

***Praephragmatobia* gen. nov., a new subgenus for the *Spilarctia strigatula*-group, with a preliminary review of species (Lepidoptera, Arctiidae)**

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**Abstract** A new subgenus *Praephragmatobia* subgen. nov. of the genus *Spilarctia* Btl. is described for the *Spilarctia strigatula* (Walker, 1855) species group. Four species groups are established within the new subgenus: *Cervina*-group includes: *S. cervina* (Wallengren, 1860 (= *amilada* Swinhoe, 1907, syn. nov.) from Malay Peninsula, Sumatra and Nias, *S. cervina pseudamilada* Dubatolov, subsp. nov. from Siberut Is., *S. griseabrunnea* (Holloway, 1976) from Borneo, *S. rubescens* (Walker, 1855) from Indochina and SW China, *S. r. sanggula* Dubatolov, subsp. nov. from West Sumatra; *Philippinica*-group: *S. philippinica* Dubatolov et Kishida, sp. nov. from Luzon and Bohol, *S. ph. negrosica* Dubatolov et Kishida, subsp. nov. from Negros, *S. mindanao* Dubatolov et Kishida, sp. nov. from Mindanao, *S. palawana* Dubatolov et Kishida, sp. nov. from Palawan, *Strigatula*-group: *S. strigatula* (Walker, 1855) from Java, *S. s. bali* Dubatolov et Kishida, subsp. nov. from Bali, *S. gurkoi* Dubatolov, sp. nov. from Siberut Is.; *Sumatrana*-group: *S. sumatrana* (Swinhoe, 1905) from Sumatra and *S. continentalis* (Rothschild, 1910), stat. nov. from Malay Peninsula.

During the XIX–XX centuries, the large part of the Old World Arctiinae tiger-moth species were mostly treated within the genus *Diacrisia* Hb. and later in *Spilosoma* Curt. The type species of the former belongs to quite a different tribe Micrarctiini (Dubatolov, 2009), while the genus *Spilosoma* Curtis, 1825, with the type species *Bombyx menthastri* [Denis et Schiffermüller], 1775 (= *lubricipedum* Linnaeus, 1758), is extremely variable by the male genitalia. Even the separation of the *Spilosoma* s. str. species with a straight valva with a single tooth or ledge on the ventral surface (Fig. 1) and transferring other species, with a curved or oval valva bearing one or more teeth or processes on the ventral edge, into the genus *Spilarctia* Butler, 1875 (Fig. 2), with the type species *Phalaena lutea* Hufnagel, 1766, almost did not clarify the situation. There is a special *strigatula*-species group erected by J. Holloway (1988), with a narrow straight valvae bearing two spines, opposite to each other, on the ventral and dorsal edges (Figs 30–44). Presence of a tooth on the valva costal edge is not typical for any *Spilarctia*-species. Such valva structure is similar to the species of the Holarctic genus *Phragmatobia* Stephens, 1828 (Fig. 3), with the type species *Phalaena fuliginosa* Linnaeus, 1758. Furthermore, species of the *strigatula*-species group resemble the *Phragmatobia* species by dark forewings and red hindwings. However, they differ noticeably by the male genitalia structure. All *Phragmatobia* species studied by us: the Holarctic *P. fuliginosa* (Linnaeus, 1758), the Palearctic *P. amurensis* Seitz, 1910 and *P. placida* (Frivaldszky, 1835), the Nearctic *P. lineata* Newman et Donahue, 1966, have a nice synapomorphic character – an enlargement of the paratergal lobes, which are not enlarged in the species of the *strigatula*-species group. Moreover, all *Phragmatobia* species (the mentioned species and the Nearctic *P. assimilans* Walker, 1855) have very dark, almost brown forewings only with traces of spots or another pattern like narrow bands, while all species of the *strigatula*-group have more or less dark forewings always with numerous black dots. Among the noticeable differences between members of *Phragmatobia* and the *strigatula*-group, the most important are: simple/dentate versus bipectinate male antennae, cone-like cornuti covering the most surface of the vesica versus spine-like cornuti arranged in small groups, narrower versus wider apical part of uncus, respectively. The members of the *strigatula*-group by internal and external characters look to be transitional between true *Spilarctia* and *Phragmatobia*. Nevertheless, some members of the *strigatula*-species group, with most short apical process of valva, have the general valva structure approaching to some *Spilarctia* species with three short apical processes, like *S. borneensis* (Rothschild, 1910) or *S. hosei* (Rothschild, 1910) (Holloway, 1988: figs. 76–77), but the valvae of latter species are noticeably shorter. So, the alliance of the *strigatula*-species group and

some other *Spilarctia*-species is clear. Nevertheless, the description of the new subgenus for this group is essential. To the new subgenus we attribute all members of the *strigatula*-group by Holloway (1988), excluding *Spilarctia hypogopa* (Hampson, 1907). The latter has elongate valvae (Fig. 4), but we have not found any tooth or protuberance on the valve dorsal edge, opposite to the tooth on ventral edge. The male genitalia structure of this species is very similar with *S. postrubida* (Wileman, 1910) (Fig. 5) from the Himalayas, Vietnam, South China, Taiwan and Japanese Ryu Kyu islands. Both species have similar wing pattern also and belong to the separate species groups.

The description of the new subgenus for the *strigatula*-group with a preliminary review of species is given below.

*Spilarctia* Butler, 1875

***Praephragmatobia* subgen. nov.**

Type species *Arctia strigatula* Walker, 1855.

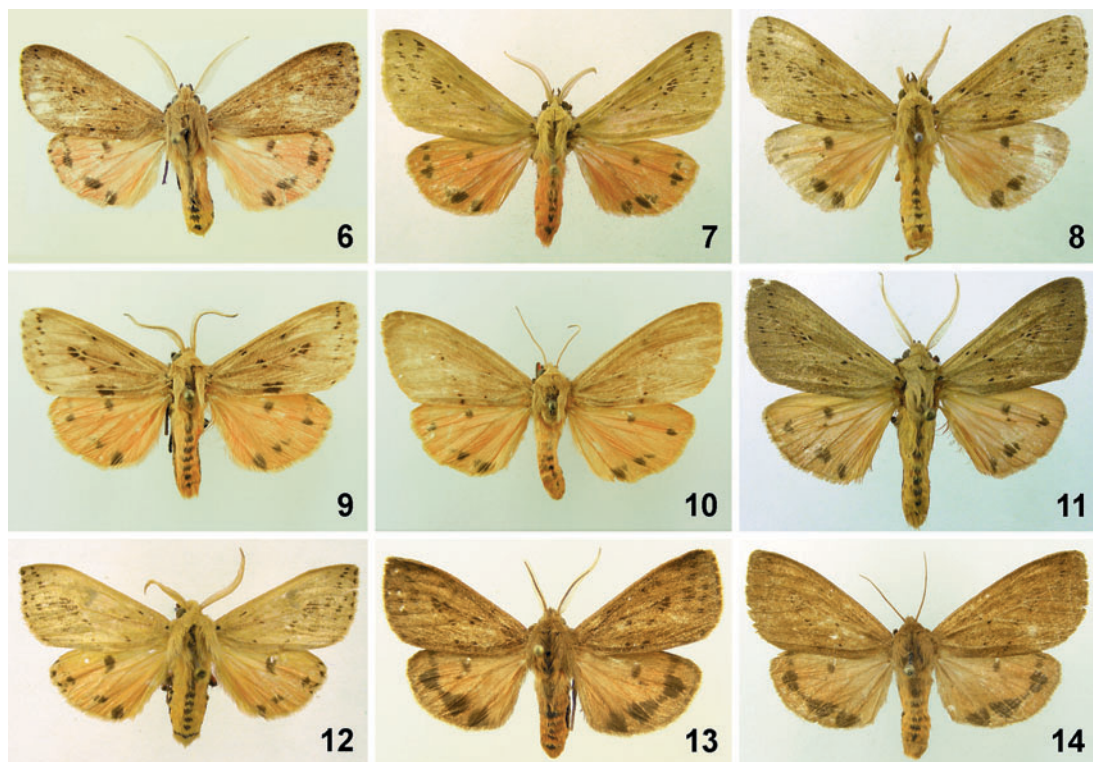
Gender: feminine.

Etymology: *prae*– ahead of (Latin), *Phragmatobia* – the genus name.

Diagnosis. The external features are common with the majority of species of the *Spilosoma*-*Spilarctia*-group. Antennae nearly 1/2 of forewing length or more, bipectinate with long branches in males, pectination gradually decreasing towards apex; pectination in females is short. Eyes large, strongly convex, ovoid and naked. Palpi stout, porrect, longer than short dense frons hairs, also covered with short dense hairs. Proboscis present but short, shorter than palpus length. Fore tibiae simple, without apical spine. Epiphysys noticeably shorter than fore tibia, the latter densely covered with strong hairs. Middle tibiae with one pair, hind tibiae with two pairs of thin spurs. Claws with an incision at middle. Pulvilli as long as claws. Vein  $R_2$  on forewings stalking with vein  $R_{3+5}$  (venation



Figs 1–5. Male genitalia of Spilosomini genera. 1. *Spilosoma lubricipedum* L., Russia, West Caucasus, Cochi, Khosta; 2. *Spilarctia lutea* Hfn., Russia, Amur Province, Blagoveshchensk; 3. *Phragmatobia fuliginosa* L., England; Cromer, Norfolk; 4. *Spilarctia hypogopa* Hmps., Indonesia, Siberut; 5. *Spilarctia postrubida* Wil., Vietnam, Ninh Binh, Gia Vien, Cuc Phuong.



Figs 6–14. *Praephragmatobia* moths. 6. *S. cervina* Wlgr., , Indonesia, West Sumatra, Mt. Sanggul; 7. *S. cervina* Wlgr., , Indonesia, Nias; 8. *S. cervina* Wlgr., , Malaysia, Malay Peninsula, Pahang, Cameron Highlands, Tanah Rata; 9. *S. cervina pseudamilada* subsp. nov., , paratype, Indonesia, Mentawai isls., Siberut isl., Bojakan; 10. *S. cervina pseudamilada* subsp. nov., , paratype, Indonesia, Mentawai isls., Siberut isl., Bojakan; 11. *S. griseabrunnea* Holloway, , Malaysia, Borneo, Sabah, Kundasang; 12. *S. rubescens* Wlk., , Vietnam, Prov. Na-Tinh, forestiere Hüöng-Sôn; 13. *S. rubescens sanggula* subsp. nov., , paratype, Indonesia, West Sumatra, Mt. Sanggul; 14. *S. rubescens sanggula* subsp. nov., , paratype, Indonesia, West Sumatra, Mt. Sanggul.

type C, according to Sotavalta, 1964). Tympanum with a small flattened inflation.

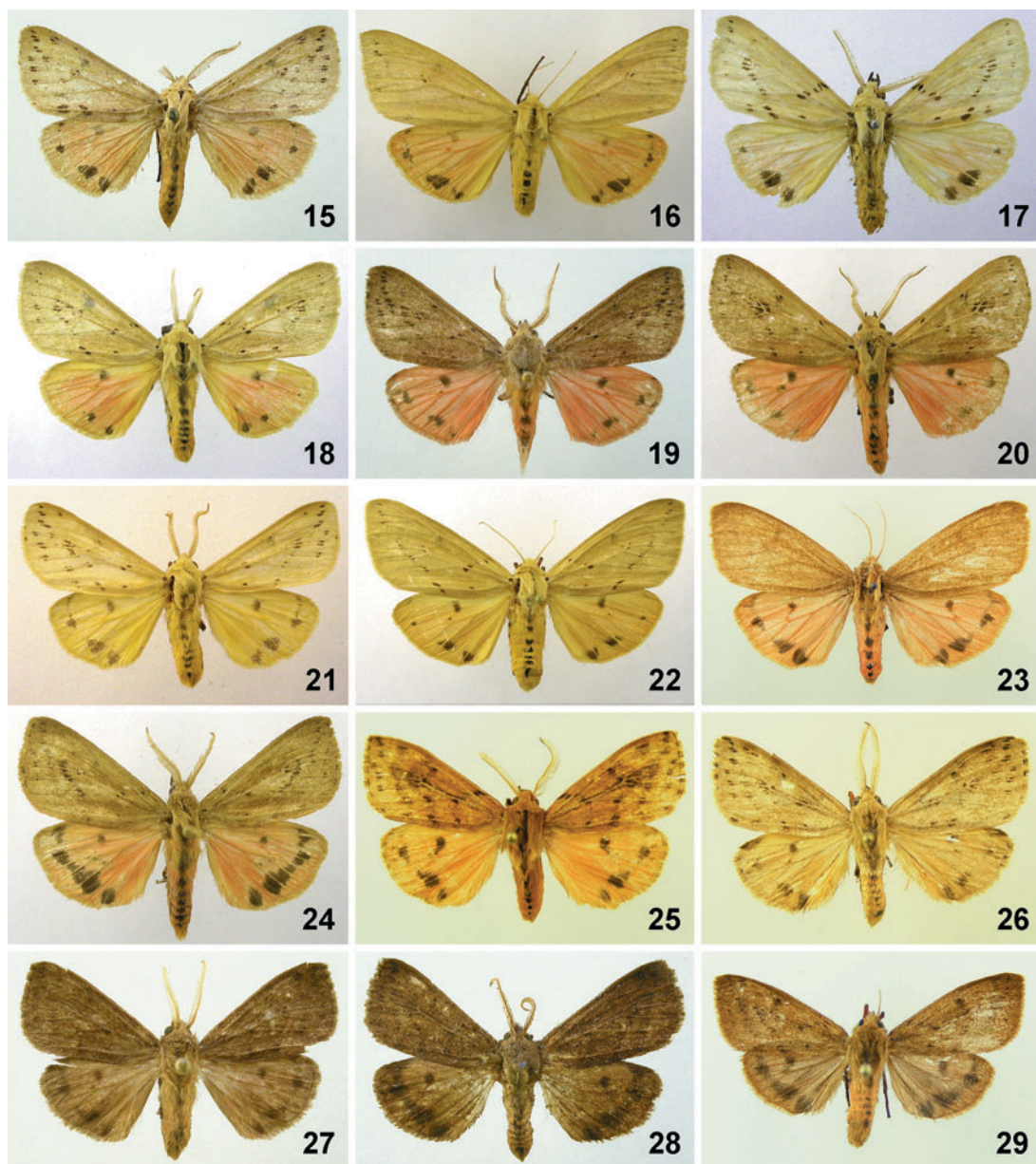
Forewings brown, of different tints, from very dark to very light, with numerous small black dots and darkenings, the dots grouping along veins and are divided by them. Hindwings often testaceous-red, sometimes varying to greyish-brown, with a discal spot and submarginal series of spots, sometimes fused into a band.

Male genitalia (Figs 30–44). Uncus elongate triangular, with apical part short. Valvae elongate, finger-like, narrowing at apex, with two triangular teeth, situating opposite on the costal and ventral edges of valva. Lateral sclerites of vinculum without enlargements. Aedeagus (Figs 45–68) apically with a sclerotization bearing one or two spines. Vesica global, consisting of an apical lobe, covered with small spiniculi and bearing several groups of spine-like cornuti, and a basal lobe, without sclerotizations. Left side of the apical lobe with a small sublobe near its connection with the basal lobe.

#### *Cervina*-species group

Diagnosis. The group is characterized chiefly by rather elongate apical process of valva (Figs 30–





Figs 15–29. *Praephragmatobia* moths. 15. *S. philippinica* sp. nov., ♂, holotype, Philippines, N Luzon, Banaway; 16. *S. philippinica* sp. nov., ♀, paratype, Philippines, North Luzon, Mountain Prov., Barlig; 17. *S. philippinica* sp. nov., ♀, paratype, Philippines, Bohol; 18. *S. philippinica negrosica* subsp. nov., holotype, ♂, Philippines, Negros I., Mt. Canlaon; 19–20. *S. mindanao* sp. nov., ♂, holotype (20) and paratype (19), Philippines, Mindanao I., S. Catabato, Mt. Matutum; 21. *S. palawana* sp. nov., ♂, holotype, Philippines, North Palawan, Langan (seaside); 22. *S. palawana* sp. nov., ♀, paratype, Philippines, North Palawan, Langan (seaside); 23. *S. strigatula* Wlk., ♂, Indonesia, E Java, Mt. Argapura; 24. *S. strigatula* Wlk., ♀, Indonesia, E Java, Mt. Argapura; 25. *S. strigatula bali* subsp. nov., paratype, ♀, Indonesia, Bali, Tamblingan; 26. *S. gurkoi* sp. nov., paratype, ♀, Indonesia, Mentawai isls., Siberut isl., Bojakan; 27. *S. sumatrana* Swinh., ♂, Indonesia, N. Sumatra, Huta Padang, gest. Primärwald; 28. *S. continentalis* Rothsch., ♂, Malaysia, Cameron Highlands; 29. *S. continentalis* Rothsch., ♀, Malaysia, Pahang, Lata Escander.

34), which is slightly curved inwards, also by a moderately large size (wing expanse more than 36 mm), not very dark forewing upperside, forewing underside rose in basal and central parts, without any darkenings; hindwings upperside testaceous-red.

***Spilarctia (Praephragmatobia) cervina*** (Wallengren, 1860), **stat. rev.** (Figs 6–8)

*Chelonia cervina* Wallengren, 1860; Wiener Entomologische Monatschrift **4**: 161; type locality: “Malacca”.  
= *Diacrisia amilada* Swinhoe, 1907; Ann. Mag. Nat. Hist. (7) **20**: 75–76, **syn. nov.**; type locality: “Padang, Sumatra”.

Material. INDONESIA: 6 ♂, West Sumatra, Harau valley, h=700 m, V 2004, native collector leg.; 15 ♀, West Sumatra, Mt. Sanggul, h=1300 m, VII 2004, native collector leg.; 1 ♂, INDONESIA, Nias I., near Sumatra, V 1995, native collector leg., coll. Y. Kishida; 1 ♀, MALAYSIA, Malay Peninsula, Pahang, Cameron Highlands, Tanah Rata, 19.III 1976, Kaoru Sakai leg., coll. Y. Kishida.

Distribution. Malaysia: Malay Peninsula; Indonesia: Sumatra, Nias.

Diagnosis. Wing expanse 37–43 mm in males, 47 mm in females. Vesica (Figs 45–47) with an apical lobe slightly elongate, pressed from apical (hind) side. It bears two groups of cornuti on the left side, both consisting of 15 strong pencil-like cornuti, one of these groups is located on a small sublobe. The right side with a large elongate oval group of cornuti in the central part of the lobe, and one small elongate group is located near the hind part. So, vesica has four cornuti groups (patches). Ventral apical sclerotization of aedeagus with a single spine.

Remarks. *Chelonia cervina* Wllgr. was described on a female from the Malay Peninsula as follows: “*Chelonia cervina* n. sp. alis anticis supra ochraceo-rubescence-cervinis, nigro-punctatis, posticis rubris, nigro-maculatis; omnibus infra rubris macula discoidali punctisque posticarum intramarginalibus nigris; abdomine trifariam nigro-maculato.” According to this description, it is clear that this is a member of the *Praephragmatobia* subgenus, but we have not found any external characters which might distinguish *S. strigatula* Wlk. from *S. amilada* Swinh. Formerly, *C. cervina* Wllgr. was synonymized with *S. strigatula* Wlk. (Hampson, 1901; Strand, 1919). Nevertheless, we have not found any true *S. strigatula* Wlk. in the Malay Peninsula, the single known species from this region is *S. amilada* Sw. Another species, which might be a synonym of *C. cervina* Wllgr., is only *S. rubescens* Wlk., but it is generally darker. So we decide to synonymize *C. cervina* Wllgr. and *S. amilada* Swinh.

***Spilarctia (Praephragmatobia) cervina pseudoamilada*** Dubatolov, **subsp. nov.** (Figs 9–10)

Material. Holotype ♂, INDONESIA, Mentawai isls., Siberut isl., Bojakan, IX 2004, native collector leg. Preserved in the collection of Siberian Zoological Museum of the Institute of Animal Systematics and Ecology (Novosibirsk, Russia). Paratypes: 40 ♂ 2 ♀, the same label.

Diagnosis. Wing expanse 36–47 mm in males, 50 mm in females. By general wing pattern does not differ from the nominotypical subspecies. It differs only by the male genitalia structure (Figs 31, 48): the left group of cornuti, which is located on a small sublobe, consists of ~30 much smaller cornuti, the second left group consists of weak cornuti. The right side of the apical lobe of vesica with a large elongate oval group of cornuti, like in the nominotypical subspecies, while another group is small, oval, three times shorter than in the nominotypical subspecies. Ventral apical sclerotization of aedeagus with a single spine.

***Spilarctia (Praephragmatobia) griseabrunnea*** (Holloway, 1976) (Fig. 11)

*Spilosoma rhodius griseabrunnea* Holloway, 1976; Moths of Borneo, etc.: 4; type locality: “Tuaran ...[SABAH: Tuaran 10 m]” [Malaysia: Borneo].

Material. 1 ♀, MALAYSIA, Borneo, Sabah, Kundasang, alt. 1300 m, VIII 1987, K. Maruyama leg., coll. Y. Kishida.

Distribution. Sundaland: Borneo.

Diagnosis. The species was nicely described and figured by J. Holloway (Holloway, 1988). By wing pattern and other external characters, it is almost identical to other species of the group. According to the author's description, the main difference is found in the male genitalia structure: vesica with the highest number of the cornuti groups in the genus – five (Holloway, 1988). We have studied one specimen from Borneo (Figs 32, 49–50) and found that it has only four cornuti groups on vesica, which are identical to those of *S. cervina* Wllgr., so it is very probable, that *S. griseabrunnea* Holloway is not more than a subspecies of *S. (P.) cervina* Wllgr.

***Spilarctia (Praephragmatobia) rubescens* (Walker, 1855) (Fig. 12)**

*Spilosoma rubescens* Walker, 1855; List Specimens lepid. Insects Colln. Br. Mus. **3**: 677; type locality: Burma (Myanmar): Moulmein, according to the lectotype designation (as the type) by Hampson, 1901: 306.

*Spilarctia strigatula*: Fang, 2000; Fauna Sinica. Lepidoptera **19**: 432–433, pl. XVII, fig. 16.

*Spilosoma strigatula*: Cerny & Pinratana, 2009; Moths of Thailand **6**: 181, pl. 40, fig. 364a, 364b.

Material. 1 ♂, VIETNAM, Prov. Na-Tinh, forestiere Hüöng-Sön, 150 m, 13.VIII 1963, T.Pócs.

Distribution. Burma, Vietnam, China: Yunnan; probably also Nepal and SE India.

Diagnosis. Wing expanse 37 mm in the male studied. By wing pattern does not differ from light specimens of *S. strigatula* Wlk., specific characters being visible only in the male genitalia structure (Figs 33, 51). Vesica with apical lobe rounded, with two groups of cornuti on the left side, which consist of 10–15 cornuti, while the group on the right side of ~30 cornuti. Ventral apical sclerotization with a single spine. Apical process of valva much (3–4 times) longer than the other processes.

Remarks. Holloway (1988) considered this species to be more related to *S. amilada* (Swinh.) [now – *S. cervina* Wllgr.] and cited that it has three groups of cornuti on vesica that completely corresponds with our material.

***Spilarctia (Praephragmatobia) rubescens sanggula* Dubatolov, subsp. nov. (Figs 13–14)**

Material. Holotype ♂, INDONESIA, West Sumatra, Mt. Sanggul, h=1300 m, VII 2004, native collector leg. Preserved in the collection of Siberian Zoological Museum of the Institute of Animal Systematics and Ecology (Novosibirsk, Russia). Paratypes: 10 ♀♀, the same label.

Diagnosis. Wing expanse 30–37 mm in males, 44–46 mm in females. Noticeably darker than *S. strigatula* Wlk. and nominotypical *S. rubescens* Wlk., forewings dark brown, hindwings brownish-red. Forewing underside often with a darkening along the cell hind vein. Vesica (Fig. 52) with apical lobe not global but noticeably pressed, with two very small groups of 3–5 cornuti on either side, and one larger group of ~20 cornuti on left sublobe. Ventral apical sclerotization of aedeagus with a single spine. Apical process of valva 3 times longer than two other processes (Fig. 34).

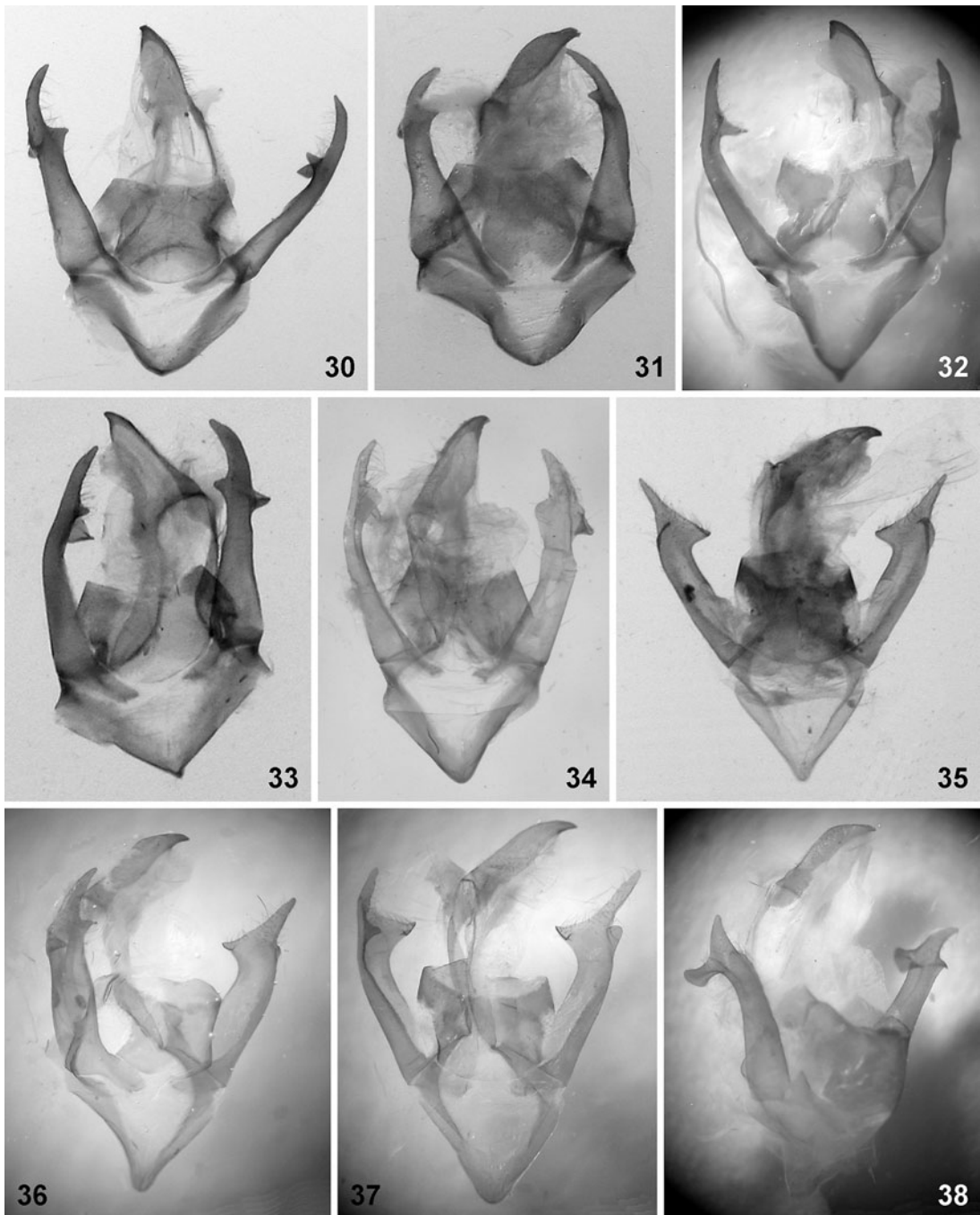
Remarks. Position of cornuti of the nominotypical *S. rubescens* Wlk. and *S. r. sanggula* subsp. nov. are identical, so we consider these taxa to be conspecific, but in the new subspecies three groups are much reduced to 3–5 cornuti, while in nominotypical subspecies these groups consist of 10–15 cornuti (Fig. 52).

By the wing pattern this subspecies looks like *S. sumatrana* (Swinh.), but moths of the new subspecies are larger in size and occur in mountains, not in plains, as *S. sumatrana* (Swinh.).

*Philippinica*-species group

By the wing pattern similar to *S. strigatula* Wlk., but the male genitalia are distinctive (Figs 35–39): the apical process of valva straight or slightly skewed outwards.





Figs 30–38. Male genitalia without aedeagus of *Praepragmatobia* species. 30. *S. cervina* Wlgr., Indonesia, West Sumatra, Harau valley; 31. *S. cervina pseudamilada* subsp. nov., holotype, Indonesia, Mentawai isls., Siberut isl., Bojakan; 32. *S. griseabrunnea* Holloway, Malaysia, Borneo, Sabah, Kundasang; 33. *S. rubescens* Wlk., Vietnam, Prov. Na-Tinh, forestiere Hüông-Sôn; 34. *S. rubescens sanggula* subsp. nov., holotype, Indonesia, West Sumatra, Mt. Sanggul; 35. *S. philippinica* sp. nov., holotype, Philippines, N Luzon, Banaway; 36. *S. philippinica* sp. nov., paratype, Philippines, Bohol; 37. *S. philippinica negrosica* subsp. nov., holotype, Philippines, Negros I., Mt. Canlaon; 38. *S. mindanao* sp. nov., holotype, Philippines, Mindanao I., S. Catabato, Mt. Matutum.

***Spilarctia (Praephragmatobia) philippinica*** Dubatolov et Kishida, **sp. nov.** (Figs 15–17)

Material. Holotype ♂, PHILIPPINES, N. Luzon, Banaway, 21.I 1986, native collector leg. Preserved in the collection of Siberian Zoological Museum of the Institute of Animal Systematics and Ecology (Novosibirsk, Russia). Paratypes: PHILIPPINES: 1 ♂, the same label as in the holotype; 3 ♀, North Luzon, Banaway, Jan. 1986, native collector leg., coll. Y.Kishida; 1 ♂, 2 ♀, North Luzon, Mountain Prov., Barlig, 1,550 m, 17, 19.VII 1985, M. Owada leg., coll. NSMT; 2 ♀, North Luzon, Mountain Prov., Mt. Puguis, 1,900 m, 18.VII 1985, M. Owada leg., coll. NSMT; 1 ♀, Bohol, 16.III 1977, S. Endo leg., coll. Y.Kishida.

Diagnosis. Wing expanse 34–41 mm in males, 53 mm in the female. By the wing pattern it looks like a light specimen of *S. strigatula* Wlk. while hindwings vary from yellowish-rose to light red. The specific differences are visible only in the male genitalia structure. Vesica (Figs 53–57) with an apical lobe bearing three apical elongate groups of cornuti, one on left side and two on right side. Sublobe with a small group of 7 cornuti. Ventral apical sclerotization of aedeagus with a single spine. Apical process of valva (Figs 35–36) more than twice longer than two other processes.

***Spilarctia (Praephragmatobia) philippinica negrosica*** Dubatolov et Kishida, **subsp. nov.** (Fig. 18)

Material. Holotype ♂, PHILIPPINES, Negros I., Mt. Canlaon, 28.IV 1977, H. Kobayashi leg., ex coll. Y. Kishida. Preserved in the collection of National Museum of Nature and Science, Tokyo, Japan. Paratypes: 4 ♀, PHILIPPINES, Negros I., Mt. Canlaon, without data, SZMN.

Diagnosis. Wing expanse 35–39 mm in males. By the wing pattern and general localization of the cornuti patches on the vesica, the new subspecies is similar to the nominotypical one, but the cornuti patch structure on a sublobe of vesica is strongly enlarged, it consists of at least twenty spine-like cornuti (Figs 58–59).

***Spilarctia (Praephragmatobia) mindanao*** Dubatolov et Kishida, **sp. nov.** (Figs 19–20)

Material. Holotype ♂, PHILIPPINES, Mindanao I., S. Catabato, Mt. Matutum, X 1995, native collector leg. Preserved in the collection of Siberian Zoological Museum of the Institute of Animal Systematics and Ecology (Novosibirsk, Russia). Paratype: 1 ♀, PHILIPPINES, Mindanao I., S. Catabato, Mt. Matutum, X 1995, native collector leg., coll. Y.Kishida.

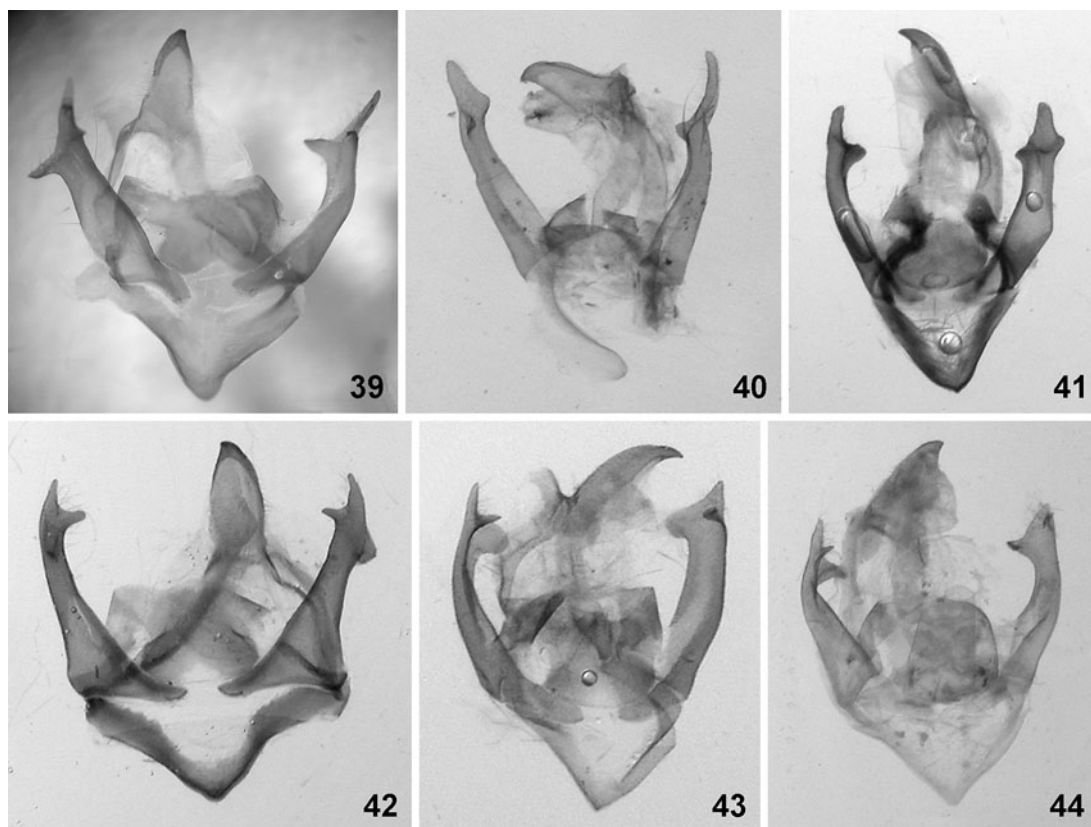
Diagnosis. Wing expanse 38 mm in the holotype, 37 mm in the paratype. The single specimen studied does not differ from darker specimens of *S. strigatula* Wlk.; so, the species is noticeably darker than the former one, the specific differences being visible only in the male genitalia structure. Vesica (Figs 60–61) with a globular apical lobe, bearing two groups of cornuti, one on the left and another on right side. A similar cornuti group is located on left sublobe. So, there are three groups of cornuti on vesica. From *S. philippinica* sp. nov. it differs by absence of the hind cornuti group on the right side and other cornuti patches being larger. Ventral apical sclerotization of aedeagus with a single spine. Apical valva process (Fig. 38) is as long as in *S. philippinica* sp. nov., costal process is much longer than ventral one, nearly equal to apical process, widened and rounded at apex. Ventral process is reduced to a small crest of left valva and is not visible on right valva; if pronounced, it is much shorter than dorsal one, and valva becomes very similar to that of *S. philippinica* sp. nov., but with a longer costal valva process.

***Spilarctia (Praephragmatobia) palawana*** Dubatolov et Kishida, **sp. nov.** (Figs 21–22)

Material. Holotype ♂, PHILIPPINES, North Palawan, Languan (seaside), 26–31.VIII 1985, M. Owada leg. Preserved in a collection of National Science Museum, Tokyo, Japan. Paratype: 1 ♀, the same label as in the holotype.

Diagnosis. Wing expanse 34 mm. By wing pattern does not differ from light specimens of *S. philippinica* sp. nov. and *S. strigatula* Wlk. with yellowish-rose hindwings. The male genitalia are



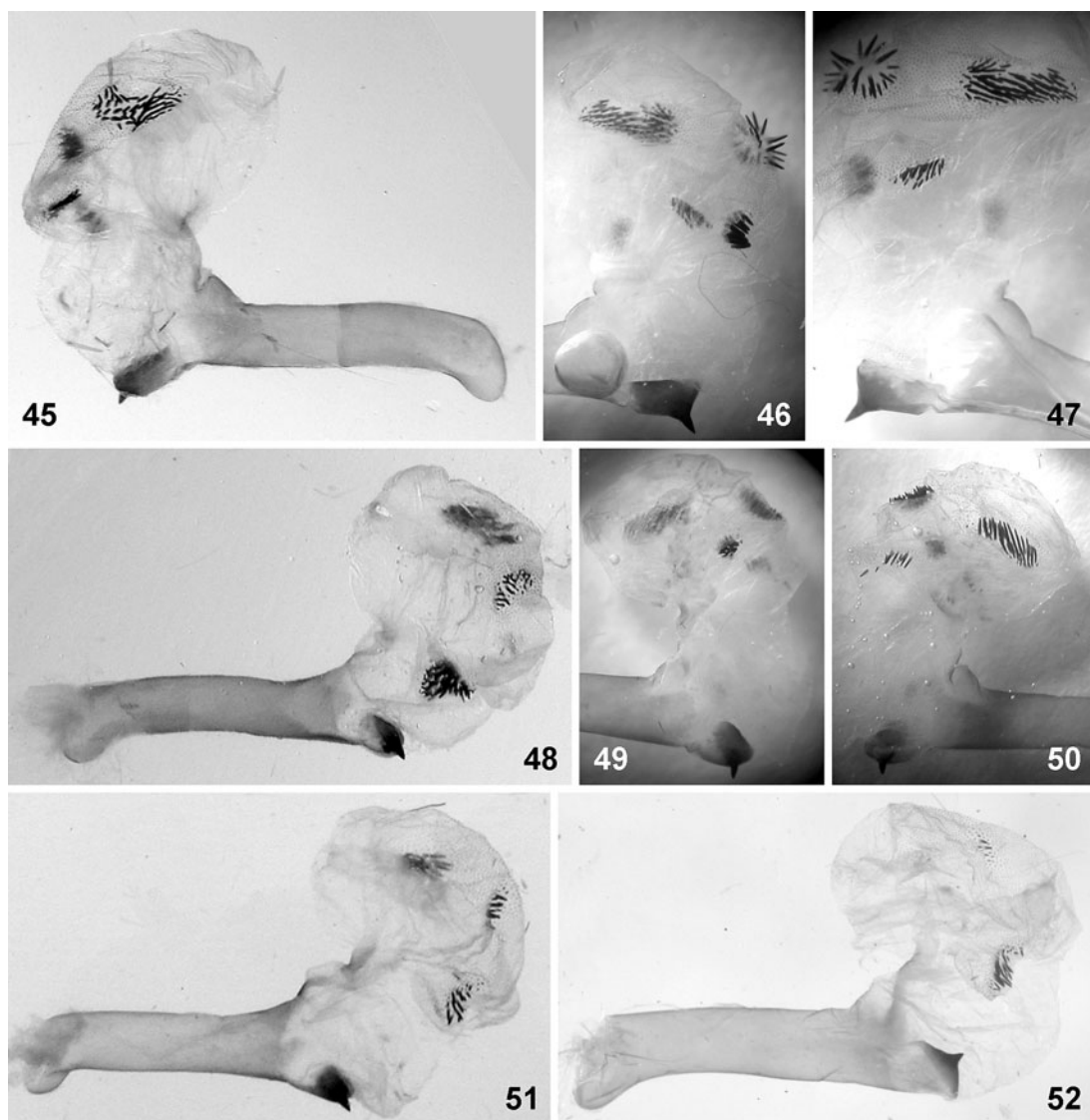


Figs 39–44. Male genitalia without aedeagus of *Praepragmatobia* species. 39. *S. palawana* sp. nov., holotype, Philippines, North Palawan, Langan (seaside); 40. *S. strigatula* Wlk., Indonesia, E Java, Mt. Argapura; 41. *S. strigatula bali* subsp. nov., holotype, Indonesia, Bali, Tamblingan; 42. *S. gurkoi* sp. nov., holotype, Indonesia, Mentawai isls., Siberut isl., Bojakan; 43. *S. sumatrana* Swinh., Indonesia, N. Sumatra, Huta Padang, gest. Primärwald; 44. *S. continentalis* Rothsch., Malaysia, Cameron Highlands.

similar with those of *S. philippinica* sp. nov. The species is characterized by entire absence of cornuti groups on the left side of the vesica (Figs 62–63); but there are one scarce patch on the dorsal side and two scarce patches on the right side, the hind one is very small and consists of six spine-like cornuti. Position of the cornuti groups on the right side of the aedeagus is identical with that of *S. philippinica* sp. nov., but without one more group on the left side. The ventral apical sclerotization of the aedeagus with a single spine. The valva shape (Fig. 39) is similar to that of *S. philippinica* sp. nov. but the costal process is shorter.

#### *Strigatula*-species group

**Diagnosis.** The group is characterized chiefly by a slightly elongate apical part of the valva (Figs 40–42), which is also slightly bent inwards, presence of two large cornuti groups on the hind side of the vesica (Figs 64–65) and a single elongate group on the apical side; also by a not very large size (wing expanse 30–37 mm in males), strong variation of the forewing upperside shading, from very light to dark, the forewing underside often with more or less significant darkening along the cell hind vein; the hindwing upperside usually testaceous-red.



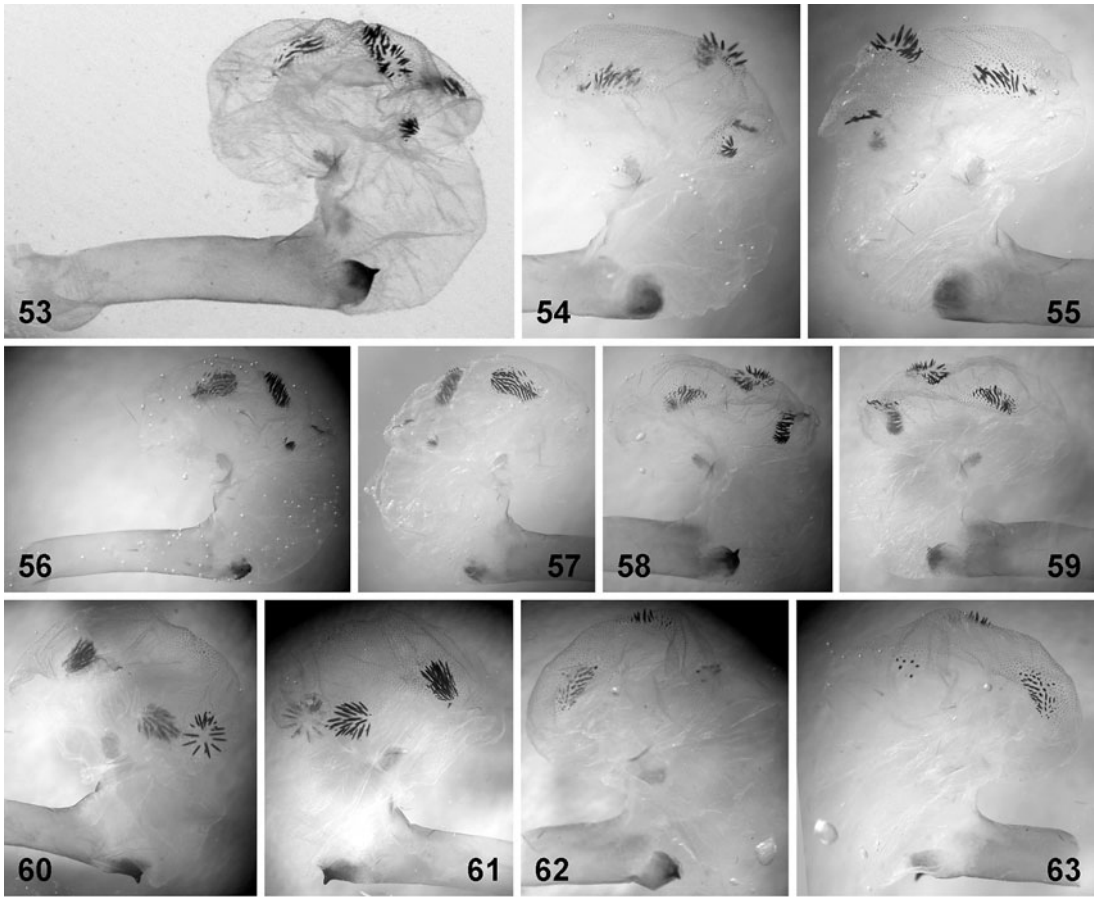
Figs 45–52. Aedeagus of *Praephragmatobia* species from the species group *Cervina*. 45. *S. cervina* Wllgr., right side, Indonesia, West Sumatra, Harau valley; 46–47. *S. cervina* Wllgr., left side (46) and right side (47), Malaysia, Malay Peninsula, Pahang, Cameron Highlands, Tanah Rata; 48. *S. cervina pseudamilada* subsp. nov., holotype, left side, Indonesia, Mentawai isls., Siberut isl., Bojakan; 49–50. *S. griseabrunnea* Holloway, left side (49) and right side (50), Malaysia, Borneo, Sabah, Kundasang; 51. *S. rubescens* Wlk., left side, Vietnam, Prov. Na-Tinh, forestiere Hüöng-Sön; 52. *S. rubescens sanggula* subsp. nov., holotype, left side, Indonesia, West Sumatra, Mt. Sanggul.

***Spilarctia (Praephragmatobia) strigatula* (Walker, 1855) (Figs 23–24)**

*Arctia strigatula* Walker, 1855; List Specimens lepid. Insects Colln. Br. Mus. 3: 613–614; type locality: “Java” [Indonesia].

Material. INDONESIA: 3 ♂, 2 ♀, E Java, Mt. Argapura, IV 1995, native collector leg.

Distribution. Indonesia: Java, Bali. Probably, also Sumatra and Borneo; Holloway (1988), as well as



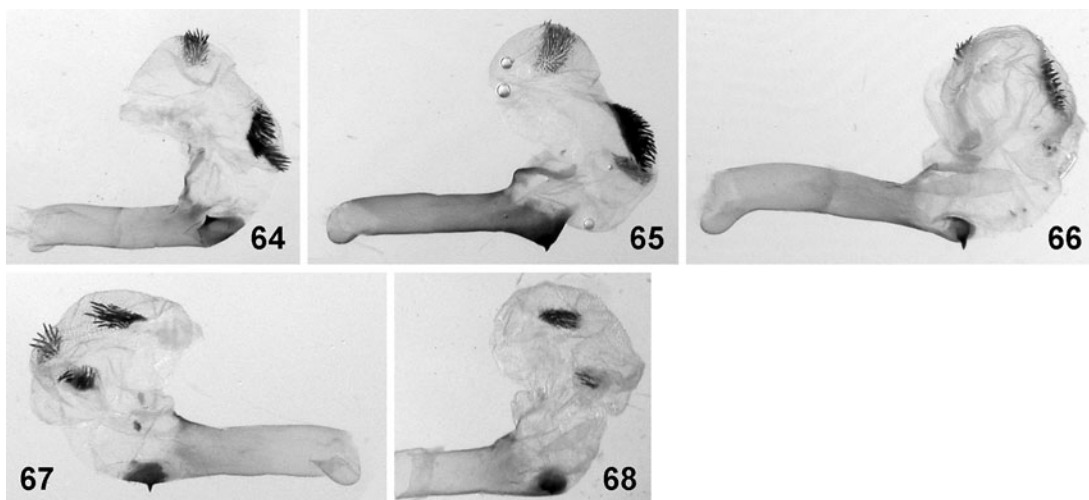
Figs 53–63. 53. Aedeagus of *Praepragmatobia* species from Philippines. *S. philippinica* sp. nov., holotype, left side, Philippines, N Luzon, Banaway; 54–55. *S. philippinica* sp. nov., paratype, left side (54) and right side (55), Philippines, N Luzon, Banaway; 56–57. *S. philippinica* sp. nov., paratype, left side (56) and right side (57), Philippines, Bohol; 58–59. *S. philippinica negrosica* subsp. nov., holotype, left side (58) and right side (59), Philippines, Negros I., Mt. Canlaon; 60–61. *S. mindanao* sp. nov., holotype, left side (60) and right side (61), Philippines, Mindanao I., S. Catabato, Mt. Matutum; 62–63. *S. palawana* sp. nov., holotype, left side (62) and right side (63), Philippines, North Palawan, Langan (seaside).

Cerny & Pinratana (2009) cited this species also from Thailand, but we haven't seen and studied any material from these territories.

**Diagnosis.** Wing expanse 35 mm in males, 46–48 mm in females. Vesica (Fig. 64) with apical lobe globular, covered with small dot-like spiniculi, bearing three groups of long spine-like cornuti: apical oval, two others located on hind side of apical lobe, near connection with basal lobe of vesica. Left group of cornuti oval, while right one very elongate. Cornuti size of right and left groups are nearly equal. Ventral apical sclerotization of aedeagus with a single spine. Apical process of valve (Fig. 40) noticeably longer than two other processes.

***Spilarctia (Praepragmatobia) strigatula bali* Dubatolov et Kishida, subsp. nov.** (Fig. 25)

**Material.** Holotype , INDONESIA, Bali, Tamblingan, VI 2004, native collector leg. Preserved in the collection of Siberian Zoological Museum of the Institute of Animal Systematics and Ecology



Figs 64–68. Aedeagus of *Praephragmatobia* species from the species groups *Strigatula* and *Sumatrana*. 64. *S. strigatula* Wlk., left side, Indonesia, E Java, Mt. Argapura; 65. *S. strigatula bali* subsp. nov., holotype, left side, Indonesia, Bali, Tamblingan; 66. *S. gurkoi* sp. nov., holotype, left side, Indonesia, Mentawai isls., Siberut isl., Bojakan; 67. *S. sumatrana* Swinh., right side, Indonesia, West Sumatra, Harau valley; 68. *S. continentalis* Rothsch., left side, Malaysia, Cameron Highlands.

(Novosibirsk, Russia). Paratypes: 34 ♂, the same locality, V 2004, native collector leg.; 53 ♀, 12 ♂, the same locality, VI 2004, native collector leg.; 1 ♀, INDONESIA, Bali I., Gilimanuk, II 1986, native collector leg., coll. Y.Kishida.

Diagnosis. Wing expanse 30–35 mm in males, 42–49 in females. By upperside wing pattern the new subspecies does not differ from the nominotypical subspecies, but the forewing underside with a darkening along the hind vein of the central cell. The apical and left hind cornuti groups (Fig. 65) are much better expressed than in the nominotypical subspecies, the latter is oval elongate and consists of spines, which are noticeably stronger than in the two other cornuti groups. The right hind cornuti group is elongate but nearly twice shorter than the left one and consists of very small spines. The ventral apical sclerotization of the aedeagus always with two spines. The apical process of the valva (Fig. 41) nearly equal to the two other processes.

***Spilarctia (Praephragmatobia) gurkoi* Dubatolov, sp. nov.** (Fig. 26)

Material. Holotype ♂, INDONESIA, Mentawai isls., Siberut isl., Bojakan, IX 2004, native collector leg. Preserved in the collection of Siberian Zoological Museum of the Institute of Animal Systematics and Ecology (Novosibirsk, Russia). Paratypes: 15 ♀, 2 ♂, the same locality.

Diagnosis. Wing expanse 30–31 mm in males, 36 mm in females. By upperside wing pattern does not differ from *S. strigatula* Wlk., forewing underside with a darkening along the cell hind vein. Vesica (Fig. 66) with apical lobe bearing two groups of cornuti, fore one oval; hind one strongly elongate. Left sublobe with 1–4 very small rounded sclerotizations, central one with a central spine. Right side of apical vesica lobe with a single small cornutus. Ventral apical sclerotization of aedeagus with a single spine. Apical process of valva (Fig. 42) slightly longer than ventral one, while costal process is larger, flattened and rounded.

Remarks. Because this species has not large cornuti groups on the hind side of the vesica, we are not sure that it should be placed into the same group with *S. strigatula* (Wlk.), but a short apical valva process that is slightly bent inwards and the wing pattern are common exactly with *S. strigatula* (Wlk.).



*Sumatrana*-species group

Diagnosis. The group is similar to the former *strigatula*-group, by a short apical process on the valva (Figs 43–44) but differs by a very dark wing pattern, either of the fore or hindwings, which are almost identical by coloration. Position of cornuti on the aedeagus (Figs 67–68) differs from the previous group: there are no cornuti groups on the hind side of vesica.

*Spilarctia (Praephragmatobia) sumatrana* (Swinhoe, 1905) (Fig. 27)

*Diacrisia sumatrana* Swinhoe, 1905; Ann. Mag. Nat. Hist. (7) **16**: 143; type locality: “Soekaranda, Sumatra”.

Material. INDONESIA: 1 ♂, N. Sumatra, Huta Padang, gest. Primärwald, 500 m, 2.49 N / 99.14 E, 1-4.IX 1991, Graul & Schintlmeister leg.; 1 ♀, West Sumatra, Harau valley, h=700 m, V 2004, native collector leg.

Diagnosis. Wing expanse 27–28 mm in males. Vesica (Fig. 67) with apical lobe elongate and bearing three groups of cornuti, large oval group located on right side, another large one in apical part near hind side, and a smaller group on left sublobe.

*Spilarctia (Praephragmatobia) continentalis* (Rothschild, 1910), **stat. nov.** (Figs 28–29)

*Diacrisia sumatrensis continentalis* Rothschild, 1910; Novit. Zool. **17**: 147; **18**: t. 3, fig. 31; type locality: Perak.

Material. MALAYSIA: 1 ♂, Cameron Highlands, 23 XII 1971, anonymous leg., 3 ♀, 29. Xii. 1971, Y. Kishida leg.; 2 ♀, Pahang, Lata Escander, waterfall, 4° 26' N, 101° 22' E, 8.II 2006, A. V. Solovyev leg.

Diagnosis. Wing expanse 28 mm in the male studied. Vesica (Fig. 68) with an elongate apical lobe, bearing only two groups of cornuti, the right one is located on its fore part and another smaller one on the left sublobe.

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