size *N. thailandensis* also resembles *N. punctifasciella* (Figs. 24, 25) and *N. nigripunctella* (Fig. 30), from which it differs by the absence of ochreous or dark brown to black spot at the external margin of the forewing fascia, respectively.

Description. Male unknown.

Female (Fig. 27). FWL 5.5 mm; WLR 0.34. Vertex dark ochreous; frons naked, marginally with dark ochreous piliform scales. PLB short, brown; apical segment dark brown. Antenna 0.95 × FWL. Scape ochreous; basal 0.65 of flagellum thickened by semi-erect scales, colour of which gradually changes from ochreous brown proximally to blackish distally; apical part of flagellum dark brown, with light ochreous rings on each flagellomere. Tegulae and thorax dark brown, with blue iridescence. Forewing (Fig. 74) indigo blue, with sparsely scattered golden scales; basal spot at costal margin small, dark brown. Medial ochreous band of fascia narrow (0.15 × FWL at costa to 0.10 × FWL at dorsum); its internal margin approaches costa at 0.35 × FWL; on both sides this ochreous band is bordered by glossy silver-grey bands; dark brown lines outside silver-grey bands diffuse. Fringe dark bronze. Hindwing apically dark brown, basally grey, nearly translucent; costal area grey; light yellow costal spot nearly triangular, reaches 0.5 of hindwing width; fringe brown apically to light grey basally. Legs purplish brown to black; entire first tarsomer and distal parts of other tarsomeres pale yellow. Epiphysis at 0.5, reaching apex of tibia. Abdomen dark brown; distal halves of sternites IV–VIIlight yellowish brown.

Distribution. Thailand (this study).

Etymology. Named after the type locality (Thailand).

Nemophora melichlorias (Meyrick, 1907), comb. nov.

(Figs. 28, 29, 75, 99, 117)

Nemotois melichlorias: Meyrick 1907: 992. **Holotype** ♀: Myanmar, Kani (22° 24' N, 94° 55' E); labelled: 8 mm circle with red border, print 'Holo- │ type'; 5 × 9 mm, black ink 'Koni [sic!] │ Burma │ NM[anders]. 9/[18]88'; 13 × 14 mm, black ink + print 'Nemotois │ melichlorias │ 1/1 Meyr. │ E. Meyrick det. │ in Meyrick Coll.'; 6 × 13 mm, print 'Meyrick Coll. │ B. M. 1938-290'; 4 × 30 mm, black ink 'melichlorias Meyr.' (NHM) [examined].

Nemotois melichlorias: Meyrick 1912a: 7, 1912b: 8; Clarke 1955: 201.

Nemotois diplophragma: Meyrick 1938: 28, **syn. nov. Lectotype** ♂ (here designated): China, Yunnan Province, Li-chiang (26° 50' N, 100° 25' E); labelled: 6 × 20 mm, print 'Li-kiang. (Cina). [sic!] | Provinz Nord-Yuennan. | 4.9.1935. H. Höne.'; 6 × 10 mm, pencil '372'; 14 × 26 mm, black frame, black ink 'Nemotois | diplophragma | Type Meyr'; 14 × 20 mm, red border, print + black ink 'Romänia [along left margin] | LECTOTYPE | Nemotois ♂ | diplophragma | DES. Meyr. | Dr. A. POPESCU-GORJ' (MINGA type collection no. 176.056) [examined]. **Paralectotypes**. 1 ♀, labelled: 6 × 20 mm, print 'Li-kiang. (China). | Provinz Nord-Yuennan. | 4.9.1935. H. Höne.'; 6 × 10 mm, pencil '326'; 14 × 20 mm, violet border, print + black ink 'Romänia [along left margin] | ALLOLECTOTYPE | Nemotois ♀ | diplophragma | DES. Meyr. | Dr. A. POPESCU-GORJ' (MINGA type collection no. 176.057) [examined]. 3 ♂ 1 ♀, labelled: 8 mm circle with violet border, print 'Para- | lecto- | type'; 5 × 10 mm, black ink 'Likiang, China | 9000–10000' | H. dd.8.[19]35'; 13 × 18 mm, black ink + print 'Nemotois | diplophragma | x/4 Meyr. | E. Meyrick det. | in Meyrick Coll.' [males: dd=14 & x=1; dd=26 and x=4; dd=25 and x=3; female: dd=22 and x=2]; 6 × 13 mm, print 'Meyrick Coll. | B. M. 1938-290'. The male collected 26.viii has an additional label: 3 × 26 mm, black ink 'diplophragma Meyr'. One of male paralectotypes bears the label: 8 × 13 mm, print 'B. M. | Genitalia slide | No. 30660'. All paralectotypes bear the label: 8 × 20 mm, print 'PARALECTOTYPE ♂ [or ♀] | *Nemotois diplophragma* | Meyrick, 1938 | M. Kozlov design. 2005' (NHM) [examined].

Nemothois [sic!] *diplophragma*: Caradja [1939a]: 104 (erroneous identification of undescribed species).

Nemotois diplophragma: Popescu-Gorj 1992: 148; Hua 2005: 2.

Nemophora diplophragma: Liao *et al*. 2023: 30, 32, 110 pl. 2 fig. 3 (colour photo of paralectotype from NHM collection).

Nemophora basalistriata: Liao, Hirowatari & Huang in Liao *et al.*, 2023, **syn. nov. Holotype** ♂: China, Sichuan Province, Longchi (900 m), Dujiangyan City (31° 00' N, 103° 37' E), 14.–16.vi.2017 (Huang) (HUNAU) [not examined]. **Paratypes.** 1 ♀, ibid. (Huang & Wang); 1 ♂, ibid, 27.vi.1916 (Huang); 2 ♀, Longcanggou, Yingjing County, Ya'an City, 17.–18.vii.2017 (Wang); 1 ♂, ibid., 10–11.viii.2015 (Huang); 1 ♂, ibid., 1.vii.2016 (Yu); 5 ♂, Jiangxi, Matoushan National Nature Reserve, Zixi County, Fuzhou City, 12.vii.2020 (Long) (all in HUNAU) [not examined].

Other material. Myanmar. 1 ♀, Shan Hills, Maymyo, 1100 m, 4.vi.1988 (Allen) (NHM). Thailand. 3 ♂ 3 ♀, Chiang-Mai Province, Doi Inthanon National Park, 1600 m, 22.–24.x.1984 (Karsholt *et al*.) (ZMUC).

Diagnosis. *Nemophora melichlorias* externally resembles *N. digitata* Liao, Hirowatari & Huang in Liao *et al.*, 2023, and *N. duplicifascia* Liao, Hirowatari & Huang in Liao *et al.*, 2023. It differs from *N. digitata* by the triangular apical part of valva (see from ventral side) and from *N. duplicifascia* by the much longer vinculum.

Description. Male (Fig. 28). FWL 7.4–8.6 mm, WLR 0.32–0.38. Vertex pale yellow to ochreous yellow, with sparse dark brown piliform scales; frons pale yellow. PLB 0.80–0.95 × vertical eye diameter (1.4 × length of scape), pale yellow with sparse raised dark brown piliform scales. Proboscis brown, base covered with pale yellow scales. Eyes enlarged, but not touching each other; interocular index 1.05–1.25; occipital distance 0.25–0.35. Antenna 2.6–3.6 × FWL, with simple inwardly directed pegs. Scape and basal half of flagellum dark coppery bronze; in some specimens base of scape yellow ventrally; apical half of flagellum light bronze to silver-grey. Tegulae and thorax glossy bronze. Forewing (Fig. 75) dark bronze; transverse yellow spot at 0.15 × FWL reaches or almost reaches both costa and dorsum, but not reaches wing base. Fascia consists of yellow medial band, which usually attains its maximum width in middle of forewing, and two dark brown bands; proximal dark brown band is about 1.5 times as wide as distal band, which in some specimens is reduced to a narrow line; width of yellow band variable (0.10–0.20 × FWL), its internal margin reaches costa at 0.41–0.47 × FWL. Apical part of forewing outside fascia (comprising 0.4 × FWL) densely covered by dark brown scales with pale yellow scales scattered among them. Fringe dark coppery brown to bronze. Hindwing dark brown with coppery tint; costal area light yellow to pale yellowish brown; R and M1 stalked; fringe grey basally to brown apically. Legs coppery brown dorsolaterally to yellow ventrally; distal parts of tibiae and all tarsomeres darker than their proximal parts. Hind tibia with long sparse piliform scales. Epiphysis at 0.45, almost reaching apex of tibia. Abdomen brown, dorsally with bronze tint, ventrally in some specimens with coppery tint; distal margins of sternites yellow.

Female (Fig. 29). FWL 6.5–7.8 mm. Antenna 1.5–1.6 × FWL, basal part of flagellum (0.5–0.7 × FWL) densely covered with dark brown scales, which are appressed proximally and semi-erect distally, forming characteristic scale-thickening; distal part of flagellum coppery brown to bronze. Otherwise similar to male.

Male genitalia (Figs. 99, 117). Tegumen widely dome-shaped, with prominent medial ridge. Socii elongate, 1.0–1.2 × diameter of phallus. Vinculum 2.9–4.2 × length of valva, V-shaped, with almost straight to slightly concave lateral margins and W-shaped distal margin. Tips of valvae reach (or nearly reach) tip of tegumen. Basal parts of valvae (0.5–0.6 × length of valva) nearly twice as wide as distal parts; dorsal valvar margin almost straight; tip of valva widely rounded to pointed. Valvae not fused basally. Anellus 0.3–0.4 × length of valva. Transtilla with moderately long medial process. Juxta 0.5–0.6 × length of phallus; arrow head narrow (WLR 0.40–0.45), with pointed tip and moderately long pointed lateral arms. Phallus 1.00–1.05 × length of vinculum, C-shaped, with two short (0.2 × length of phallus) straight carinae articulated at 0.70–0.75 × length of phallus (counting from its base);

tip of phallus formed by two lobes: the right lobe flattened dorsoventrally and the left lobe flattened laterally, with serrated outer margin; base of phallus narrowly funnel-shaped.

Distribution. Continental China (Meyrick 1938), Myanmar (Meyrick 1907), Thailand (this study).

Comments. The type locality of *N. melichlorias* is misspelled as 'Koni' in both the label and the text of the original description. Although the lectotype of *Nemotois diplophragma* (photograph available at https://clasate.cimec.ro/detaliu.asp?tit=Nemotois-diplophragmas--Nemotois-diplophragma-Meyrick-1938&k=382033077FF940FF8CEC788E8B60C2E7) was labelled as such by A. Popescu-Gorj long ago, and this selection of lectotype agrees with the original description, the designation has not been published yet: the specimen labelled as lectotype is erroneously referred to as paralectotype (Popescu-Gorj 1992, p. 148). Therefore, here I designate the specimen selected by Popescu-Gorj as the lectotype of *N. diplophragma*.

All external traits used by Liao *et al*. (2023) to distinguish between *N. melichlorias*, *N. digitata* and *N. duplicifascia* are rather variable, and their alternative states were observed to occur within *N. melichlorias*. In particular, the basal yellow stripe in specimens of *N. melichlorias* collected in Thailand is straight, not triangular. Thus, these three species can be reliably distinguished by genitalia traits only.

A photograph of *N. dilpophragma* published by Liao *et al*. (2023) is outdated: it was taken before the label 'Paratype' was changed to 'Paralectotype'. A photograph of *N. melichlorias* taken in China is available at https://www.inaturalist.org/observations/129837109.

***Nemophora nigripunctella* Kozlov, sp. nov.**

urn:lsid:zoobank.org:act:0AE4875A-4462-4FB0-8585-1D95F84626D9

(Figs. 30, 76)

Holotype ♀: Laos, Hous Phan Province (approx. 20° 13' N, 104° 00' E); labelled: 5.5 × 14 mm, print 'LAOS-NE, Houa Phan prov., │ 20º 12–13.5' N, 103º 59.5–104º 01' E, │ Ban Saleuy → Phou Pane Mt., │ 1340–1870 m, 2.–22.vi.2011, │ Vít. Kubáň & Lao coll. leg.'; 5.5 × 14 mm, print 'Primary mountain forest, │ *at light* + *individual collecting* │ **Laos 2011** Expedition │ National Museum Prague │ Czech Republic.'; 4 × 6 mm, pencil 'Laos │ 2011'; 8 × 16 mm, print + black ink 'M. Kozlov 15 │ Barcoded 2015'; 6.5 × 20 mm, print 'HOLOTYPE ♀ │ *Nemophora nigripu-* │ *nctella* Kozlov, 2023' (NMPC) [examined].

Diagnosis. *Nemophora nigripunctella* is most similar to *N. punctifasciella* (Figs. 24, 25) and *N. thailandensis* (Fig. 27), from which it differs by the brown forewing with bronze (basally) to coppery (apically) tint, dark brown to black spot at the outer side of fascia, absence of large yellow spot at the costal margin of hindwing and absence of silver-grey band at the inner side of fascia. This species also resembles *N. chalcoptera* (Fig. 31), from which it differs by the smaller size, narrow yellow band of fascia and absence of transverse yellow spot in hindwing.

Description. Male unknown.

Female (Fig. 30). FWL 4.9 mm, WLR 0.38. Vertex ochreous brown; frons marginally ochreous brown, medially naked. PLB short, brown. Proboscis brown. Scape and base of flagellum ochreous brown. Tegulae coppery brown; thorax glossy golden. Forewing brown with bronze (basally) to coppery (apically) tint; indigo blue iridescence is limited to basal part of costal margin. Fascia consists of narrow (0.10 × FWL) pale yellow band bordered by diffuse lines of dark brown scales externally (but not internally) followed by glossy silver to glossy golden band with diffuse dark brown external margin. Internal margin of ochreous medial band reaches costa at 0.33 × FWL. Distal part of forewing scattered with dark brown scales, with small dark brown to black spot adjacent to external margin of fascia at 0.35–0.38 × forewing width. Fringe bronze. Hindwing grey basally to bronze apically; costal area light grey, without transverse yellow spot; fringe grey at wing base to brown at apex. Legs bronze. Epiphysis at 0.6, not reaching apex of tibia. Abdomen brown.

Distribution. Laos (this study).

Etymology. The specific epithet is derived from nigrum (Latin: black) and punctum (Latin: point) and refers to the diagnostic trait in forewing pattern.

***Nemophora chalcoptera* Kozlov, sp. nov.**
urn:lsid:zoobank.org:act:950D3D01-CEAE-42C9-A8F1-E6E98D1F7924
(Figs. 31, 77)

Holotype ♀: Laos, Hous Phan Province (approx. 20° 13' N, 104° 00' E); labelled: 5.5 × 14 mm, print 'LAOS-NE, Houa Phan prov., │ 20° 12–13.5' N 103° 59.5–104° 01' E, │ Ban Saleuy → Phou Pane Mt., │ 1340–1870 m, 2.–22.vi.2011, │ Vít. Kubáň & Lao coll. leg.'; 5.5 × 14 mm, print 'Primary mountain forest, │ *at light + individual collecting* │ **Laos 2011** Expedition │ National Museum Prague │ Czech Republic.'; 8 × 16 mm, print + black ink 'M. Kozlov 16 │ Barcoded 2015'; 6 × 15 mm, print 'HOLOTYPE ♀ │ *Nemophora chalco-* │ *ptera* Kozlov, 2023' (NMPC) [examined]. **Paratype**. 1 ♀, labelled: 5.5 × 14 mm, print 'LAOS-NE, Houa Phan prov., │ 20°13' 09–19"N 103°59' 54"- │ 104°00' 03"E, 1480–1510 m, │ PHOU PANE Mt., 2.–22.vi. │ 2011, Vít. Kubáň leg.'; 5.5 × 14 mm, print 'Primary mountain forest, │ *at light + individual collecting* │ **Laos 2011** Expedition │ National Museum Prague │ Czech Republic.'; 8 × 16 mm, print + black ink 'M. Kozlov 17 │ Barcoded 2015'; 6 × 15 mm, print 'PARATYPE ♀ │ *Nemophora chalco-* │ *ptera* Kozlov, 2023' (NMPC) [examined].

Diagnosis. *Nemophora chalcoptera* is similar to *N. paradisea* (Figs. 32, 33) and *N. decisella* (Figs. 34, 35), from females of which it differs by the glossy bronze dorsal part of forewing base, absence of the internal glossy band in forewing fascia, presence of diffuse dark brown spot at the outer forewing margin and of large yellow spot at the middle of costal hindwing margin. This species also resembles *N. nigripunctella* (Fig. 30), from which it differs by the large size, wide yellow band of fascia and presence of transverse yellow spot in hindwing.

Description. Male unknown.

Female (Fig. 31). FWL 7.4–7.7 mm, WLR 0.38–0.40. Vertex pale yellow; frons marginally ochreous brown, medially naked. PLB short, light ochreous brown; apical segment dark brown. Proboscis brown. Antenna 1.6 × FWL. Scape and basal part of flagellum (up to external margin of yellow band in forewing fascia) dark coppery bronze, slightly thickened by semi-erect scales; apical part of flagellum light brown. Tegulae and thorax glossy bronze with coppery tint. Basal part of forewing (Fig. 77) bronze, with small dark brown spot at base of R stem. Bright yellow band of fascia wide (0.20–0.25 × FWL along costal margin); its inner margin reaches costa at 0.28–0.30 × FWL. This yellow band on both sides is bordered by 1–2 rows of dark brown scales. On external side (but not on internal one) this line is followed by narrow (0.03–0.04 × FWL) glossy bronze band and then by diffuse dark brown band of about same width. Apical part of forewing coppery brown, with diffuse dark brown spot at outer margin. Fringe dark coppery brown. Hindwing brown; costal margin medially with large yellow spot extending to 0.5 × hindwing width; R and M1 stalked; fringe brown at apex to grey at wing base. Fore legs dark brown except for pale yellow first tarsomere; mid and hind femora brown, tibiae brownish yellow with dark brown tips; tarsi dark brown. Epiphysis at 0.6, short, not reaching apex of tibia. Abdomen brown to bronze; distal margins of sternites pale yellow.

Distribution. Laos (this study).

Etymology. The specific epithet is derived from chalkos (χαλκος, Greek: copper) and pteryx (πτέρυξ, Greek: wing) and refers to the colour of distal part of forewing.

***Nemophora paradisea* (Butler, 1881)**
(Figs. 32, 33)

Nemotois paradisea: Butler 1881: 592. **Holotype** ♂: Japan, Honshu, Tokyo (approx. 35° 40' N, 139° 46' E); labelled: 8 mm circle with red border, print 'Type'; 5.5 × 10 mm, black ink 'Tokei [18]80–97 [Fenton]', reverse side 'Nemotois paradiseus │ Butler. Type'; 14 × 24 mm, wide black border, black ink + print 'Nemotois │ paradisea │ Btlr. │ Tr. Ent. Soc. Lond. 592 (1881) │ TYPE ♂ descr.' (NHM) [examined].

Other material (in addition to specimens reported by Kozlov & Robinson 1996a). China. 1 ♀, Zhoushan Island, ix.1892 (Walker) (NHM). Taiwan. 1 ♂, Hualien County, Pilushenmu, 2150 m, 27.vi.1996 (Yen) (NMNST); 2 ♀, Kaoshiung County, Tengir Forest Research Station (23° 07' N, 120° 47' E), 1600 m, 6.–10.vii.2000 (Schacht) (ZSM). Thailand. 1 ♂, Nakhon Nayok Province, Khao Yai National Park, 700 m, 29.ix.–6.x.1984 (Karsholt *et al*.) (ZMUC); 1 ♂, ibid., 18.viii.1987 (Allen); 1 ♂, ibid., 31.viii.–6.ix.1986 (Robinson); 1 ♂, Chiang Mai, Doi Suthep-Pui National Park, 1460 m, 26.iv.–10.v.1989 (Cotton); 1 ♂, Uthai Thani District, Khao Nang Rum, 400 m, 6.–8.vi.1986 (Allen) (all in NHM). Laos. 1 ♀, Vientiane Province, Nam-Lik Eco-Village, 19.v.2016 (Omelko) (MZH). Vietnam. 1 ♂ 1

♀, Ninh Bình Province, Nho Quan District, Bong-Cúc Phuong Village, 360 m, 6.–9.x.2006 (Zolotukhin) (ZMB). Japan. 1 ♀, Honshu, Kanzanji, Yogo-cho, Shiga Prefecture, 28.viii.1993 (Hirowatari) (UOP); 1 ♂, Akita Prefecture, Mizubayashi, Honjo, Yuri-Honjo shi, 4.viii.2010 (Umetsu) (APM).

Diagnosis. *Nemophora paradisea* is so similar to *N. decisella* that it was previously considered as its junior synonym (Kozlov & Robinson 1996a). Although I failed to find any external character that allows to clearly discriminate between these two species, now I accept the opinion of Hirowatari & Nagaike (1998) and consider *N. paradisea* and *N. decisella* as different species with partly overlapping distribution ranges. *Nemophora paradisea* differs from *N. decisella* in the coppery brown (vs greyish brown) forewing colour, nearly straight (vs strongly S-shaped) apical third of carinae, nearly straight (vs strongly C-shaped) phallus and inner valvar margins steadily approaching each other (vs almost parallel to each other).

Distribution. Continental China (Caradja & Meyrick 1935), Taiwan (Issiki 1922), Thailand (this study), Laos (this study), Cambodia (this study; photograph-based record: https://www.inaturalist.org/observations/82119944), Vietnam (this study), South Korea (Kozlov & Robinson 1996a), Russia (Rebel 1901, as *Adela imperialis*), Japan (Butler 1881).

Comments. A colour photograph of the holotype (erroneously referred to as a syntype) was published by Liao *et al.* (2023, pl. 10 fig. 6). For the combined description of *N. paradisea* and *N. decisella* and for geographic variation in diagnostically important traits see Kozlov & Robinson (1996a). The individual descriptions of both *N. paradisea* and *N. decisella*, their extended differential diagnoses and synonymy will be provided elsewhere simultaneously with the revision of several species closely related to *N. decisella* that have been described by Diakonoff (1951).

Nemophora decisella (Walker, 1863)

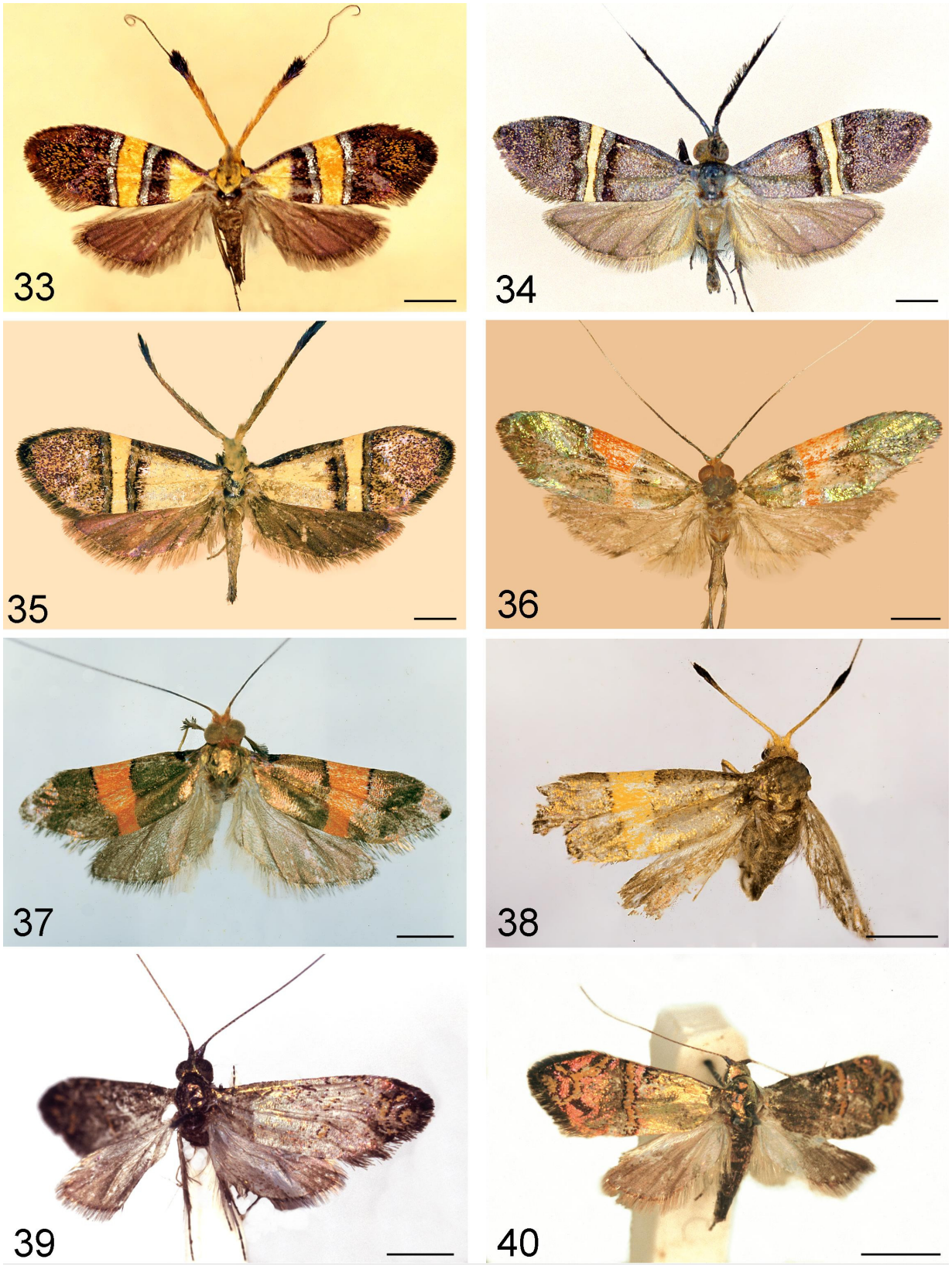
(Figs. 34, 35)

Nemotois decisella: Walker 1863: 505. **Holotype** ♂: Indonesia, Sumatra; labelled: 8 mm circle with red border, print 'Type'; 6 mm blue-grey circle, black ink 'Sumat │ ra', reverse side '[18]54 │ 76'; 14 × 24 mm, wide black border, black ink + print 'Nemotois │ deciscella. [sic!] Wkr. │ Cat. Lep. BM. XXVIII p. 505. 1863 │ TYPE ♂ descr.'; 5 × 35 mm, print '22. Nemotois decisella.' (NHM) [examined].

Other material (excluding specimens reported by Kozlov & Robinson 1996a). India. 5 ♂ 4 ♀, Meghalaya, Khasi Hills, 1898–1899 (Doherty); 1 ♀, ibid., iii.1895 (Doherty); 1 ♂, Cherrapunji, iv.1894 (Doherty) (all in NHM). Bhutan. 1 ♂, 14.viii.1895 (Dudgeon) (NHM). Continental China. 1 ♂, Szetschwan, Tai-tou-ho (Déjean). Hainan. 1 ♀, Five Fingered Mountains (Whitehead) (both in NHM). Taiwan. 1 ♀, I-Lan County, Yuanshan, Fushan, Botanical Garden, 800 m, 16.–19.iv.1996 (Yen); 1 ♂, ibid., 14.–15.v.1996 (Yen); 3 ♂, ibid., 17.–19.vi.1996 (Yen) (NMNST). Thailand. 1 ♂, Trat Province, Laem Ngop district, Ban Noen-Ki-Lai, 160 m, 22.xi.2006 (Cerný) (ZMB); 1 ♂, Chiang Mai Province, 450 m, Mok Fa Garden Resort, 1.xi.2002 (Herczig & Ronkay) (HNHM); 1 ♂, Nakhon Nayok Province, Khao Yai National Park, 700 m, 29.ix.–6.x.1984 (Karsholt *et al*.) (ZMUC); 1 ♂, Uthai Thani Province, Huai Kha Khaeng Wildlife Sanctuary, Khao Nang Ram Research Station, 400 m, 19.x.1991 (Kitching) (NHM). Cambodia. 1 ♂, Cardamom Mts., near Pramuoy village, dry dipterocarp and gallery forest, 24.–25.ii.2000 (Nuss) (SMTD). Vietnam. 1 ♂, Buôn Ma Thuôt, 500 m, 16.–18.v.1960 (Quate); 1 ♂, 20 km N of Pleiku, 650 m, 9.v.1960 (Quate); 1 ♂, 28 km N DiLinh (Djiring), 1200 m, 22.–28.iv.1960 (Quate) (all in BPBM). Malaysia. 1 ♂, Trengganu, Pulau Tenggol, 19.viii.1994 (Robinson) (NHM). Indonesia. 1 ♂, Eastern Java, Nongkedjadjar, 1300 m, v.1934 (Kalis) (NHM); 1 ♂, Sumatra, Prapat, HW3, 13.vi.–28.viii.1983 (Diehl) (HNHM); 1 ♂ 1 ♀, Sumatra, 14 km NE Parat, 1150 m, 21.v.1982 (Diehl) (ZSM). Brunei. 4 ♂ 2 ♀, Rampayoh river, LP 195B, GR 960785, 100 m, lowland dipterocarp forest, 26.–29.ix.1997 (Robinson); 2 ♂, Lamunin, Sungai Burong, 60 m, water tanks, disturbed lowland forest, 17.ix.–30.ix.1992 (Robinson); 7 ♂, Labi, 1.–2.vi.1997 (Ping); 1 ♂ 1 ♀, Sungai Burong, 9.xi.1996 (Ping) (all in NHM).

Diagnosis. *Nemophora decisella* differs from *N. paradisea* in greyish brown (vs coppery brown) forewing colour, strongly S-shaped (vs nearly straight) apical third of carinae, strongly C-shaped (vs nearly straight) phallus and inner valvar margins almost parallel to each other (vs steadily approaching each other).

Distribution. India (this study), Bhutan (this study; questionable record: see comments), China, including continental part (Liao *et al*. 2023), Hainan (Liao *et al*. 2023) and Taiwan (this study), Myanmar (Kozlov & Robinson 1996a), Thailand (Kozlov & Robinson 1996a), Cambodia (this study; photograph-based record: https://www.inaturalist.org/observations/9954568), Vietnam (this study), Malaysia (Kozlov & Robinson 1996a), Indonesia (Walker 1863), Brunei (Kozlov & Robinson 1996a).



FIGURES 33–40. Adults of *Nemophora* spp. 33, *N. paradisea* (Butler, 1881), female, from Kanzanji, Yogo-cho, Shiga Prefecture, Honshu, Japan; 34, *N. decisella* (Walker, 1863), male, from Rampayoh River, Brunei; 35, ditto, female, lectotype of *Adela sythoffi* Snellen, 1901, from Preanger, Java, Indonesia; 36, *N. caeruliantenna* Liao, Hirowatari & Huang in Liao *et al.*, 2023, male, from Changwat Nan, Thailand; 37, *N. sakaii* (Matsumura, 1931), male, from Khao Yai National Park, Thailand; 38, ditto, female, from Cherrapunji, Meghalaya, India; 39, *N. auricapitella* Kozlov, **sp. nov.**, male, holotype, from Myeik, Myanmar; 40, ditto, female, paratype, from the same locality. Scale: 2 mm.

Comments. The English descriptions and localities of *N. decisella* and *N. sinicella* were swapped by Walker (1863); the Latin diagnoses are correct (Meyrick 1912a). A colour photograph of the holotype of *N. decisella* (erroneously referred to as a syntype) was published by Liao *et al.* (2023, pl. 10 fig. 5). Regrettably, these authors attributed all synonyms of both *N. decisella* and *N. paradisea* to *N. decisella* alone, which is obviously incorrect.

The record of *N. decisella* from Russia (Liao *et al.* 2023) is erroneous and refers to *N. paradisea*. The record from South Korea (Kozlov & Robinson 1996a) also most likely refers to *N. paradisea*, but requires re-examination. The specimen of *N. decisella* tentatively attributed to Bhutan (spelled 'Bhotan' on the label) may originate from both south-western Bhutan and the Kalimpong District of West Bengal State of India (Volynkin & Černý 2022).

For the combined description of *N. decisella* and *N. paradisea* and for geographic variation in diagnostically important traits see Kozlov & Robinson (1996a). The individual descriptions of both *N. paradisea* and *N. decisella*, their extended differential diagnoses and synonymy will be provided elsewhere simultaneously with the revision of several species closely related to *N. decisella* that have been described by Diakonoff (1951).

Nemophora caeruliantenna Liao, Hirowatari & Huang in Liao, Hirowatari, Yagi, Wang, Wang & Huang, 2023

(Figs. 36, 78, 100)

Nemophora caeruliantenna: Liao *et al*. 2023: 37–38, 98 pl. 4 fig. 6 (colour photograph of holotype), 120 pl. 15 fig. 2 (photograph of male genitalia). **Holotype** ♂: China, Yunnan Province, Chashan (1400 m), Simao District, Pu'er City (approx. 22° 47' N, 100° 58' E), 25.ii.2018 (Huang) (HUNAU) [not examined].

Other material. Thailand. 1 ♂, Changwat Nan 30 km E of Pua, 1700 m, 20.ii.1998 (Hreblay & Szabóky); 1 ♂, ibid., 1.iii.1998 (both in HNHM).

Diagnosis. *Nemophora caeruliantenna* resembles *N. sakaii* (Figs. 37, 38), from which it differs by the brassy-green forewing with prominent brilliant luster, valvae fused to each other and to vinculum, spoon-shaped apex of phallus and well-sclerotised carinae with dorsally directed tips. From *N. thailandensis* (Fig. 27) it differs by larger size, absence of light ochreous rings on distal flagellomeres, bright forewing colour, indistinct basal spot, and prominent expansion of fascia near the costal forewing margin.

Description. Male (Fig. 36). FWL 8.0–10.0 mm, WLR 0.35–0.37. Vertex, frons, proboscis and palpi dark ochreous. PLB 0.6 × vertical eye diameter. Eyes enlarged, but not touching each other; interocular index 1.4–1.5; occipital distance 0.10–0.12. Antenna 2.4–2.9 × FWL, with simple inwardly directed pegs. Scape ventrolaterally ochreous, dorsally black, with brilliant luster; basal 15–18 flagellomeres thickened by appressed black scales; at level of forewing fascia antennal colour changes to grey and then to silver-white. Tegulae, thorax and forewing (Fig. 78) brassy-green, with prominent brilliant luster. Basal spot indistinct, formed by 10–15 dark brown scales; dark brown scales scattered over wing surface irregularly, forming diffuse spots at both sides of fascia and also at outer wing margin. Internal margin of fascia at 0.3 × FWL; medial band of fascia bright ochreous, with red tint, very wide (0.30 × FWL) at costa but narrow (0.10 × FWL) at dorsum; on both sides surrounded by narrow belts of light grey scales, which can be distinguished from forewing background only due to absence of brilliant luster. Fringe brown. Hindwing light brown, basally semitranslucent; costal area light yellowish brown; lower side of hindwing uniformly coloured, without distinct light spot; fringe brown; R and M1 stalked. Femora and tibiae of fore and mid legs brown, of hind legs yellowish brown, darker distally; tarsomeres of all legs yellowish brown, darker distally. Epiphysis at 0.5, almost reaching apex of tibia. Abdomen light brown, tip (genital capsule) ventrally with tuft of ochreous scales.

Female unknown.

Male genitalia (Fig. 100). Tegumen wide, dome-shaped, with prominent medial ridge. Socii elongate, 1.0 × diameter of phallus. Vinculum 2.9 × length of valva, V-shaped to U-shaped, with slightly convex lateral margins; distal margin indistinct (fused with valvae), with medial protuberance. Tips of valvae are at about same level as tip of tegumen. Ventral valvar margin with prominent (0.75 × length of valva) posteroventrally directed lobe (see from side); dorsal valvar margin gently S-shaped; tip of valva narrowly rounded. Valvae fused basally up to 0.2 × total length; internal valvar margins indistinct. Anellus 0.55 × length of valva, with wide proximal margin (2 × diameter of phallus, see from ventral side). Transtilla with long narrow medial process. Juxta 0.6 × length of phallus; arrow head moderately wide (WLR 0.5), with narrowly rounded tip and short rounded lateral arms. Phallus 1.15 ×

length of vinculum, C-shaped, with two well-sclerotised, apically hook-shaped, carinae articulated at 0.7 × length of phallus (counting from its base). Apex of phallus formed by ventrally directed spoon-shaped lobe; base narrowly funnel-shaped.

Distribution. Continental China (Liao *et al*. 2023), Thailand (this study).

Biology. In Thailand, moths were collected by a light trap in an old-grown tropical forest.

Nemophora sakaii (Matsumura, 1931)

(Figs. 37, 38, 79, 101, 118)

Nemotois sakaii: Matsumura 1931: 1113, fig. 2340. **Holotype** ♂: China, Taiwan, near Ch'an-ch'u-liao (approx. 23° 30' N, 120° 10' E); labelled: 5 × 13 mm, print 'Formosa │ Matsumura', reverse side 'sakaii │ 5.[19]21 │ Banshoryo [in Japanese]'; 8 × 15 mm, red paper, print 'Type │ Matsumura'; 9 × 21 mm, red paper, black ink 'Holo-type │ Nemotois │ sakaii │ MATSUMURA'; 10 × 24 mm, red paper, black ink 'Holotype Nemotois │ rubrofascia f. formosicola │ Matsumura, 1931. │ M.V.Kozlov design. 1994' (SEHU) [examined].

Nemotois sakaii: Matsumura 1932: 121, pl. 4, fig. 3; Razowski & Kumata 1985: 23.

Nemotois rubrifascia: Issiki 1922: 194 (incorrect subsequent spelling and misidentification).

Nemotols sasakii [sic!]: Hua 2005: 2 (inadvertent error).

Nemophora sakaii: Wang *et al*. 2000: 17–18; Liao *et al*. 2023: 8, 33, 34, 36, 100 pl. 5 fig. 1 (colour photographs of moths), 120 pl. 15 fig. 1 (photograph of male genitalia), 136 pl. 23 fig. 3 (photograph of female genitalia).

Nemotois rubrofascia f. *formosicola:* Matsumura 1931: 1112, **syn. nov**. **Holotype** ♂: China, Taiwan, near Ch'an-ch'u-liao (approx. 23° 30' N, 120° 10' E); identical to holotype of *N. sakaii* (see comments) (SEHU) [examined].

Other material. India. 1 ♀, Meghalaya, Cherrapunji, vii.1894 (Doncaster) (NHM). Taiwan. 1 ♂, Syussuiha, 25.iii.1944 (Issiki); 1 ♀, Sinten, 3.v.1934 (Issiki); 1 ♂, Hassenzan, 30.viii.1929 (Issiki); 1 ♂ 1♀, Sozan, 25.iv.1935 (Issiki); 1 ♂ [no data] (Issiki); 1 ♂, Pianan, 9.viii.1943 (Mutuura); 1 ♂, Rarasan, 29.vi.1943 (Issiki) (all in USNM); 1 ♂, Kasempo, x.1911 (Sauter) (DEIE); 1 ♂, Nantou County, Jian-ai, Songgang, 23.iv.1995 (Yen) (NMNST); 16 ♂ 5 ♀, 23 km NNE Puli, 1200 m, 25.iv.2001 (Kozlov) (MZH). Thailand. 1 ♂, Nakhon Nayok Province, Khao Yai National Park, 720 m, 31.viii.–6.ix.1986 (Robinson) (NHM).

Diagnosis. *Nemophora sakaii* is nearest to *N. rubrofascia* (Christoph, 1882), from which it differs by the bronze to coppery bronze forewing, noticeable tufts of black scales at the apices of fore and mid tibiae, absence of antennal pegs in males, larger compound eyes in males (interocular index 1.2–1.5), longer valvae (ca. 1.5 × length of tegumen), presence of almost rectangular lobe on the ventral valvar margin, and wide U-shaped vinculum with prominent lateral margins. *Nemophora sakaii* also resembles *N. purpurata* Liao, Hirowatari & Huang in Liao *et al.* 2023 and *N. hunanensis* Liao, Hirowatari & Huang in Liao *et al.* 2023, from which it differs by the short occipital distance between compound eyes in males and by the relatively wide fascia.

Description. Male (Fig. 37). FWL 6.2–8.2 mm, WLR 0.33–0.37. Vertex ochreous yellow; frons, PLB and proboscis bright reddish-ochreous. Eyes enlarged; interocular index 1.2–1.5; occipital distance 0.05–0.10. PLB 0.6–0.7 × vertical eye diameter (0.7–0.9 × length of scape). Antenna 2.7–3.1 × FWL; pegs absent. Scape yellowish brown, with bright ochreous scales on internal surface; flagellum brown to bronze; basal 10–14 flagellomeres dorsally covered with blackish, blue iridescent scales. Tegulae and thorax bronze. Forewing (Fig. 79) bronze to coppery bronze, with small black basal spot; medial band of fascia wide (0.18–0.23 × FWL), at costa 1.2–1.6 × width at dorsum, bright red (in live or fresh specimens) to pale ochreous (in specimens captured long ago), on both sides bordered by narrow black to dark brown lines; fringe brown. Hindwing brown, apically with bronze lustre; costal area white to light grey; fringe brown. Legs brown; fore and mid tibiae dark brown to blackish, apically with characteristic tufts of semi-erect long scales; tarsal segments light brown to pale yellow. Epiphysis at 0.4, not reaching apex of tibia. Abdomen dorsally brown with slight bronze tint; ventrally glossy bronze.

Female (Fig. 38). FWL 6.4–6.7 mm. Antenna 1.3 × FWL; basal part of flagellum (to middle of forewing fascia) thickened by dark brown to blackish scales, which are appressed near scape but semi-erect at level of fascia, forming characteristic scale-thickening. Otherwise similar to male.

Male genitalia (Figs. 101, 118). Tegumen dome-shaped, with prominent medial ridge. Socii elongate, 1.0–1.2 × diameter of phallus. Vinculum 2.6–3.0 × length of valva, U-shaped, with concave lateral margins and gently W-shaped distal margin. Tips of valvae extend beyond tip of tegumen. Valvae connected basally to 0.1 × total length; ventral valvar margin with large lobe; inner margins of these lobes nearly parallel to each other; dorsal margin slightly concave; apical part of valva narrow, with tuberculate surface; tip of valva (see from ventral side) nearly

rectangular. Anellus 0.5 × length of valva. Transtilla with moderately long medial process. Juxta 0.4 × length of phallus; arrow head wide (WLR 0.65), with rounded tip and long pointed lateral arms. Phallus 1.0 × length of vinculum, with trifurcate apex and narrowly funnel-shaped base.

Distribution. India (this study), continental China (Liao *et al*. 2023), Taiwan (Issiki 1922, as *Nemotois rubrifascia*), Thailand (this study).

Comments. The specimen from India deposited in NHM is labelled '*rubroantiaca*'. Nevertheless, Walsingham never published its description.

Matsumura (1931) simultaneously described two adelids with a red medial band of fascia, *Nemotois rubrofascia* f. *formosicola* and *N. sakaii*, from the same locality in Taiwan; both descriptions are based on a single male specimen. However, Razowski & Kumata (1985) found only one red-banded specimen of *Nemophora* from this locality and considered it the holotype of *N. sakaii*.

The loss of a holotype of *N. rubrofascia* f. *formosicola* from Matsumura's collection seems unlikely. To explain its absence, T. Kumata (pers. comm.) suggested that Matsumura erroneously described two taxa based on same specimen, and I agree with his suggestion. This opinion is indirectly supported by Matsumura (1932), who in his revision of Japanese Adelidae listed both *N. rubrofascia* and *N. sakaii* but did not mention f. *formosicola*.

The taxon *N. sakaii* has a higher rank (specific) than *N. rubrofascia formosicola* (subspecific; ICZN 1999: Art. 45.6.4). Consequently, I propose *N. rubrofascia formosicola* as a junior objective synonym of *N. sakaii* (ICZN 1999: Art. 24.1).

Nemophora auricapitella Kozlov, sp. nov.

urn:lsid:zoobank.org:act:AEECF79D-AC50-4984-88CA-063161511013
(Figs. 39, 40, 80, 102, 119)

Holotype ♂, Myanmar, Myeik (approx. 12° 26' N, 98° 36' E); labelled: 8 mm circle with red border, print 'Holo- | type'; 7 × 14 mm, print + black ink 'Mergui, | TENASSERIM. | Doherty 1888 | No 49857'; 8 × 10 mm, print 'Walsingham | Collection | 1910-427'; 7 × 17 mm, black frame, black ink + print 'Chrysothauma | aeneobasellum Typ | W. ♂ | Named by Wlsm.'; 8 × 13 mm, print 'B. M. | Genitalia slide | No. 29450'; 7 × 19 mm, print 'HOLOTYPE ♂ | *Nemophora* | *auricapitella* Kozlov' (NHM) [examined]. **Paratype**. 1 ♀, labelled: 8 mm circle with yellow border, print 'Para- | type'; 7 × 14 mm, print + black ink 'Mergui, | TENASSERIM. | Doherty 1888 | No 49856'; 8 × 10 mm, print 'Walsingham | Collection | 1910-427'; 7 × 17 mm, black frame, black ink + print 'Chrysothauma | aeneobasellum Typ | W. ♀ | Named by Wlsm.'; 7 × 19 mm, print 'PARATYPE ♀ | *Nemophora* | *auricapitella* Kozlov' (NHM) [examined].

Diagnosis. *Nemophora auricapitella* externally resembles *N. aglaospila* (Figs. 10, 11) and a typical form of *N. engraptes*, from which it differs by the unpatterned basal third of forewing (except for a thin dark brown line along the costal margin). It also differs from *N. aglaospila* by the presence of carinae on phallus, and from *N. engraptes* by the glossy golden medial part of vertex.

Description. Male (Fig. 39). FWL 6.1 mm, WLR 0.36. Vertex and frons glossy golden. PLB 0.4 × vertical eye diameter (0.9 × length of scape), light pale yellow. Proboscis light yellowish brown. Eyes enlarged, but not touching each other; interocular index 1.1–1.2; occipital distance 0.4. Antenna 3.0 × FWL. Scape coppery brown; flagellum bronze, basally with pale yellow rings. Tegulae and thorax glossy golden. Forewing (Fig. 80) light bronze basally to dark bronze apically, with thin dark brown line along costa. Fascia wide (0.20–0.22 × FWL) at costa and narrow (0.05–0.07 × FWL) at dorsum; its internal margin diffuse, formed by dark brown scales; external margin with narrow yellow band sometimes reaching dorsum. Apical third of forewing with variable pattern generally consisting of three yellow stripes bordered by dark brown scales: oblique stripe arises from costa at 0.65 × FWL towards middle of outer wing margin; protuberance connects middle of this stripe with costal margin between RS3 and RS4; and oval spot expands along outer margin and connects oblique stripe with wing apex. Fringe bronze to coppery bronze. Hindwing base and anal field whitish, semitranslucent; apical part dark brown with coppery tint; costal area light grey; fringe grey to brown. Legs bronze to coppery bronze; bases of all tarsomeres light whitish yellow. Epiphysis at 0.5, almost reaching apex of tibia. Abdomen dark coppery brown; distal parts of all sternites glossy golden.

Female (Fig. 40). FWL 5.1 mm, WLR 0.41. Antenna >0.9 × FWL (tip broken); flagellum dark coppery brown with pale yellow rings. Otherwise similar to male.

Male genitalia (Figs. 102, 119). Tegumen onion-shaped, with small medial ridge. Socii elongate, 0.7 × diameter of phallus. Vinculum 2.2 × length of valva, with slightly concave lateral margins and straight distal margin. Tips of valvae extend beyond tip of tegumen. Basal parts of valvae (0.3 × valvar length) nearly twice as wide as distal parts; ventral and dorsal valvar margins concave; tip of valva narrowly rounded. Valvae not fused basally (connected by anellus only). Anellus 0.45 × length of valva. Transtilla with moderately long medial process. Juxta 0.55 × length of phallus; arrow head narrow (WLR 0.45), with pointed tip and short pointed lateral arms. Phallus 1.15 × length of vinculum, almost straight; basal half slightly swollen, apical half thin, with two shallowly C-shaped asymmetrical carinae; the left carina is longer and articulated slightly closer to base of phallus than right carina. Base of phallus narrowly funnel-shaped, tip pointed.

Distribution. Myanmar (this study).

Etymology. The specific epithet is derived from aureus (Latin: golden) and caput (Latin: head) and refers to glossy golden colour of vertex.

Comments. Although Walsingham clearly labelled a holotype, he never published the description of this species.

Nemophora umbripennis Stringer, 1930

(Figs. 41, 42, 81, 103, 120)

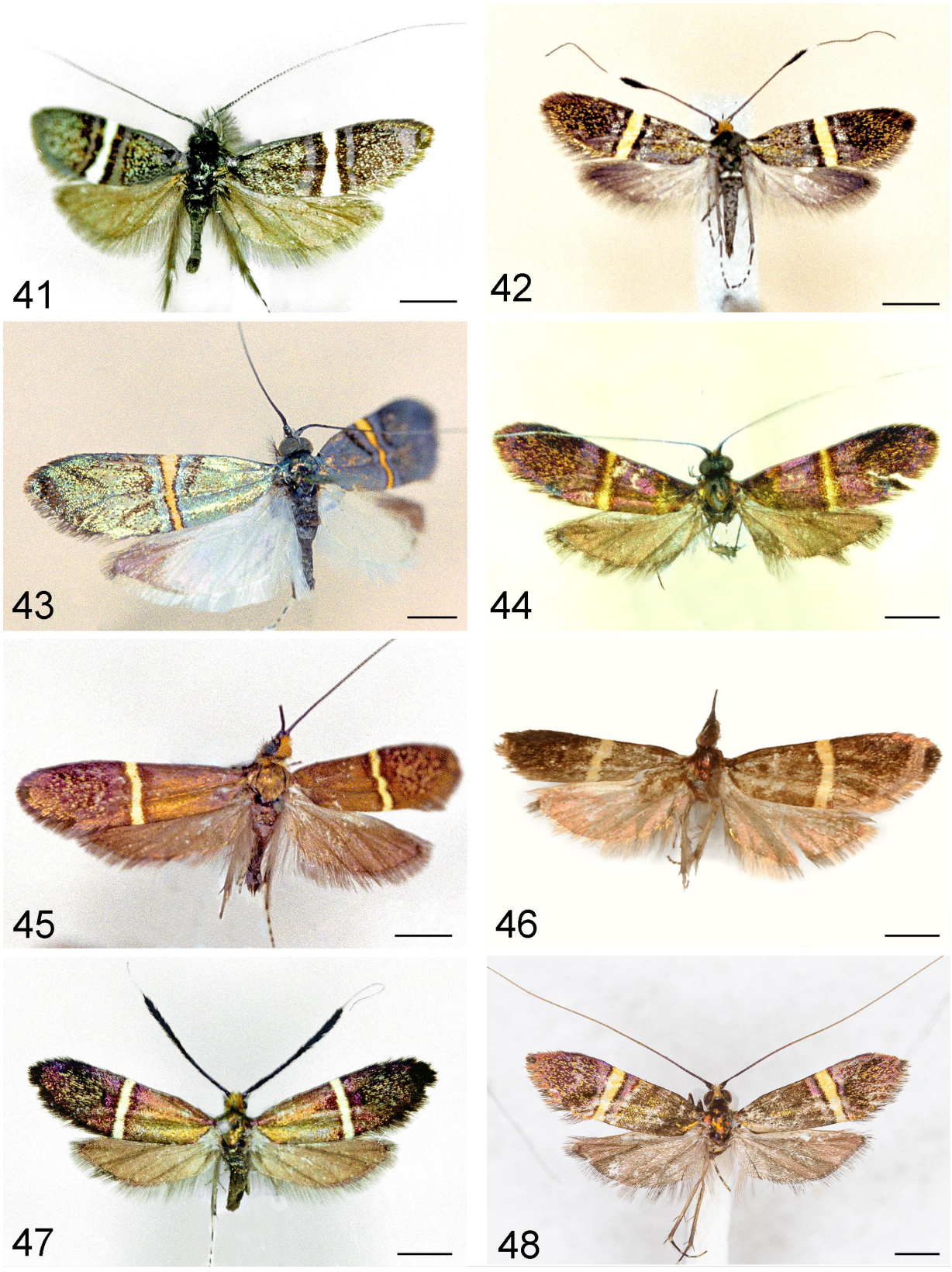
Nemophora umbripennis: Stringer 1930: 422. **Holotype** ♂: Japan; labelled: 8 mm circle with red border, print 'Holo- │ type'; 6 × 9 mm, print + black ink 'JAPAN. │ Pryer Coll. │ ...1886'; 8 × 10 mm, print 'Walsingham │ Collection │ 1910-427'; 14 × 22 mm, black ink + print 'Nemophora │ umbripennis │ Strgr │ Ann Mag N. H. 10^{8} 6 p. 422 │ TYPE ♂ (1930)' (NHM) [examined].

Nemophora umbripennis: Inoue 1954: 9; Issiki 1957: 12, pl. 1 fig. 24 (colour photograph of moth); Okano 1959: 277, pl. 183 fig. 8 (colour drawing of moth); Watanabe 1980: 18, pl. 8 fig. 1; Otsuka 1985: 2; Moriuti 1982: 53–54, 156, pl. 1 fig. 26 (colour photograph of moth); Kawamura 1984: 2; Hirowatari 1998: 29; Hirowatari 2000: 12 fig. 11.3 (colour photograph of male), 26–27; Oku 2003: 6; Yamazaki & Kato 2003: 290, 316; Hirowatari 2005: 320, 314 fig. 1o (colour photograph of male head); Owada *et al*. 2006: 44; Inoue *et al.* 2011: 58; Hirowatari *et al*. 2012: 104–105; Hirowatari 2013: 105, figs. 3-07-22, 3-07-23 (colour photographs of moths); Hayashi 2016: 69; Kataoa [Kataoka] *et al*. 2019: 195; Mishima 2021: 80; Liao *et al*. 2023: 8, 19, 25, 110 pl. 10 fig. 4 (colour photograph of holotype).

Other material. Myanmar. 2 ♀, Chin-Hills, 16 miles Camp, 2500 m, 10.x.2002 (Mey) (ZMB). Taiwan. 1 ♀, Nantou County, Tayuling, 2750 m, 10.–14.vi.1982 (Heppner) (FSCA); 1 ♂, Nantou County, Musha (between Puli and Wushe), 14.iii.1927 (Kato) (USNM). Japan. 3 ♂ 2 ♀, Hokkaido, Oshima, Hakodate, plains, 28.v.1902 (Wileman) (NHM); 1 ♂, Hokkaido, Sapporo, 25.v.1918 (Issiki); 1 ♂, ibid., 3.vi.1918 (Issiki); 1 ♂, Honshu, Osaka Prefecture, Nose, 24.iv.1952 (Issiki); 1 ♂, Honshu, Osaka Prefecture, Iwawaki Mt., 27.iv.[no year] (Ito); 1 ♀, ibid., 29.iv.1920 (Issiki); 1 ♂, Honshu, Tochigi Prefecture, Yumoto, 20.vi.1932 (Issiki); 1 ♀, Honshu, Nagano Prefecture, Tobira, 17.v.1955 (Mutuura); 1 ♂, Honshu, Nagano Prefecture, Karuizawa, 31.v.1945 (Inoue); 1 ♀, Honshu, Seibu, Kanmuriyama, 1.vi.1953 (Issiki); 1 ♀, Shikoku, Tokushima Prefecture, Iya, 4.vi.1950 (Issiki); 1 ♂, Shikoku, Kochi Prefecture, Kamigur, 7.iv.1950 (Issiki); 1 ♀, Kyushu, Kumamoto, Korimidake, 24.v.1952 (Kodama); 2 ♂, Kyushu, Minomo, 28.iv.1918 (Tozawa) (all in USNM); 1 ♂, Honshu, Osaka Prefecture, Mt. Kongousan, 11.v.1966 (Nigoro & Hirowatari); 1 ♂, Honshu, Nara Prefecture, Mt. Wasamata, 1.vi.1966 (Nigoro & Hirowatari) (both in MZH); 1 ♀, Kyushu, Unzen, 26.iv.1937 (Höne) (ZFMK).

Diagnosis. *Nemophora umbripennis* is similar to *N. solstitiella* (Walsingham in Walsingham & Durrant, 1900), from which it differs by larger occipital distance (0.3–0.4 × vertical eye diameter), absence of antennal pegs, longer PLB (1.6–1.9 × vertical eye diameter), glossy bronze to glossy golden frons, dark brown basal spot in forewing, shorter vinculum, and the absence of a deep recess on the ventral margin of valva.

Description. Male (Fig. 41). FWL 6.4–7.7 mm, WLR 0.30–0.36. Vertex with dark brown piliform scales interspersed with grey scales; frons glossy bronze to glossy golden. PLB 1.6–1.9 × vertical eye diameter (2.8–3.2 × length of scape), dorsally with appressed creamy scales, ventrolaterally with dense cover of raised piliform scales, which are white on internal side of palpus and dark brown on ventral and external sides. Proboscis brown, base with dense cover of brown piliform scales. Eyes enlarged, but not touching each other; interocular index 0.80–0.95; occipital distance 0.3–0.4. Antenna 2.7–3.1 × FWL, without pegs. Scape glossy bronze; basal 10–20 flagellomeres dark bronze to brown, ventrally with yellow scales, dorsally with slightly raised dark bronze scales; amount of yellow scales variable, increases gradually towards tip of antenna, and at about 0.3 × FWL colour of flagellum turns to pale yellow. Tegulae



FIGURES 41–48. Adults of *Nemophora* spp. 41, *N. umbripennis* Stringer, 1930, male, from Nose, Kinki, Honsyu, Japan; 42, ditto, female, from Chin Hills, Myanamar; 43, *N. chrysoprasias* (Meyrick, 1907), male, lectotype, from Khasi Hills, Meghalaya, India; 44, *N. aurifera* (Butler, 1881), male, from Pilushen-mu, Hualien County, Taiwan; 45, ditto, male, from Sa Pa, Vietnam; 46, ditto, male, holotype of *Nemotois servata* Meyrick in Caradja 1925, from Linping, Yunnan Province, China; 47, ditto, female, from Kozagawa, Wakayama Prefecture, Honshu, Japan; 48, *N. nielseni* Kozlov, **sp. nov.**, male, paratype, from Doi Ithanon National Park, Thailand. Scale: 2 mm.

and thorax dark bronze. Forewing (Fig. 81) dark brown, densely scattered with bright yellow scales (proportion of dark brown and yellow scales approximately 1 : 1). Dark brown basal spot from diffuse (in specimens from Japan) to distinct (in specimens from Myanmar). Yellow medial band of fascia narrow (0.04–0.07 × FWL), reaches costa at 0.5 × FWL; on both sides surrounded by pale dark brown and glossy dark bronze bands of about same width as yellow band. Fringe bronze. Hindwing dark brown; costal area grey; fringe brown. Legs dark bronze to dark brown; apices of tibiae and all tarsomeres pale yellow to white; fore tibia with tuft of dark brown scales; hind tibia with dense cower of brown piliform scales, medially with white spot. Epiphysis at 0.45, not reaching apex of tibia. Abdomen brown to bronze.

Female (Fig. 42). FWL 4.8–6.5 mm. Vertex with pale yellow or creamy piliform scales interspersed with dark brown scales; ochreous in specimens from Myanmar. PLB with brown to black apical segment, raised scales mostly dark brown, with small addition of white scales; in specimens from Taiwan and Myanmar scales on basal segment of palpus are white. Antenna 1.1–1.2 × FWL, in specimen from Taiwan 0.9 × FWL, basal half of flagellum covered with dark bronze scales, which are slightly raised basally and more raised at distal end of scaled part of flagellum, forming characteristic scale-thickening; apical half of flagellum bronze, with yellow spots or rings; in specimen from Taiwan these rings are white. Abdominal sternites with rows of yellow scales on distal margins. Otherwise similar to male.

Male genitalia (Figs. 103, 120). Tegumen dome-shaped, wide, with small medial ridge. Socii oval, 1.0 × diameter of phallus. Vinculum 2.0 × length of valva, U-shaped, with almost straight lateral margins, proximally wide (0.6 × width of distal part); distal margin almost straight, with small medial protuberance. Tip of tegumen extends beyond tips of valvae. Ventral valvar margin gently wave-shaped to nearly straight; dorsal margin almost straight, except for basal protuberance; tip of valva narrowly rounded. Valvae fused basally up to 0.3 × total length; internal valvar margins distinct. Anellus 0.3 × length of valva. Transtilla with long narrow medial process. Juxta 0.5 × length of phallus; arrow head extremely wide (WLR 1.3), with widely rounded tip and pointed lateral arms. Phallus 0.95 × length of vinculum, almost straight, except for base which is bent at nearly right angle (see from side); tip narrowly funnel-shaped, partially membranous; base widely funnel-shaped.

Biology. Moths were observed on flowers of *Deutzia crenata* Siebold & Zucc. (Hydrangeaceae) (Yamazaki & Kato 2003).

Distribution. Taiwan (this study), Myanmar (this study), Japan (Stringer 1930).

Comments. Two females from the mountains of Myanmar and one female from the mountains of Taiwan slightly differ from specimens from Japan. However, these differences are so minor that I have chosen to consider them as geographical variation.

Nemophora chrysoprasias (Meyrick, 1907)

(Fig. 43)

Nemotois chrysoprasias: Meyrick 1907: 992.

Nemophora chrysoprasias, type materials and revision: Kozlov 2023: 30–31, 62 figs. 37, 38 (colour photographs of moths), 67 fig. 90 (drawing of forewing pattern), 71 fig. 122 (drawing of male genitalia), 77 fig. 153 (photograph of male genitalia). Additional information: Hirowatari *et al*. 2022: 393–396, 393 figs. 1–4 (colour photographs of moths), 394 fig. 2 (colour photographs of moths), 395 fig. 3 (drawing of male genitalia), 396 fig. 4 (drawing of female genitalia); Liao *et al*. 2023: 43, 100 pl. 5 fig. 2 (colour photographs of moths), 110 pl. 10 fig. 9 (colour photograph of lectotype).

Distribution. India (Meyrick 1907), continental China (Hirowatari *et al*. 2022), Myanmar (Kozlov 2023).

Nemophora aurifera (Butler, 1881)

(Figs. 44–47, 82, 104, 121)

Tinachma (*Adela*) *fasciella*: Motschulsky 1860: 39. **Holotype** ♂: Japan, Hokkaido, Hakodate (approx. 41° 46' N, 141° 44' E); whereabouts unknown; presumably lost. Invalid as a junior secondary homonym of *Alucita fasciella* Fabricius, 1775 (now *Nemophora fasciella*).

Tinachma (*Adela*) *fasciella*: Motschoulsky 1866: 200, 1869: 102.

Nemotois aurifera: Butler 1881: 592. **Holotype** ♂: Japan, Yokohama (approx. 35° 27' N, 139° 38' E); labelled: 8 mm circle with red border, print ‘Type’; 5 × 10 mm, black ink ‘Japan │ YY. 9’, reverse side: ‘Nemotois │ aurifera │ Butler Type’; 15 × 25

mm, wide black frame, black ink + print ‘ADELA │ AURIFERA Btlr. │ Tr. Ent. Soc. Lond. 592 1881 │ TYPE ♂ descr’ (NHM) [examined].

Nemotois aurifera: Meyrick 1912a: 7, 1912b: 9; Matsumura 1931: 1111, fig. 2332 (b&w moth drawings), 1932: 122, pl. 4 fig. 5 (b&w female drawing); Hirayama 1933: pl. 48, fig. 19 (colour moth drawing).

Nemophora aurifera: Inoue 1954: 8–9; Issiki 1957: 13, pl. 2 fig. 29 (colour photograph of moth); Kuroko 1957: 1; Okano 1959: 277, pl. 183 fig. 13 (colour photograph of moth); Watanabe 1980: 18; Moriuti 1982: 54, 156, pl. 1 fig. 35 (colour photograph of moth); Park 1983: 6; Kawamura 1984: 3; Kozlov 1997c: 179 fig. 182.5 (drawing of forewing), 281, 282 figs. 185.1–185.3 (drawing of male genitalia); Hirowatari 1998: 29; Wang *et al*. 2000: 8–9 (colour photographs of moths); Owada *et al*. 2005: 123; Nakatomi 2006: 41; Yamauchi 2010: 7; Lee *et al*. 2011: 181; Kataoa [Kataoka] *et al*. 2012: 195; Hirowatari 2013: 106, figs. 3-08-3, 3-08-4 (colour photographs of moths); Hirowatari *et al.* 2015: 26; Mishima 2021: 80; Sato & Tsurimaki 2021: 28; Liao *et al*. 2023: 25–26, 94 pl. 2 fig. 6 (colour photographs of moths), 110 pl. 10 fig. 2 (colour photograph of holotype, erroneously referred to as a syntype), 116 pl. 13 fig. 4 (photograph of male genitalia), 133 pl. 22 fig. 1 (photograph of female genitalia), 150 pl. 30 figs. 5–9 (photographs of moths in nature).

Nemotois limenites Meyrick, 1914: 61, **syn. nov. Holotype** ♂: Taiwan, Pintung County, Hengchun (approx. 22° 00' N, 120° 44' E); labelled: 4 × 10 mm, red paper, print ‘Holotypus’; 5 × 13 mm, print ‘Kankau (Koshun) │ Formosa │ H. Sauter V.1912’; 9 × 10 mm, black ink ‘F120’; 3 × 14 mm, print ‘Meyrick det.’; 10 × 19 mm, ‘HOLOTYPE ♂ │ *Nemotois limenites* │ Meyrick, 1914 │ teste M. Kozlov, 2008’; 4 × 10 mm, print ‘Eberswalde │ coll. DEI’ (DEIE) [examined].

Nemotois limenitis (unjustified emendation): Matsumura 1931: 1112, fig. 2336 (b&w drawing of moth); Matsumura 1932: 122, pl. 4 fig. 7 (b&w drawing of male).

Nemotois limenites: Issiki 1922: 194; Clarke 1955: 188; Hua 2005: 2.

Nemophora limenites: Heppner 1992: 63; Liao *et al*. 2023: 27.

Nemotois servata: Meyrick in Caradja 1925: 383, **syn. nov. Holotype** ♂: China, Yunnan Province, Linping (30° 26' N, 120° 18' E); labelled: 6 × 12 mm, black ink ‘Lieuping [sic!] │ V.[19]22’; 11 × 20 mm, black ink ‘Nemotois │ servata Meyr. │ Type’; 13 × 18 mm, red border, print + black ink ‘ROMÄNIA [along the left margin] │ HOLOTYPE │ Nemotois ♂ │ servata │ Meyr’ (MINGA) [examined].

Nemotois servata: Meyrick 1935: 94; Caradja 1938: 257, 1939b: 32; Clarke 1955: 285; Hua 2005: 2.

Nemophora servata: Liao *et al*. 2023: 29.

Nemophora badagongshana Liao, Hirowatari & Huang in Liao *et al.*, 2023: 26–27, 94 pl. 2 fig. 7 (colour photographs of moths), 116 pl. 13 fig. 5 (photograph of male genitalia), 134 pl. 22 fig. 2 (photograph of female genitalia), **syn. nov. Holotype** ♂: China, Hunan, Mt. Tianpingshan, Badagongshan National Nature Reserve, Sangzhi County, Zhangjiajie, 1.–2.v.2021 (Liao) (HUNAU) [not examined]. **Paratypes.** 1 ♂ 2 ♀, same data as holotype; 2 ♀, Huangliantai Village, Badagongshan National Nature Reserve, Sangzhi County, Zhangjiajie City, 30.iv.2021 (Liao) (HUNAU) [not examined].

Nemophora quadrata Liao, Hirowatari & Huang in Liao *et al.*, 2023: 28–29, 96 pl. 3 fig. 1 (colour photographs of moths), 118 pl. 14 fig. 1 (photograph of male genitalia), 134 pl. 22 fig. 3 (photograph of female genitalia), **syn. nov. Holotype** ♂: China, Hunan, Shuangjiangkou, Jintongshan National Nature Reserve, Chengbu Miao Autonomous County, Shaoyang City, 7.v.2020 (Liao) (HUNAU) [not examined]. **Paratypes.** 20 ♂ 10 ♀; for label data, consult Liao *et al*. (2023) (HUNAU) [not examined].

Other material. Vietnam. 5 ♂, Lào Cai, Sa Pa, 1500 m, 10.–20.v.2006 (Zolotuhin) (ZMB). Continental China. 1 ♂, West Tien-Mu-Shan, 9.vi.1935 (Höne); 1 ♂, Province Kiangsu, Lungtan near Nanking, 9.v.1933 (Höne); 7 ♂ 4 ♀, Fukien, Kuatun, 2300 m, 2.–26.v.1938 (Klapperich) (all in MINGA); 1 ♂ 3 ♀, West Tien-Mu-Shan, Province Chekiang, 10.–18.vi.1932 (Höne); 1 ♂, Wenchow, Province Chekiang, 16.iv.1939 (Höne); 1 ♂, Fukien, Kuatun, 2300 m, 2.v.1938 (Klapperich) (all in ZFMK); 2 ♂, Mupin, vi.1892 (Leech); 3 ♂ 1 ♀, Chang-Yang, Ichang, 1300–2000 m, 1886 (Leech); 1 ♀, Tien-Mu-Shan, 1615 m, vi.1923 (Höne); 1 ♀, Fuzhou, vi.1886 (Leech) (all in NHM). Taiwan. 1 ♂ (Issiki); 1 ♂ 1 ♀, Taiheisan, 9.v.1942 (Issiki); 2 ♀, Daizyurin, 16.iii.1926 (Issiki); 1 ♂, Daibu, iii.1927 (Issiki); 2 ♀, NanTowCo, Mei-feng, 30 km S Tayuling, 2200 m, forest, 1.–8.vi.1980 (Davis); 1 ♂ 1 ♀, Musya, 23.–27.iii.1943 (Issiki); 1 ♀, Higasinoko, 3.vi.1943 (Issiki); 1 ♂, Suisya, 20.iii.1943 (Issiki); 1 ♀, Tyokakurai, 26.iii.1944 (Issiki); 1 ♂, Sozan, 29.iv.1935 (Issiki); 1 ♂, Rengwati, 22.iii.1943 (Issiki); 1 ♂, Kirai, 28.vi.1927 (Issiki); 3 ♂ 1 ♀, Baibara, 23.–25.iii.1943 (Issiki); 1 ♂, Hassenzan, 5.vi.1942 (Issiki); 1 ♀, Tattaka, 25.v.1920 (Issiki); 1 ♂, ibid., 6.vi.1943 (Issiki); 1 ♂, Kuraru, 20.iii.1926 (Issiki) (all in USNM); 2 ♂, Taoyuan County, Fushin, Upper-Paling, 1300 m, 7.vi.1996 (Yen); 1♀, Taitung County, Yakou-Da-guan-shan Channel, 2750 m, 27.iv.1996 (Yen); 2 ♂ 1♀, Hualien County, Pilushenmu, 2150 m, 27.vi.1996 (Yen); 1♂, Hualien County, Central Cross-Island Highway, Tzu-en, 27.vi.1996 (Yen) (all in NMNST); 1 ♂, Taihorin, v.1910 (Sauter) (ZMB); 1 ♂, Nantou County, Pilushi Station, 14.vii.1995 (Yen); 1♂, Hualien County, Tayulin-Tzer-en, 15.vii.1995 (Yen); 1 ♂, Nantou County, Jian-ai, Songgang, 23.iv.1995 (Yen) (all in NMNST); 1 ♂, Hsinchu/Miaoli, Kuangwu, 24.–25.vi.1985 (Heppner & Wang); 3 ♂ 5 ♀, Pingtung County, Kenting park, 255 m, 9.–15.iii.1990 (Heppner & Wang); 1 ♀, Hualien County, Tzuen, 1975 m, 19.–20.vi.1982 (Heppner); 1 ♀, Taichung County, Chingshan, 1100 m, 27.iii.–1.iv.1990 (Heppner & Wang) (all in FSCA); 1 ♀, Taiwan, 35 km E Taichung, 800 m, 24.iv.2001 (Kozlov); 2 ♂, 23 km NNE Puli, 1200 m, 25.iv.2001

(Kozlov); 1 ♂, 25 km NNE Puli, 1500 m, 25.iv.2001 (Kozlov); 3 ♂, Taiwan, Liouguei, 60 km NE Kaoshiung, 900 m, 1.v.2001 (Kozlov); 1 ♂ 2 ♀, Taiwan, Fushan, 600 m, at light 10.v.2001 (Kozlov) (all in MZH). Japan. Hokkaido. 1♂, vi.1911 (MINGA); 5 ♂, Oshima, Hakodate, 19.vi.1902 (Wileman); 1 ♂, ibid.; 5 ♂, vi.1911 (all in NHM); 1 ♂, Apoi, 21.vi.1959 (Kumata); 1 ♀, Bibaim 2.vii.1961 (Kumata) (both in RMNH); 1 ♂, Sapporo, 13.vii.1957 (Kumata); 1 ♀, Okusiri, 14.vii.1958 (Kumata); 1 ♂, Kotoni, 6.vi.1961 (Kumata) (all in ZSM); 2 ♂, Sapporo, 15.vi.1919 (Issiki) (NHMW and USNM); 1 ♀, Tomakomai, 26.vi.1919 (Issiki) (TFRI). Honshu. 2 ♂ 1 ♀, Yokohama (Leech); 1 ♂, Yokohama, iv.1911 (HH); 2 ♂, Nagasaki, vi.1886 (Leech) (all in NHM); 1 ♂, Mie-ken, Mt. Gozaisho, 2.v.1967 (Ichibashii) (RMNH); 4 ♂, Yokohama (ZMB); 1 ♂, ibid., iv.1910 (MINGA); 2 ♂ 3 ♀, Tokyo Prefecture, Takao, 28.v.1932 (Issiki); 1 ♂, Iwawakisan, Kii, 28.v.1920 (Issiki); 1 ♂, ibid., 25.vi.1920 (Issiki); 1 ♀, Tokyo, vi.1932 (Issiki) (all in TFRI); 1 ♂, Nara Prefecture, Oto-mura, 10.vi.1952 (Issiki); 1 ♂, Kyoto Prefecture, Usiozan, 31.v.1947 (Mutuura); 1 ♀, Kyoto Prefecture, Hanase, 2.vi.1951 (Issiki); 1 ♀, ibid., 6.vi.1961 (Kodama); 1 ♂, Tokyo Prefecture, Takao, 28.v.1932 (Issiki); 1 ♀, ibid., 17.vi.1959 (Inoue); 1 ♂, Mie Prefecture, Osugidani, 9.vi.1952 (Issiki); 1 ♂, Mie Prefecture, Iwawaki Mt., 13.v.1950 (Issiki); 1 ♂, Gifu Prefecture, Katayama, 15.v.1915 (Takeuchi); 2 ♂, Akita Prefecture, Tazawa, 13.vi.1951 (Issiki); 3 ♂ 1 ♀, Shizuoka Prefecture, Ito, 27.–28.v.1974 (Issiki); 3 ♂, Kanagawa Prefecture, Yokohama, 12.v.1951 (Inoue); 1 ♀, Kanagawa Prefecture, Yokosuka, Funakoshi, 22.v.1952 (Inoue) (all in USNM); 1 ♂, Kii, Oosima, 29.iv.1964 (Mutuura) (ZMUC); 1 ♀, Karuizawa, 12.vii.1952 (Savolainen); 1 ♀, ibid., 25.vi.1953 (Savolainen); 1 ♂, ibid., 11.vii.1953 (Savolainen); 1 ♂, Odaira, 17.vii.1954 (Savolainen) (all in MZH). Shikoku. 1 ♂, Tokushima Prefecture, Turugi Mt., 15.vi.1961 (Saito); 2 ♂, ibid., 30.v.1950 (Issiki); 5 ♂, Kochi Prefecture, Imano-Yama, 11.–13.v.1951 (Issiki); 2 ♂, Asizuri-saki, 10.v.1951 (Issiki) (all in USNM). Kyushu. 1 ♀, Province Higo, Iida San, 17.vi.1899 (Wileman); 1 ♂ 1 ♀, Province Higo, Takio, 10.v.1899 (Wileman) (all in NHM); 1♂, Gokanosyo, 5.vi.1926 (Issiki); 1 ♀, Sobosan, 4.vii.1937 (Issiki) (both in TFRI); 2 ♂ 1 ♀, Kagoshima Prefecture, Sata, Misaki, 16.–21.v.1952 (Issiki); 1 ♂, Kagoshima Prefecture, Tasiro, 15.v.1952 (Issiki); 1 ♂, Kagoshima Prefecture, Kirisima Mt., 3.v.1929 (Issiki); 1 ♂, Kagoshima, 29.iv.1929 (Issiki); 1 ♂, Kagoshima Prefecture, Izasiki, 20.v.1952 (Issiki); 1 ♂, Kumamoto Prefecture, Nai-daizin-kei, 26.v.1952 (Issiki); 1 ♀, Kurodake, 8.vii.1937 (Issiki); 1 ♂, Hakone, 4.vii.1932 (Issiki) (all in USNM). Unidentified localities in Japan. 1 ♂; 1 ♂, 1907 (R); 1 ♂, Kuushin, 1889 (Leech); 5 ♂ 3 ♀, 1886 (Pryer) (all in NHM); 1 ♂ (Weele) (RMNH); 1 ♂ 1 ♀ (ZMB); 1 ♀, 3.v.1939 (MINGA). South Korea. 1 ♀, Fusan, 31.i.1886 (Leech) (NHM). Russia. 1 ♂, Kunashir Island, 5.–7.vii.1962 (Krivolutskaya) (ZIN).

Diagnosis. *Nemophora aurifera* is nearest to *N. nielseni* (Figs. 48, 49), from which it differs by the absence of silver-grey bands on both sides of the medial yellow band in forewing fascia, yellow basal parts of all tarsomeres, shorter vinculum with nearly straight distal margin, wave-shaped internal margins of valvae, and long, thin subapical process on the dorsal side of phallus in male genitalia. Externally similar to *N. associatella* (Zeller, 1839), from which it differs by the dark bronze forewing sparsely suffused by yellow scales and by longer female antennae. Additional, although less reliable, differences include the larger size, wider forewing, lighter (yellow to ochreous brown) vertex, pale yellow PLB and longer valva in male genitalia of *N. aurifera* relative to *N. associatella*.

Description. Male (Figs. 44–46). FWL 6.0–9.6 mm, WLR 0.28–0.34. Vertex yellow to ochreous brown; frons glossy golden to bronze. PLB 0.5–1.0 × vertical eye diameter (1.4–1.7 × length of scape), pale yellow with sparse raised light brown scales. Proboscis light brown, base with yellow scales. Eyes enlarged to different extent, but not touching each other; interocular index 0.9–1.3; occipital distance 0.3–1.0 × vertical eye diameter. Antenna 3.3–3.7 × FWL, with simple inwardly directed pegs. Scape and base of flagellum dark coppery brown; at level of forewing fascia colour of flagellum gradually changes to silver-white. Tegulae and thorax light bronze to coppery bronze. Forewing (Fig. 82) dark bronze to coppery bronze; fascia narrow (0.11–0.17 × FWL), straight to slightly convex, consists of narrow yellow (in some specimens white) band bordered on both sides by dark brown bands, which in some specimens are almost indistinguishable from background forewing colour; internal margin of yellow band at 0.42–0.49 × FWL. In some specimens, including holotype of *N. limenites*, light (medial) band of fascia is broken to costal and dorsal spots. Distal part of forewing (comprising 0.3–0.4 × FWL) is almost entirely covered by dark brown scales with pale yellow scales scattered among them. Fringe dark brown, with bronze lustre around apex. Hindwing dark brown with coppery tint; costal area white to grey; R and M1 stalked; fringe dark brown at apex to brownish grey at dorsum. Legs brown with coppery to bronze lustre, except for yellow basal parts of all tarsomeres (to 0.3–0.5 of tarsomer length); fore and mid legs darker than hind legs; hind femora basally yellow to light brown, with sparse raised piliform scales. Epiphysis at 0.5, almost reaching apex of tibia. Abdomen bronze, in some specimens with coppery lustre.

Female (Fig. 47). FWL 5.7–8.7 mm. Antenna 1.30–1.45 × FWL, basal 0.5–0.6 densely covered with raised dark bronze to coppery black scales; distal part of flagellum silver-grey to white. Otherwise similar to male.

Male genitalia (Figs. 104, 121). Tegumen dome-shaped, with small to prominent medial ridge. Socii oval, 1.0 × diameter of phallus. Vinculum 1.5–2.4 × length of valva, wide anteriorly, with almost straight to slightly convex lateral margins and almost straight distal margin. Tips of valvae usually extend beyond tip of tegumen, although in some specimens valvae are short, hardly reaching tip of tegumen. Ventral valvar margin bent at 0.6–0.7 × length of valva, forming a lobe of variable shape; dorsal margin almost straight; tip of valva narrowly rounded. Valvae fused basally up to 0.25–0.35 × total length; internal valvar margins distinct. Anellus 0.2–0.3 × length of valva. Transtilla with long narrow medial process. Juxta 0.55–0.60 × length of phallus; arrow head wide (WLR 0.55–0.65), with narrowly to widely rounded tip and short to moderately long pointed lateral arms. Phallus 1.05–1.15 × length of vinculum, C-shaped to S-shaped in lateral view; tip with three (sometimes two) short (0.2 × length of phallus) narrow sclerotised bands; base narrowly to widely funnel-shaped.

Biology. Moths are flying from March to July, depending on locality and elevation. In mountains of Taiwan they were collected in *Machilus – Castanopsis* forest (ca. 1200 m a.s.l.) and in evergreen oak forest (ca. 1900 m a.s.l.). Both males and females were observed flying solitarily along a roadside and in forest gaps around mid-day and feeding on flowers of *Lithocarpus kawakamii* (Hayata) Hayata (Fagaceae) and *Mallotus japonicus* (L. f.) Müll. Arg. (Euphorbiaceae). Males were also observed swarming over the top of *Castanopsis carlesii* (Hemsl.) Hayata (Fagaceae) at about 7 am. Both sexes were attracted by light.

Distribution. China, including continental part (Meyrick in Caradja 1925), Taiwan (Meyrick 1914) and Hainan (Liao *et al.* 2023), Vietnam (this study), Japan (Butler 1881), South Korea (Park 1983), Russia (Kozlov 2008).

Comments. The name *Tinachma* (*Adela*) *fasciella* as introduced by Motschulsky (1860; note the publication year!) is commonly cited with an incorrect publication date. Butler (1881) erroneously cited a later (1866) work by Motschoulsky, and subsequent researchers (Meyrick 1912a, b; Matsumura 1932; Liao *et al.* 2023) copy-pasted this information without checking its accuracy. Ironically, all these citations mention the correct page number (39), paying no attention to the fact that Motschoulsky's (1866) publication has a page range from 163 to 200, whereas page 39 exists in Motschulsky (1860).

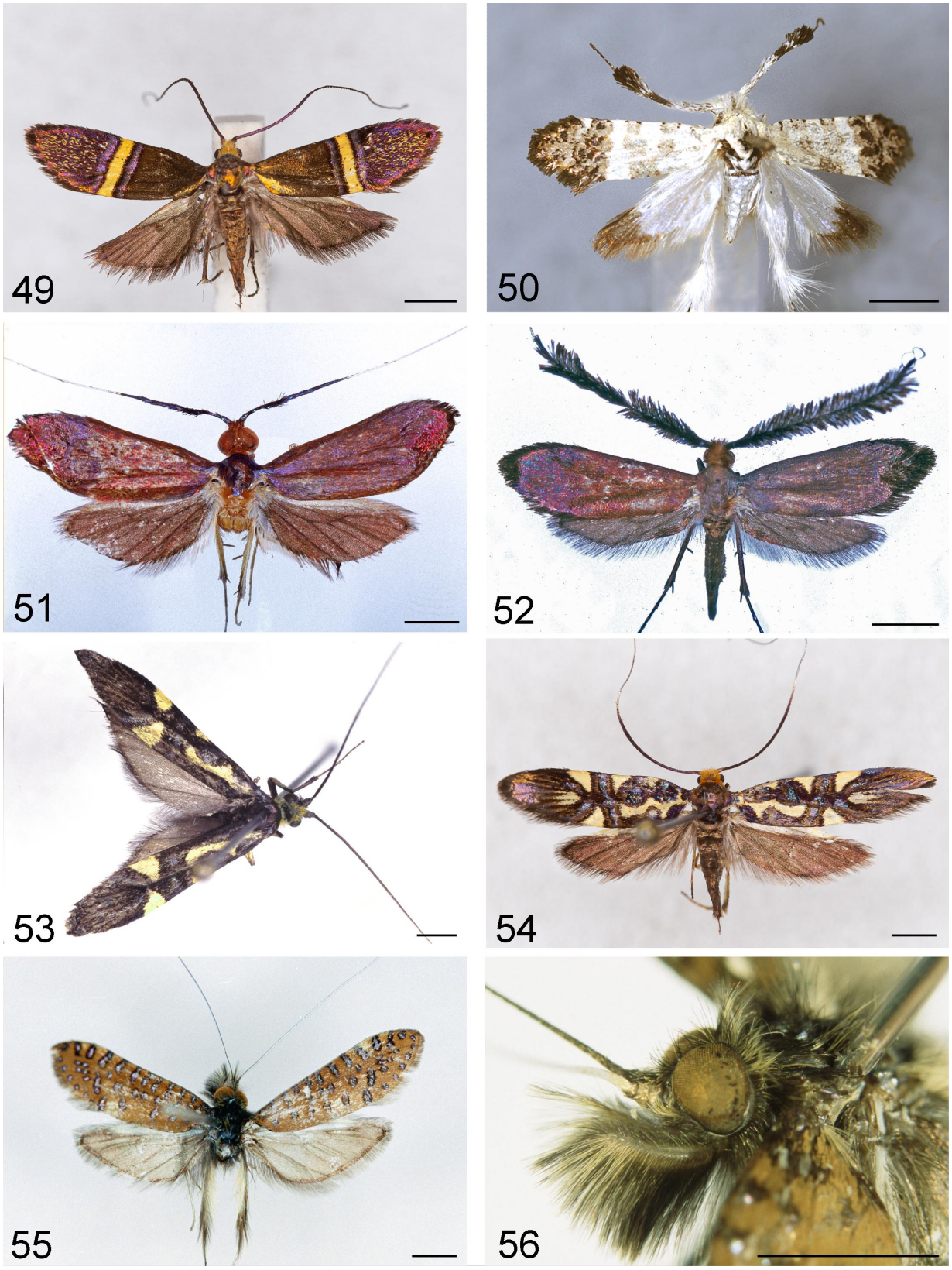
Investigation of extensive samples from multiple localities (ca. 200 specimens in total) demonstrated substantial variation in both external characters and male genitalia traits of *N. aurifera*. Particularly, the relative size of the compound eyes in males is greater in more southern localities, paralleling the pattern previously observed in *N. decisella* sensu lato (Kozlov & Robinson 1996a). This non-discrete variation was recognized already by A. Caradja, who combined in his collection (deposited in MINGA) the specimens previously identified as *N. servata* with 'true' *N. aurifera*. Importantly, different morphological traits of *N. aurifera* vary independently from each other, so that my long-term attempts to find some consistency in this variation failed. Therefore, at the current level of knowledge, I consider splitting of this species into multiple taxa, as proposed by Liao *et al*. (2023), premature. Indeed, there exists a possibility that *N. aurifera* (in its current morphology-based understanding), in parallel to *N. degeerella* (Linnaeus, 1758), includes several cryptic species. However, even in this case, the description of new species-level taxa will only be justified if other available names, *N. servata* and *N. limenites*, cannot be applied to these species.

Nemophora nielseni Kozlov, sp. nov.

urn:lsid:zoobank.org:act:34F6CF79-E422-4687-93D5-C9FC70579108
(Fig. 48, 49, 83, 105)

Holotype ♂: Thailand, Chieng Mai Province, Doi Ithanon National Park (18° 32' 30" N, 98° 35' 57" E); labelled: 8 mm circle with red border, print 'Holo- │ type'; 7 × 18 mm, print 'THAILAND: Chieng Mai Province │ Doi Ithanon Nat. Park │ 22.–24.x.1984 ca. 1600 m │ Karsholt, Lombolt & Nielsen leg. │ Zool. Mus., Copenhagen'; 7 × 13 mm, print 'HOLOTYPE ♂ │ *Nemophora* │ *nielseni* Kozlov' (ZMUC) [examined]. **Paratypes.** 2 ♂ 1 ♀, labelled: 8 mm circle with yellow border, print 'Para- │ type'; same label as in holotype; 7 × 13 mm, print 'PARATYPE ♂ [or ♀] │ *Nemophora* │ *nielseni* Kozlov' (ZMUC) [examined]. 1♂, labelled as previous, but the third line of geographical label is '22.–23.x.1984 2200–2500 m' (ZMUC) [examined].

Diagnosis. *Nemophora nielseni* is similar to *N. aurifera* (Figs. 44–47) and *N. pruinosa* Hirowatari, 2005, from which it differs by the presence of silver-grey bands on both sides of the yellow medial band in forewing fascia, uniformly bronze basal half of the forewing, longer vinculum with gently W-shaped distal margin, and short thick subapical process on the dorsal side of phallus in male genitalia.



FIGURES 49–56. Adults of *Nemophora* spp. 49, *N. nielseni* Kozlov, **sp. nov.**, female, paratype, from Doi Ithanon National Park, Thailand; 50, *N. alba* Kozlov, 2020, female, holotype, from Mergui, Myanmar; 51, *N. maxinae* Kozlov & Robinson, 1996, male, holotype, from Palace Rvin, Ko Sichang, Thailand; 52, ditto, female, paratype, from Sungai Burong, Brunei; 53, *N. meyi* Kozlov, **sp. nov.**, male, holotype, from Sa Pa, Vietnam; 54, ditto, female, paratype, from the same locality; 55, *N. yeni* Kozlov, **sp. nov.**, male, paratype, from Fushan, Ilan County, Taiwan; 56, ditto, head of male, paratype, from the same locality. Scale: 2 mm.

Description. Male (Fig. 48). FWL 8.0–9.3 mm, WLR 0.30–0.33. Vertex pale to ochreous yellow, with sparse dark brown scales; frons glossy golden. PLB 0.6–0.7 × vertical eye diameter (1.0–1.1 × length of scape), light brown, with sparse raised yellow and dark brown scales. Proboscis brown, base covered with bronze scales. Eyes enlarged; interocular index 0.9–1.1; occipital distance 0.6–0.7. Antenna 3.4–3.5 × FWL, with simple inwardly directed pegs. Scape and base of flagellum dark coppery brown, apical part of flagellum bronze. Tegulae and thorax glossy bronze. Forewing (Fig. 83) bronze; fascia moderately wide (0.16–0.21 × FWL), straight, consists of narrow medial yellow band and two silver-grey bands separated from yellow band by narrow (1–3 scales) dark brown lines; internal margin of yellow band at 0.49–0.50 × FWL. Apical part of forewing (comprising about 0.3 × FWL) almost entirely covered by dark brown scales with pale yellow scales scattered among them. Fringe dark brown, with bronze lustre around apex. Hindwing brown, apically with coppery tint; costal area light grey to grey; R and M1 stalked; fringe dark brown at apex to brownish grey at dorsum. Legs dark brown with coppery lustre, except for yellow apical parts of all tarsomeres (extending 0.2–0.3 × tarsomere length); fore and mid legs darker than hind legs; hind femora basally yellow to light brown, with sparse raised piliform scales. Epiphysis at 0.5, almost reaching apex of tibia. Abdomen brown with bronze lustre; distal parts of basal sternites with pale yellow scales.

Female (Fig. 49). Antenna 1.4 × FWL; basal part of flagellum (up to forewing fascia) slightly thickened by appressed coppery bronze scales; distal part of flagellum brown. Otherwise similar to male.

Male genitalia (Fig. 105). Tegumen onion-shaped, with small medial ridge. Socii elongate, 1.3 × diameter of phallus. Vinculum 3.1 × length of valva, V-shaped, with slightly concave lateral margins; distal margin gently W-shaped. Tip of tegumen extends beyond tips of valvae. Ventral margin of valva medially with small lobe; dorsal margin straight; tip of valva rounded. Valvae fused basally up to 0.35 × total length; internal valvar margins distinct. Anellus 0.4 × length of valva. Transtilla with relatively long (about 2 × length of socii) pointed medial process. Juxta 0.55 × length of phallus; arrow head moderately wide (WLR 0.5), with pointed tip and short pointed lateral arms. Phallus of about the same length as vinculum, almost straight, with short thick process on dorsal side at 0.8 × total length of phallus (counting from its base). Apex of phallus formed by gently curved thin ventral process and serrate lobe, tip of which reaches 0.65 of distance between base of finger-like dorsal process and tip of phallus; base of phallus narrowly funnel-shaped.

Distribution. Thailand (this study).

Etymology. The species is named after the late Ebbe Schmidt Nielsen (1950–2001), an Australian lepidopterologist of Danish origin, who greatly advanced the studies of archaic moths and participated in the expedition that collected the type material.

Nemophora alba Kozlov, 2020

(Fig. 50)

Nemophora alba: Kozlov 2020: 478, 479 fig. 1 (colour photograph of holotype), 480 fig. 5 (drawing of forewing pattern).

Distribution. Myanmar (Kozlov 2020), Thailand (this study; photograph-based record: https://www.inaturalist.org/observations/150575602).

Nemophora maxinae Kozlov & Robinson, 1996

(Figs. 51, 52)

Nemophora maxinae: Kozlov & Robinson 1996b: 22–24, figs. 1–2 (b&w photographs of moths), figs. 3–7 (drawings of male genitalia); Koçak & Kemal 2010: 2; Liao *et al*. 2023: 24.

Distribution. Thailand (Kozlov & Robinson 1996b), Brunei (Kozlov & Robinson 1996b).

Comments. An additional photograph-based record is available from Thailand (https://www.inaturalist.org/observations/30523139).

***Nemophora meyi* Kozlov, sp. nov.**
urn:lsid:zoobank.org:act:AEECF79D-AC50-4984-88CA-063161511013
(Figs. 53, 54, 84, 106)

Holotype ♂: Vietnam, Lào Cai, Sa Pa (22° 20' N, 103° 51' E); labelled: 8 × 16 mm, yellow paper, print 'Vietnam, Sa Pa │ Fan Si Pang Mts. │ 25–30.3.1995 │ leg. W. Mey'; 6 × 15 mm, print 'HOLOTYPE ♂ │ *Nemophora* │ *meyi* Kozlov' (ZMB) [examined]. **Paratype**. 1 ♀, labelled: 10 × 12 mm, black frame, print '10–20.V.2006 │ N. Vietnam │ Prov. Lao Cai │ Fan-Si-Pan Mts │ Sa Pa, 1500 m │ V. Zolotuhin leg'; 8 × 15 mm, print 'PARATYPE ♀ │ *Nemophora* │ *meyi* Kozlov' (ZMB) [examined].

Diagnosis. *Nemophora meyi* is nearest to *N. songgangensis* Liao, Hirowatari & Huang in Liao *et al.* 2023, from which it differs by the black basal part of forewing, yellow band of fascia clearly separated into two wide triangular spots, glossy lead frons, U-shaped vinculum, long medial process of transtilla and shape of the apical part of phallus. In male genitalia *N. meyi* resembles *N. magnifica* Kozlov, 1997, from which it differs by larger size, wide (width nearly equal to height) triangular spots forming incomplete yellow band of forewing fascia, almost indistinct longitudinal stripes in the apical part of forewing, deep medial indentation on the distal margin of vinculum, and long ventral lobe of the apical part of phallus in male genitalia.

Description. Male (Fig. 53). FWL 11.5 mm, WLR 0.24. Vertex ochreous; frons glossy lead, with row of piliform scales below antennal sockets; colour of these scales changes from pale yellow medially to dark brown laterally. PLB 1.15 × vertical eye diameter (1.3 × length of scape), dorsally with appressed yellow scales, ventrolaterally with raised black piliform scales. Proboscis brown, base with coppery brown scales. Eyes only slightly enlarged; interocular index 0.7. Antenna 3.5 × FWL, with simple inwardly directed pegs. Scape and base of flagellum bronze; ventral part of scape with few yellow scales; at about 0.7 × FWL colour of flagellum gradually changes to silver-white. Tegulae and thorax coppery black. Basal 0.7 × FWL (Fig. 84) nearly black, apical 0.3 × FWL dark brown with ochreous tint. Proximal line of W-shaped basal mark ends at wing base (not expanding along costal margin); distal line of this mark broken, with small triangular spot at costa separated by dark brown area; costa between wing base and this yellow spot with two glossy lead spots; third glossy lead spot is adjacent to yellow stripe. Medial band of fascia broken, consists of two wide (width nearly equal to height) triangular spots. Glossy lead spot between W-shaped basal mark and fascia straight and not broken; similarly coloured spot outside fascia forms nearly right angle. Apical part of forewing outside this spot with 5–7 diffuse dark brown longitudinal stripes, which are hardly visible over brown background. Fringe dark brown. Hindwing dark brown; costal area yellow; fringe brown to grey. Legs brown dorsally, yellow ventrolaterally. Epiphysis at 0.55, reaching apex of tibia. Abdomen dark brown; distal margins of sternites bright yellow.

Female (Fig. 54). FWL 8.5 mm, WLR 0.24. Antenna 1.6 × FWL. Scape glossy golden; basal third of flagellum slightly thickened by appressed dark brown scales; apical part of flagellum from silver-white to grey. Tegulae and thorax dark bronze. Apical third of forewing with small yellow spot, distally subdivided into four longitudinal stripes. Otherwise similar to male.

Male genitalia (Fig. 106). Tegumen dome-shaped, with almost indistinct medial ridge. Socii 1.6 × diameter of phallus. Vinculum 2.0 × length of valva, U-shaped; lateral margins slightly prominent; distal margin with small medial indentation. Tip of tegumen slightly extends beyond tips of valvae. Ventral margin of valva gently W-shaped; dorsal margin (viewed laterally) straight; tip of valva narrowly rounded. External surface of valva tuberculate. Valvae not fused basally. Anellus 0.3 × length of valva. Transtilla with long medial process. Juxta 0.55 × length of phallus; arrow head moderately wide (WLR 0.5), with pointed tip and short pointed lateral arms. Phallus 1.1 × length of vinculum, gently S-shaped in lateral view; tip with a wide lobe, base widely funnel-shaped.

Biology. The holotype was collected at light, long after midnight, within primary forest about 1600 m a.s.l. (W. Mey, pers. comm.).

Distribution. Vietnam (this study).

Etymology. The species is named after Wolfram Mey, a German lepidopterologist who is well known for his long-term research of systematics, biodiversity and biogeography of caddisflies and moths.

***Nemophora yeni* Kozlov, sp. nov.**
urn:lsid:zoobank.org:act:4DC1EA72-4946-44EB-8F79-3AA5D51EB552
(Figs. 55–57, 85, 107)

Holotype ♂: Taiwan, Yilan County, Fushan (24° 46' N, 121° 35' E); labelled: 8 mm circle with red border, print 'Holo- | type'; 6 × 13 mm, print 'Fushan, Ilan Co. | TAIWAN, II-18- | 1993, Y.B. Fan'; 6 × 14 mm, print 'HOLOTYPE ♂ | *Nemophora* | *yeni* Kozlov' (NMNST) [examined]. **Paratypes.** 1 ♂, 7 × 18 mm, print 'TAIWAN, Prov. Ilan, 1550 m | Suyuan, near Pinan | at the road 7/1, 29.III.1997 | leg. Csorba & Ronkay'; 8 × 18 mm, red paper, black ink 'PARATYPE ♂ | Nemophora | yeni Kozlov | in litt. 2000'. 1 ♂, pencil, 'Vietnam 1900 m | 13.3.1998'; 8 × 18 mm, red paper, black ink 'PARATYPE ♂ | Nemophora | yeni Kozlov | in litt. 2000' (both in HNHM) [examined]. 1 ♀, yellow paper, 7 × 16 mm, print 'Vietnam, Sa Pa | Fan Si Pang Mts | 25.–30.3.1995 | leg. W. MEY'; 7 × 15 mm, print 'PARATYPE ♀ | *Nemophora* | *yeni* Kozlov' (ZMB) [examined]. 1 ♀, 9 × 20 mm, print 'TAIWAN: Kaohsiung Co. | Taoyuan, Chuyuenshan- | lindao-Tengiyer, 2,150m | 19.5.1996, S. H. Yen leg.'; 6 × 14 mm, print 'PARATYPE ♀ | *Nemophora* | *yeni* Kozlov' (NMNST) [examined].

Nemophora raddei (misidentification): Liao *et al*. 2023: 75–76, 106 pl. 8 fig. 10 (colour photograph of male), 130 pl. 20 fig. 4 (photograph of male genitalia).

Diagnosis. *Nemophora yeni* is most similar to *N. raddei* (Rebel, 1901), from which it differs by the brown forewing colour, presence of multiple (usually seven) small glossy grey spots with black border at forewing margin between RS4 and CuA2 veins, male compound eyes touching (or nearly touching) each other occipitally, extraordinary scale-thickening in the basal part of female antenna, large lobe at the middle of the ventral margin of valva, and long anellus.

Description. Male (Fig. 55). FWL 7.8–9.0 mm, WLR 0.31–0.35. Vertex grey (covered by a mixture of pale yellow and black piliform scales); frons naked, shining grey, marginally with mixture of pale yellow and black piliform scales. PLB 1.3–1.5 × vertical eye diameter (2.4 × length of scape), protracted, grey, densely covered with mixture of raised long pale yellow and black hairs (Fig. 56). Proboscis light brown. Eyes enlarged; interocular index 1.0–1.1; occipital distance 0–0.01. Antenna 2.2–2.4 × FWL, with simple inwardly directed pegs; scape brown ventrally and black dorsally; entire flagellum black dorsally and white (or light yellowish grey) ventrally. Tegulae and thorax dark brown. Forewing (Fig. 85) brown, with slight ochreous tint; variable pattern consists of multiple silver-grey, dark bordered short transverse stripes forming 7 to 9 broken lines in basal part of forewing, 3–5 longitudinal stripes (along veins M1 to CuA2) in apical part of forewing, and 6–8 spots along wing margin around the apex, between RS4 and CuA2 veins. Fringe ochreous brown. Hindwing brown, costa pale yellow, fringe brownish grey; R and M1 stalked. Legs dark brown; each segment on both sides with narrow line of bright yellow scales. Epiphysis at 0.65–0.70, reaching apex of tibia. Abdomen dark brown; tip (genital capsule) ventrally with a tuft of yellow scales.

Female (Fig. 57). FWL 7.7–8.4 mm. Frons marginally with mixture of brown and black piliform scales. Antenna >1.0 × FWL (tip broken); basal part of flagellum (up to 0.6 × FWL) densely covered by semi-erect brown piliform scales, forming extraordinarily long scale-thickening; distal part of flagellum dark brown to black, with distinct white rings on each flagellomere. Otherwise similar to male.

Male genitalia (Fig. 107). Tegumen onion-shaped, without medial ridge. Socii elongate, 1.2 × diameter of phallus. Vinculum 2.6 × length of valva, widely V-shaped, with almost straight lateral margins and gently W-shaped distal margin. Tip of tegumen extends beyond tips of valvae. Ventral margins of valvae at 0.5–0.6 × valvar length with prominent ventroposteriorly directed lobes (see from side); dorsal valvar margin almost straight; tip of valva narrowly rounded. Valvae fused basally up to 0.2 × total length; internal valvar margins indistinct. Anellus 0.7–0.8 × length of valva. Transtilla with long narrow medial process. Juxta 0.50 × length of phallus; arrow head extremely wide (WLR 0.8), with rounded tip and short pointed lateral arms. Phallus 0.9–1.0 × length of vinculum, S-shaped (see from side); apical part (ca. 0.35 × length of phallus) bifurcate; base of phallus funnel-shaped.

Distribution. Continental China (Liao *et al*. 2023), Taiwan (Liao *et al*. 2023), Vietnam (this study).

Etymology. The species is named after Shen-Horn Yen, a prominent lepidopterologist who collected one of paratypes.

***Nemophora rubicunda* Kozlov, sp. nov.**
urn:lsid:zoobank.org:act:328E27EC-E113-4E30-9C3B-EF7B741C95A7
(Figs. 58, 86, 108, 122)

Holotype ♂: Myanmar, Tenasserim, Victoria Point (9° 58' N, 98° 33' E); labelled: 8 mm circle with red border, print 'Holo- | type'; 9 × 14 mm, black frame, print 'Victoria | Sud. Tenasserim | Birmanie | Decembre 1890 | W. Doherty'; 7 × 13 mm, print 'Paravicini Coll. | B. M. 1937-383'; 8 × 12 mm, print 'B. M. | Genitalia slide | No. 31818'; 7 × 15 mm, print 'HOLOTYPE ♂ | *Nemophora* | *rubicunda* Kozlov' (NHM) [examined]. **Paratypes**. 1 ♂, labelled: 8 mm circle with yellow border, print 'Para- | type'; 8 × 17 mm, print + black ink 'Renong | (low country, forest) | W. Siam | Doherty, 1891 | No. 41739'; 7 × 10 mm, print 'Walsingham | Collection | B. M. 1910-427.'; 7 × 13 mm, print 'B. M. | Genitalia slide | No. 29444'; 7 × 15 mm, print 'PARATYPE ♂ | *Nemophora* | *rubicunda* Kozlov'. 1 ♂, labelled: 8 mm circle with yellow border, print 'Para- | type'; 8 × 17 mm, print + black ink 'Renong | (low country, forest) | W. Siam | Doherty, 1891 | No. 41740'; 7 × 10 mm, print 'Walsingham | Collection | B. M. 1910-427.'; 7 × 15 mm, print 'PARATYPE ♂ | *Nemophora* | *rubicunda* Kozlov'. 1 ♂, labelled: 8 mm circle with yellow border, print 'Para- | type'; 8 × 12 mm, print + black ink 'Riam Kiwa, | 500–1000 ft., | S. E. BORNEO | Doherty, 1891 | No. 40537'; 7 × 10 mm, print 'Walsingham | Collection | B. M. 1910-427.'; 8 × 18 mm, black frame, black ink + print 'Nemotois Typ | rubicunda | W | Named by Wlsm.'; 7 × 15 mm, print 'PARATYPE ♂ | *Nemophora* | *rubicunda* Kozlov' (all in NHM) [examined].

Diagnosis. *Nemophora rubicunda* externally differs from all *Nemophora* species known from the study region by the yellow basal part of forewing extending to 0.35 × FWL combined with dark brown transverse spot adjacent externally to this yellow part. In male genitalia *N. rubicunda* resembles *N. costimaculella* (Fig. 62), from which it differs by the much smaller extent of yellow colour in the forewing base, smaller occipital distance, and greater width of the basal part of valva relative to the apical part of it.

Description. Male (Fig. 58). FWL 7.1–7.5 mm, WLR 0.39–0.41. Vertex with tuft of white to pale yellow piliform scales at occipital margin and with dark brown piliform scales above antennal sockets; frons glossy golden, with sparse brown piliform scales below antennal sockets. PLB 0.4–0.6 × vertical eye diameter (0.8–1.1 × length of scape), pale yellow. Proboscis brown. Eyes enlarged, closely approaching occipitally, but not touching each other; interocular index 1.4–1.5; occipital distance 0.04–0.05. Antenna 3.1–3.2 × FWL, with simple inwardly directed pegs. Scape and base of flagellum coppery bronze; at 0.7 × FWL colour of flagellum abruptly changes to grey. Tegulae and thorax bronze. Forewing (Fig. 86) glossy, light bronze; basal part yellow, with coppery brown spot at base of costa and glossy golden stripe extending along costa to 0.17 × FWL. Yellow colour along costal margin extends to 0.35 × FWL and reaches triangular dark brown spot, which extends to 0.3–0.4 of forewing width. Apical part of forewing adjacent to outer wing margin sparsely suffused with yellow and dark brown scales. Fringe bronze to brown. Hindwing brown with coppery tint, except for semitranslucent anal field; costal area white; fringe brown. Femora and tibiae of fore and mid legs dark coppery bronze, of hind legs yellowish brown, darker distally; tarsomeres light brown to light bronze. Epiphysis at 0.45, almost reaching apex of tibia. Abdomen bronze.

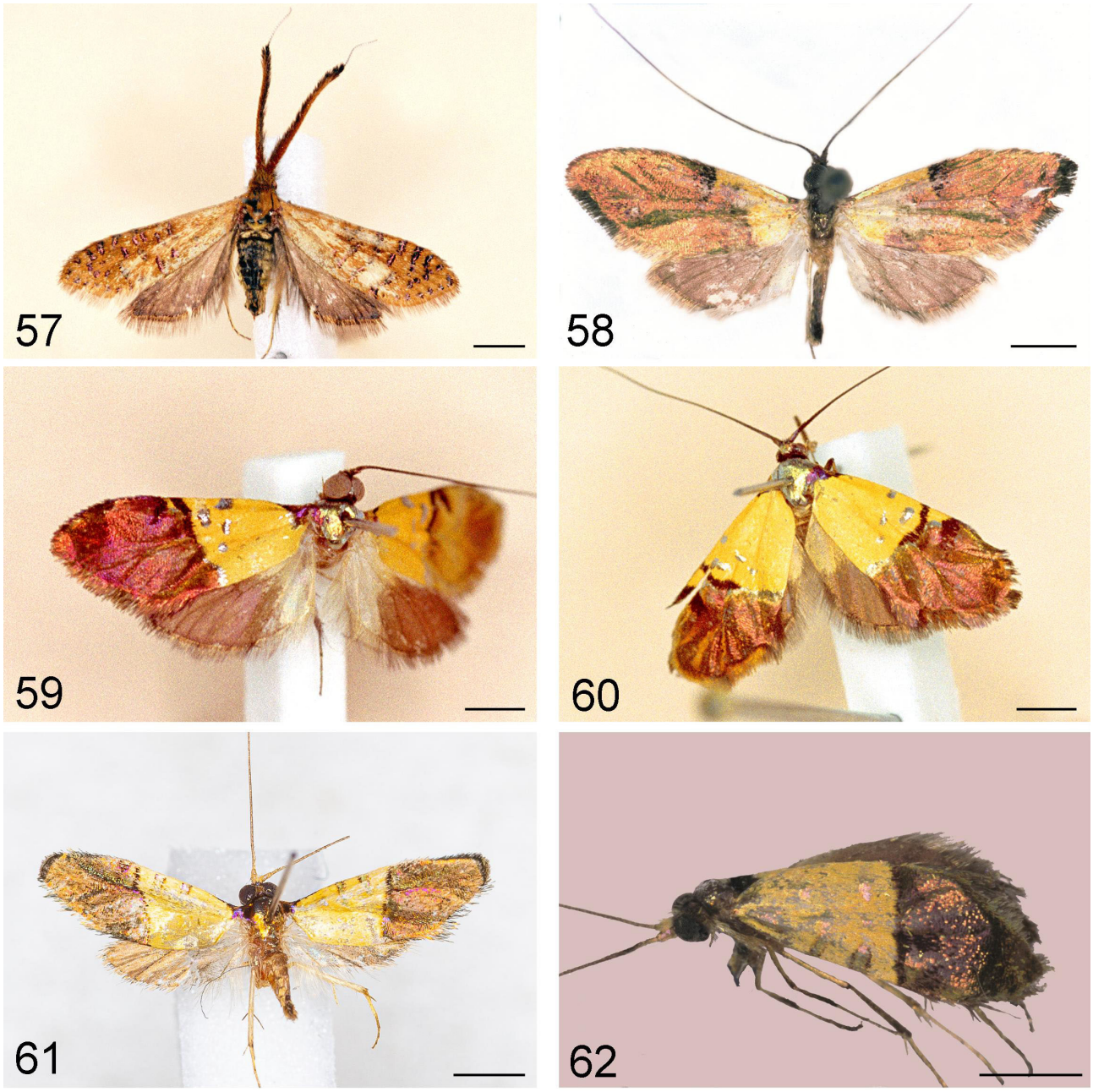
Female unknown.

Male genitalia (Figs. 108, 122). Tegumen dome-shaped, with prominent medial ridge. Socii elongate, 1.3 × diameter of phallus. Vinculum 3.0 × length of valva, V-shaped, with slightly convex lateral margins; distal margin medially with pointed protuberance. Tip of tegumen extends beyond tips of valvae. Basal 0.6 of valva wide, forming posteroventrally directed lobe; dorsal margin almost straight; tip of valva rounded. Valvae fused basally at 0.4 × total length; internal margins distinct. Anellus 0.5 × length of valva. Transtilla with long triangular medial process. Juxta 0.5 × length of phallus; arrow head moderately wide (WLR 0.55), with widely rounded tip and short pointed lateral arms. Phallus nearly equal to length of vinculum, almost straight, with two gently C-shaped carinae articulated to its ventral side at 0.7 × length of phallus (counting from its base). Distal part of phallus consists of short dorsal lobe (reaching same level as apices of carinae) and long ventral lobe; base of phallus narrowly funnel-shaped.

Distribution. Myanmar (this study), Thailand (this study; photograph-based record: https://www.inaturalist.org/observations/136227026), Indonesia (this study).

Etymology. The specific epithet is derived from rubicunda (Latin: suffused with red, ruddy) and refers to a diagnostic trait in forewing pattern.

Comments. Although Walsingham labelled one of paratypes as the type of *Nemotois rubicunda*, he never published the description of this species.



FIGURES 57–62. Adults of *Nemophora* spp. 57, *N. yeni* Kozlov, **sp. nov.**, female, paratype, from Sa Pa, Vietnam; 58, *N. rubicunda* Kozlov, **sp. nov.**, male, holotype, from Victoria Point, Myanmar; 59, *N. pecuniosa* (Meyrick, 1921), male, from Khao Yai National Park, Thailand; 60, ditto, female, from the same locality; 61, *N. kuznetzovi* Kozlov, **sp. nov.**, male, holotype, from Quảng Chu, Vietnam; 62, *N. costimaculella* Kozlov, 2023, male, holotype, from Khasi Hills, Meghalaya, India. Scale: 2 mm.

Nemophora pecuniosa (Meyrick, 1921)

(Figs. 59, 60, 87, 109, 123)

Nemotois pecuniosa: Meyrick 1921: 202. **Holotype** ♂: Malaysia, Sumatra, Sorikmarapi Mt. (0° 38' N, 99° 15' E); labelled: 3.5 × 8 mm, black ink 'M416'; 12 × 24 mm, black ink 'op den top van │ den Sorik Berapi │ tegen een trian- │ gulatie paal. │ 28 December 1890.' [on top of Sorik Berapi near a triangulation post; Dutch]; 11 mm circle, black ink 'Johan │ v. Hasselt │ Tapanoel │ Sumat'; 4 × 11 mm, violet border, black frame, black ink 'Type.'; 11 × 13 mm, red paper, print + black ink 'Museum Leiden │ HOLOTYPE ♂ │ Nemotois │ pecuniosa │ Meyrick, 1921'; 2 × 28 mm, black frame, black ink 'pecuniosa │ Meyr.' (RMNH) [examined].
Nemotois pecuniosa: Clarke 1955: 237.
Nemophora aurisparsella (misidentification): Diakonoff 1951: 153, 155 fig. 12 (drawing of male genitalia), 156–158.

Nemophora pecuniosa: Diakonoff 1951: 153, 158.

Other material. India. 1 ♂, 1894 (de Nicéville). Myanmar. 5 ♂, Kadan Kyun (formerly King Island), Mergui, ii.–iii.1934 (Archibald); 3 ♂, Tenasserim, Mergui, v.1895 (Lakatt & Pamboo); 4 ♂, ibid., 1888 (Doherty). Thailand. 2 ♂, Renong, 1891 (Doherty); 1 ♂, Trong, 1926 (WLA); 2 ♂ 1 ♀, Khao Yai National Park, Park HQ, 31.viii.–8.ix.1986 (Robinson). Malaysia. 1 ♂, Pahang, Lubok Tamang, cleared hill 1350 m, 10.vi.1923 (Pendlebury); 1 ♂, Pahang, Cameroon Highlands, 1200–1500 m, 17.v.1932 (Pendlebury); 6 ♂, Perak (Doherty); 1 ♂, Perak, Barang Padang, v.1925 (Pendlebury); 1 ♂, Perak, Larut Hills, 1200 m, 9.ii.1932 (Pendlebury); 5 ♂, Perak, Padang Rengas, 1891 (Doherty); 1 ♂, Malay Peninsula, West Coast, Langkawi Island, 21.iv.1928 (Pendlebury) (all in NHM); 1 ♂, Pulau Penang (ZMUC). Singapore. 1 ♂, Bukit Kalang, 2.vii.1947 (Archibald) (NHM). Indonesia. 1 ♂, W. Jawa, 650 m, Bodjonglopang Djampangs, 1.i.1941 (Lieftinck) (RMNH); 1 ♂, Sumatra, Simalungun, "Holzweg 2", near Parat, 18.ii.1995 (ZSM). Philippines. 1 ♂, Palawan Mantalingajan, Pinigisan, 600 m, 6.ix.1961 (Noona Dan Expedition) (ZMUC).

Diagnosis. *Nemophora pecuniosa* is most similar to *N. aurisparsella* (Walker, 1863), from which it differs reliably only by the male genitalia traits including slightly curved right apical process of phallus with anterolaterally directed tip (see from the ventrum), presence of large ventral hook-shaped apical process on phallus (see from the side), and valvae that do not extend beyond the tip of tegumen. Most of *N. pecuniosa* males, contrary to *N. aurisparsella* males, do not possess glossy golden appressed scales above the antennal sockets and demonstrate a larger extent of light yellow to translucent basal part in hindwing of males (0.34–0.45 × hindwing length). Females of *N. pecuniosa* differ from females of *N. aurisparsella* by the pale yellow basal third of hindwing and the absence of raised black scales in the basal part of antenna. *Nemophora pecuniosa* is externally similar to *N. costimaculella* (Fig. 62), from which it differs by the larger size and more enlarged male eyes (touching each other), as well as by the presence of laterally directed hook-shape processes at the apex of phallus.

Description. Male (Fig. 59). FWL 7.2–8.0 mm, WLR 0.40–0.45. Vertex glossy golden, marginally with dark brown raised piliform scales; frons glossy golden. PLB 0.5–0.6 × vertical eye diameter (1.15–1.25 × length of scape), ochreous. Proboscis light brown, base covered with ochreous scales. Eyes enlarged, nearly touching each other occipitally; interocular index 1.45–1.75; occipital distance 0.03–0.08. Antenna 3.0–3.5 × FWL. Scape and base of flagellum dark brown, apical part light brown; proximal 7–12 flagellomeres dorsally with slightly raised brown scales. Tegulae and thorax glossy golden to bronze. Basal half of forewing (Fig. 87) bright yellow, with small dark brown spot at the base and four glossy silver spots; three of these spots form transverse row at 0.35 × FWL, and fourth spot lies between this row and dark bronze to coppery brown apical half of forewing. Borderline between differently coloured parts of forewing clearly marked by row of dark brown scales arising from costa at 0.55 × FWL and reaching 0.4–0.6 × width of forewing. Wide glossy silver to dark bronze band outside this dark brown line is present in most specimens, although clearly visible in fresh specimens only. Dark brown band arising from costa at 0.60–0.65 × FWL varies in shape; in most specimens it is rather short, with only few or no dark brown scales scattered over bronze background near outer wing margin. Fringe bronze to dark brown. Basal 0.3–0.5 of hindwing light yellow to light grey, semitranslucent, contrasting with coppery brown apical part; costal area grey; fringe yellowish grey basally to bronze apically. Legs coppery brown to glossy golden; tarsomeres ventrally yellow. Epiphysis at 0.55, reaching apex of tibia. Abdomen dorsally light brown, laterally yellow, ventrally dark coppery brown.

Female (Fig. 60). FWL 6.7–6.9 mm. Antenna 2.3–2.4 × FWL, base not thickened; entire flagellum dark brown. Hindwing base (0.4 × hindwing length) pale yellow, apical part dark coppery brown. Otherwise similar to male.

Male genitalia (Figs. 109, 123). Tegumen dome-shaped, with small to prominent medial ridge. Socii elongate, 1.0–1.1 × diameter of phallus. Vinculum 3.0–3.5 × length of valva, Y-shaped, with slightly concave lateral margins and W-shaped to nearly straight distal margin. Tip of tegumen at about same level as tips of valvae or slightly extends beyond them. Basal parts of valvae (0.5 × valvar length) much wider than distal parts; dorsal valvar margin almost straight; tip of valva pointed. Ventral valvar margin with posteroventrally directed lobe; it never looks hook-shaped in lateral view. Valvae fused basally up to 0.15–0.25 × total length; internal valvar margins distinct. Anellus 0.4–0.5 × length of valva. Transtilla with short narrow medial process. Juxta 0.45 × length of phallus; arrow head narrow (WLR 0.45), with pointed tip and short lateral arms with wide rectangular tips. Phallus 1.1 × length of vinculum, almost straight; apex of phallus with four hook-like processes, three large and one small; right large process shallowly C-shaped, with tip directed anterolaterally; left large process forms narrow hook with tip directed anteriorly; third large process is perpendicular to first two processes and forms a hook with tip directed dorsally; base of phallus funnel-shaped.

Distribution. India (this study; questionable record—see comment to *N. aglaospila* above), continental China (this study; questionable record), Myanmar (this study), Thailand (this study), Malaysia (Meyrick 1921), Singapore (this study), Indonesia (Diakonoff 1951), Philippines (this study).

Comments. One male from Mergui in the NHM collection bears a label with Walsingham's manuscript species name.

This species is variable in external characters (occipital distance, area covered by appressed glossy scales on vertex, wing pattern), and characters mentioned by Diakonoff (1951) as diagnostic for *N. pecuniosa* are well within the individual variation ranges of both *N. aurisparsella* and *N. pecuniosa*. Consequently, reliable discrimination between *N. aurisparsella* and *N. pecuniosa* based on moth photographs is currently impossible. Nevertheless, keeping in mind the absence of *N. aurisparsella* in the study region, the moth photographed in China (www.inaturalist.org/observations/166965433) likely belongs to *N. pecuniosa*.

Nemophora kuznetzovi Kozlov, sp. nov.

urn:lsid:zoobank.org:act:02DC7CB4-D900-4C12-AEC0-F4C07524A775
(Figs. 61, 88, 110)

Holotype ♂: Vietnam, Bắc Kạn Province, Quảng Chu (21° 51' 05" N, 105° 48' 46" E); labelled: 8 mm circle with red border, print 'Holo- | type'; 10 × 14 mm, print + black ink 'N. Vietnam | prov. Bacthai | Quangchu, днем [in daytime: Russian] | джунгли, лес [jungle forest: Russian] | 18.4.1986 | V. Kuznetzov leg.'; 7 × 18 mm, print 'HOLOTYPE ♂ | *Nemophora* | *kuznetzovi* Kozlov' (ZIN) [examined]. **Paratypes**. 3 ♂, labelled: 8 mm circle with yellow border, print 'Para- | type'; 9 × 19 mm, print 'VIETNAM: Bac Kan | Ba Be N. P. (lodge) 240m | 21–26 Jun 2008 | J. B. Heppner'; 7 × 18 mm, print 'PARATYPE ♂ | *Nemophora* | *kuznetzovi* Kozlov' (FSCA) [examined].

Diagnosis. *Nemophora kuznetzovi* is nearest to *N. athlophora* (Meyrick, 1912), from which it differs by the smaller size, absence of spots in dorsal half of the yellow (basal) field in forewing, dark frons, light yellowish brown colour of scape and basal part of flagellum, shorter PLB, smaller occipital distance, shape of valva, and valvae fused to vinculum.

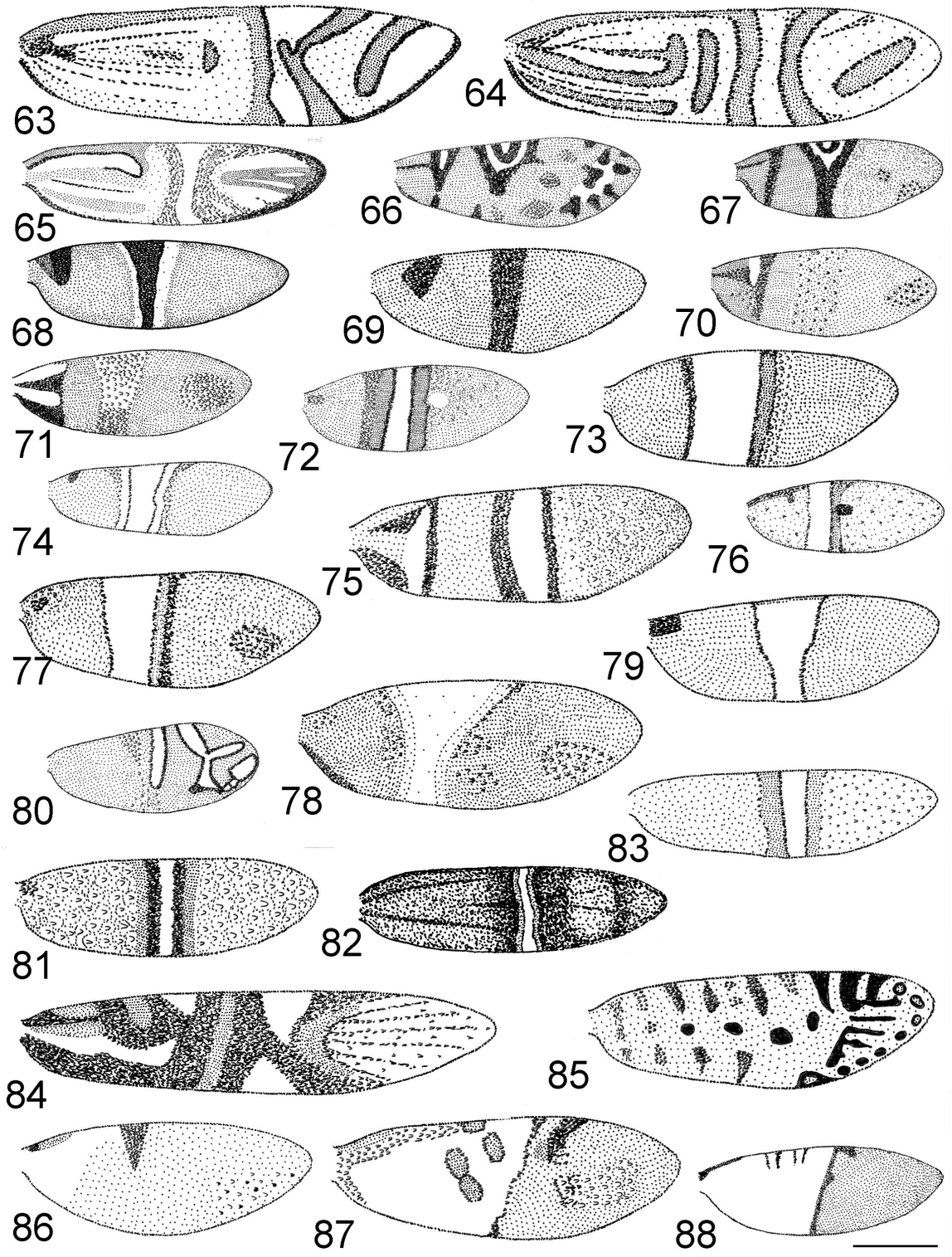
Description. Male (Fig. 61). FWL 4.8–5.9 mm, WLR 0.36–0.44. Vertex yellow to light ochreous brown; frons glossy, coppery brown to indigo blue. PLB 0.25–0.35 × vertical eye diameter (0.55–0.65 × length of scape), light yellowish brown, with dark brown apical segment. Proboscis light yellowish brown. Eyes enlarged, but not touching each other; interocular index 1.05–1.15; occipital distance 0.15–0.40. Antenna 2.8–3.3 × FWL, with simple inwardly directed pegs. Scape and base of flagellum light yellowish brown, apical part of flagellum brown. Tegulae dark coppery brown; thorax glossy golden. Basal half of forewing (Fig. 88) bright yellow, with small dark brown spot at base of R stem, extending along costa to 0.15–0.20 × FWL, and with two pairs of short brown transverse stripes arising from costa at 0.3 and 0.4 × FWL. Apical half of forewing bronze with slight coppery luster, with a line of dark brown scales separating yellow and bronze parts of forewing, slightly extending towards wing apex at costal margin and at R stem. Fringe bronze to dark brown. Basal 0.3 of hindwing semitranslucent, apical part brown to dark brown; costal area grey; fringe brown to light brown. Legs light yellowish brown; apices of tibiae and of all tarsomeres brown. Epiphysis at 0.6, almost reaching apex of tibia. Abdomen light brown with bronze luster.

Female unknown.

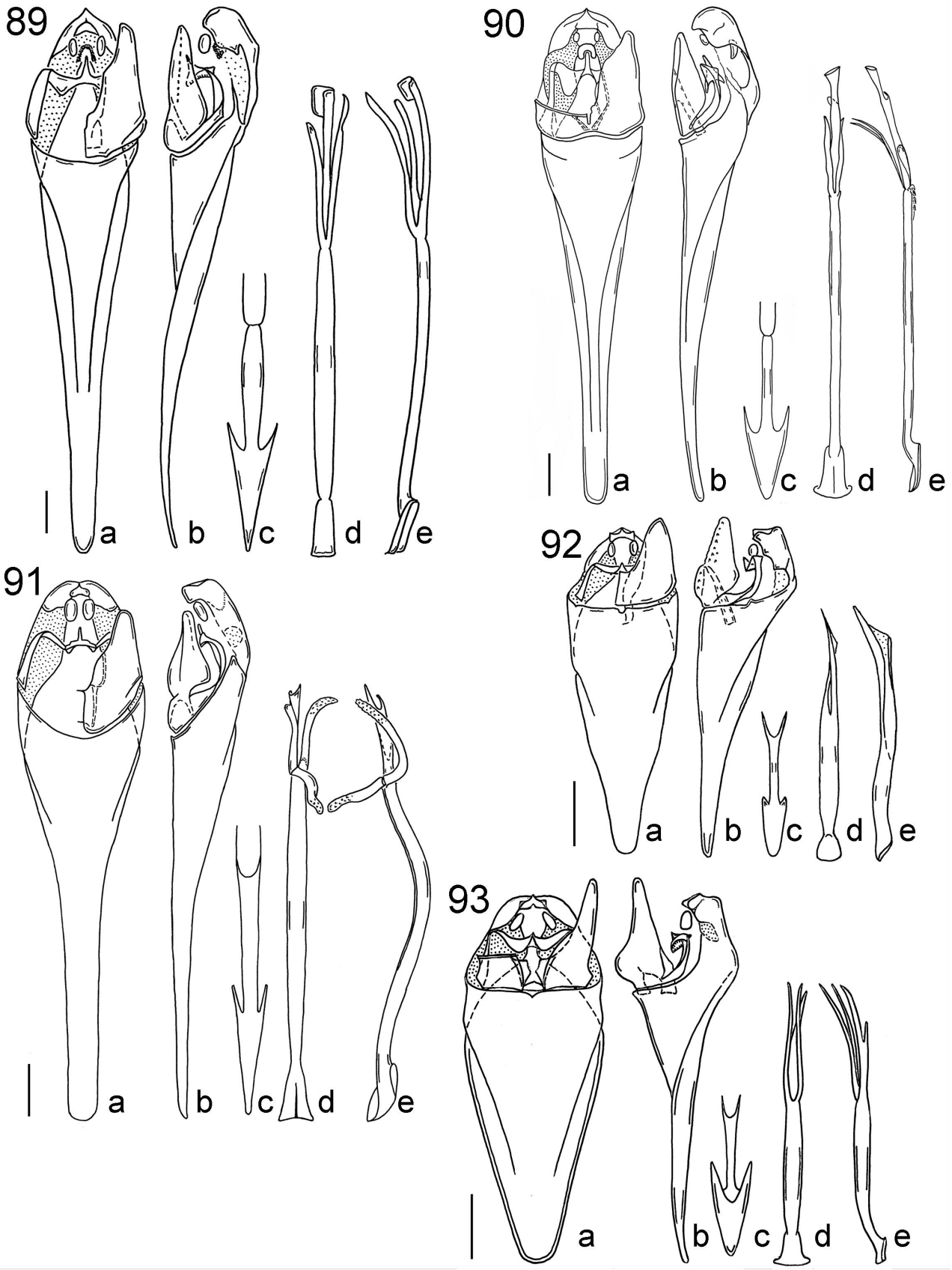
Male genitalia (Fig. 110). Tegumen trapezieform; medial ridge almost indistinct. Socii elongate, 1.0–1.3 × diameter of phallus. Vinculum 2.1–2.4 × length of valva, V-shaped, with slightly convex lateral margins; distal margin nearly straight, medially indistinct due to fused valvae. Tips of valvae at about same level as tip of tegumen. Ventral margin of valva forms a sharp angle at about 0.35 × valvar length; dorsal margin almost straight; tip of valva narrowly rounded. Valvae separated from each other by narrow V-shaped gap, which nearly reaches vinculum. Anellus 0.3 × length of valva. Transtilla with long medial process. Juxta 0.75 × length of phallus; arrow head moderately wide (WLR 0.5), with widely rounded tip and short pointed lateral arms. Phallus nearly equal to length of vinculum, almost straight. Distal quarter of phallus semitranslucent, without clearly visible structures; base of phallus narrowly funnel-shaped.

Distribution. Vietnam (this study).

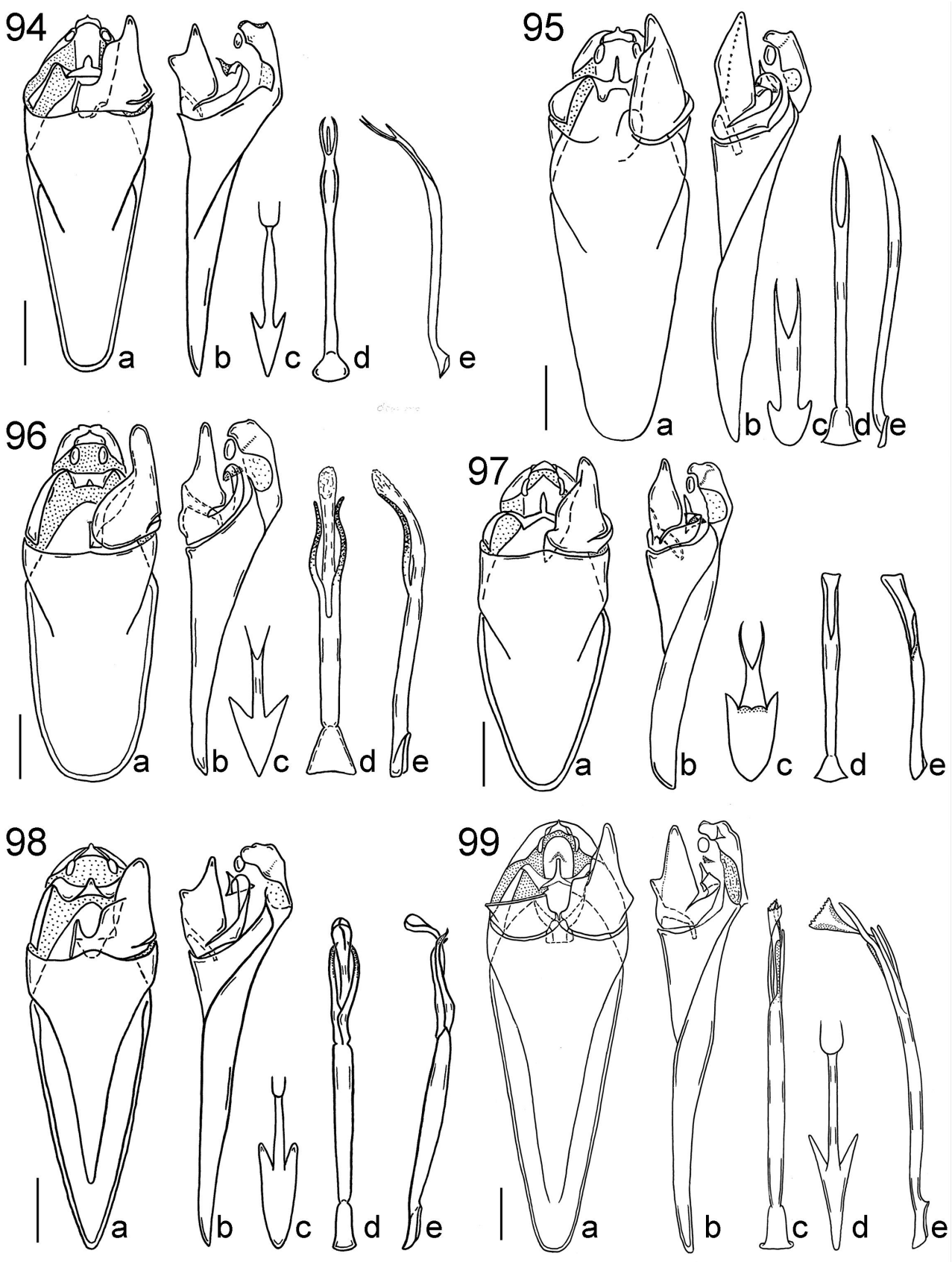
Etymology. Named after the late Vladimir Ivanovich Kuznetzov (1929–2008), a famous Russian lepidopterologist, who collected the holotype.



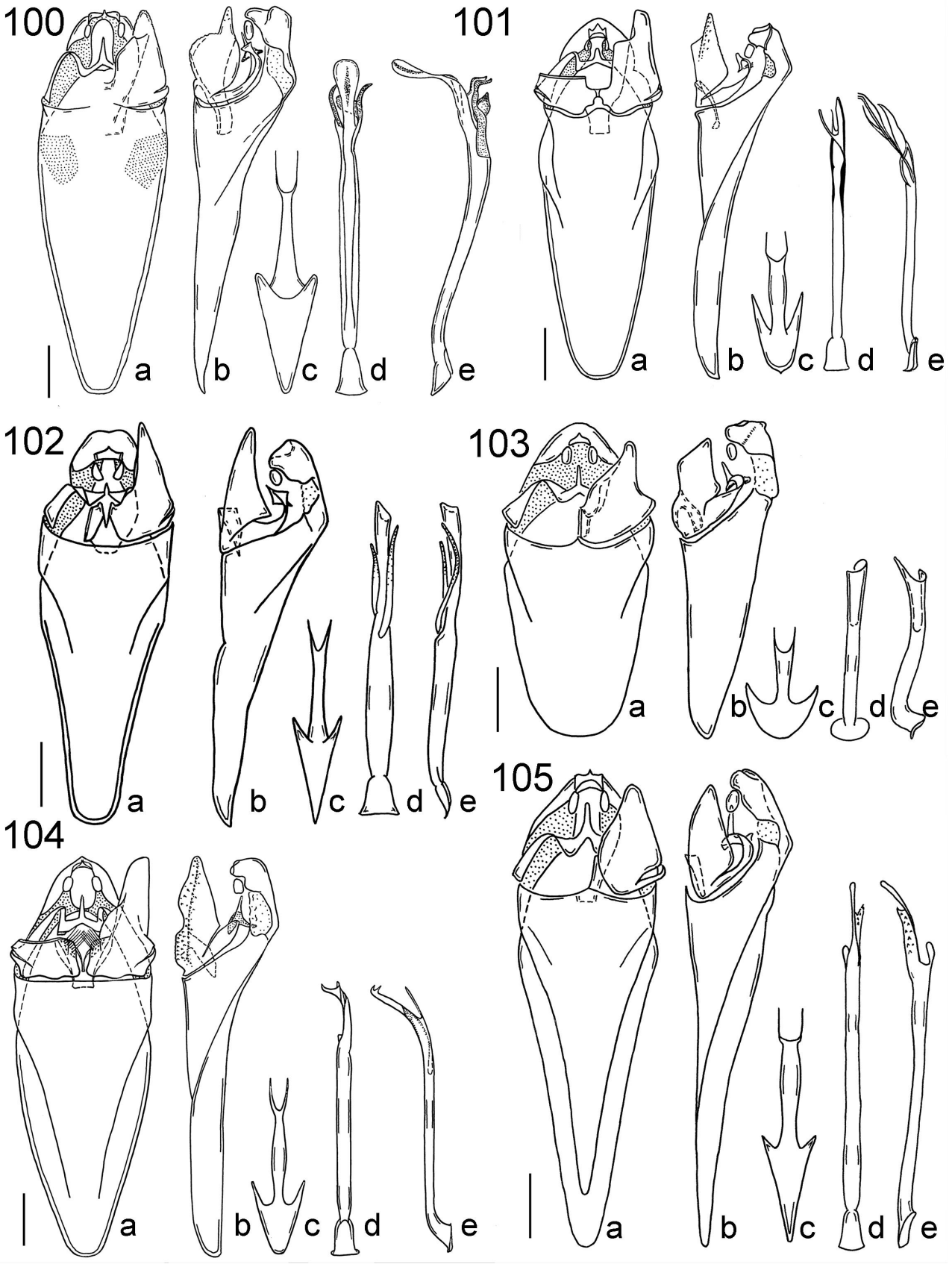
FIGURES 63–88. Forewing pattern of *Nemophora* spp. 63, *N. nieukerkeni* Kozlov, **sp. nov.**; 64, *N. karsholti* Kozlov, **sp. nov.**; 65, *N. szabokyi* Kozlov, **sp. nov.**; 66, *N. aglaospila* (Meyrick, 1928); 67, *N. sinicella* (Walker, 1863); 68, *N. ahenea* Stringer, 1930; 69, *N. vietnamensis* Kozlov, **sp. nov.**; 70, *N. cleodoxa* (Meyrick, 1922); 71, *N. pyrotechna* (Meyrick, 1912); 72, *N. punctifasciella* Kozlov, **sp. nov.**; 73, *N. satrapodes* (Meyrick, 1894); 74, *N. thailandensis* Kozlov, **sp. nov.**; 75, *N. melichlorias* (Meyrick, 1907); 76, *N. nigripunctella* Kozlov, **sp. nov.**; 77, *N. chalcoptera* Kozlov, **sp. nov.**; 78, *N. caeruliantenna* Liao, Hirowatari & Huang in Liao *et al.*, 2023; 79, *N. sakaii* (Matsumura, 1931); 80, *N. auricapitella* Kozlov, **sp. nov.**; 81, *N. umbripennis* Stringer, 1930; 82, *N. aurifera* (Butler, 1881); 83, *N. nielseni* Kozlov, **sp. nov.**; 84, *N. meyi* Kozlov, **sp. nov.**; 85, *N. yeni* Kozlov, **sp. nov.**; 86, *N. rubicunda* Kozlov, **sp. nov.**; 87, *N. pecuniosa* (Meyrick, 1921); 88, *N. kuznetzovi* Kozlov, **sp. nov.** Scale 2 mm.



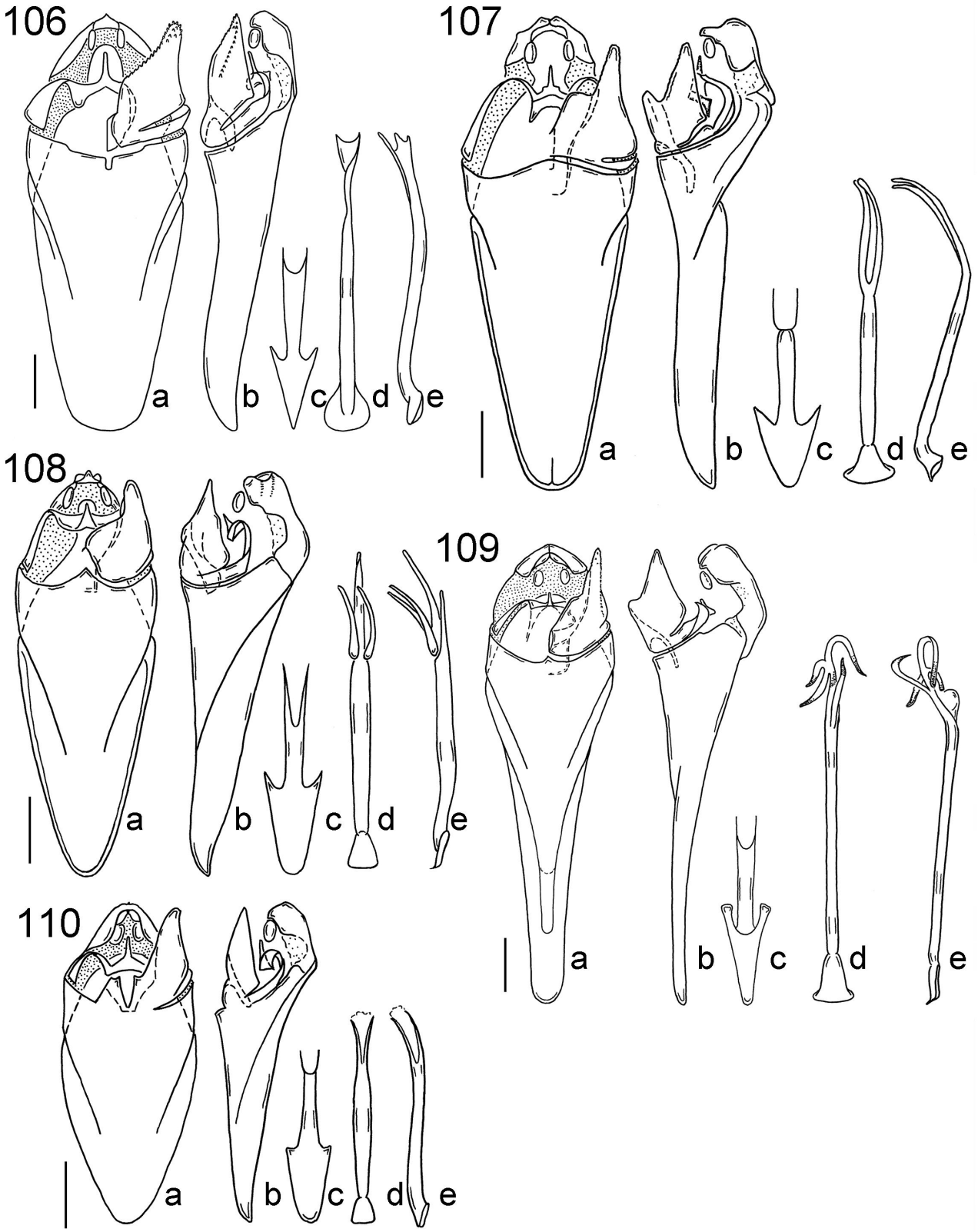
FIGURES 89–93. Male genitalia of *Nemophora* spp. 89, *N. nieukerkeni* Kozlov, **sp. nov.**; 90, *N. karsholti* Kozlov, **sp. nov.**; 91, *N. szabokyi* Kozlov, **sp. nov.**; 92, *N. aglaospila* (Meyrick, 1928); 93, *N. sinicella* (Walker, 1863); a: genital complex, ventral view (right valva not shown); b: genital complex, lateral view; c: juxta; d: phallus, ventral view; e: phallus, lateral view. Scale: 0.2 mm.



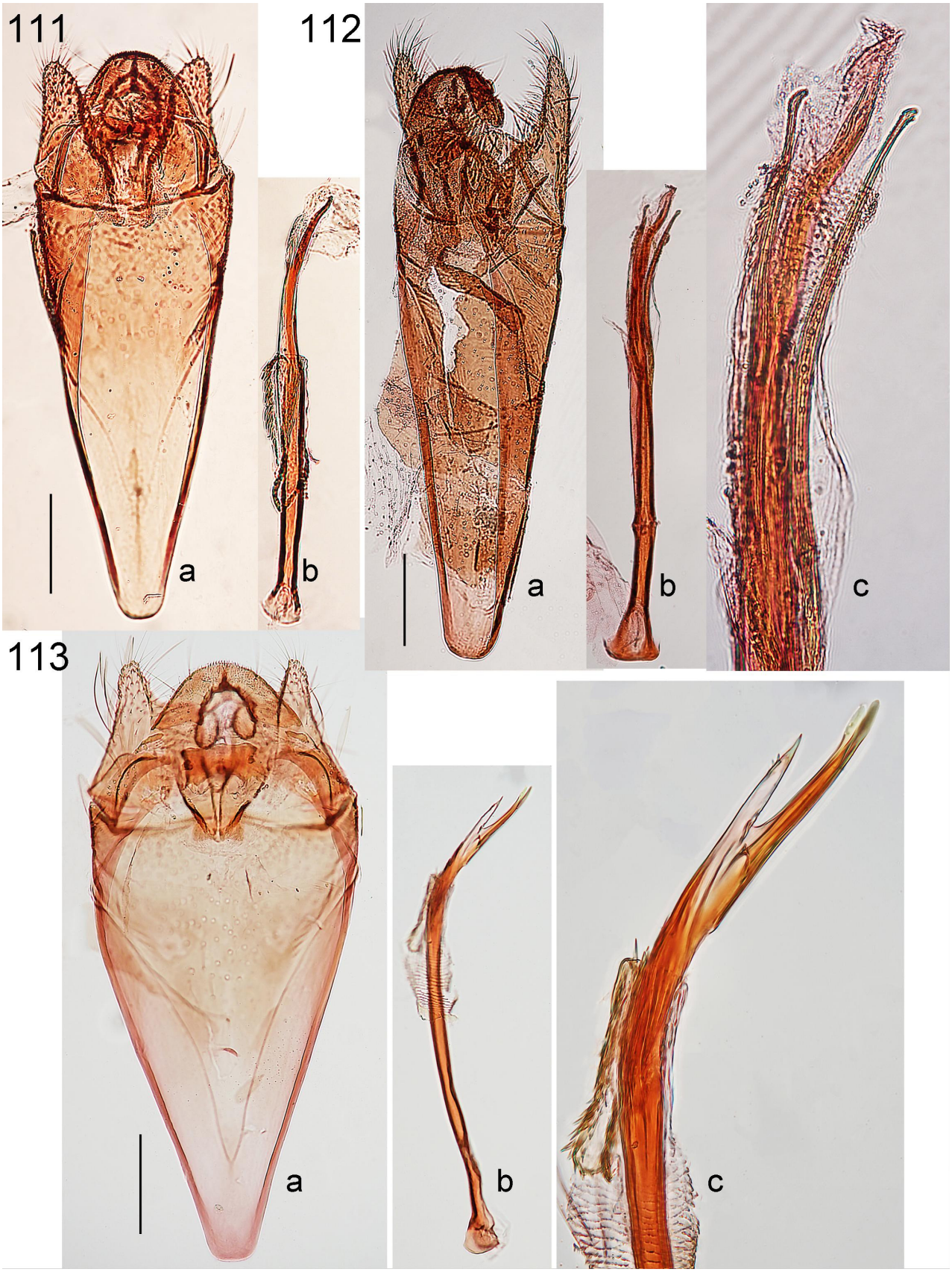
FIGURES 94–99. Male genitalia of *Nemophora* spp. 94, *N. ahenea* Stringer, 1930; 95, *N. vietnamensis* Kozlov, **sp. nov.**; 96, *N. cleodoxa* (Meyrick, 1922); 97, *N. pyrotechna* (Meyrick, 1912); 98, *N. punctifasciella* Kozlov, **sp. nov.**; 99, *N. melichlorias* (Meyrick, 1907); a: genital complex, ventral view (right valva not shown); b: genital complex, lateral view; c: juxta; d: phallus, ventral view; e: phallus, lateral view. Scale: 0.2 mm.



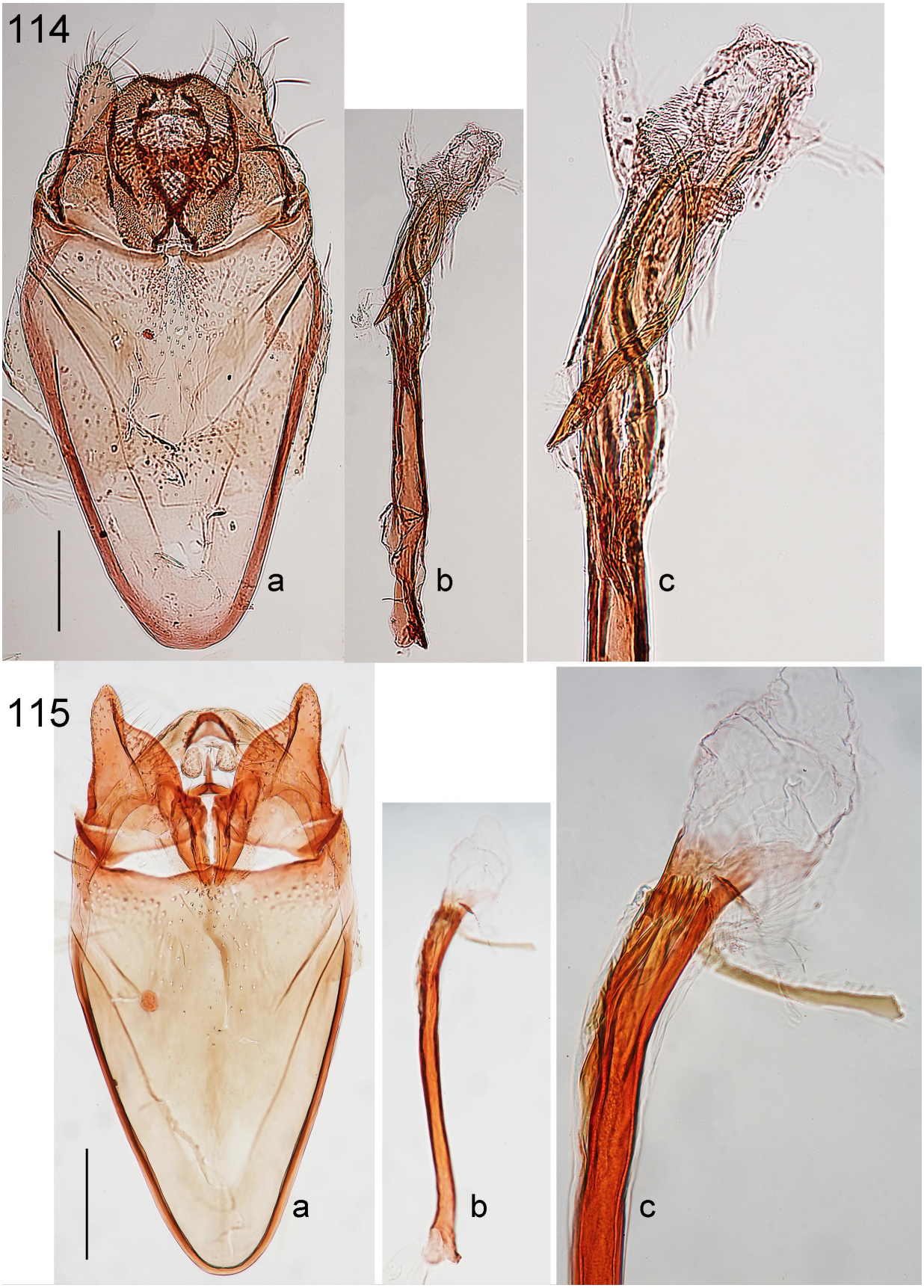
FIGURES 100–105. Male genitalia of *Nemophora* spp. 100, *N. caeruliantenna* Liao, Hirowatari & Huang in Liao *et al.*, 2023; 101, *N. sakaii* (Matsumura, 1931); 102, *N. auricapitella* Kozlov, **sp. nov.**; 103, *N. umbripennis* Stringer, 1930; 104, *N. aurifera* (Butler, 1881); 105, *N. nielseni* Kozlov, **sp. nov.**; a: genital complex, ventral view (right valva not shown); b: genital complex, lateral view; c: juxta; d: phallus, ventral view; e: phallus, lateral view. Scale: 0.2 mm.



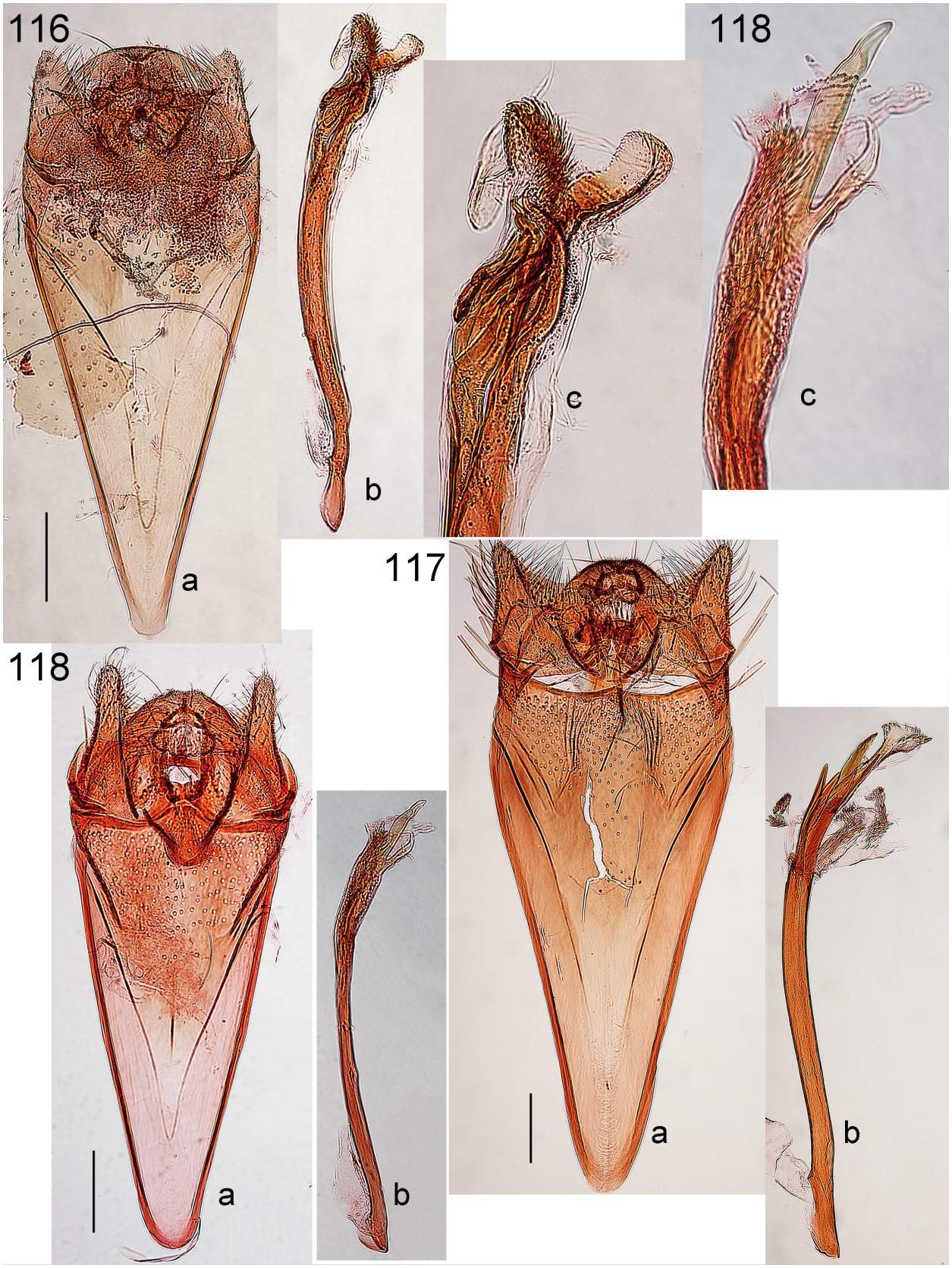
FIGURES 106–110. Male genitalia of *Nemophora* spp. 106, *N. meyi* Kozlov, **sp. nov.**; 107, *N. yeni* Kozlov, **sp. nov.**; 108, *N. rubicunda* Kozlov, **sp. nov.**; 109, *N. pecuniosa* (Meyrick, 1921); 110, *N. kuznetzovi* Kozlov, **sp. nov.**; a: genital complex, ventral view (right valva not shown); b: genital complex, lateral view; c: juxta; d: phallus, ventral view; e: phallus, lateral view. Scale: 0.2 mm.



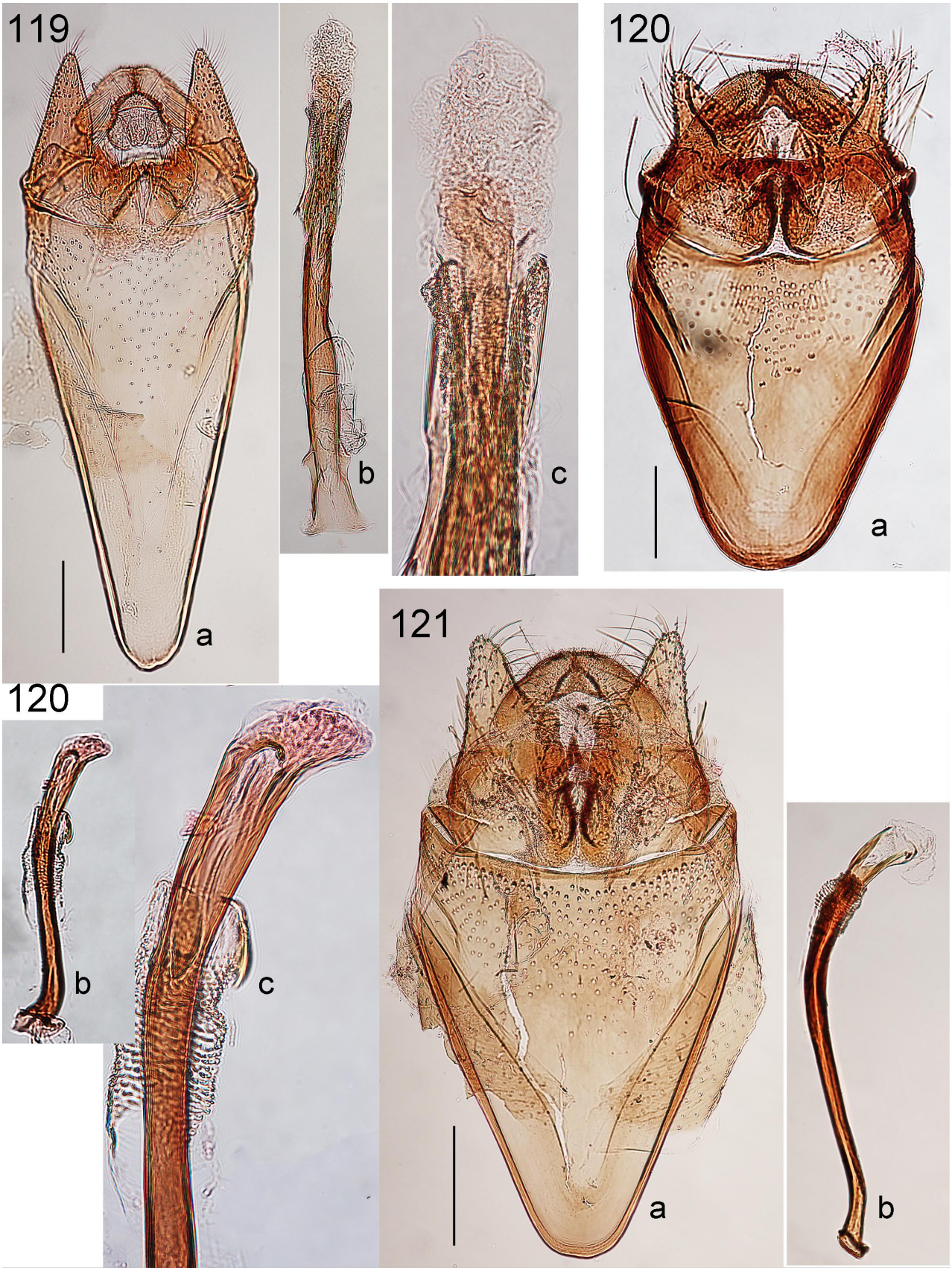
FIGURES 111–113. Male genitalia of *Nemophora* spp. 111, *N. aglaospila* (Meyrick, 1928), from Sai Yok, Thailand, gen. prep. 30638 (NHM); 112, *N. sinicella* (Walker, 1863), from Maymyo, Myanmar, gen. prep. 29450 (NHM); 113, *N. ahenea* Stringer, 1930, from Kanshirei, Taiwan, gen. prep. 29984 (NHM); a: genital complex, ventral view; b: phallus; c: apex of phallus. Scale: 0.2 mm (valid for a and b only).



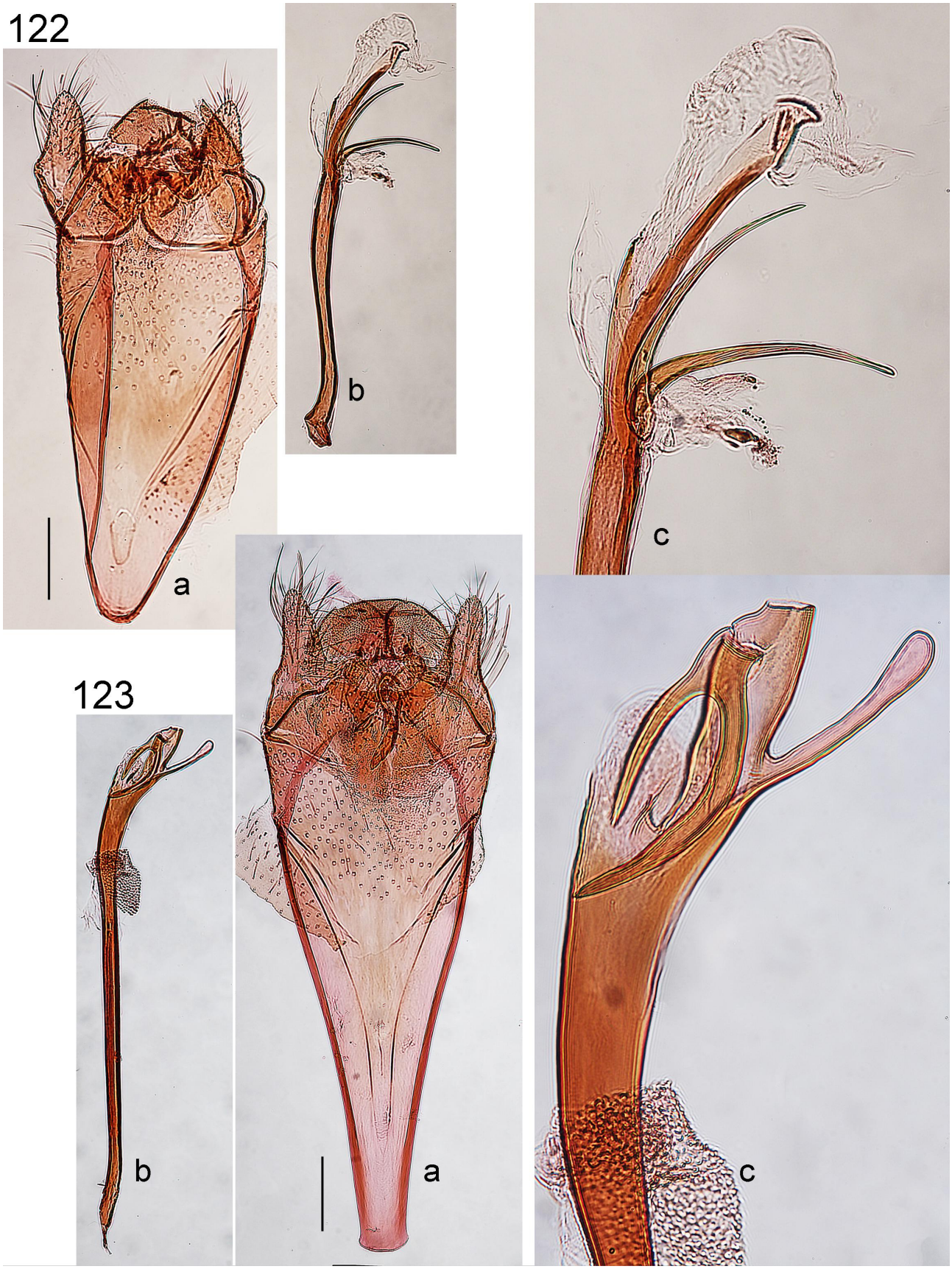
FIGURES 114–115. Male genitalia of *Nemophora* spp. 114, *N. cleodoxa* (Meyrick, 1922), from Minbu, Myanmar, gen. prep. 29442 (NHM); 115, *N. pyrotechna* (Meyrick, 1912), from Kadan Kyun, Myanmar, gen. prep. 29993 (NHM); a: genital complex, ventral view; b: phallus; c: apex of phallus. Scale: 0.2 mm (valid for a and b only).



FIGURES 116–118. Male genitalia of *Nemophora* spp. 116, *N. punctifasciella* Kozlov, **sp. nov.**, holotype, from Sumbawa Island, Indonesia, gen. prep. 29481 (NHM); 117, *N. melichlorias* (Meyrick, 1907), paralectotype of *Nemotois diplophragma* Meyrick, 1938, from Li-chiang, Yunnan Province, China, gen. prep. 30660 (NHM); 118, *N. sakaii* (Matsumura, 1931), from Khao Yai National Park, Thailand, gen. prep. 27812 (NHM); a: genital complex, ventral view; b: phallus; c: apex of phallus. Scale: 0.2 mm (valid for a and b only).



FIGURES 119–121. Male genitalia of *Nemophora* spp. 119, *N. auricapitella* Kozlov, **sp. nov.**, holotype, from Mergui, Myanmar, gen. prep. 29450 (NHM); 120, *N. umbripennis* Stringer, 1930, from Hakodate, Japan, gen. prep. 31284 (NHM); 121, *N. aurifera* (Butler, 1881), from Japan, gen. prep. 30662 (NHM); a: genital complex, ventral view; b: phallus; c: apex of phallus. Scale: 0.2 mm (valid for a and b only).



FIGURES 122–123. Male genitalia of *Nemophora* spp. 122, *N. rubicunda* Kozlov, **sp. nov.**, holotype, from Victoria Point, Myanmar, gen. prep. 31818 (NHM); 123, *N. pecuniosa* (Meyrick, 1921), from Khao Yai National Park, Thailand, gen. prep. 31273 (NHM); a: genital complex, ventral view; b: phallus; c: apex of phallus. Scale: 0.2 mm (valid for a and b only).

***Nemophora costimaculella* Kozlov, 2023**
(Fig. 62)

Nemophora costimaculella: Kozlov 2023: 50–51, 66 figs. 67–68 (colour photographs of moths), 68 fig. 108 (forewing pattern), 73 fig. 139 (drawing of male genitalia), 81 fig. 169 (photograph of male genitalia)

Distribution. India (Kozlov 2023), Thailand (Kozlov 2023).

Discussion

Investigation of all materials available from multiple museums increased the number of *Nemophora* species recorded from the study region from 16 to 40. In total, 16 species were recorded from Myanmar, 21 from Thailand, 4 from Laos, 4 from Cambodia and 13 from Vietnam (Table 1).

TABLE 1. Records of *Nemophora* species in individual countries. Types of records: P, previously published; +, new; ?, questionable.

Species*	India	Nepal	Bhutan	China**	Singapore	Myanmar	Thailand	Laos	Cambodia	Vietnam	Japan	S. Korea	Russia	Indonesia	Malaysia	Brunei	Philippines
N. aglaospila							+	+		P				+			
N. ahenea				P		?	+		+		P						
N. alba						P	+										
N. augantha	P									P							
N. auricapitella						+											
N. aurifera				P						+	P	P	P				
N. aurora				P						+							
N. bifasciatella				P			+				P						
N. caeruliantenna				P			+										
N. chalcoptera								+									
N. chionites	P			P			P										
N. chrysoprasias	P			P		P											
N. cleodoxa						P											
N. costimaculella	P						P										
N. decisella	+		?	P		P	P		+	+				P	P	P	
N. fluorites	P			P		P				P							
N. griseella	P	P				P											
N. ischnodesma	P					P									P		
N. karsholti							+										
N. kuznetzovi										+							
N. maxinae							P									P	
N. melichlorias				P		P	+										
N. meyi										+							
N. nielseni							+										
N. nieukerkeni										+							
N. nigripunctella								+									
N. paradisea				P			+	+	+	+	P	P	P				

...Continued on the next page

TABLE 1. (Continued)

Species*	India	Nepal	Bhutan	China**	Singapore	Myanmar	Thailand	Laos	Cambodia	Vietnam	Japan	S. Korea	Russia	Indonesia	Malaysia	Brunei	Philippines
N. pecuniosa	?			?	+	+	+							P	P		+
N. punctifasciella							+							+			
N. pyrotechna	P					+	+		?								
N. rubicunda						+	+							+			
N. sakaii	+			P			+										
N. satrapodes		?				P											
N. sinicella				P		P	+										
N. szabokyi							+										
N. tanakai				P						P							
N. thailandensis							+										
N. umbripennis				+		+					P						
N. vietnamensis										+							
N. yeni				P						+							

*In alphabetic order. **Including Taiwan.

The fairy moths have been reasonably well collected in the study region compared to adjacent countries. In particular, the number of *Nemophora* species reported from India and Sri Lanka (42: Kozlov 2023, and this study) appeared to be nearly equal to the number of species reported from Myanmar, Thailand, Laos, Cambodia and Vietnam, although the territory of India alone is 1.7 times greater than the combined territory of these five countries. Consistently, China has a 5-fold larger territory than these five countries, but only twice the number of *Nemophora* species (Liao *et al*. 2023, and this study). Thus, many more *Nemophora* species could be expected in Southeast Asia.

This study once more stressed the need to compare the differences between species with variation within species. This statement particularly concerns two variable species, *N. melichlorias* and *N. aurifera*, for which two and four new synonyms are suggested above. Of course, there remains a possibility that *N. aurifera* sensu lato (as defined in this study) and *N. decisella* sensu lato (as defined by Kozlov & Robinson 1996a), like *N. degeerella* in its previous understanding (Kozlov *et al*. 2017), each consist of a complex of cryptic species; however, resolving this issue requires specifically designed work searching for matches and mismatches in variation of morphological traits and DNA sequences across extensive samples of newly collected specimens from their entire distribution ranges. Until this material (or new technique for studying the existing material) is available, I suggest following conservative approach in delimitation of *Nemophora* species.

Acknowledgements

I am extremely grateful to B. K. Byun, M.-L. Chan, J.-T. Chao, D. R. Davis, M. G. Fitton, C. L. Häuser, T. Hirowatari, M. Horak, P. Huemer, P. Ivinskis, †J. Jalava, R. de Jong, O. Karsholt, R. Krause, †N. P. Kristensen, B. Krutzsch, †T. Kumata, A. Kun, †V. I. Kuznetzov, B. Landry, J. F. Landry, D. Lees, C.-S. Lin, †Y.-Q. Liu, M. Lödl, S.-S. Lu, A. L. Lvovsky, A. Mahendroo, V. Malikul, W. Mey, †K. Mikkola, J. Minet, †S. Moriuti, M. Mutanen, †E. S. Nielsen, E. J. van Nieukerken, M. Nuss, M. M. Omelko, K. T. Park, †A. Popescu-Gorj, J. de Prins, L. Przybyłowicz, †G. S. Robinson, L. Ronkay, D. Ruşti, K. Sattler, †M. Shaffer, S. Yu. Sinev, J. Šumpich, C. Szabóky, J. van Tol, K. R. Tuck, A. Vives Moreno, R. de Vos, N. Wahlberg, T. Yasuda, S. H. Yen, and many others for access to and help in studying multiple collections, loan of material and provision of information and literature. T. Hirowatari and E. J. van Nieukerken made useful comments to a previous draft of this manuscript. Special thanks to V. Zverev for photographing moths and processing the images and to E. L. Zvereva for continuous support of my taxonomic

research. Financial support was provided by the Academy of Finland through multiple researcher exchange grants, the European Commission's (FP 6) Integrated Infrastructure Initiative programme SYNTHESYS, SYS-Resource and Biod-Iberia programs, Finnish Cultural Foundation, The Commonwealth Scientific and Industrial Research Organisation, British Council, Zoological Institute of the Russian Academy of Sciences, and the Smithsonian Institution. Open access publication of this study was supported by Oskar Öflunds Stiftelse.

References

Butler, A.G. (1881) Descriptions of new genera and species of Heterocerous Lepidoptera from Japan. Pyrales and Micros. *Transactions of the Entomological Society of London*, 1881, 579–600. https://doi.org/10.1111/j.1365-2311.1881.tb00882.x

Bremer, O. (1864) Lepidopteren Ost-Sibiriens, insbesondere des Amur-Landes, gesammelt von den Herren G. Radde, R. Maack und P. Wulffius. *Mémoires de l'Académie Impériale des Sciences de St.-Pétersbourg*, Série 7, 8 (1), 1–104, tabs. 1–8. https://doi.org/10.5962/bhl.title.62141

Caradja, A. (1938) Materialien zu einer Microlepidopteren-Fauna Nord-Fukiens. *Entomologische Zeitung Stettin*, 99 (2), 253–257.

Caradja, A. (1938 [1939a]) Materialen zu einer Mikrolepidopterenfauna von Atuntse (Nordwest-Yünan). *Deutsche Entomologische Zeitschrift Iris*, 52, 99–104.

Caradja, A. (1939b) Materialen zu einer Mikrolepidopterenfauna von Kuatun in der chinesischen Provinz Fukien. *Deutsche Entomologische Zeitschrift Iris*, 53, 27–32.

Caradja, A. & Meyrick, E. (1935) *Materialien zu einer Microlepidopteren Fauna der Chinesischen Provinzen Kiangsu, Chekiang und Hunan*. Friedländer, Berlin, 96 pp.

Christoph, H. (1882) Neue Lepidopteren des Amurgebietes (Fortsetzung). *Bulletin de la Socieìtè Impeìriale des Naturalistes de Moscou*, 57 (1), 5–47.

Clarke, J.F.G. (1955) *Catalogue of the Type Specimens of Microlepidoptera in the British Museum (Natural History) Described by Edward Meyrick. Vol. 1.* The British Museum (Natural History), London, 332 pp. https://doi.org/10.5962/bhl.title.68439

Diakonoff, A. (1951) Records and descriptions of Microlepidoptera. *Treubia*, 21, 133–182.

Fea, L. (1897) Viaggio di Leonardo Fea in Birmania e regioni vicine, 76. Riassunto generale dei risultati zoologici. *Annali del Museo Civico di Storia Naturale di Genova*, Series 2, 17 (37), 385–660. https://doi.org/10.5962/bhl.title.34656

Hayashi, K. (2016) A list of moths collected at Mt. Tsukuba, Ibaraki, central Japan (Part II). *Bulletin* of *Ibaraki Nature Museum*, 19, 67–86.

Heppner, J.B. (1992) Adelidae. *In:* Heppner, J.B. & Inoue, H. (Eds.), *Lepidoptera of Taiwan, Vol. 1. Pt. 2. Checklist*. Association for Tropical Lepidoptera, Gainesville, pp. 63.

Hirayama, S. (1933) *Illustrated Thousand Insects in Natural Colour*. Sanseido, Tokyo, 350 pp. [in Japanese]

Hirowatari, T. (1995) Taxonomic notes on *Nemophora bifasciatella* Issiki, with descriptions of its two new allied species from Japan and the Russian Far East (Lepidoptera, Adelidae). *Japanese Journal of Entomology*, 63 (1), 95–105.

Hirowatari, T. (1998) Recent studies on the family Adelidae of Japan. *Nature Insects*, 33 (11), 27–29. [in Japanese]

Hirowatari, T. (2000) Biological notes on some Japanese species of the family Adelidae (Lepidoptera). *Yadoriga*, 186, 26–29. [in Japanese]

Hirowatari, T. (2005) The genus *Nemophora* Hoffmannsegg, 1798 (Lepidoptera, Adelidae) from the Ryukyus. *Transactions of the Lepidopterological Society of Japan*, 56 (4), 311–329.

Hirowatari, T. (2007) Notes on *Nemophora* in Vietnam, with description of a new species (Lepidoptera: Adelidae). *Tropical Lepidoptera*, 16 (1), 27–34.

Hirowatari, T. (2013) Adelidae. *In*: Hirowatari T., Nasu, Y., Sakamaki, Y. & Kishida, Y. (Eds.), *The Standard of Moths in Japan III*. Gakken Education Publishing, Tokyo, pp. 102–110. [in Japanese]

Hirowatari, T. & Kametani, K. (1999) Mating behavior of *Nemophora ahenea* Stringer, 1930 (Lepidoptera, Adelidae). *Transactions of the Lepidopterological Society of Japan*, 50 (2), 85–92.

Hirowatari, T. & Nagaike, T. (1998) Biological notes on *Nemophora paradisea* (Butler, 1881) (Lepidoptera, Adelidae). *Transactions of the Lepidopterological Society of Japan*, 49 (4), 288–294.

Hirowatari, T., Kanazawa, I. & Liang, X.C. (2012) Four new species of the genus *Nemophora* Hoffmannsegg (Lepidoptera, Adelidae) from China. *Esakia*, 52, 99–106. https://doi.org/10.5109/25403

Hirowatari, T., Kobayashi, S., Ikeuchi, K., Osada, Y. & Yamada, K. (2015) Survey of moth fauna in Mts. Tsurugi (2)—A result of surveys in 2010–2011. *Bulletin of Tokushima Prefectural Museum*, 25, 25–40. [in Japanese]

Hirowatari, T., Yagi, S., Liao, C.-Q., Huang, G.-H. & Wang, M. (2022) Discovery of *Nemophora chrysoprasias* Meyrick (Lepidoptera: Adelidae) from China, with notes on its related species. *Journal of Asia-Pacific Biodiversity*, 15 (3), 391–400.

https://doi.org/10.1016/j.japb.2022.04.009
Hua, L.Z. (2005) *List of Chinese Insects. Vol. III*. Sun Yat-Sen University Press, Guangzhou, 595 pp. [in Chinese]
ICZN (International Commission on Zoological Nomenclature) (1999) *International Code of Zoological Nomenclature*, *4th Edition.* International Trust for Zoological Nomenclature, London, xx + 365 pp.
Inoue, H. (1954) *Check List of the Lepidoptera of Japan. Pt. 1.* Rikusuisha, Tokyo, xiii + 112 pp. [in Japanese]
Inoue, M., Mishima, H. & Ohata, J. (2011) Fauna and flora list around world heritage "Iwami-ginzan silver mine ruins", Shimane prefecture. *Bulletin of the Shimane Nature Museum of Mt. Sanbe (Sahimel)*, 9, 49–75.
Issiki, S. (1922) Preliminary note on Microlepidoptera of Formosa. *Journal of the Natural History Society of Formosa*, 11 (57), 183–198. [in Japanese]
Issiki, S. (1930) XLVI.—New Japanese and Formosan microlepidoptera. *Annals and Magazine of Natural History*, Series 10, 6 (34), 422–431.
https://doi.org/10.1080/00222933008673235
Issiki, S. (1957) Adelidae. *In*: Esaki, T., Issiki, S., Mutuura, A., Inoue, H., Ogata, M., Okagaki, H. & Kuroko, H. (Eds.), *Icones Heterocerorum Japonicorum in Coloribus Naturalibus*. Hoikusha Publishing Co., Osaka, pp. 11–14, pls. 1–2. [in Japanese]
Kataoa [Kataoka], K., Yoshitomi, H. & Matsuno, S. (2012) List of species of moth in Matsuyama city, Ehime Prefecture, Shikoku, Japan. *In:* Ishikawa, K. (Ed.), *Checklist of the Wild Animals, Fungi, and Plants of Matsuyama City Committee for Surveys of Natural Environment of Matsuyama City.* Department of Environment, Matsuyama, pp. 195–246.
Kawamura, T. (1984) A list of moths in Fukuoka prefecture. *Memoirs of Kitakyushu Museum of Natural History*, 1, 1–339.
Koçak, A.Ö. & Kemal, M. (2010) Lepidoptera of Thailand. *Cesa News*, 60, 1–184.
Kozlov, M.V. (1995) A taxonomic revision of the *askoldella* species-group of the genus *Nemophora* Hoffmannsegg (Lepidoptera, Adelidae). *Entomologica Scandinavica*, 26 (4), 459–472.
https://doi.org/10.1163/187631295x00116
Kozlov, M.V. (1997a) A taxonomic revision of the *divina* species-group of the genus *Nemophora* Hoffmannsegg (Lepidoptera, Adelidae). *Deutsche Entomoligische Zeitschrift*, 44 (2), 137–145.
https://doi.org/10.1002/mmnd.19970440204
Kozlov, M.V. (1997b) The new *aurora* species-group of the genus *Nemophora* Hoffmannsegg, with two new species from Taiwan (Lepidoptera, Adelidae). *Tijdschrift voor Entomologie*, 140, 13–16.
Kozlov, M.V. (1997c) Family Adelidae. *In*: Kononenko, V.S. (Ed.), *Key to the Insects of Russian Far East. Vol. V. Trichoptera and Lepidoptera. Pt. 1.* Dalnauka, Vladivostok, pp. 274–289. [in Russian]
Kozlov, M.V. (2008) Adelidae. *In*: Sinev, S. Yu. (Ed.), *Catalogue of the Lepidoptera of Russia.* KMK Scientific Press, Moscow, pp. 24–26. [in Russian]
Kozlov, M.V. (2016a) Taxonomic revision of Australian long-horn moths of the genus *Nemophora* (Lepidoptera: Adelidae). *Zootaxa*, 4097 (1), 84–100.
https://doi.org/10.11646/zootaxa.4097.1.4
Kozlov, M.V. (2016b) A taxonomic revision of the *kalshoveni* species-group of the genus *Nemophora* Hoffmannsegg (Lepidoptera, Adelidae), with descriptions of six new species from Indonesia and Papua New Guinea. *Zootaxa*, 4189 (3), 559–570.
https://doi.org/10.11646/zootaxa.4189.3.6
Kozlov, M.V. (2020) Three new species of the genus *Nemophora* Hoffmannsegg (Lepidoptera, Adelidae) from Southeast Asia. *Zootaxa*, 4767 (3), 477–484.
https://doi.org/10.11646/zootaxa.4767.3.6
Kozlov, M.V. (2023) Fairy moths of the genus *Nemophora* Hoffmannsegg, 1798 (Lepidoptera: Adelidae) of India and Sri Lanka. *Zootaxa*, 5300 (1), 1–81.
https://doi.org/10.11646/zootaxa.5300.1.1
Kozlov, M.V. & Robinson, G.S. (1996a) Identity and distribution of two dimorphic oriental fairy moths—*Nemophora decisella* (Walker, 1863) and *Nemophora cantharites* (Meyrick, 1928) (Adelidae). *Nota Lepidopterologica*, 18 (1), 39–56.
Kozlov, M.V. & Robinson, G.S (1996b) *Nemophora maxinae*: a remarkable new species of oriental fairy-moth (Lepidoptera, Adelidae). *Malayan Nature Journal*, 50, 21–25.
Kozlov, M.V., Mutanen, M., Lee, K.M. & Huemer, P. (2017) Cryptic diversity in the long-horn moth *Nemophora degeerella* (Lepidoptera: Adelidae) revealed by morphology, DNA barcodes and genome-wide ddRAD-seq data. *Systematic Entomology*, 42, 329–346.
https://doi.org/10.1111/syen.12216.
Kuroko, H. (1957) *Enumeratio Insectorum Montis Hikosan. 1. Lepidoptera*. Hikosan Laboratorium Biologicum Universitatis Kyushuensis, Hikosan, 108 pp., 4 pls.
Kuznetzov, V.I. (1988) The pecularities of April–May collectings of moths and butterflies (Lepidoptera) in Northern Vietnam. *In*: Kuznetzov, V.I. (Ed.), *Lepidoptera of the Fauna of the North Vietnam. [Proceedings of the Zoological Institute, Leningrad. Vol. 176]*. Zoological Institute, Leningrad, pp. 3–13. [in Russian]
Lee, B.-W., Lim, J.-S., Park, S.-Y. & Jo, D.-G. (2011) Insect fauna of Mt. Jang-san, Yeongwol-gun, Ganswon-do, Korea. *Journal of Korean Nature*, 4 (3), 173–184.
https://doi.org/10.7229/jkn.2011.4.3.173
Liao, C.-Q., Hirowatari, T., Yagi, S., Wang, M., Wang, X. & Huang, G.-H. (2023) The fauna of the family Adelidae (Insecta,

Lepidoptera, Adeloidea) from China. *Zootaxa*, 5348 (1), 1–152.
https://doi.org/10.11646/zootaxa.5348.1.1
Matsumura, S. (1931) *6000 Illustrated Insects of Japan-Empire*. Koto-shoin, Tokyo, 1497 pp. [in Japanese]
Matsumura, S. (1932) Adelidæ in Japan. *Insecta Matsumurana*, 6 (3), 121–128, pl. 4.
Meyrick, E. (1894) On a collection of Lepidoptera from Upper Burma. *Transactions of the Entomological Society of London for the year 1894*, 1–29.
Meyrick, E. (1907) Descriptions of Indian Micro-Lepidoptera II. *The Journal of the Bombay Natural History Society*, 17, 730–754.
Meyrick, E. (1912a) *Lepidoptera Heterocera (Tineae). Fam. Adelidae*. *In*: Wytsman, P. (Ed.), *Genera Insectorum. Fasc. 133*. V. Verteneuil & L. Desmet Imprim., Bruxelles, pp. 1–12, 1 pl.
Meyrick, E. (1912b) *Adelidae, Micropterygidae, Gracilariadae* [sic!]. *In*: Wagner, H. (Ed.), *Lepidopterorum Catalogus. Pt. 6*. W. Junk, Berlin, pp. 1–68.
https://doi.org/10.5962/bhl.title.122538
Meyrick, E. (1914) Pterophoridae, Tortricidae, Eucosmidae, Gelechiadae, Oecophoridae, Cosmopterygidae, Hyponomeutidae, Heliodinidae, Sesiadae, Glyphipterygidae, Plutellidae, Tineidae, Adelidae (Lep.). *Supplementa Entomologica*, 3, 45–62.
Meyrick, E. (1921) New Micro-Lepidoptera. *Zoologische Mededeelingen*, 6, 145–202.
Meyrick, E. (1922) *Exotic Microlepidoptera. Vol. 2 (17)*. Taylor & Francis, London, pp. 513–544.
Meyrick, E. (1925) Neubeschreibungen verfasst von Herrn Edvard Meyrick. *In*: Caradja, A. Ueber Chinas Pyraliden, Tortriciden, Tineiden nebst kurze Betrachtungen, zu denen das Studium dieser Fauna Veranlassung gibt (eine Biogeographische Skizze). *Academia Română, Memoriile Secţiunii Ştiinţifice*, Series 3, 3 (7), pp. 378–373.
Meyrick, E. (1928) *Exotic Microlepidoptera. Vol. 3 (15).* London, Taylor & Francis, pp. 449–480.
Meyrick, E. (1938) Materialien zu einer Mikrolepidopterenfauna des Yülingshanmassivs (Provinz Yünnan): [Microlepidoptera excl. Pyralidae] (Fortsetzung aus Heft 4, 1937). *Deutsche Entomologische Zeitschrift Iris*, 52 (1), 1–29.
Mishima, H. (2021) Moths of Ohda city, Shimane prefecture. *Bulletin of the Shimane Nature Museum of Mt. Sanbe (Sahimel)*, 19, 79–122.
Moriuti, S. (1982) Incurvariidae. *In*: Inoue, H., Sugi, S., Kuroko, H., Moriuti, S. & Kawabe, A. (Eds.), *Moths of Japan. Vols. 1 & 2*. Kodansha, Tokyo, pp. 51–52 & 155–156. [in Japanese]
Motschulsky, V. (1860) *Etudes Entomologiques, Année 9*. Société de Littérature Finnoise, Helsinfors, 42 pp.
Motschoulsky, V. (1866) Catalogue des insectes reçus du Japon. *Bulletin de la Société Impériale des Naturalistes de Moscou*, 39, 163–200.
Motschoulsky, V. (1869) Genres et espèces d'insectes, publiés dans différents ouvrages par Victor Motschoulsky. *Horae Societatis Entomologicae Rossicae*, 6 (Supplément), 1–18.
Nakatomi, K., Anan, K., Sano, E., Narita, K., Nozawa, K. & Yokota, M. (2006) A basic list of Heterocera in Ikuta-Ryokuchi park and some area of Kawasaki City (2005)—For analysis of biotic interaction. *Bulletin of Kawasaki Municipal Science Museum for Youth*, 27, 17–54. [in Japanese]
Okano, M. (1959) Adelidae. *In*: Inoue, H., Okano, M., Mhirôzu, T., Sugi, S. & Yamamoto, H. (Eds.), *Lepidoptera. Iconographia Insectorum Colore Naturali. Edita 1*. Hokuryukan, Tokyo, pp. 277–278. [in Japanese]
Oku, T. (2003) Microlepidoptera of the Iwate Prefecture. *The Transactions of the Iwate Entomological Society*, Supplement 2, 1–157.
Otsuka, I. (1985) Newly recorded moths from Kumamoto Prefecture 5. *Kumamoto Kontyu Doukoukai Kaihou*, 31, 1–36. [in Japanese]
Owada, M., Arita, Y., Jinbo, U., Kishida, Y., Nakajima, H., Ikeda, M. & Hirano, N. (2006) Monitoring survey (2000–2005) of moths (Insecta, Lepidoptera) in the garden of the Imperial Palace, Tokyo, central Japan. *Memoirs of the National Science Museum, Tokyo*, 43, 37–136.
Park, K.T. (1983) Microlepidoptera of Korea. *Insecta Koreana*, 3, 1–195.
Popescu-Gorj, A. (1992) Le catalogue des types de Lépidoptères gardés dans les collections du Muséum d'Historie Naturelle "Grigore Antipa" (Bucarest) (fam. Micropterigidae—Pterophoridae). *Travaux du Muséum d'Histoire Naturelle "Grigore Antipa"*, 32, 131–184.
Razowski, J. & Kumata, T. (1985) Typenkatalog der von S. Matsumura beschriebenen Microlepidoptern. *Neue Entomologische Nachrichten*, 17, 1–28.
Rebel, H. (1901) *Catalog der Lepidopteren des Palaearctischen Faunengebietes. II. Theil: Famil. Pyralidae—Micropterygidae*. R. Friedlander und Sons, Berlin, 368 pp.
Robinson, G.S., Sattler, K., Shaffer, M., Tuck, K.T. & Allen, M.G. (1995) Microlepidoptera and Pyraloidea of Nepal – a checklist and bibliography. *In:* Haruta, T. (Ed.), *Moths of Nepal. Pt. 4. Tinea 14. Supplement 2*. The Japan Lepidopterist's Society, Tokyo, pp. 150–181.
Sato, K. & Tsurimaki, T. (2021) A list of moths collected at a Satoyama area in Shishitsuka, Tsuchiura city, Ibaraki Prefecture. *Bulletin of Ibaraki Nature Museum*, 24, 27–48. [in Japanese]
Stringer, H. (1930) New species of Microlepidoptera in the collection of the British Museum. *Annals and Magazine of Natural History*, Series 10, 6 (34), 415–422.
https://doi.org/10.1080/00222933008673234
Sugi, S. (1989) Lepidoptera. *In:* Hirashima, Y. (Ed.), *A Check List of Japanese Insects. Vol. 2.* Entomological Laboratory of

Kyushu University, Fukuoka, pp. 887–1088. [in Japanese]
Sun, H., Wang, S.X. & Li, H.H. (2022) Review of the *degeerella* species group of the genus *Nemophora* Hoffmannsegg, 1798 (Lepidoptera: Adelidae) from China. *Zootaxa*, 5219 (4), 301–338. https://doi.org/10.11646/zootaxa.5219.4.1
Viette, P. (1951) Les types de Tinéides de Meyrick appartenant au Muséum de Paris [Lép.]. *Bulletin de la Société Entomologique de France*, 56 (6), 81–90. https://doi.org/10.3406/bsef.1951.18510
Volynkin, A.V. & Černý, K. (2022) *Churingosia*, a new subgenus of the genus *Manulea* Wallengren with descriptions of four new species from the Oriental realm (Lepidoptera: Erebidae: Arctiinae). *Zootaxa*, 5205 (2), 162–176. https://doi.org/10.11646/zootaxa.5205.2.4
Walker, F. (1863) *List of the Specimens of Lepidopterous Insects in the Collection of the British Museum, Pt. 28.* British Museum, London, 561 pp.
Walsingham, T. (1880) On some new and little known species of Tineidae. *Proceedings of the Scientific Meetings of the Zoological Society of London for the year 1880*, 77–93.
Walsingham, T. & Durrant, H.J. (1900) Pterophoridae and Tineina. *In*: Swinhoe, C. (Ed.), *Catalogue of Eastern and Australian Lepidoptera Heterocera in the collection of the Oxford University Museum*. Claredon Press, Oxford, pp. 541–585.
Wang, M. & Kishida, Y. (2011) *Moths of Guangdong Nanling National Nature Reserve*. Goecke & Evers, Keltern, 373 pp. [in Chinese] (N.V., cited after Liao *et al.* 2023).
Wang, H.Y., Park, K.T. & Arita, Y. (2000) *Guide Book to Insects in Taiwan. Vol. 20*. *Microlepidoptera.* Shu Shin Books, Taipei, 252 pp. [in Chinese]
Watanabe, T. (1980) *Moths of Tsushima Island from a Collection Made During the Surveys in 1973–1974*. The Japan Heterocerists' Society, Tokyo, 201 pp.
Yamauchi, S. (2010) On the moths from the Aomori Prefecture southern district. *Bulletin of the Aomori Prefectural Museum*, 34, 7–12. [in Japanese]
Yamazaki, K. & Kato, M. (2003) Flowering phenology and anthophilous insect community in a grassland ecosystem at Mt. Yufu, western Japan. *Contributions from the Biological Laboratory*, *Kyoto University*, 29 (3), 255–318.
Yasuda, T. (1957) Three new species of the Japanese Microlepidoptera. *Lepidoptera Science*, 8 (4), 38–40.
Zeller, P.C. (1839) Versuch einer naturgemäßen Einteilung der Schaben. *Isis von Oken*, 32 (3), 167–220.