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## On the taxonomy of the *Brunia* Moore generic complex with the description of a new genus, a new subgenus and four new species (Lepidoptera: Erebididae: Arctiinae: Lithosiini: Lithosiina)

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### Abstract

The taxonomy of the *Brunia* Moore, 1878 generic complex is discussed and a new genus, a new subgenus of *Brunia* and four new species are described: *Brunia* (*Brunikatha*) **subgen. n.** (type species: *Katha montana* Bucsek, 2012), *Bucsekatha* **gen. n.** (type species: *Bucsekatha sunda* **sp. n.**), *Bucsekatha sunda* **sp. n.** (S Thailand, W Malaysia and W Indonesia (Sumatra)), *Bucsekatha chonga* **sp. n.** (SW Cambodia, C and SE Thailand), *Dubatoloviana diehli* **sp. n.** (Indonesia: Sumatra), and *Dubatoloviana vieta* **sp. n.** (Northern Vietnam). Twelve new combinations are introduced: *Brunia aldabrensis* (Hampson, 1914), **comb. n.**, *Brunia contempta* (Rothschild, 1924), **comb. n.**, *Brunia elophus* (Rothschild, 1916), **comb. n.**, *Brunia humbloti* (Toulgoët, 1956), **comb. n.**, *Brunia lamprocraspis* (Hampson, 1914), **comb. n.**, *Brunia squalida* (Guenée, 1862), **comb. n.**, *Brunia usuguronis* (Matsumura, 1927), **comb. n.**, *Brunia montana* (Bucsek, 2012), **comb. n.**, *Bucsekatha brevivalva* (Holloway, 2001), **comb. n.**, *Bucsekatha pseudobrevivalva* (Dubatolov & Bucsek, 2016), **comb. n.**, *Bucsekatha nigriprosoma* (Fang, 2000), **comb. n.**, and *Dubatoloviana fumidisca* (Hampson, 1894), **comb. n.** Check-lists of all considered genera and subgenera are provided. Adults and male and female genitalia are illustrated.

**Key words** *Brunia* (*Brunikatha*), *Bucsekatha*, *Dubatoloviana*, new combination, *Sany*.

### Introduction

The footman moth genus *Brunia* Moore, 1878 was erected to include three Indomalayan species (Moore 1878) and was subsequently synonymised with *Eilema* (spelled as ‘*Ilema*’) by Hampson (1900). A century later, Holloway (2001) restored the genus from the synonymy and assigned six additional species from the Indomalayan and Australasian realms to it. In his fundamental work devoted to the generic classification of the Afrotropical footman moths, Krüger (2015) synonymised the African *Ovenna* Birket-Smith, 1965 with *Brunia* and revealed the fact that the genus is widespread and diverse in the Afrotropical realm as well. Subsequent extensive studies of the Afrotropical and Indomalayan Lithosiina led to the discovery of distinct lineages related to *Brunia*, which were described as genera

new to science: *Dubatuloviana* Bucsek 2012, *Sany* Bucsek 2012 and *Kruegerilema* Volynkin & László 2021 (Bucsek 2012; Volynkin & László 2021). Nevertheless, the placement of some species morphologically similar to *Brunia*, namely “*Katha*” *brevivalva* (Holloway, 2001), “*Katha*” *montana* Bucsek, 2012 and “*Cernyia*” *pseudobrevivalva* (Dubatolov & Bucsek 2016) still remained unclear and they were assigned to the genera *Katha* Moore, 1878 and *Cernyia* Bucsek, 2012 by different authors (Bucsek, 2012, 2020; Dubatolov & Bucsek 2016; Singh *et al.* 2024). The detailed comparison of their genitalia structures with various footman moth genera led to the conclusion that *brevivalva* and *pseudobrevivalva* belong to a genus new to science, which is closely related to *Sany*, while *montana* shares the main features of the genitalia ground plan with *Brunia* but also displays some distinctive characters suggesting it (along with a few other Indomalayan species) represents a distinct lineage within the genus *Brunia* and should be erected into a separate subgenus. In addition, in the course of examination of extensive Lithosiina materials from various localities in Southeast Asia, four species new to science were found. The present paper is devoted to the taxonomy of the *Brunia* generic complex and contains the descriptions of the new taxa mentioned above.

## Material and methods

Abbreviations of the depositories used: ANHRT = African Natural History Research Trust (Leominster, United Kingdom); CAV = research collection of Anton Volynkin (Leominster, UK); CKC = research collection of Karel Černý (Innsbruck, Austria); HUFA = Faculty of Agriculture, Hokkaido University (Sapporo, Japan); MfN = Museum of Natural History, Berlin (Museum für Naturkunde, Berlin, Germany); MWM/ZSM = Museum Witt Munich in the Bavarian State Collection of Zoology (Museum Witt München / Zoologische Staatssammlung München, Munich, Germany); NHMUK (formerly BMNH) = Natural History Museum (London, United Kingdom). Other abbreviations used: AV = genitalia slide prepared by A. Volynkin; HT = holotype; LT = lectotype; NP = National Park; PT = paratype; TL = type locality.

The genitalia were dissected applying standard methods of preparation (Lafontaine & Mikkola 1987; Kononenko 2010), then stained with Eosin Y or Chlorazol Black and embedded in Euparal on microscope slides. The photos of adults were taken using a Nikon D3100/AF-S camera equipped with a Nikkor, 18–55 mm or a Sigma 105 mm F2.8 EX DG Macro OS lenses while the photos of genitalia were taken using the same camera attached to a microscope with an LM-scope adapter. All pictures were processed using the Adobe Photoshop CC 2018 software.

For the type label citations, information provided in quotation marks is transcribed verbatim. Different labels are separated by a slash (“/”) while the different lines of the same label are separated by a vertical bar (“|”). Any additional data are provided in square brackets. The content of the labels of additional specimens examined including paratypes is edited/translated in accordance with English grammar and standardised.

The male and female genitalia terminology follows Volynkin (2024).

## Taxonomic part

### The *Brunia* generic complex

The generic complex comprises genera displaying moderate sexual dimorphism with moths having greyish, brownish or yellowish forewing ground colour. In the male genitalia, the genera of the complex share the following features. (1) The uncus is short, more or less cylindrical or swollen, with a claw-shaped tip. (2) The vinculum is short, rather V-shaped, with a small medial corema invaginated into it ventro-posteriorly and bearing a bunch of long hair-shaped androconial scales. (3) The editum is elongate and narrow, stretching along the ventral margin of the costa; the tendon is present. (4) The costa is well-developed, forms the dorsal margin of the valva. (5) The lamella centralis is present (except for *Sany*). (6) The vesica has several diverticula, some of which bear robust cornuti of various shapes. The female genitalia of the generic complex are more characteristic and have a corpus bursae clearly subdivided into two sections, of which the posterior one is heavily sclerotised and has a short and

sclerotised appendix bursae originating postero-laterally or postero-ventrally; the anterior section of the corpus bursae is globular or teardrop-shaped, membranous and bears two small pushpin-shaped signa.

Besides the genera and subgenera considered in the present paper, the generic complex also includes the Afrotropical genus *Kruegerilema* Volynkin & László, 2021 endemic to Sao Tome Island (see: Volynkin & László 2021), which is morphologically very similar to *Brunia*.

### Genus *Brunia* Moore, 1878

*Brunia* Moore, 1878, *Proceedings of the general meetings for scientific business of the Zoological Society of London*, 1878: 15 (Type species: *Lithosia antica* Walker, 1854 (Figs 1, 2, 54, 89), by subsequent designation by Watson *et al.* (1980)).

= *Ovenna* Birket-Smith, 1965, *Haile Sellassie I University (Addis Ababa), Papers from the Faculty of Science*, (C) 1: 93 (Type species: *Eilema subgriseola* Strand, 1912 [a junior subjective synonym of *Brunia agonchae* (Plötz, 1880) (Figs 3, 4, 55, 90)], by original designation).

**Diagnosis.** Many species of the genus display a moderate sexual dimorphism: males have intense dark suffusion on the forewing distally whereas females have a more unicolorous forewing, in many species with pale suffusion along the costal margin. However, in certain Asian species sexual dimorphism is limited. The male genitalia of the genus are characterised by the combination of the following features. (1) The scaphium area is setose. (2) The subscaphium is broad and moderately or weakly sclerotised. (3) The processus momenti and tendon form a conjuga. (4) The lamella centralis is present, fold-like and setose. (5) The vesica with several diverticula bearing large cornuti of various shapes. In the female genitalia, the postvaginal region of the 8<sup>th</sup> sternite is heavily sclerotised and may bear various swollen and setose sculptures; and the posterior sclerotised section of the corpus bursae is broad and bears various protrusions.

**Distribution.** The genus is widely distributed in the Afrotropical, Indomalayan and northern Australasian realms.

**Note.** The taxonomy of the genus worldwide is under revision by Volynkin (in prep.).

### Subgenus *Brunia* Moore, 1878

**Diagnosis.** Male adults have rather unicolorous body. In the male genitalia, species of the nominate subgenus are characterised by the condition of the distal section of the phallus, which has longitudinal wrinkles making it flexible and expandable. In the female genitalia, the ductus bursae is broad, heavily gelatinous or sclerotised, very short in certain species.

### Taxonomic content of *Brunia* s. str.

(in alphabetical order with type localities in brackets)

- *B. (B.) aldabrensis* (Hampson, 1914), **comb. n.** (TL: Seychelles, Aldabra)
- *B. (B.) agonchae* (Plötz, 1880) (TL: Cameroon, Agoncha)
  - = *Eilema subgriseola* Strand, 1912 (TL: [Equatorial Guinea], Alén)
  - = *Ilema callidescens* Hampson, 1914 (TL: [Ghana] Gold Coast)
  - = *Eilema heringi* Kiriakoff, 1954 (TL: [DRC, Lubumbashi] Elisabethville)
- *B. (B.) antica* (Walker, 1854) (TL: [Sri Lanka] Ceylon)
  - = *Lithosia brevipennis* Walker, 1854 (TL: [Sri Lanka] Ceylon)
  - = *Lithosia natara* Moore, 1859 (TL: [Indonesia] Java)
  - = *Lithosia intermixta* Walker, [1865] (TL: [S India] Coimbatore)
  - = *Ilema atrifrons* Hampson, 1907 (TL: [India] Nicobar Islands)
  - = *Eilema kosemponensis* Strand, 1917 (TL: [Taiwan] Kosempo)
  - = *Lithosia horishanella* Matsumura, 1927 (TL: [Taiwan] Horisha)
- *B. (B.) badrana* (Moore, 1859) (TL: [Indonesia] Java)
- *B. (B.) birketsmithi* (Toulgoët, 1977) (TL: Ethiopia, Kébré-Mengist)

- *B. (B.) contempta* (Rothschild, 1924), **comb. n.** (TL: Madagascar, Ambinanindrano)
- *B. (B.) cucullata* (Moore, 1878) (TL: [India] Andaman Islands)
- *B. (B.) desiccata* (Kiriakoff, 1954) (TL: [DRC, Katanga] Lulua, Kapanga)
- *B. (B.) dorsalis* (Walker, 1866) (TL: [Indonesia] Sula)
  - = *Brunia harpophora* Meyrick, 1886 (TL: Australia, Queensland, Brisbane)
  - = *Ilema testacea louisiadensis* Rothschild, 1912 (TL: [Louisiade Islands, Misima] St. Aignan)
- *B. (B.) dorsti* (Toulgoët, 1977) (TL: Ethiopia, Kébré-Mengist)
- *B. (B.) ekeikei* (Bethune-Baker, 1904) (TL: [New Guinea] Ekeikei)
  - = *Ilema germana* Rothschild, 1912 (TL: near Oetakwa River, Snow Mts, Dutch New Guinea)
  - = *Ilema perplexa* Rothschild, 1912 (TL: Astrolabe Bay, German New Guinea)
- *B. (B.) elophus* (Rothschild, 1916), **comb. n.** (TL: Vulcan Isl.)
- *B. (B.) gibonica* (Černý, 2009) (TL: SE Thailand, Trat Prov., Lam Ngob, Ban Noen-Ki-Lai)
- *B. (B.) guineacola* (Strand, 1912) (TL: Guinea)
- *B. (B.) humbloti* (Toulgoët, 1956), **comb. n.** (TL: Comoros, Grande Comoro)
- *B. (B.) lamprocraspis* (Hampson, 1914), **comb. n.** (TL: Seychelles, Mahé)
- *B. (B.) melemona* (Kiriakoff, 1963) (TL: [DRC, Virunga NP] Parc Nat. Albert)
- *B. (B.) nebulifera* (Hampson, 1900) (TL: Singapore)
- *B. (B.) nebuliferella* (Strand, 1922) (replacement for *Ilema nebulifera* Hampson, 1918)
  - = *Ilema nebulifera* Hampson, 1918, (nec. Hampson, 1900) (TL: [Malawi] Mt. Mlanje)
- *B. (B.) pseudoantica* N. Singh & Kirti, 2016 (TL: [S India] Kerala, Rani)
- *B. (B.) pseudosimplex* (Toulgoët, 1977) (TL: Kenya, Marsabit)
- *B. (B.) replana* (Lewin, 1805) (TL: Australia, New South Wales)
  - = *Lithosia dispar* Leach, 1814 (TL: [Australia] Australasia)
- *B. (B.) rhyparodactyla* (Kiriakoff, 1963) (TL: [DRC, Virunga NP] Parc Nat. Albert)
- *B. (B.) simplex* (Birket-Smith, 1965) (TL: Nigeria, Ibadan)
- *B. (B.) sokotrensis* (Hampson, 1900) (TL: Sokotra Island, Adho Dimellus)
- *B. (B.) squalida* (Guenée, 1862), **comb. n.** (TL: Réunion)
  - = *Lithosia mauritia* Mabilie, 1899 (TL: Mauritius)
- *B. (B.) testacea* (Rothschild, 1912) (TL: Solomon Islands, Treasury Isl.)
  - = *Eilema testacea* subsp. *truncata* Fletcher, 1957 (TL: Solomon Islands, Rendova Isl.)
  - = *Eilema testacea* subsp. *minorata* Fletcher, 1957 (TL: Solomon Islands, Rennel Isl.)
  - = *Eilema testacea* subsp. *angulata* Fletcher, 1957 (TL: Solomon Islands, Isabel Isl.)
- *B. (B.) vestigialis* Volynkin, 2022 (TL: India, Andaman Islands, Middle Andaman, Mayabander)
- *B. (B.) vicaria* (Walker, 1854) (TL: Congo)
  - = *Lithosia imitans* Mabilie, 1878 (TL: Angola, Fazenda Congulu)
  - = *Lithosia simulans* Mabilie, 1878 (TL: Angola, Fazenda Congulu)

### Subgenus *Brunikatha* subgen. n.

<https://zoobank.org/urn:lsid:zoobank.org:act:D8014194-8574-4C3E-B7F4-0F805A4E01B7>

Type species: *Katha montana* Bucsek, 2012, by present designation.

**Diagnosis.** Species of *Brunia* (*Brunikatha*) **subgen. n.** (Figs 5–21) are externally similar to *Bucsekatha* **gen. n.** (Figs 22–35) and *Sany* (Figs 36–38), and differ from the nominate subgenus of *Brunia* (Figs 1–4) in the blackish-brown head and thorax in males. In the male genitalia, the new subgenus (Figs 56–65) is distinguished from *Brunia s. str.* (Figs 54, 55) by two features. (1) The processus momenti is reduced, which makes the conjuga very short and consisting of the tendon and the thin sclerotised plate connecting the tendon and the processus momenti in the nominate subgenus. (2) The phallus condition: in *Brunia s. str.*, its distal section has longitudinal wrinkles making it expandable whereas it is evenly sclerotised and lacks the apical wrinkles in *Brunia* (*Brunikatha*) **subgen. n.** The female genitalia of the two subgenera (Figs 89–97) display no fundamental differences.

**Etymology.** The subgenus name is an aggregate of the genus-group names *Brunia* and *Katha*.

**Note.** Species of the subgenus are herein subdivided into two species-groups clearly different in their morphology of the genitalia of both sexes.



**The *Brunia* (*Brunikatha*) *apicalis* species-group**

The male genitalia of the species-group (Figs 56, 57) are characterised by the presence of the distal carinal process and the short sacculus with a proximally dilated distal process. In the female genitalia (Figs 91, 92), the appendix bursae is situated latero-posteriorly on the right side.

**Note.** The taxonomy of the group is under revision by Volynkin & Černý (in prep.).

**Taxonomic content of the *Brunia* (*Brunikatha*) *apicalis* species-group**

- *B. (Brunikatha) sarawaca* (Butler, 1877) (TL: [E Malaysia, Borneo] Sarawak)  
= *Eilema griseadisca* Holloway, 1982 (TL: W Malaysia, G. T. E. [Genting Tea Estate])
- *B. (Brunikatha) terminalis* (Moore, 1878) (TL: [NE India, Darjeeling] Darjiling)  
= *Katha semifusca* Elwes, 1890 (TL: [NE India] Sikkim)
- *B. (Brunikatha) apicalis* (Walker, 1862) (TL: [E Malaysia] Sarawak, in Borneo)
- *B. (Brunikatha) kishidai* Bucsek, 2017 (TL: Cambodia, Kirirom Nat. Park)
- *B. (Brunikatha) pulvereola* (Hampson, 1900), **comb. n.** (TL: [Indonesia] SE Borneo)

**The *Brunia* (*Brunikatha*) *usuguronis* species-group**

In the male genitalia of the species-group (Figs 58–65), the phallus lacks the carinal process and the sacculus is long and bears a regular distal process, which makes the genital capsule similar to that of the genus *Katha* as well as a number of other ‘eilemic’ genera of Lithosiina. In the female genitalia (Figs 93–97), the appendix bursae is situated latero-posteriorly on the left side.

**Note.** Two species included in the species-group are reviewed below.

**Species content of the *Brunia* (*Brunikatha*) *usuguronis* species-group**

- *B. (Brunikatha) usuguronis* (Matsumura, 1927), **comb. n.**
- *B. (Brunikatha) montana* (Bucsek, 2012), **comb. n.**

***Brunia* (*Brunikatha*) *usuguronis* (Matsumura, 1927), **comb. n.****

(Figs 9–15, 58–61, 93, 94)

*Lithosia usuguronis* Matsumura, 1927, *Journal of the College of Agriculture, Hokkaido Imperial University, Sapporo, Japan*, 19 (1): 65, pl. 5: fig. 17 (TL: [Taiwan, Nantou County, Puli] “Formosa, Horisha”).

*Katha montana* Bucsek, 2012: Bucsek (2020): 56, figs 35, 36, 111.

**Type material examined.** Photograph of the **holotype** (by monotypy) (Fig. 9): male, “Horisha | Formosa | -1917” / “L. | usuguronis” / red label “Type | Matsumura” (HUFA).

**Additional material examined:** series of specimens of both sexes from Taiwan, Northern Vietnam (Nghe An, Hoa Binh and Ninh Binh Provinces), Northern Thailand (Chiang Mai Province) and Northeast India (Meghalaya) (MWM/ZSM).

**Note.** Wu *et al.* (2020: fig. 9k) illustrated the male genitalia belonging to the genus *Cernyia* Bucsek, 2012 as those of the holotype of *Lithosia usuguronis*. However, the only species of the genus *Cernyia* occurring in Taiwan, *Cernyia ranrunensis* (Matsumura, 1927), a male specimen of which was also illustrated by Wu *et al.* (2020: fig. 5c) as “*Cer.[nyia] usuguronis*”, is externally fundamentally different from the holotype of *usuguronis* and is very similar to other species in the genus *Cernyia*. On the other hand, all examined Taiwanese moths externally identical to the holotype of *Lithosia usuguronis* belong to a single species of the genus *Brunia*, which is widespread from Northeast India to Taiwan. Thus, it is clear that the *Cernyia* male genitalia illustrated by Wu *et al.* (2020: fig. 9k) do not belong to the holotype specimen of *Lithosia usuguronis*. This unfortunate mistake is probably due to a *Cernyia* abdomen being misglued to the holotype of *Lithosia usuguronis* in the past, or was caused by the accidental confusion of the genitalia of different specimens happened during a series of dissections (for the similar case see Volynkin (2020)).

**Diagnosis.** The forewing length is 13.0–14.5 mm in males and 15.0–16.0 mm in females. *Brunia usuguronis* is externally similar to *B. montana* but is somewhat larger. The male genital capsule of *B. usuguronis* is distinguished from *B. montana* by the shorter vinculum, the narrower and more apically rounded tip of the valva, and the shorter sacculus with a distal saccular process not reaching the valva

apex. Compared to *B. montana*, the vesica of *B. usuguronis* has a markedly broader and somewhat longer main chamber, its proximal dorsal and medial lateral diverticula are considerably longer and broader, the proximal ventral diverticulum is longer, distally tapered and bears a serrulate plate-shaped cornutus (in *B. montana* it is distally dilated and bears a robust thorn-shaped cornutus), and the distal diverticulum is longer, broader, hook-like curved and bears a cornutus with a long plate-like base laterally whereas in *B. montana* the distal diverticulum is shortly conical and bears a massive horn-shaped cornutus apically. In the female genitalia, *B. usuguronis* differs from *B. montana* in the somewhat longer ductus bursae, the larger and sclerotised, semiglobular lateral protrusion bursae on the right side, the lack of the heavily sclerotised ventro-lateral pocket on the left side of the corpus bursae anteriorly of the appendix bursae, which is typical of *B. montana*, and the proximally broader and more weakly sclerotised appendix bursae.

**Distribution.** The species is found in Northeast India (Meghalaya), Northern Thailand (Chiang Mai and Nan Provinces), Northern Laos (Huaphanh Province) (Bucsek 2020, as *montana*), Northern Vietnam (Nghe An, Hoa Binh and Ninh Binh Provinces), and the island of Taiwan.

***Brunia (Brunikatha) montana* (Bucsek, 2012), comb. n.**  
(Figs 16–21, 62–65, 95–97)

*Katha montana* Bucsek, 2012, *Erebidae, Arctiinae of Malay Peninsula – Malaysia*: 123, pl. 22: figs 306, 306a, 306b, gen. fig. Mal166 (Type locality: “Malaysia, Pahang distr., Cameron Highlands, Tanah Rata env., 1450–1500 m, 4° 28'25.3"N 101°22'43.7"E”).

**Type material examined.** **Holotype** (Figs 16, 62): male, “Malaysia, Pahang distr. | Cameron Highlands | Tanah Rata env., 1,450 – 1,500 m | 4° 28'25,3"N, 101°22'43,7" E | 10.4.2010 – 24.4.2010 | leg. Karol Bucsek” / red label “Holotypus | *Katha montana* ♂ | Karol Bucsek 2012” / “Museum Witt | München” / “Genitalpräparat | Heterocera | Nr. 19.826 | Museum Witt München” [ex slide Mal166 by K. Bucsek, remounted by A. Volynkin] (MWM/ZSM).

**Additional material examined.** Series of specimens of both sexes from Thailand (Phetchabun Province), West Malaysia (Pahang) (the paratypes listed by Bucsek (2012), and Indonesia (Sumatra Island) (MWM/ZSM, CKC).

**Diagnosis.** The forewing length is 11.0–12.5 mm in males and 13.0–13.5 mm in females. The species is morphologically similar to *B. usuguronis* and the detailed comparison is provided above in the diagnosis of the latter species.

**Distribution.** The species is found in Northeast India (Arunachal Pradesh) (Kirti & Singh 2015), Central Thailand (Phetchabun Province) (present study), Western Malaysia (Pahang) (Bucsek 2012), and the island of Sumatra (Indonesia) (present study).

**Genus *Bucsekatha* gen. n.**

<https://zoobank.org/urn:lsid:zoobank.org:act:60F250C1-9139-423D-8632-4E258E1C0B54>

**Type species:** *Bucsekatha sunda* sp. n., by present designation.

**Diagnosis.** Species of the new genus (Figs 22–35) are externally very similar to *Brunia (Brunikatha)* **subgen. n.** (Figs 5–21) and *Sany* (Figs 36–38), and identification requires the examination of the genitalia structures. In the male genitalia, *Bucsekatha* **gen. n.** (Figs 66–78) is morphologically similar to *Sany* (Figs 79, 80) sharing the combination of the following features. (1) The scaphium area is setose. (2) The subscaphium area is membranous. (3) The ventral wall of the anellus bears a caulis subdivided into two lobes. (4) The phallus is cylindrical with a ductus ejaculatorius originating laterally on the left side (vs. *Brunia* and a number of other Lithosiini having a ductus ejaculatorius originating dorsally). (5) The dorsal carina bears a thorn-shaped subapical process directed dorsad. (6) The vesica has a short main chamber, which bears a short but basally broad medial cornutus and has one to three short diverticula proximally and medially, and an elongate, more or less tubular distal diverticulum bearing a cornutus apically or subapically. However, the male genitalia of *Bucsekatha* **gen. n.** differ from *Sany* in the lobes of the caulis being completely fused with anellus and separated from each other (whereas they

are ventrally fused with each other and dorsally extended into loose processes in *Sany*), the broader lobular valva with a convex ventral margin (it is very narrow with almost parallel margins in *Sany*), the distal section of the editum expanded into a broad setose soft lobe (autapomorphic feature), the reduced, tubercle-like lamella centralis (absent in *Sany*), the weakly setose apex of the valva (it is covered with robust spine-like setae in *Sany*), and the broader sacculus with a well-developed distal process (the latter is reduced or completely absent in *Sany*). The female genitalia ground plan of *Bucsekatha* **gen. n.** (Figs 98–105) is very similar to *Sany* (Fig. 106) but the latter has an appendix bursae situated rather laterally whereas it is situated ventrally or ventro-laterally in *Bucsekatha* **gen. n.**

**Etymology.** The genus name is an aggregate of the surname Bucsek and the genus-group name *Katha*. The new genus is named after Karol Bucsek, renowned expert in the Asian Arctiinae, who greatly contributed to the knowledge of the Lithosiini of the Malay Peninsula, Philippine Archipelago and Laos including the taxonomy of the *Brunia* generic complex.

#### **Taxonomic content of *Bucsekatha* gen. n.**

*Bucsekatha brevivalva* (Holloway, 2001), **comb. n.**

*Bucsekatha sunda* **sp. n.**

*Bucsekatha chonga* **sp. n.**

*Bucsekatha pseudobrevivalva* (Dubatolov & Bucsek, 2016), **comb. n.**

*Bucsekatha nigriprosoma* (Fang, 2000), **comb. n.**

#### ***Bucsekatha brevivalva* (Holloway, 2001), comb. n.**

(Figs 22, 23, 66, 98)

*“Eilema” brevivalva* Holloway, 2001, *Moths of Borneo*, 7: 321, pl. 3, figs 23–24 (adults), gen. figs 87, 106 (Type locality: “Sarawak: Gunong Mulu Nat. Park, ..., Mulu, 1000m, lower montane f.[orest]”).

**Type material examined. Holotype:** male, “Sarawak: Gunong | Mulu Nat. Pak | R.G.S. Exped. 1977–8 | J.D. Holloway *et al.* | B.M. 1978–206” / “Site 15. February | Camp 2.5, Mulu | 1000m. 413461 | Lower l. montane f. | MV – understorey.” / “+3” / “Holotype | “*Eilema*” | *brevivalva* | Holloway” / round label with red margin “Type” / blue label “Arctiidae | genitalia slide | No. 2639 ♂” / “Figured specimen | Moths of Borneo | Part 7” / QR-code label with unique ID “NHMUK010401787” (NHMUK).

**Additional material examined. INDONESIA:** 4 males, 1 female, Borneo, Kalimantan Selatan [Prov.], 1100m, 30 km E of Kandangan, rainforest, 15 km NE of Loksado, 2°52'S 115°38'E, I.1998, Jakl leg., gen. slide Nos: ZSM Arct. 2021-541♂, 2021-542♀ (MWM/ZSM).

**Diagnosis.** The forewing length is 12.0 mm in males and 13.5 mm in females. The male genital capsule of *B. brevivalva* differs clearly from other congeners in the reduced, very short dorsal (valvular) section of the valva and the markedly longer distal saccular process. In the female genitalia, the species is distinct by the narrow and anteriorly tapered posterior sclerotised section of the corpus bursae.

**Distribution.** Endemic to the island of Borneo (Holloway 2001). The present report of the species from Kalimantan Selatan Province of Indonesia is first for the country.

#### ***Bucsekatha sunda* sp. n.**

<https://zoobank.org/urn:lsid:zoobank.org:act:1395EB03-0D23-4A2D-9817-F30C0FC6F891>

(Figs 24–27, 67–69, 99, 100)

*Katha brevivalva* (Holloway, 2001): Bucsek (2012): 122, Pl. 21: figs 305a, 305b, gen. figs Mal165, Mal167.

**Type material. Holotype** (Figs 24, 67): male, “SW Thailand | Ranong-prov. Ranong, 380m | 10°01'32"N, 98°40'13" E | 17, 20.XI.2006 leg. K.Cerný” / “Slide | AV9177♂ | A. Volynkin” (MWM/ZSM, ex CKC).

**Paratypes. THAILAND:** 6 males, 1 female, Ranong Prov., Ranong, 380m, 10°01'32"N 98°40'13"E, 3–4.XII.2005, K. Černý leg., gen. slide Nos: AV8286♂, AV9150♀ (CKC); 1 female, same

data as previous but *ex ovo* 2006, gen. slide No.: AV9172♀ (CKC); 1 male, Ranong, 543m, 10°02'01"N 98°40'17.66"E, 7.IV.2013, K. Černý leg., gen. slide No.: AV8281♂ (CKC); 1 female, Surat Thani Prov., Khao Sok NP, 199m, 8°53'23"N 98°30'25"E, 6.XII.2005, K. Černý leg., gen. slide No.: AV9153♀ (CKC); 3males, Nakhon Si Thammarat [Prov.], Amphoe Ron Pibun, | Ang Ka Tai Hill, 900–950m, 8°14.16'N 99°48.12'E, 9–10.IV.2013, K. Černý leg., gen. slide No.: AV8280♂ (CKC); 1 male, Chumphon Prov., Pa Toh Ditr., Ban Lang Tang, 162m, 7.XII.2005, 9°46'5"N 98°46'59"E, K. Černý leg., gen. slide No.: AV8282♂ (CKC); **MALAYSIA**: 2 males, 1 female, Perak, 50 km NE of Gerik (aerial path), Belum-Temenggor: Titiwangsa, 5°36'17.4"N 101°32'34.0"E, 30.iii–13.iv.2015, 1100m, E. Jendek & O. Šauša leg., gen. slide Nos: ZSM Arct. 2021-518♂, 2021-595♀, 2021-599♂ (prepared by A. Volynkin) (MWM/ZSM); **INDONESIA**: 1 male, 1 female, N Sumatra, 15 km NE of Prapat, HW 4, 1150m, 3–6.I.1994, Karel Černý leg., gen. slide Nos: AV8274♂, AV9185♀ (CKC); 1 female, N Sumatra, Simalungun, Prapat, HW 3, 9.II.1984, Dr Diehl leg., gen. slide No.: AV9484♀ (CKC); 1 male, Sumatra, Aek Tarum, Gunung Malayu, 8.V.1983, Dr Diehl leg., gen. slide No.: AV9491♂ (CKC); 1 male, Sumatra, Bandar Lampung, Bukit Rgis Mts, Gunung Terang, 1022m, 5°3'43"S 104°27'6"E, 13–15.XI.2003, [K.] Černý leg., gen. slide No.: AV9176♂ (CKC); 1 female, W Sumatra, 22 km E of Padang, Bukit Subang, microwave stat.[ion], 0°40'S 100°32'E, montane forest, 1200m, 19–20.X.1981, A. Schintlmeister et al. leg., gen. slide No.: AV9184♀ (CKC); 1 male, South Sumatra, Lake Ranau env., 800m, 4°50'7"38"S 104°3'[00"]E, 17.XI.2003, K. Černý leg. (CKC).

**Note.** The population from the Malay Peninsula lacks the small medial diverticulum, which is present in the specimens from Sumatra. However, the taxonomic value of this feature is unclear and, as no other morphological differences were found between the specimens from the two populations, they are herein considered as belonging to the same biological species.

**Diagnosis.** The forewing length is 11.5–13.0 mm in males and 14.0 mm in females. The male genital capsule of *B. sunda* **sp. n.** differs from *B. chonga* **sp. n.** and *B. pseudobrevivalva* in the longer distal saccular process and the shorter, narrower and more weakly sclerotised lobes of the caulis. The phallus of *B. sunda* **sp. n.** differs from the similar species in the markedly smaller carinal process. The vesica structure of *B. sunda* **sp. n.** is most similar to *B. chonga* **sp. n.**, from which the former differs in the larger medial cornutus. In the female genitalia, *B. sunda* **sp. n.** differs from other congeners in the markedly narrower ductus bursae.

**Distribution.** The new species is found on the Malay Peninsula (South Thailand and West Malaysia) and the island of Sumatra (Indonesia).

**Etymology.** The specific epithet is derived from Sundaland, in the western part of which the new species is found. The name is a noun in the nominative singular.

### *Bucsekatha chonga* **sp. n.**

<https://zoobank.org/urn:lsid:zoobank.org:act:8363573B-8E8E-4CCE-9803-11CDF953AB01>

(Figs 28–32, 70–75, 101–103)

**Type material. Holotype** (Figs 28, 70): male, “Cambodia, Kampot Prov., | Bokor N.P., Hill Station, 1025 m, | 19–21. I. 2006 | leg. G. Csorba & G. Ronkay” / “Slide | ZSM Arct. | 2021-520♂ | A. Volynkin” (MWM/ZSM).

**Paratypes. CAMBODIA**: 1 male, 2 females, same data as in holotype, gen. slide No.: ZSM Arct. 2021-521♀ (prepared by A. Volynkin) (MWM/ZSM); 1 male, 1 female, Kirirom Nat. Res., 650m, 7–9.XI.2007, S. Murzin leg., gen. slide Nos: ZSM Arct. 2021-597♂, 2021-598♀ (prepared by A. Volynkin) (MWM/ZSM); **THAILAND**: 2 males, 2 females, Saraburi [Nakhon Nayok Prov.], Khao Yai NP, Mt. Khao Kaew [Khao Khiao], 1244m, 14°21'56"N 101°24'E, 31.V.2005, K. Černý leg., gen. slide Nos: AV8278♂, AV8284♂, AV9155♀, AV9173♀ (CKC); 4 males, 1 female, Saraburi [Nakhon Nayok Prov.], Khao Yai NP, Khao Khiao [foot of Khao Khiao Mt.], 752m, 14°24'20"N 101°22'14"E, 1.VI.2005, K. Černý leg., gen. slide Nos: AV8279♂, AV8283♂, AV9154♀ (CKC); 2 males, Chanthaburi Prov., 150m, 33 km N of Chanthaburi, 12°48.17'N 102°17.53'E, 30.X.2010, K. Černý leg., gen. slide Nos: AV8285♂, AV9179♂ (CKC).

**Diagnosis.** The forewing length is 11.0–13.0 mm in males and 14.0–15.0 mm in females. The male genitalia of *B. chonga* **sp. n.** are similar to *B. sunda* **sp. n.** but distinguished by the shorter and thinner distal saccular process, the broader and more heavily sclerotised lobes of the caulis, the markedly

larger carinal process, and the smaller medial cornutus. The female genitalia of *B. chonga* **sp. n.** differ from *B. sunda* **sp. n.** in the considerably broader ductus bursae and the somewhat more anteriorly curved sclerotised anterior section of the corpus bursae.

**Distribution.** The new species is found in Central and Southeast Thailand (Nakhon Nayok and Chanthaburi Provinces) and Southwest Cambodia (Kampot and Kampong Speu Provinces).

**Etymology.** The specific epithet is derived from the Chong people, who inhabit western Cambodia, and south-eastern and eastern Thailand. The name is a noun in the nominative singular.

***Bucsekatha pseudobrevivalva* (Dubatolov & Bucsek, 2016), comb. n.**

(Figs 33–35, 76–78, 104, 105)

*Katha pseudobrevivalva* Dubatolov & Bucsek, 2016, *Euroasian entomological journal*, 15(3): 230, figs 5, 23 (Type locality: “North Vietnam, Thanh Hoa Prov., Thuong Xuan Distr., Xuan Lien NR [National Reserve], ... 19°52'N 105°14.28'E, 130m”).

**Material examined.** Series of specimens of both sexes from Northeast India (Assam), Laos (Luang Prabang and Champasak Provinces), and Vietnam (Nghe An, Lam Dong and Da Nang Provinces) (MWM/ZSM, CKC and CAV).

**Diagnosis.** The forewing length is 12.0–13.5 mm in males and 12.5–13.5 mm in females. The male genital capsule of *B. pseudobrevivalva* is very similar to *B. chonga* **sp. n.**, from which *B. pseudobrevivalva* differs clearly in the vesica having a markedly shorter distal diverticulum bearing a larger terminal cornutus. Additionally, compared to *B. chonga* **sp. n.**, *B. pseudobrevivalva* has a shorter proximal ventral diverticulum displaced more laterally, a markedly shorter medial ventral diverticulum, and a considerably larger lateral diverticulum displaced more dorsally. In the female genitalia of *B. pseudobrevivalva*, the posterior sclerotised section of the corpus bursae is markedly broader and less curved than in the similar congener, and the appendix bursae is situated ventrally whereas it is situated ventro-laterally on the left side in *B. chonga* **sp. n.**

**Distribution.** The species is widespread and found in Northeast India (Assam and Mizoram) (Singh *et al.* 2024), Laos (Huaphanh, Luang Prabang and Champasak Provinces) (Bucsek 2020), and Vietnam (Thanh Hoa, Nghe An, Gia Lai, Bac Giang, and Da Nang Provinces) (Dubatolov & Bucsek 2016)

***Bucsekatha nigriprosoma* (Fang, 2000), comb. n.**

*Eilema nigriprosoma* Fang, 2000, *Fauna Sinica. Insecta*, 19: 257, 540, fig. 178 (male genitalia); pl. XII, fig. 16 (moth) (Type locality: [S China] “Hainan Jianfengling”).

**Note.** Unfortunately, the authors of the present paper had no chance to examine specimens of *Bucsekatha* from the island of Hainan. The male genital capsule of *B. nigriprosoma* is very similar to *B. pseudobrevivalva* and, taking into account the wide distributional range of the latter, *B. nigriprosoma* may be conspecific to it. Clarification of this question requires the examination of the vesica structure of the Hainan population.

**Distribution.** South China: Hainan Island (Fang 2000).

**Genus *Sany* Bucsek, 2012**

*Sany* Bucsek, 2012, *Erebidae, Arctiinae of Malay Peninsula – Malaysia*: 123.

Type species: *Lithosia brevipennis sandakana* Draudt, 1914, by original designation.

**Diagnosis.** Species of the genus (Figs 36–38) are externally very similar to *Brunia* (*Brunikatha*) **subgen. n.** (Figs 5–21) and *Bucsekatha* **gen. n.** (Figs 22–35), and identification requires the examination of the genitalia structures. *Sany* is morphologically similar to *Bucsekatha* **gen. n.** and the detailed comparison is provided above in the diagnosis of the latter genus.

**Note.** The genus comprises two species reviewed below.

***Sany pseudosandakana* Bucsek, 2012**

(Figs 36, 37, 79, 106)

*Sany pseudosandakana* Bucsek, 2012, *Erebidae, Arctiinae of Malay Peninsula – Malaysia*: 123, pl. 22: figs 307, 307b, 307c, gen. figs Mal168, Mal229 (TL: “Malaysia, Pahang distr., Endau Rompin State Park, Camping by the Kincin River, 50 m, 2° 37' 10,4" N, 103° 20' 10,9" E”).

**Type material examined. Holotype** (Figs 36, 79): male, “Malaysia, Pahang distr. | Endau Rompin State park | Camping by The Kincin River, 50 m | 2°37'10,4" N, 103°20'10,9"E | 1.3.2011 – 13.3.2011 | leg. Karol Bucsek” / red label “Holotypus | *Sany pseudosandakana* ♂ | Karol Bucsek 2012” / “Museum Wit | München” / “Genitalpräparat | Heterocera | Nr. 37.368 | Museum Witt München” [prepared by A. Volynkin] (MWM/ZSM).

**Additional material examined. MALAYSIA:** series of specimens of both sexes (paratypes) listed by Bucsek (2012) (MWM/ZSM); **INDONESIA:** 1 male, N Sumatra, Prapat, HW 3, 4.X.1983, Dr Diehl leg., gen. slide No.: AV9490♂ (CKC).

**Diagnosis.** The forewing length is 11.0–11.5 mm in males and 11.5–12.0 mm in females. The male genital capsule of *S. pseudosandakana* is distinguished from *S. sandakana* by the narrower vinculum, the somewhat shorter but broader valva, the longer cucullus covered with larger setae, and the lack of the distal saccular process, which is tiny thorn-shaped in *S. sandakana*. The vesica of *S. pseudosandakana* differs from *S. sandakana* in the narrower main chamber, and the markedly shorter, proximally broader and distally curved distal diverticulum bearing a larger cornutus postmedially whereas in *S. sandakana*, the tiny cornutus is situated apically.

**Distribution.** The species is known from the Malay Peninsula (West Malaysia: Pahang) (Bucsek 2012) and the island of Sumatra (Indonesia) (present study).

***Sany sandakana* (Draudt, 1914)**

(Figs 38, 80)

*Lithosia brevipennis* subsp. *sandakana* Draudt in Seitz, 1914, *Die Gross-Schmetterlinge der Erde*, 10: 210 (TL: “Borneo (Sandakan)”).

*Ilema brevipennis* Ab. 1: Hampson (1900): 172.

**Type material examined. Holotype** (by monotypy) (Figs 38, 80): male, “Sandakan. | 91 – 115.” / “Eilema | brevipennis | ab. sandakana | Draudt | Holotype. ~~Strand~~ | Hampson Ab. 1.” / round label with red margins “Type” / blue label “Arctiidae | genitalia slide | No. 4893♂” / “Figured specimen | Moths of Borneo | part 7” / QR-code label with unique ID “NHMUK010401830” (NHMUK).

**Note.** The name *sandakana* was introduced by Draudt (1914) for Hampson’s ‘Ab.[erration] 1’ of *Ilema brevipennis*. In his book, Hampson (1900) cited a single male associated by him to that aberration, which should be considered as the holotype of *sandakana* by monotypy.

**Diagnosis.** The forewing length is 11.0 mm in the male holotype. The detailed comparison with *S. pseudosandakana* is provided above in the diagnosis of the latter species. The female is unknown.

**Distribution.** The species is known only from its holotype collected in Sabah (Malaysia) (Holloway 2001), and is probably endemic to the island of Borneo.

**Genus *Dubatoloviana* Bucsek, 2012**

*Dubatoloviana* Bucsek, 2012, *Erebidae, Arctiinae of Malay Peninsula – Malaysia*: 124.

Type species: “*Eilema*” *trimacula* Holloway, 2001, by the original designation.

**Note.** The genus was characterised and reviewed by Volynkin (2021).

**Diagnosis.** Species of the genus (Figs 39–52) display a substantial sexual dimorphism with the females having a fuscous forewing with yellowish costal and outer areas whereas males of *Dubatoloviana* have two cellular and one subapical spots, which are absent in other genera in the *Brunia* generic complex. Additionally, unlike in other related genera, the male forewing of *Dubatoloviana* has



a triangular patch of darker, presumably androconial scales antemedially between the vein A1 and the anal wing margin but not reaching the latter. The male genitalia ground plan of *Dubatuloviana* (Figs 81–88) is similar to *Bucsekatha* **gen. n.** (Figs 66–78) and *Sany* (Figs 79, 80) but, unlike in those genera, *Dubatuloviana* is characterised by the broader and strongly swollen uncus, the lack of the caulis, the heavily sclerotised distal section of the costa forming a “cucullus” with a spur-shaped tip, the small and membranous valvula, and the phallus with a ductus ejaculatorius situated dorsally and a dorsal carina lacking the subapical process. The vesica configuration of *Dubatuloviana* is similar to *Bucsekatha* **gen. n.** and *Sany* but the main chamber lacks the medial cornutus, and the distal diverticulum is short and directed dorsally. The female genitalia of *Dubatuloviana* (Figs 107–112) are very similar to *Bucsekatha* **gen. n.** (Figs 98–105) and *Sany* (Fig. 106) but have an appendix bursae situated laterally and curved dorsad.

### Species content of *Dubatuloviana*

*Dubatuloviana trimacula* (Holloway, 2001)

*Dubatuloviana pahanga* Bucsek, 2012

*Dubatuloviana diehli* **sp. n.**

*Dubatuloviana fumidisca* (Hampson, 1894), **comb. n.**

*Dubatuloviana vieta* **sp. n.**

*Dubatuloviana navneetsinghi* Volynkin, 2021

### *Dubatuloviana diehli* **sp. n.**

<https://zoobank.org/urn:lsid:zoobank.org:act:5DDFF176-853F-4E6B-9550-576E6416D97F>

(Figs 45, 46, 84, 110)

**Type material. Holotype** (Figs 45, 84): male, “Sumatra | Prapat HW 3 | 26.–30.XI.1982 | Dr. Diehl leg.” / “Slide | AV8372♂ | A. Volynkin” (MWM/ZSM, ex CKC).

**Paratype. INDONESIA:** 1 female, W Sumatra, Mt. Talang, 0°57'S 100°24'E, 18.IX.1991, secondary forest, 1600m, Graul & Schintlmeister leg., gen. slide No.: AV8373♀ (CKC).

**Diagnosis.** The forewing length is 12.0 mm in the male holotype and 13.5 mm in the female paratype. *Dubatuloviana diehli* **sp. n.** is externally very similar to *D. pahanga* but has a somewhat narrower forewing. Additionally, compared to *D. pahanga*, the male of the new species has more distinct forewing markings, and the female has a straighter costal margin of the forewing with a narrower outer ochreous yellow area at the apex. The male genital capsule of *D. diehli* **sp. n.** differs clearly from *D. pahanga* in the longer and less downcurved tip of the uncus, the thicker “cucullus”, and the narrower unilobate distal saccular process, which is bifurcate in *D. pahanga*. The phallus of the new species is somewhat longer and distally broader than in *D. pahanga*. The vesica configurations of the two species are similar but in *D. diehli* **sp. n.**, the main chamber is somewhat longer than in the congener and the distal diverticulum bears a cornutus, which is absent in *D. pahanga*. In the female genitalia, *D. diehli* **sp. n.** is distinguished from *D. pahanga* by the wider gelatinous antevaginal plate and the shorter posterior sclerotised section of the corpus bursae.

**Distribution.** Indonesia (Sumatra Island).

**Etymology.** The new species is dedicated to the memory of the late Dr. med. Eduard Wilhelm Diehl (1917–2003), famous researcher of Sumatran insects and collector of the holotype. The name is a noun in the genitive case.

### *Dubatuloviana fumidisca* (Hampson, 1894), **comb. n.**

(Figs 47–50, 85, 86, 111, 112)

*Lithosia fumidisca* Hampson, 1894, *The Fauna of British India, Including Ceylon and Burma. Moths*, 2: 80 (Type locality (determined by the lectotype designation): [Myanmar] “Burma, Tenasserim Valley”).

**Type material examined. Lectotype** (designated by Hampson (1900) as “Type”) (Figs 47, 111): female, “Tenasserim Valley, | E. of Tovoy [Dawei], | Burmah [Myanmar] | Doherty.” / “*Lithosia* |



fumidisca | Hmpn. type. ♀" / "Presented by | J.J.Joicey Esq. | Brit. Mus.1934-444." / round label with red margin "Type | H.T" / blue label "Arctiidae | genitalia slide No. 2854♀" (NHMUK).

**Additional material examined. THAILAND:** 1 male, Chumphon Prov., 162m, Pa Toh, Ban Lang Tang, 9°46'5"N, 98°46'59"E, 3.V.2008, K. Černý leg., gen. slide No.: AV8368♂ (CKC); 1 male, same data as previous but 2–3.XII.2007, gen. slide No.: AV8370♂ (CKC); 1 male, 1 female, same data as previous but 7.XII.2005, gen. slide No.: AV8457♀ (CKC).

**Notes. (1)** *Lithosia fumidisca* was originally described from an unspecified number of female specimens originating from two localities ("Sikhim; Tenasserim Valley") (Hampson 1894). Subsequently, Hampson (1900) cited only one female from Tenasserim Valley as "type", which, according to the Article 74.5 of ICZN (1999), should be considered as lectotype designation. **(2)** The species was placed in the genus *Brunia* by Dubatolov & Zolotuhin (2011).

**Diagnosis.** The forewing length is 10.0–11.5 mm in males and 11.0–12.0 mm in females. The male genitalia of *D. fumidisca* are similar to *D. navneetsinghi* but differ in the narrower arms of the tegumen, the longer valva, and the larger proximal diverticulum. As the female of *D. navneetsinghi* remains unknown (see below), the female genitalia of *D. fumidisca* were compared to the morphologically closest *D. trimacula* instead, from which *D. fumidisca* can be distinguished by the larger setose postvaginal lobes of the 8<sup>th</sup> sternite, the presence of a sclerotised swollen fascia on the posterior margin of the 7<sup>th</sup> sternite, and the broader posterior sclerotised section of the corpus bursae.

**Distribution.** The species is known from south-eastern Myanmar (Tanintharyi Region) (Hampson 1894) and Southern Thailand (Chumphon Province) (present study).

#### *Dubatoloviana vieta* sp. n.

<https://zoobank.org/urn:lsid:zoobank.org:act:2BC3FDDF-86F3-4E5C-9F4B-3EDEB685726B>

(Figs 51, 87)

**Type material. Holotype** (Figs 51, 87): male, "Vietnam, Prov. Tuyen Quang | Na Hang Nature Reserve, 300 m | 105°5'E, 22°3'N, 22.II.–5.III.1997 | leg. G. Csorba" / "Slide | CW 00099♂ [prepared by A. Volynkin]" (MWM/ZSM).

**Diagnosis.** The forewing length is 13.0 mm in the male holotype. *Dubatoloviana vieta* sp. n. differs externally from the closely related *D. navneetsinghi* and *D. fumidisca* in the longer and narrower forewing with a more intense greyish-brown subterminal suffusion at the anal corner. The male genitalia of *D. vieta* sp. n. are most similar to *D. fumidisca* but can be distinguished by the longer, narrower and straighter uncus, the slightly shorter valva with a narrower cucullus and a proximally narrower distal saccular process. Additionally, the vinculum of the new species is longer than in the similar congener.

**Distribution.** The new species is currently known only from its type locality in Northern Vietnam (Tuyen Quang Province). The record of '*Eilema trimacula* Holloway' from Laos (Kishida 2020) probably also belongs to *D. vieta* sp. n. but requires confirmation.

**Etymology.** The specific epithet is derived from the Viet people native to modern-day Northern Vietnam and Southern China. The name is a noun in the nominative singular.

#### *Dubatoloviana navneetsinghi* Volynkin, 2021

(Figs 52, 88)

*Dubatoloviana navneetsinghi* Volynkin, 2021, *Ecologica Montenegrina*, 47: 45, figs 1, 2, 7, 10 (Type locality: "NE India, Assam, Nambor Reserv[e] Forest, Garampani, 100m, 26°30'N, 93°55'E").

**Type material examined. Holotype** (Figs 52, 88): male, "N-E. India | Assam, Nambor Reserv[e] | Forest, Garampani, H=100 m | 26°30'N, 93°55'E, | 21–29. Nov. 1997. | lg. V. Siniaev [*recte*: Sinyaev] & M. Murzin | Museum Witt" / "Slide | ZSM Arct. 2021-097♂ | A. Volynkin" (MWM/ZSM). **Paratype:** male, same data as in holotype (MWM/ZSM).

**Note.** The twenty-two female specimens originally included into the type series of *D. navneetsinghi* (Volynkin 2021) in fact represent a dark form of *Brunia gibonica* (Fig. 53) while the female of *D. navneetsinghi* remains unknown.

**Distribution.** The species is known only from its type locality in Assam, Northeast India (Volynkin 2021).

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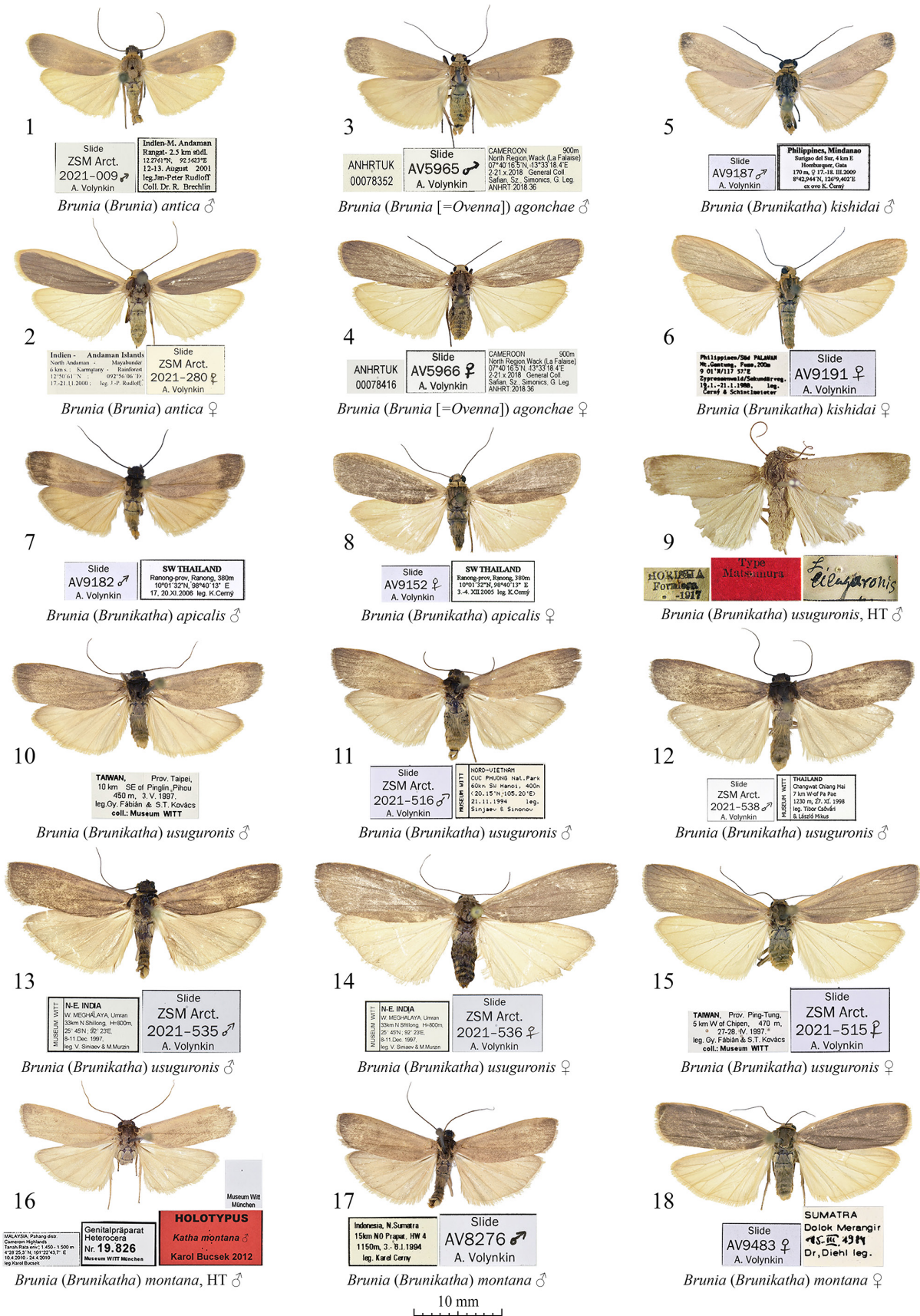
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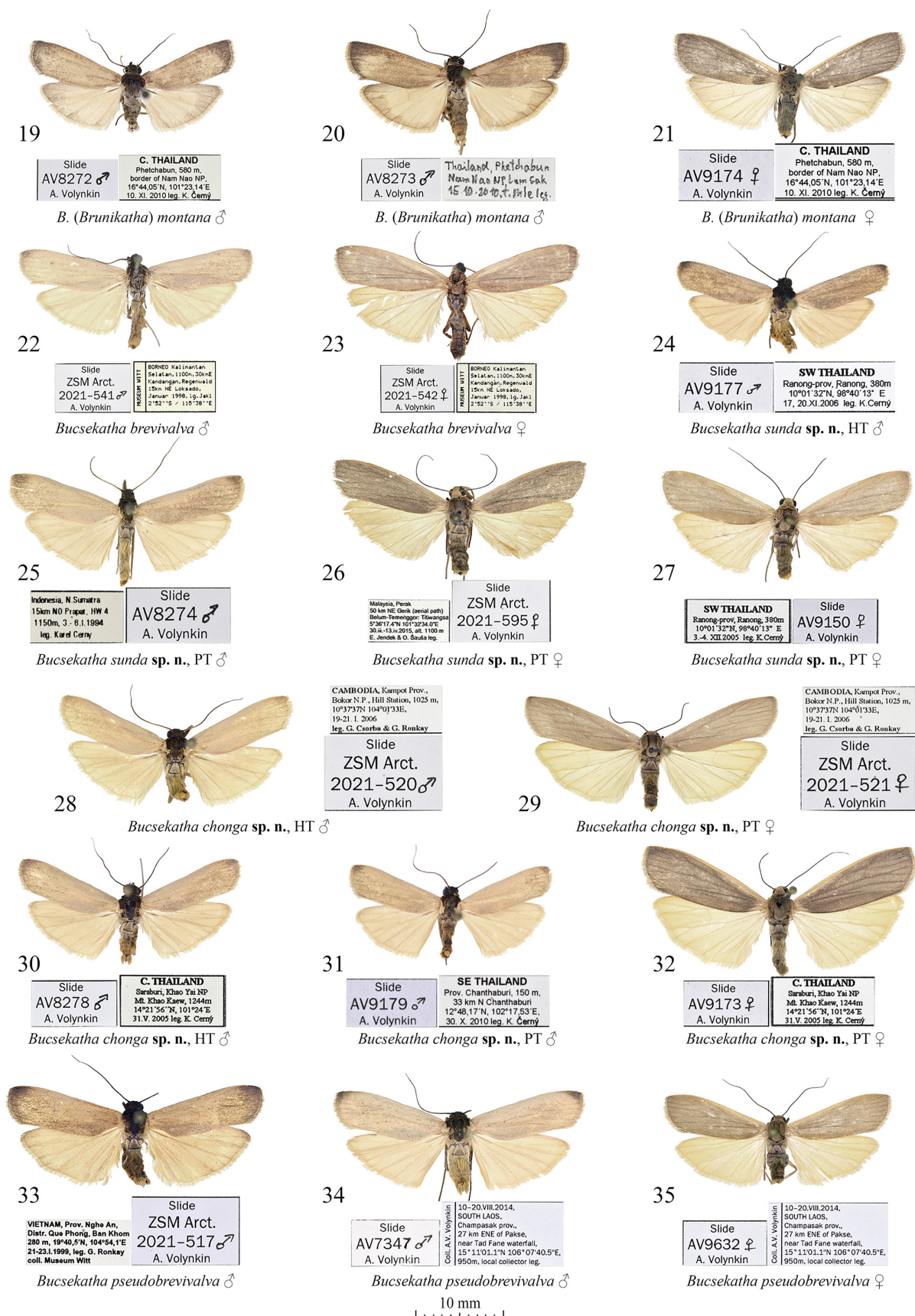
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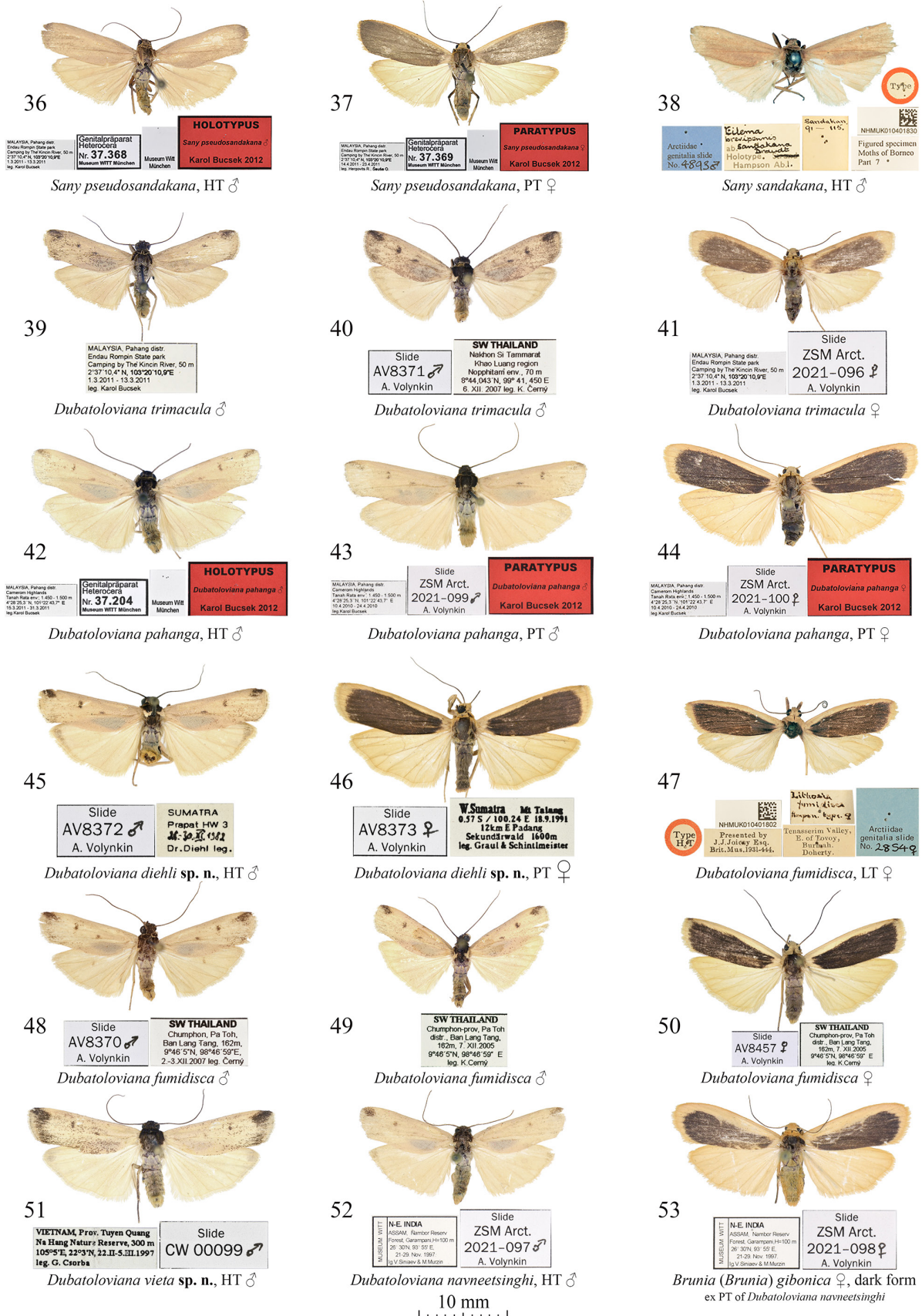


Figures 1–18. Adults of *Brunia* spp. Depositories of the specimens: 1, 2 and 10–16 in MWM/ZSM; 3 and 4 in ANHRT; 5–8 and 17, 18 in CKC; 9 in HUFA (photo by V. Zolotuhin, courtesy of V. Dubatolov).



Figures 19–35. Adults of *Brunia* (19–21) and *Bucsekatha* gen. n. (22–35) spp. Depositories of the specimens: 19–21, 25, 27, 31 and 32 in CKC; 22–24, 26, 28–30 and 33 in MWM/ZSM (24 and 30: ex CKC); 34 and 35 in CAV.





Figures 36–53. Adults of *Sany* (36–38), *Dubatoloviana* (39–52) and *Brunia* (53) spp. Depositories of the specimens: 36, 37, 39, 41–45, 47, 52 and 53 in MWM/ZSM (45: ex CKC); 38 and 50 in NHMUK; 40, 46, 48, 49 and 51 in CKC.

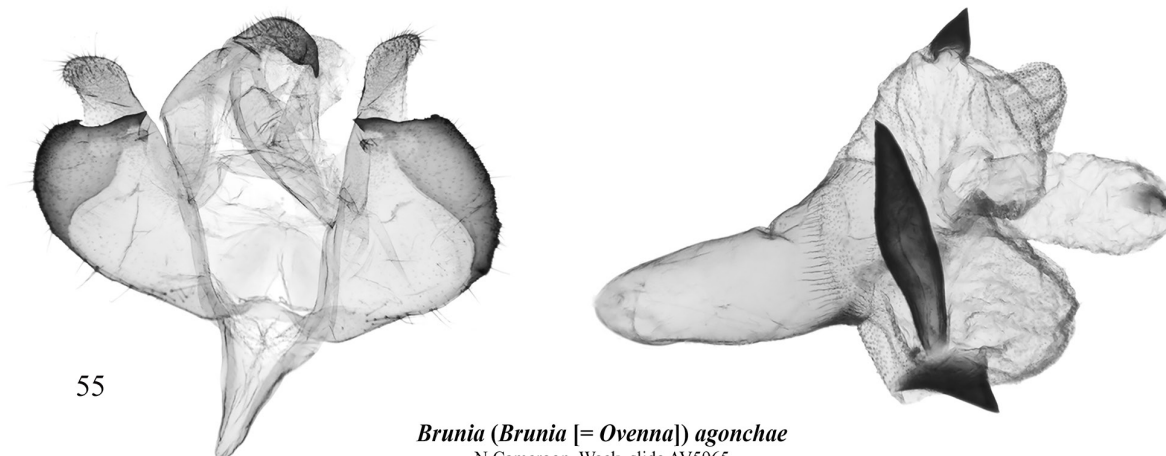




54

***Brunia (Brunia) antica***

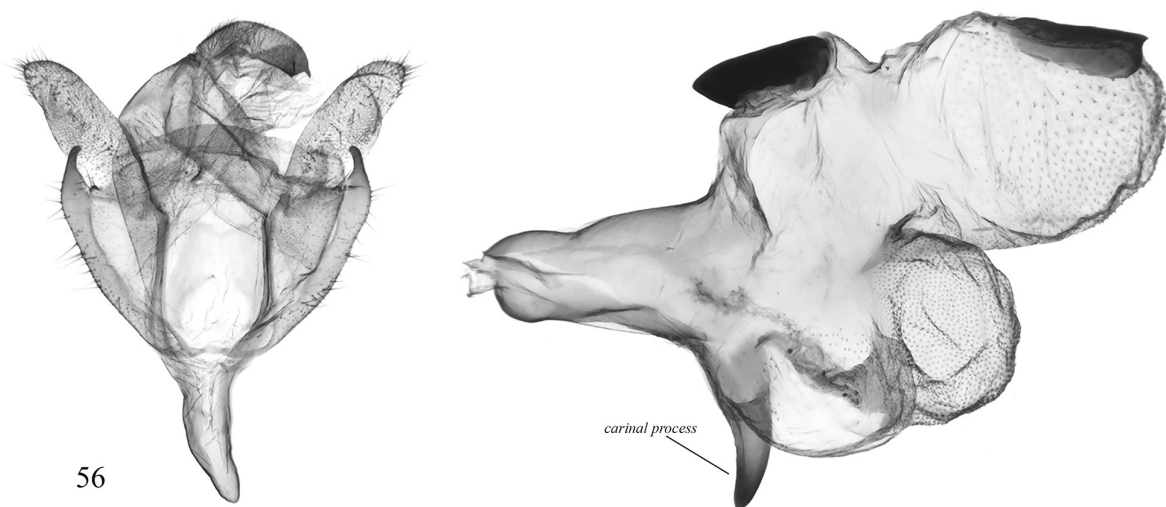
India, Middle Andaman Isl., slide ZSM Arct. 2021-276



55

***Brunia (Brunia [= Ovenna]) agonchae***

N Cameroon, Wack, slide AV5965

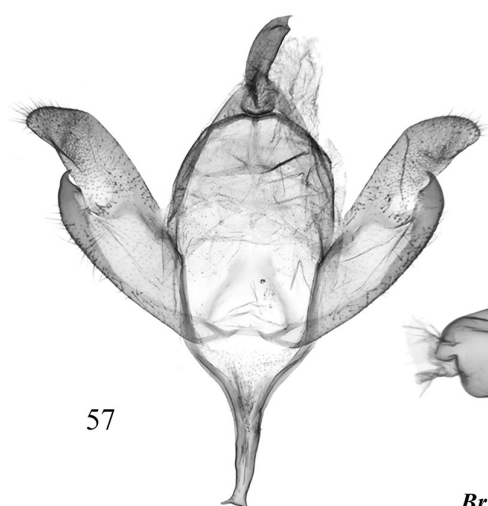


56

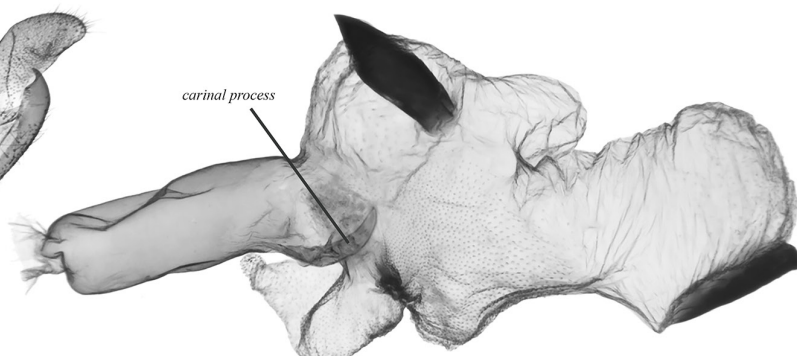
***Brunia (Brunikatha) kishidai***

Philippines, Mindanao Isl., slide AV9187

**Figures 54–56.** Male genitalia of *Brunia* spp. Depositories of the specimens dissected: 54 in MWM/ZSM; 55 in ANHRT; 56 in CKC.

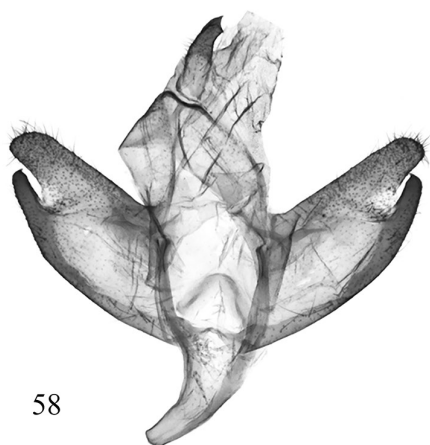


57

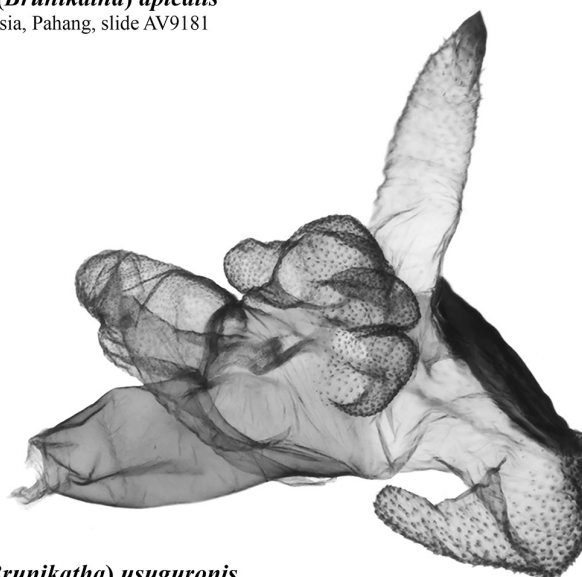


carinal process

***Brunia (Brunikatha) apicalis***  
W Malaysia, Pahang, slide AV9181



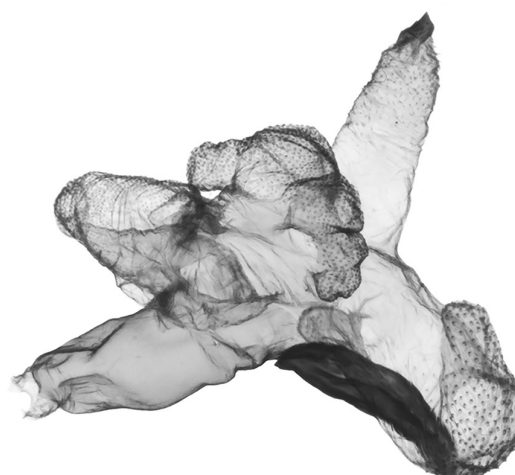
58



***Brunia (Brunikatha) usuguronis***  
Taiwan Isl., Taitung Co., slide ZSM Arct. 2021-514

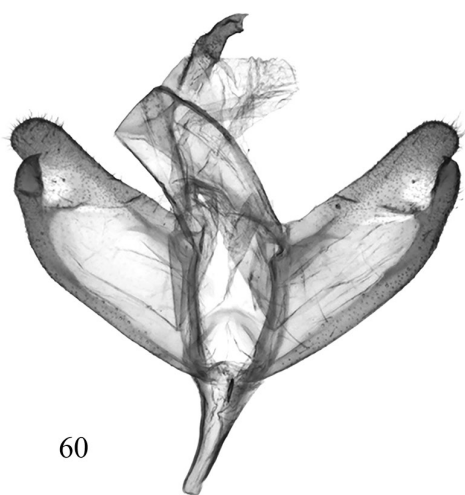


59

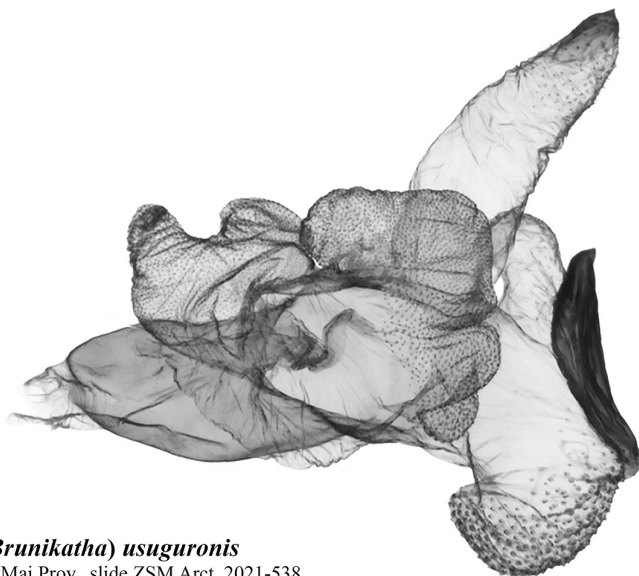


***Brunia (Brunikatha) usuguronis***  
N Vietnam, Ninh Binh Prov., slide ZSM Arct. 2021-516

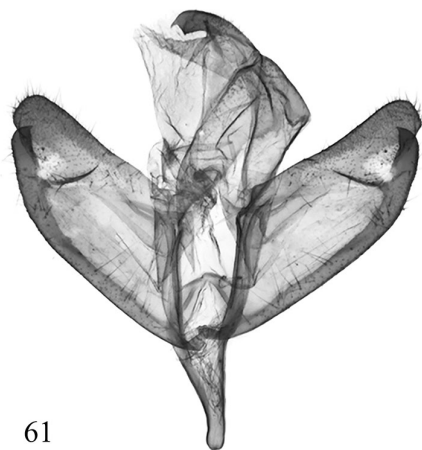
**Figures 57–59.** Male genitalia of *Brunia* spp. Depositories of the specimens dissected: 57 in CKC; 58 and 59 in MWM/ZSM.



60



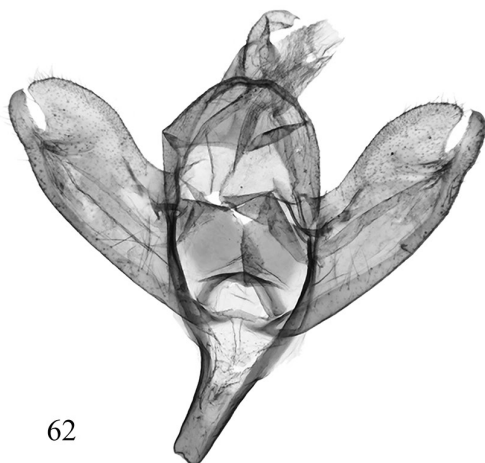
***Brunia (Brunikatha) usuguronis***  
N Thailand, Chiang Mai Prov., slide ZSM Arct. 2021-538



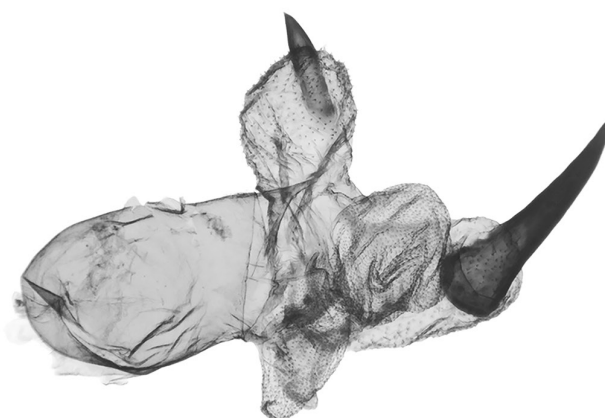
61



***Brunia (Brunikatha) usuguronis***  
NE India, Meghalaya, slide ZSM Arct. 2021-535

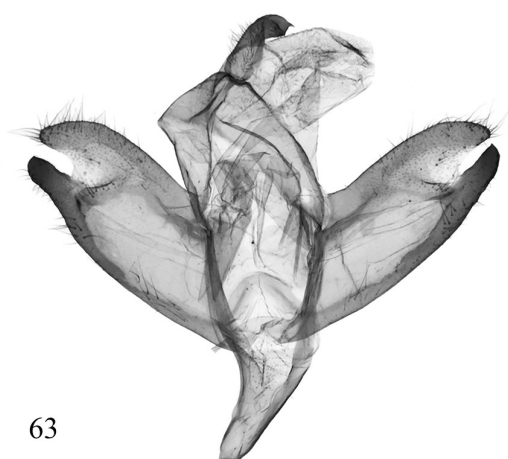


62

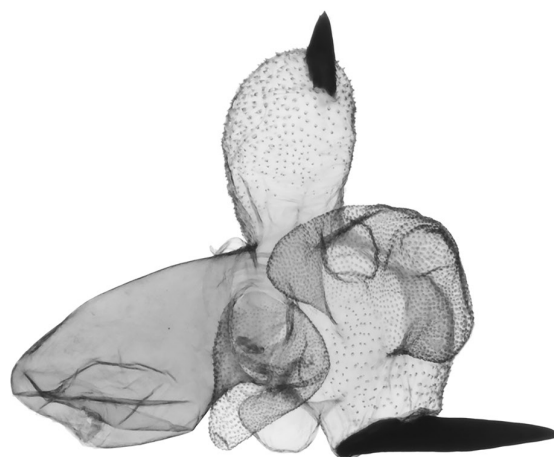


***Brunia (Brunikatha) montana, HT***  
W Malaysia, Pahang, Cameron Highlands, slide MWM 19.826

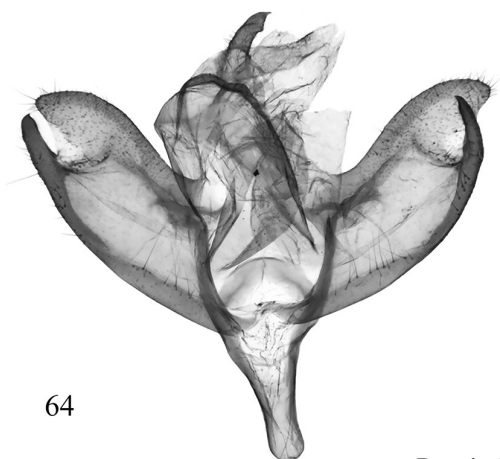
**Figures 60–62.** Male genitalia of *Brunia* spp. The specimens dissected are deposited in MWM/ZSM.



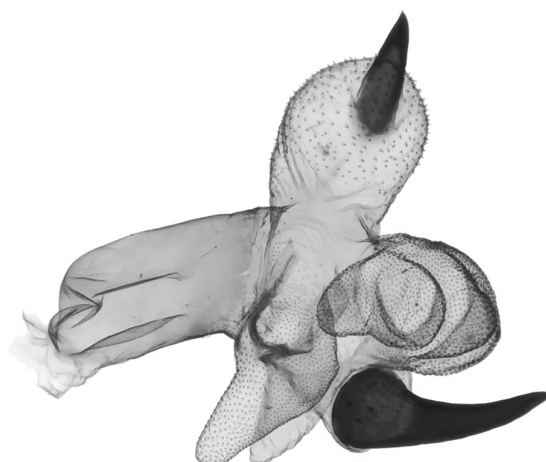
63



*Brunia (Brunikatha) montana*  
Indonesia, Sumatra Isl., slide AV8275



64



*Brunia (Brunikatha) montana*  
C Thailand, Phetchabun Prov., slide AV8272



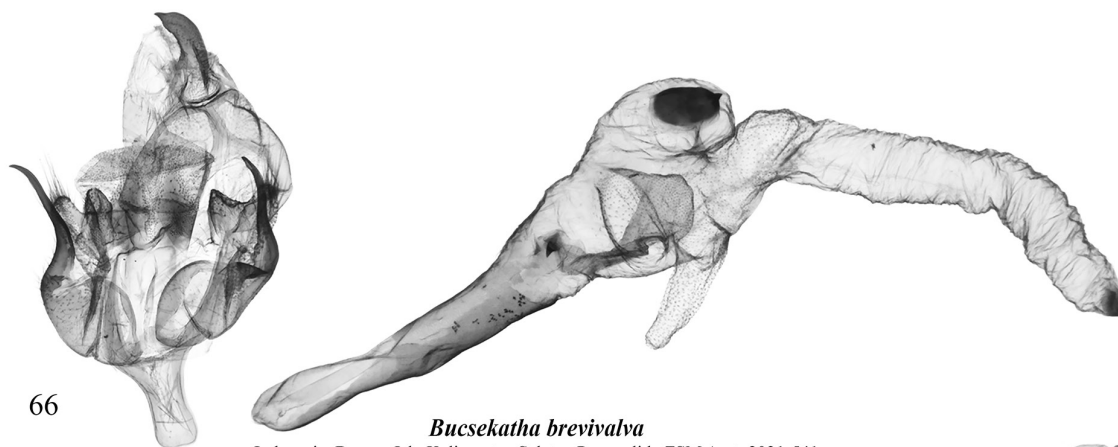
65



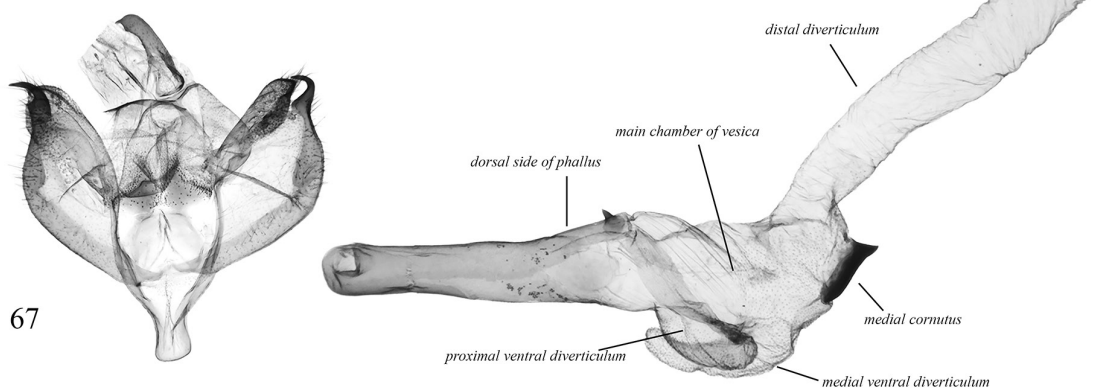
*Brunia (Brunikatha) montana*  
C Thailand, Phetchabun Prov., slide AV8273

Figures 63–65. Male genitalia of *Brunia montana*. The specimens dissected are deposited in CKC.

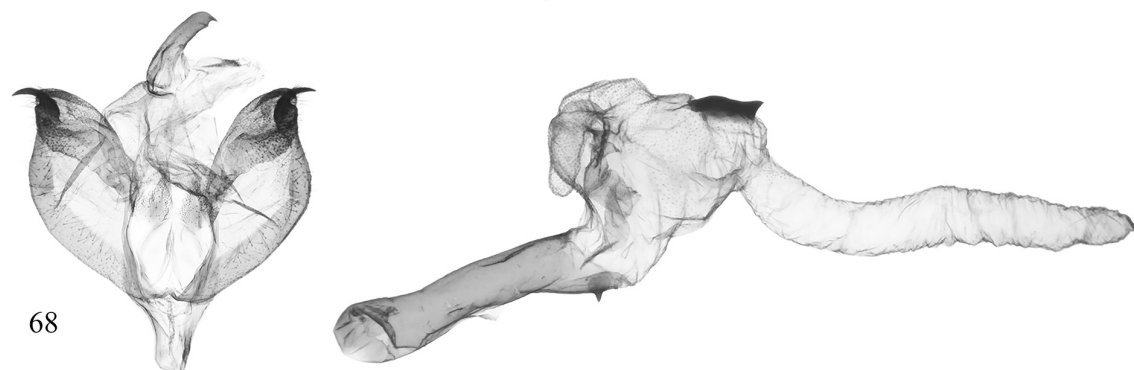




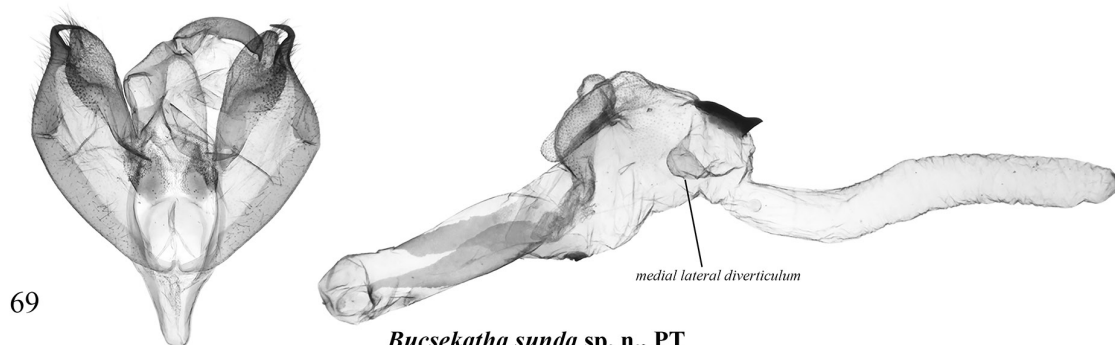
***Bucsekatha brevivalva***  
Indonesia, Borneo Isl., Kalimantan Selatan Prov., slide ZSM Arct. 2021-541



***Bucsekatha sunda sp. n.*, HT**  
S Thailand, Ranong Prov., slide AV9177

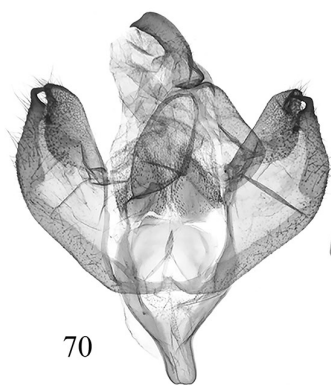


***Bucsekatha sunda sp. n.*, PT**  
W Malaysia, Perak, slide ZSM Arct. 2021-599

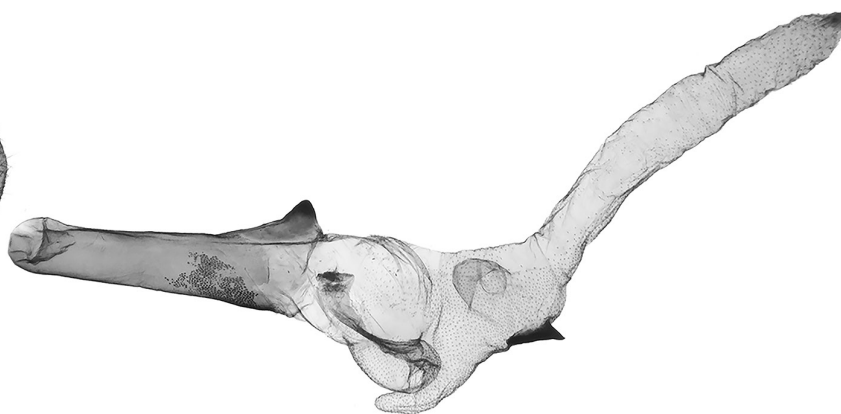


***Bucsekatha sunda sp. n.*, PT**  
Indonesia, Sumatra Isl., slide AV8274

**Figures 66–69.** Male genitalia of *Bucsekatha* gen. n. spp. Depositories of the specimens dissected: 66–68 in MWM/ZSM (67: ex CKC); 69 in CKC.



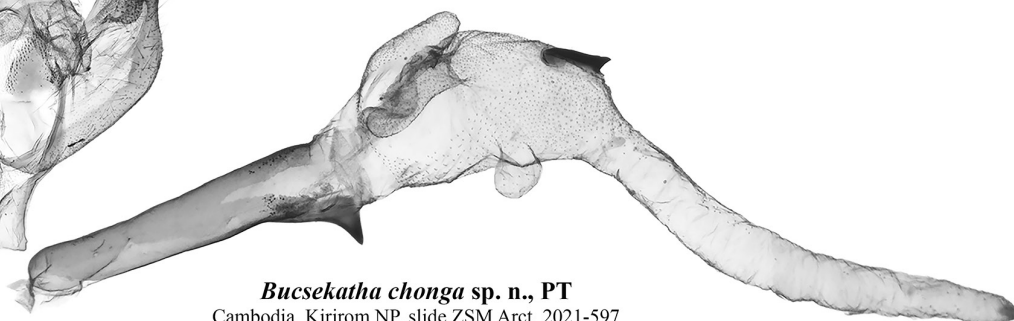
70



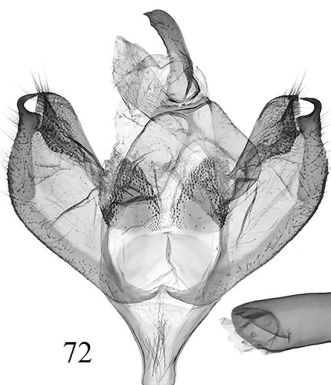
*Bucsekatha chonga* sp. n., HT  
Cambodia, Bokor NP, slide ZSM Arct. 2021-520



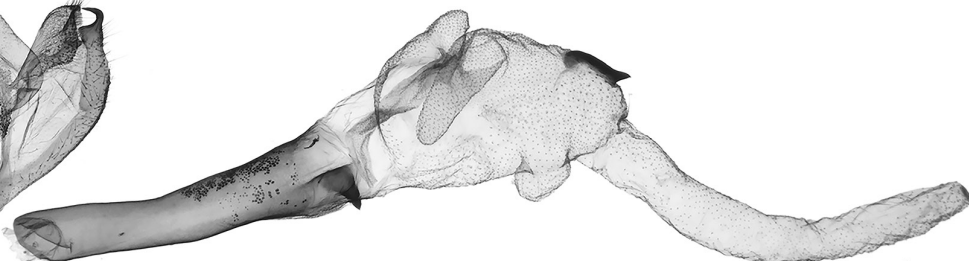
71



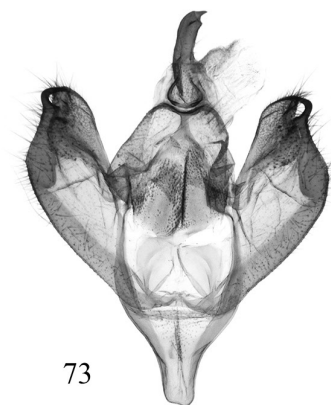
*Bucsekatha chonga* sp. n., PT  
Cambodia, Kirirom NP, slide ZSM Arct. 2021-597



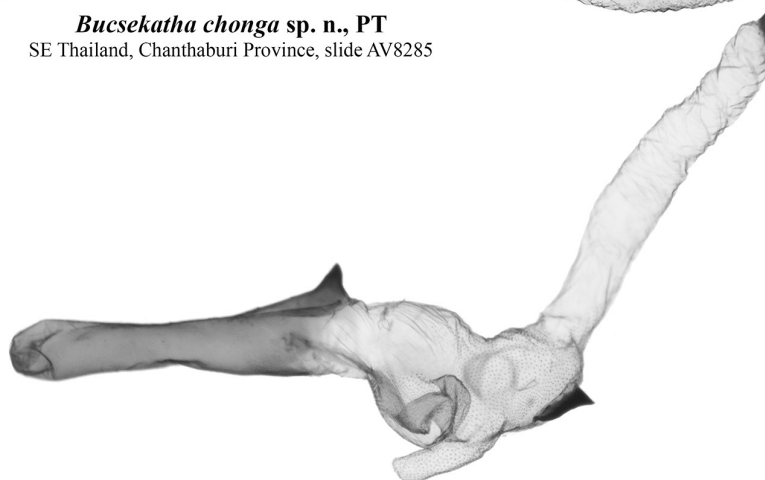
72



*Bucsekatha chonga* sp. n., PT  
SE Thailand, Chanthaburi Province, slide AV8285

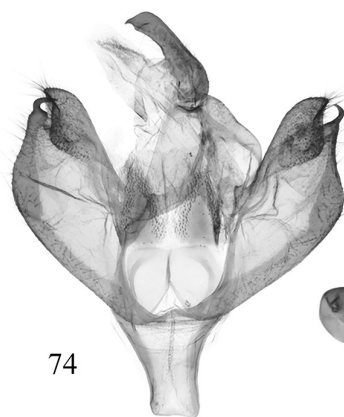


73

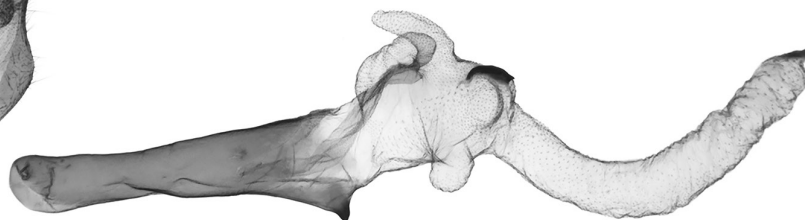


*Bucsekatha chonga* sp. n., PT  
SE Thailand, Chanthaburi Province, slide AV9179

**Figures 70–73.** Male genitalia of *Bucsekatha* gen. n. spp. Depositories of the specimens dissected: 70, 71 and 73 in MWM/ZSM (73: ex CKC); 72 in CKC.



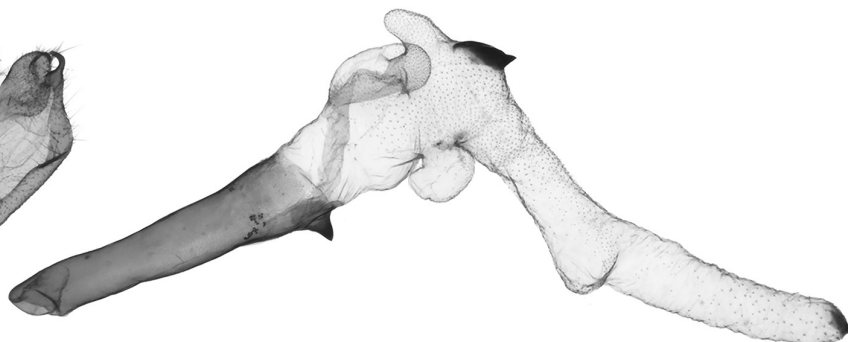
74



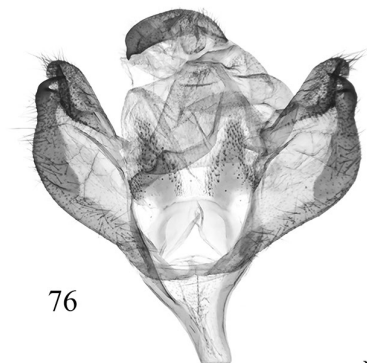
*Bucsekatha chonga* sp. n., PT  
C Thailand, Nakhon Nayok Prov., slide AV8279



75



*Bucsekatha chonga* sp. n., PT  
C Thailand, Nakhon Nayok Prov., slide AV8284



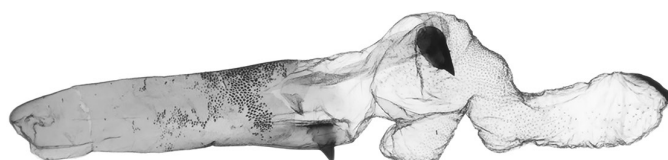
76



*Bucsekatha pseudobrevivalva*  
N Vietnam, Nghe An Prov., slide ZSM Arct. 2021-517

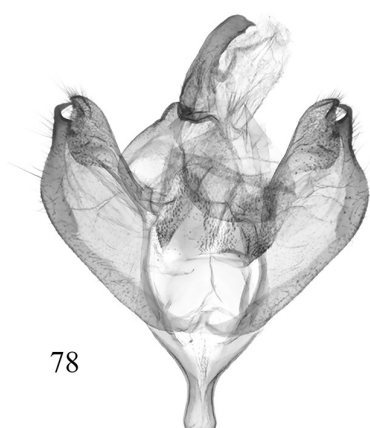


77

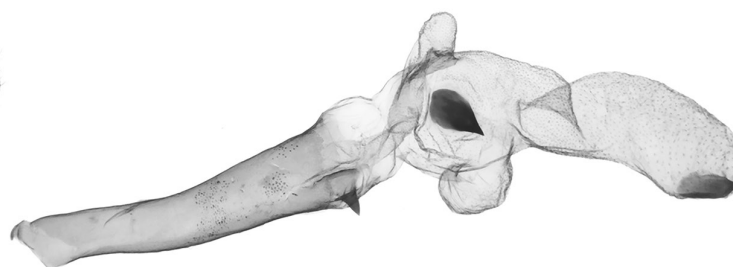


*Bucsekatha pseudobrevivalva*  
S Laos, Champasak Prov., slide AV7347

**Figures 74–77.** Male genitalia of *Bucsekatha* gen. n. spp. Depositories of the specimens dissected: 74 and 75 in CKC; 76 in MWM/ZSM; 77 in CAV.



78



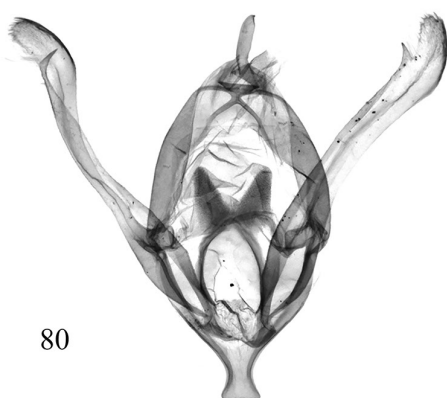
*Bucsekatha pseudobrevivalva*  
NE India, Meghalaya, slide ZSM Arct. 2021-540



79



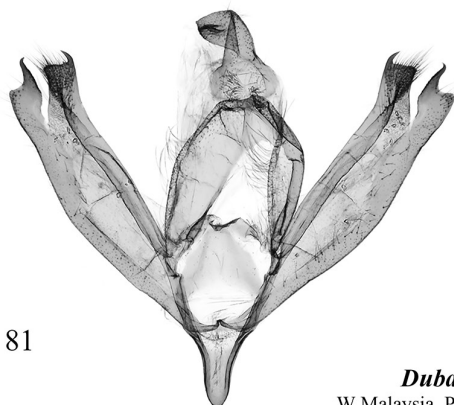
*Sany pseudosandakana*, HT  
W Malaysia, Pahang, slide MWM 37.368



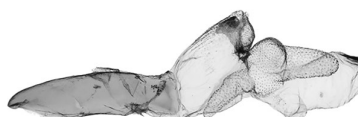
80



*Sany sandakana*, HT  
E Malaysia, Borneo Isl., Sabah, slide BMNH Arctiidae 4893



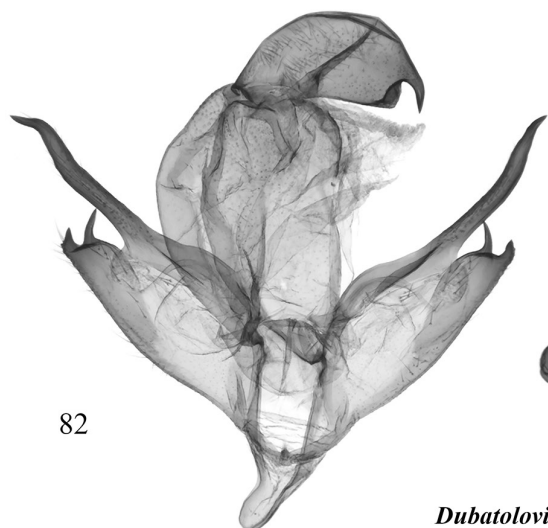
81



*Dubatoloviana trimacula*  
W Malaysia, Pahang, slide ZSM Arct. 2021-095

**Figures 78–81.** Male genitalia of *Bucsekatha* gen. n. (78), *Sany* (79, 80) and *Dubatoloviana* (81) spp. Depositories of the specimens dissected: 78, 79 and 81 in MWM/ZSM; 90 in NHMUK.

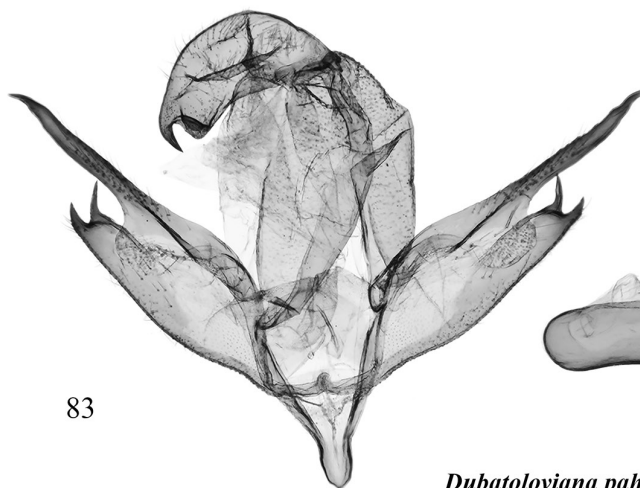




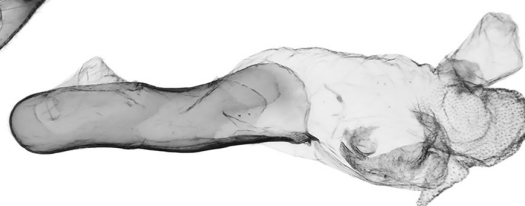
82



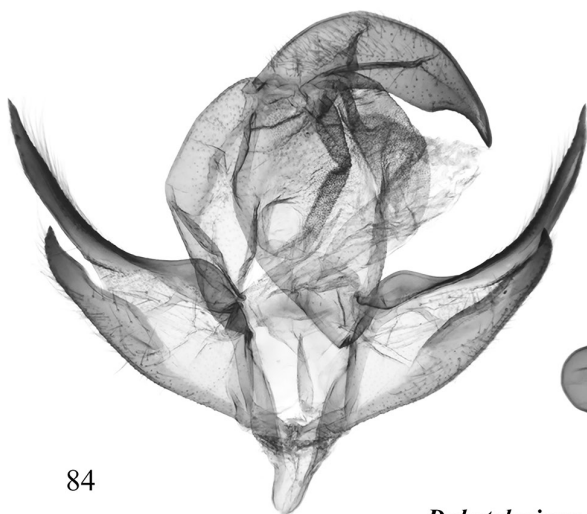
***Dubatoloviana pahanga*, HT**  
W Malaysia, Pahang, slide MWM 37.204



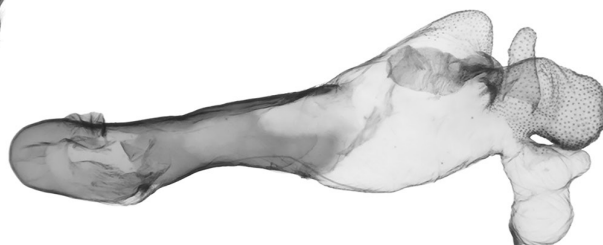
83



***Dubatoloviana pahanga*, PT**  
W Malaysia, Pahang, slide ZSM Arct. 2021-099

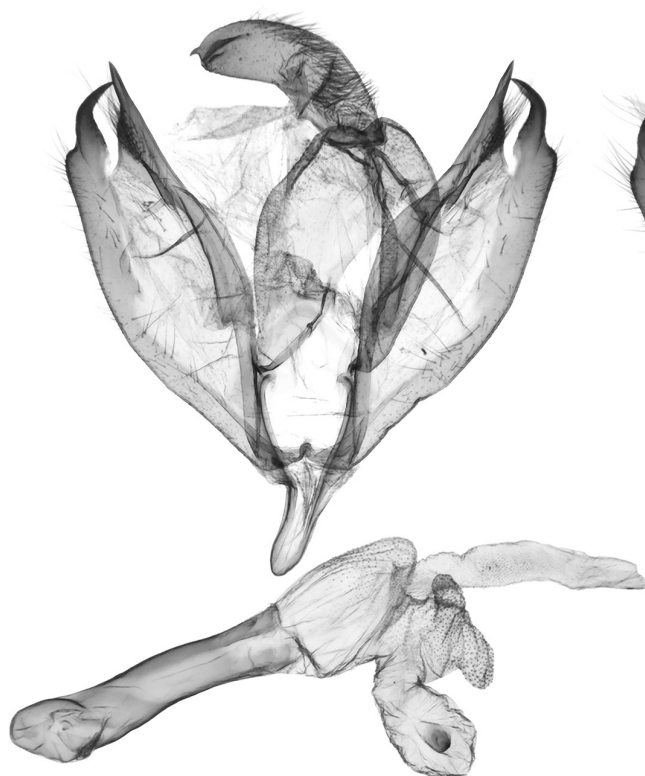


84



***Dubatoloviana diehli* sp. n., HT**  
Indonesia, Sumatra Island, slide AV8372

**Figures 82–84.** Male genitalia of *Dubatoloviana* spp. The specimens dissected are deposited in MWM/ZSM (84: ex CKC).



85

*Dubatoloviana fumidisca*

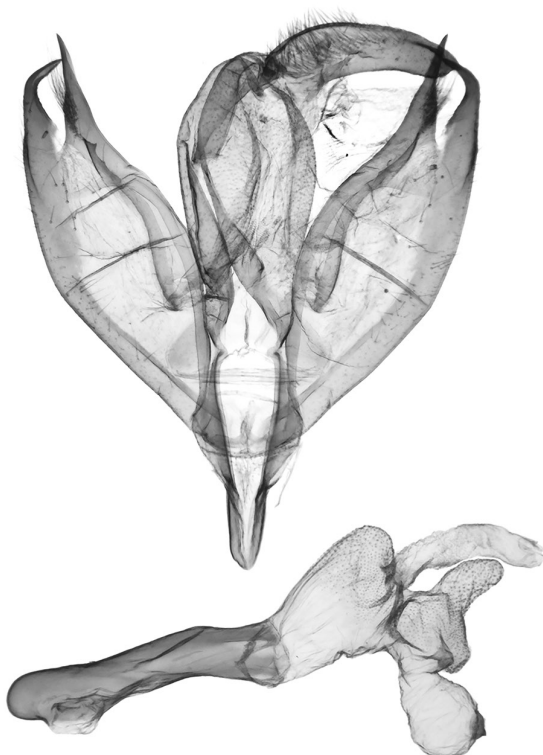
S Thailand, Chumphon Prov., slide AV8368



86

*Dubatoloviana fumidisca*

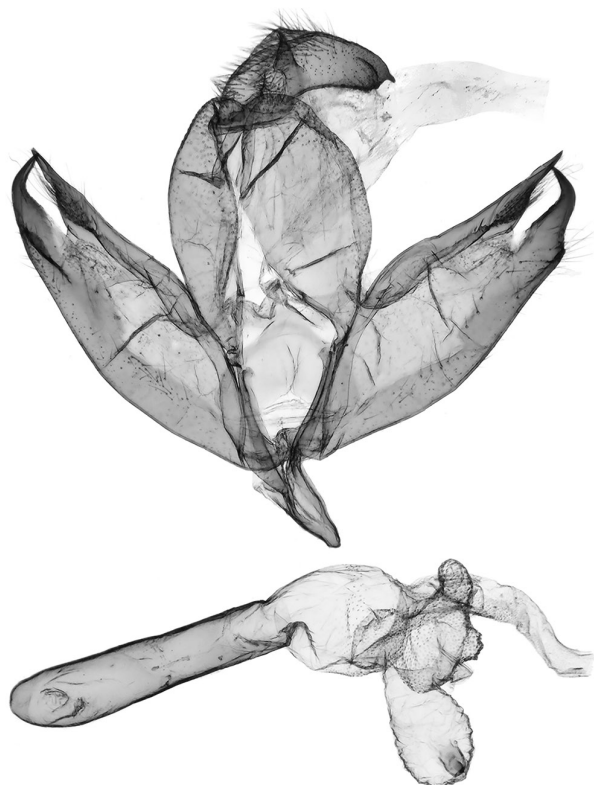
S Thailand, Chumphon Prov., slide AV8370



87

*Dubatoloviana vieta* sp. n., HT

N Vietnam, Tuyen Quang Prov., slide CW 00099



88

*Dubatoloviana navneetsinghi*, HT

NE India, Assam, slide ZSM Arct. 2021-097

**Figures 85–88.** Male genitalia of *Dubatoloviana* spp. Depositories of the specimens dissected: 85 and 86 in CKC; 87 and 88 in MWM/ZSM.



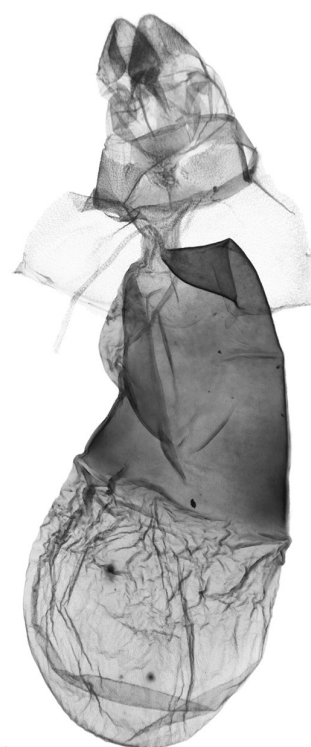
89

***Brunia (Brunia) antica***  
India, North Andaman Isl.,  
slide ZSM Arct. 2021-280



90

***Brunia (Brunia [= Ovenna]) agonchae***  
North Cameroon, Wack,  
slide AV5966



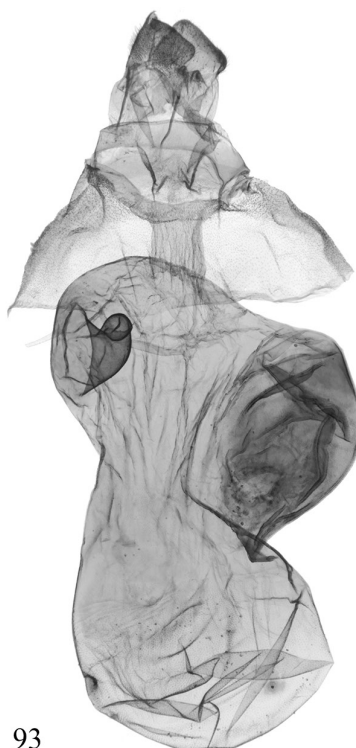
91

***Brunia (Brunikatha) apicalis***  
S Thailand, Ranong Prov.,  
slide AV9151



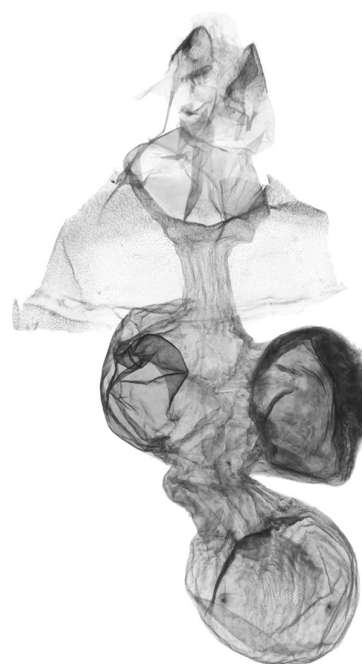
92

***Brunia (Brunikatha) kishidai***  
Philippines, Palawan Isl.,  
slide AV9191



93

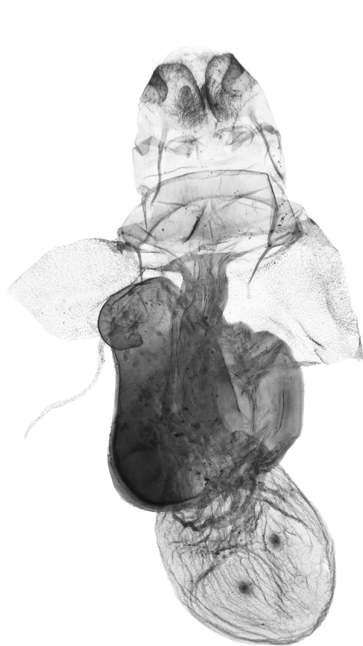
***Brunia (Brunikatha) usuguronis***  
NE India, Meghalaya,  
slide ZSM Arct. 2021-536



94

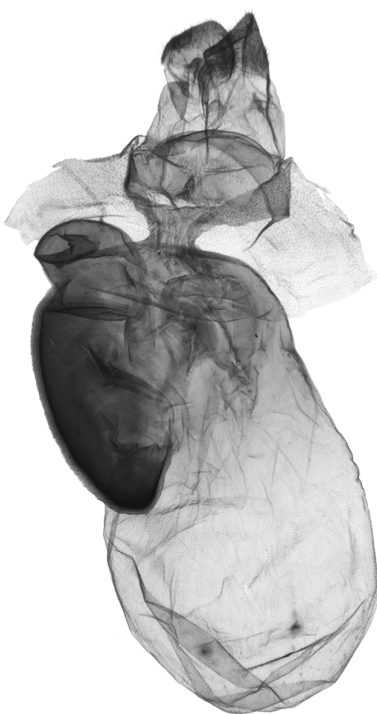
***Brunia (Brunikatha) usuguronis***  
Taiwan, Pingtung County,  
slide ZSM Arct. 2021-515

**Figures 89–94.** Female genitalia of *Brunia* spp. Depositories of the specimens dissected: 89, 93 and 94 in MWM/ZSM; 90 in ANHRT; 91 and 92 in CKC.



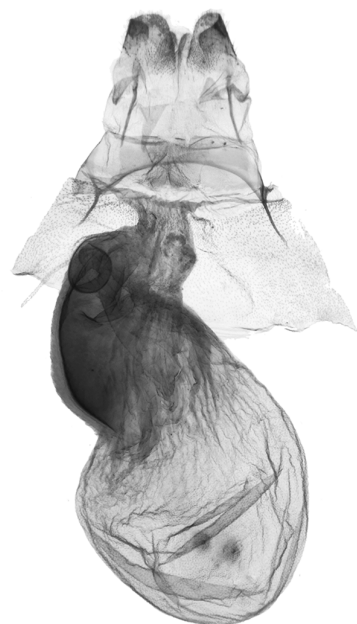
95

*Brunia (Brunikatha) montana*  
Indonesia, Sumatra Isl.  
slide AV9493



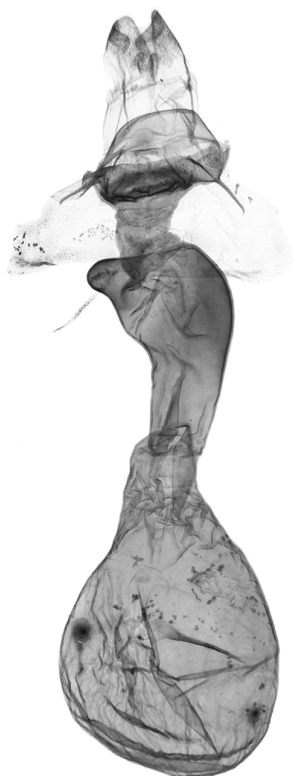
96

*Brunia (Brunikatha) montana*  
W Malaysia, Perak, Cameron Highlands,  
slide ZSM Arct. 2021-600



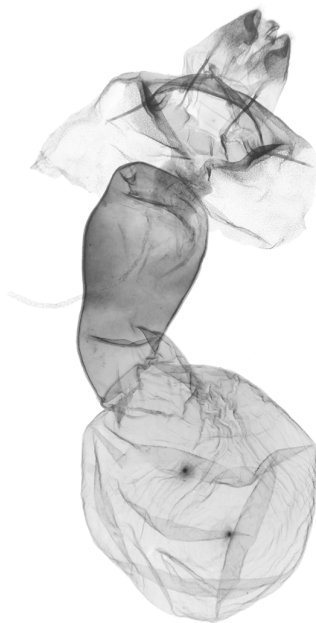
97

*B. (Brunikatha) montana*  
C Thailand, Phetchabuna Prov.,  
slide AV9174



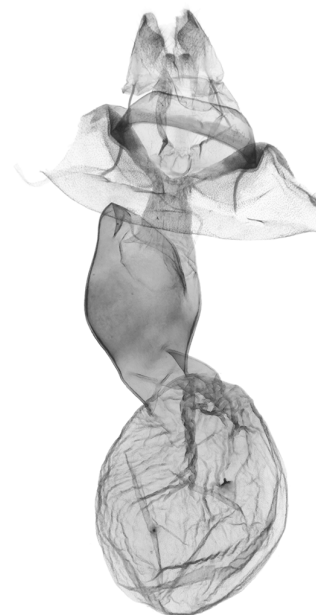
98

*Bucsekatha brevivalva*  
Indonesia, Borneo Isl., Kalimantan Selatan Prov.  
slide ZSM Arct. 2021-542



99

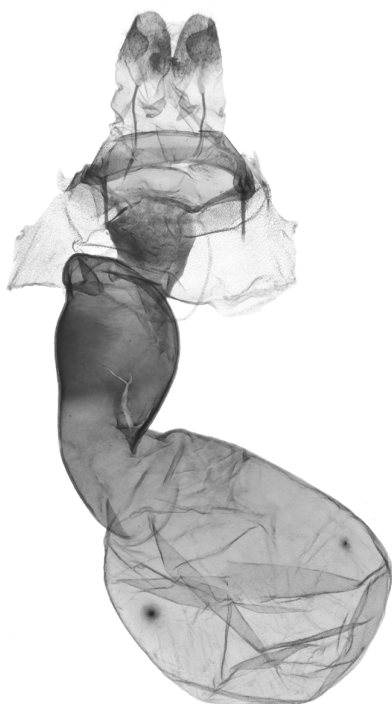
*Bucsekatha sunda* sp. n., PT  
S Thailand, Ranong Prov.  
slide AV9150



100

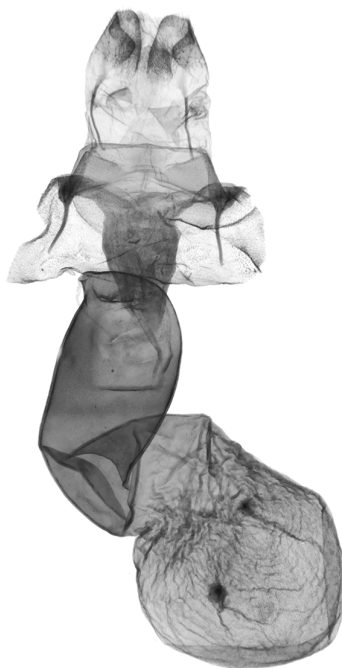
*Bucsekatha sunda* sp. n., PT  
Indonesia, Sumatra Isl.  
slide AV9484

**Figures 95–100.** Female genitalia of *Brunia* (95–97) and *Bucsekatha* **gen. n.** (98–100) spp. Depositories of the specimens dissected: 95, 97, 99 and 100 in CKC; 96 and 98 in MWM/ZSM.



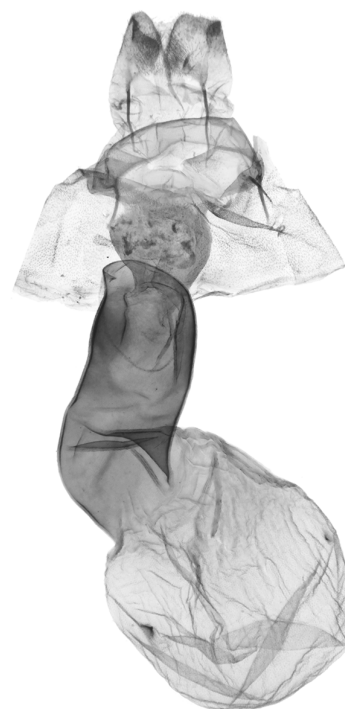
101

*Bucsekatha chonga* sp. n., PT  
Cambodia, Kirirom NR  
slide ZSM Arct. 2021-598



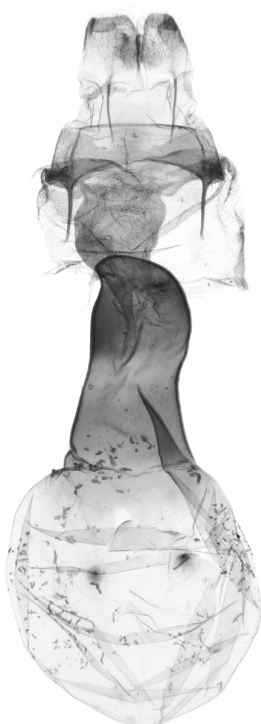
102

*Bucsekatha chonga* sp. n., PT  
Cambodia, Bokor NP  
slide ZSM Arct. 2021-521



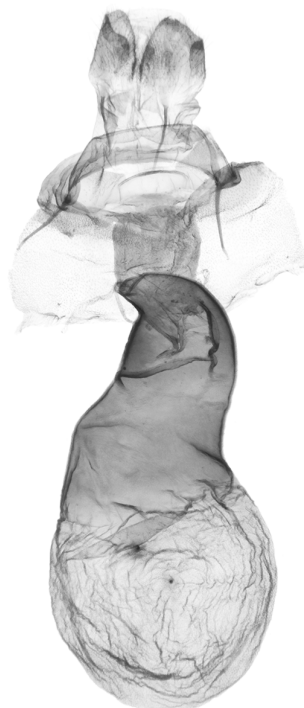
103

*Bucsekatha chonga* sp. n., PT  
C Thailand, Nakhon Nayok Prov.  
slide AV9173



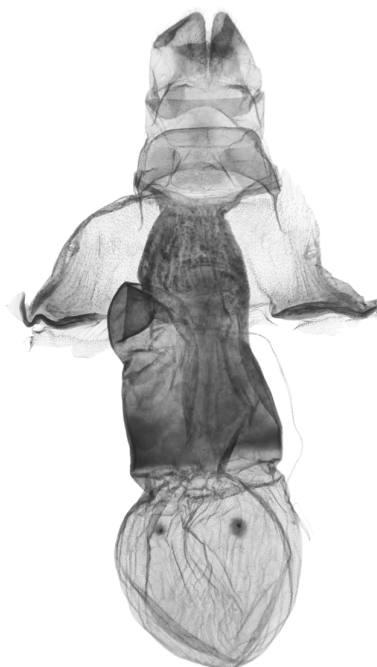
104

*Bucsekatha pseudobrevivalva*  
S Laos, Champasak Prov.  
slide AV9632



105

*Bucsekatha pseudobrevivalva*  
C Vietnam, Da Nang Prov.  
slide AV9633



106

*Sany pseudosandakana*, PT  
W Malaysia, Pahang  
slide MWM 37.369

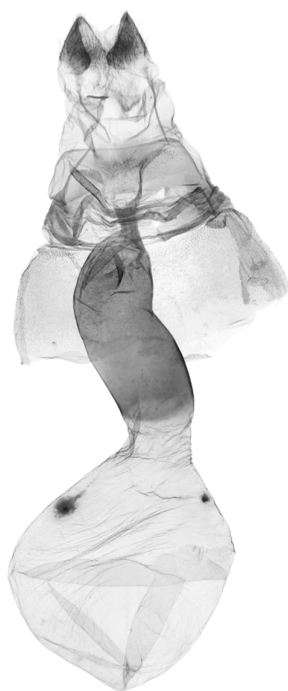
**Figures 101–106.** Female genitalia of *Bucsekatha* gen. n. (101–105) and *Sany* (106) spp. Depositories of the specimens dissected: 101, 102 and 106 in MWM/ZSM; 103 in CKC; 104 and 105 in CAV.





107

***Dubatoloviana trimacula***  
W Malaysia, Pahang,  
slide ZSM Arct. 2021-096



108

***Dubatoloviana trimacula***  
S Thailand, Chumphon prov.,  
slide AV8369



109

***Dubatoloviana pahanga*, PT**  
W Malaysia, Pahang,  
slide ZSM Arct. 2021-100



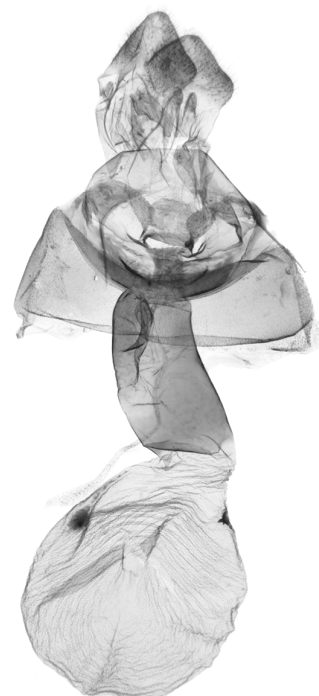
110

***Dubatoloviana diehli* sp. n., PT**  
Indonesia, Sumatra Island,  
slide AV8373



111

***Dubatoloviana fumidisca*, LT**  
Myanmar, Tenasserim Valley,  
slide BMNH Arctiidae 2854



112

***Dubatoloviana fumidisca***  
S Thailand, Chumphon Prov.,  
slide AV8457

**Figures 107–112.** Female genitalia of *Dubatoloviana* spp. Depositories of the specimens dissected: 107 and 109 in MWM/ZSM; 108, 110 and 112 in CKC; 111 in NHMUK.