

New species and new records of *Manota* Williston (Diptera, Mycetophilidae) from the Oriental region

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Abstract

The following 19 new species are described: *Manota aconcinna* (Thailand), *M. ancylochaeta* (Thailand and Malaysia), *M. auriculata* (Thailand), *M. clavulosa* (Thailand), *M. collina* (Thailand), *M. confixa* (Malaysia), *M. crinita* (Malaysia), *M. cristata* (Thailand), *M. fimbriata* (Malaysia), *M. index* (Malaysia), *M. inflata* (Thailand), *M. juncta* (Malaysia), *M. oblonga* (Thailand), *M. parvistylata* (Malaysia), *M. pelli* (Thailand), *M. perlobata* (Thailand and Burma), *M. planilobata* (Thailand), *M. subdentata* (Malaysia), and *M. submirifica* (Thailand). New records are given for the following species: *M. acutangula* Hippa (Thailand), *M. cerciflex* Hippa (Malaysia), *M. curvata* Hippa (Malaysia), *M. globigera* Hippa (Thailand), *M. heptacantha* Hippa (Malaysia), *M. ferrata* Hippa (Malaysia), *M. oligochaeta* Hippa (Thailand), *M. ovata* Hippa (Thailand), *M. pappi* Hippa (Malaysia), *M. pectinata* Hippa (Thailand), *M. perpusilla* Hippa (Thailand), *M. pollex* Hippa (Malaysia), *M. plusiochaeta* Hippa (Malaysia), *M. procera* Hippa (Sarawak), *M. rosliei* Hippa (Thailand, Malaysia), and *M. simplex* Hippa (Thailand).

Key words: Diptera, Mycetophilidae, *Manota*, taxonomy, new species, Oriental region

Introduction

For many years, the genus *Manota* was represented in the Oriental region by a single species, *M. orientalis* Senior-White (Senior-White 1922), but in recent years the number of species has rapidly increased to 36. Of the new species, 27 have been described from peninsular Malaysia (Hippa 2006), 7 from Thailand (Hippa and Papp 2007) and 1 from Maluku Utara, Indonesia (Hippa 2007). Several species have also been described from nearby areas, 4 from the eastern Palaearctic (Papp 2004, Ševčík 2002) and 12 from New Guinea (Hippa 2007). One of the species from New Guinea was recorded from Thailand by Hippa and Papp (2007).

An outstanding effort to build up an inventory of the insect diversity in the Oriental region is being made by the “Thailand Insect Group for Entomological Research (TIGER) project”. Over three years, 10 Thailand national parks are being sampled with Malaise traps by park staff. The material is sorted to major taxonomic groups by trained technicians at the Queen Sirikit Botanic Garden, Thailand, to be further used by taxonomic specialists around the world. I have studied *Manota* in that part of the material which was collected in 2006, and am publishing the results in this paper. The material contains 20 species of which no less than 12 are new. As a remarkable detail, it may be worth mentioning here that not one of the 7 species recently described from Thailand (Hippa and Papp 2007) has been found in the new material. I take the opportunity to include in this paper other unpublished Oriental *Manota* material found in the Natural History Museum, London, and the Swedish Museum of Natural History, Stockholm.

Material and methods

The material was preserved in ethanol except for a few specimens which were dry, either pinned or glued on labels. I have detached the abdomen or only the apical part of abdomen from specimens and macerated the detached part in warm potassium hydroxide (10% KOH). I have further detached the hypopygium beyond segment 8. After washing in water and step-wise dehydration in concentrated alcohol, I have placed the parts of the abdomen for a few seconds in clove oil (eugenol), after which I have mounted them in “Euparal” between two pieces of cover glass, which enables the specimen to be studied from both sides under a com-

pound microscope. Such preparations are now attached to glass slides by a couple of strips of adhesive tape across their edges and are easily detached when needed. Other parts of the body of the alcohol-preserved specimens have not been treated with potassium hydroxide, but after dehydration I mounted them as such in "Euparal". In the case of dry specimens, I have only soaked them for some hours in water before dehydration and mounting. With some dry specimens, only the abdominal parts are slide-mounted, the rest of the body remaining as it was. The slide is enclosed in a small envelope and is attached to the pin that bears the rest of the specimen.

The morphological terminology follows Hippa and Papp (2007). The terminology of the male hypopygium is explained in Figs 2 and 9, and that of the female terminalia in Fig. 1. The wing venation is practically identical in all the Oriental species and is similar to that illustrated earlier (Hippa 2006, fig. 2), and so it is not mentioned in the descriptions here. Characters dealing with the setosity of the apical part of Sc, the setae marking reduced parts of M and A1, and the presence or absence of scattered setae on the posterior part of the wing membrane are not described because observation of the setae has been uncertain in most of the specimens.

Illustrations were made with the aid of a drawing tube attached to a Leitz Diaplan compound microscope.

The material is deposited in the following institutions: Queen Sirikit Botanic Garden, Chiang Mai (QSBG), The Natural History Museum of Los Angeles County, Los Angeles (LACM), The Natural History Museum, London (BMNH), and The Swedish Museum of Natural History, Stockholm (SMNH).

The following abbreviations are used in the figures: cr = cercus, cr 1 = basal segment of cercus, cr 2 = distal segment of cercus, dm 1 = lobe at dorsal mesial margin of gonocoxa, gs = gonostylus, gx = gonocoxa, gx a = gonocoxal apodeme, gx l = apicolateral lobe of gonocoxa, gx d = dorsal mesial margin of gonocoxa, gx v = ventral mesial margin of gonocoxa, hpr = hypoproct, jx b = basal body of juxtagonostylar seta or setae, jx s = juxtagonostylar seta or megaseta, pa l = paraapodemal lobe, ps l = parastylar lobe, st 6–st 10 = sternite 6–sternite 10, tg 6–tg 9 = tergite 6–tergite 9, tm = tegmen, tm a = apodeme of tegmen.

Description of new species

Manota aconcinna sp. n.

(Figs 2 A, B, C)

Male. Colour. Head pale brown, frons, vertex and occiput darker brown, antennal flagellomere 1 and ventral part of flagellomeres 2 and 3 paler than rest of antenna, mouthparts pale yellowish. Thorax pale brown, anterior and ventral parts of pleura paler than the other parts. Legs pale yellowish, femur 3 darker infuscated on apical fourth. Wing unicolorous yellowish-brown; haltere yellowish-brown with dark brown knob. Abdomen pale brown. All the other setosity pale, yellowish or brownish, the thicker setae seeming darker than the finer setae and trichia. **Head** (lost in holotype). Antennal flagellomere 4, Fig. 2 A. Palpomere 3 of maxillary palpus with apicomeresial extension, with 4 apically expanded curved sensilla; palpomere 4 with parasegment. Number of postocular setae 11. **Thorax.** Anepisternum setose, with 29–33 setae, anterior basalare setose, with 5–6 setae, preepisternum 2 setose, with 12–33 setae, laterotergite non-setose, episternum 3 setose, with 8–14 setae. **Wing.** Length 1.7 mm. **Hypopygium,** Figs 2 B, C and D: Sternite 9 about one-half of the ventral length of gonocoxa, lateral margin sharply delimited and forming a contiguous arch with posterior margin, anterior margin deeply incised, the sides separated by a medial furrow, the setae similar to the ventral setae of gonocoxa. Ventral mesial margin of gonocoxa simple. Parastylar lobe large, with several rather fine setae at mesial margin. Paraapodemal lobe well exposed in ventral view. Dorsal mesial margin of gonocoxa simple, with an oblique setose subapical lobe, with three or four small but prominent setae between the lobe and the gonostylar apodeme; the postero-mesial part of gonocoxa probably slightly inflated in the mount and would probably

take up a similar position to that in Fig. 21 B. Two juxtagonostylar setae present, both of these equally large simple megasetae and arising from a short basal body which is about one-fourth of their length. Gonostylus simple, elongate-oval with rather long unmodified setae, subapically on dorsal side with a transverse row of long setae differing from the other scanty setosity. Tegmen subtriangular with the apex narrow and asymmetric, the lateral shoulders weak. Hypoproct large, extending posteriorly to the middle of gonostylus, with some 15 setae on each half, 5 of these setae forming a conspicuous oblique ventral row, 4 or 5 others forming an unusual lateral group. Cerci medially separate.

Female unknown.

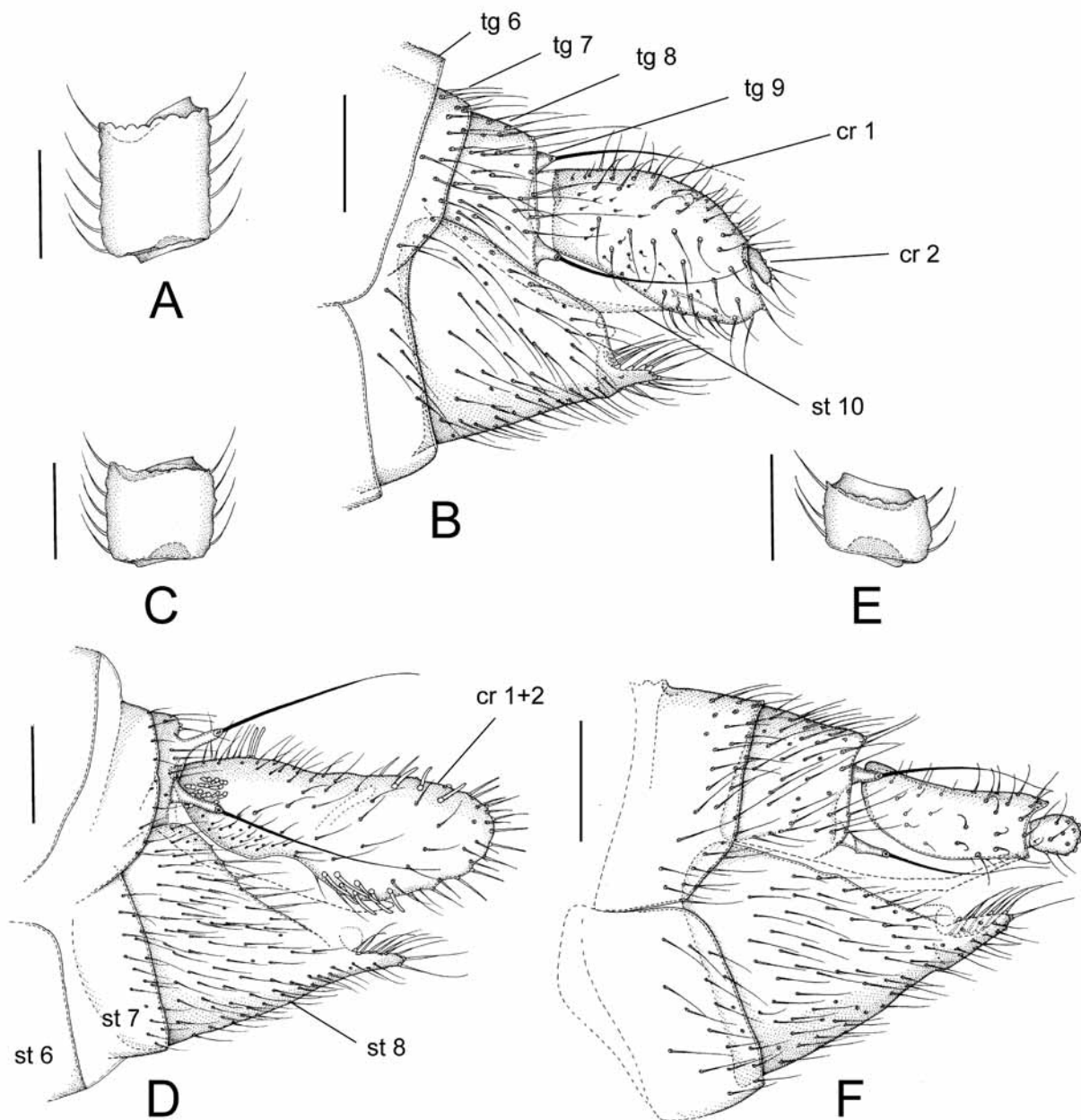


FIGURE 1. Female antennal flagellomere 4, lateral view (A, C, E), and apical part of female abdomen, lateral view (B, D, F). **A, B.** *Manota clavulosa* **sp. n.** **C, D.** *M. perlobata* **sp. n.** **E, F.** *M. inflata* **sp. n.** Scale for A, C and E 0.05 mm, for B, D and F 0.10 mm.

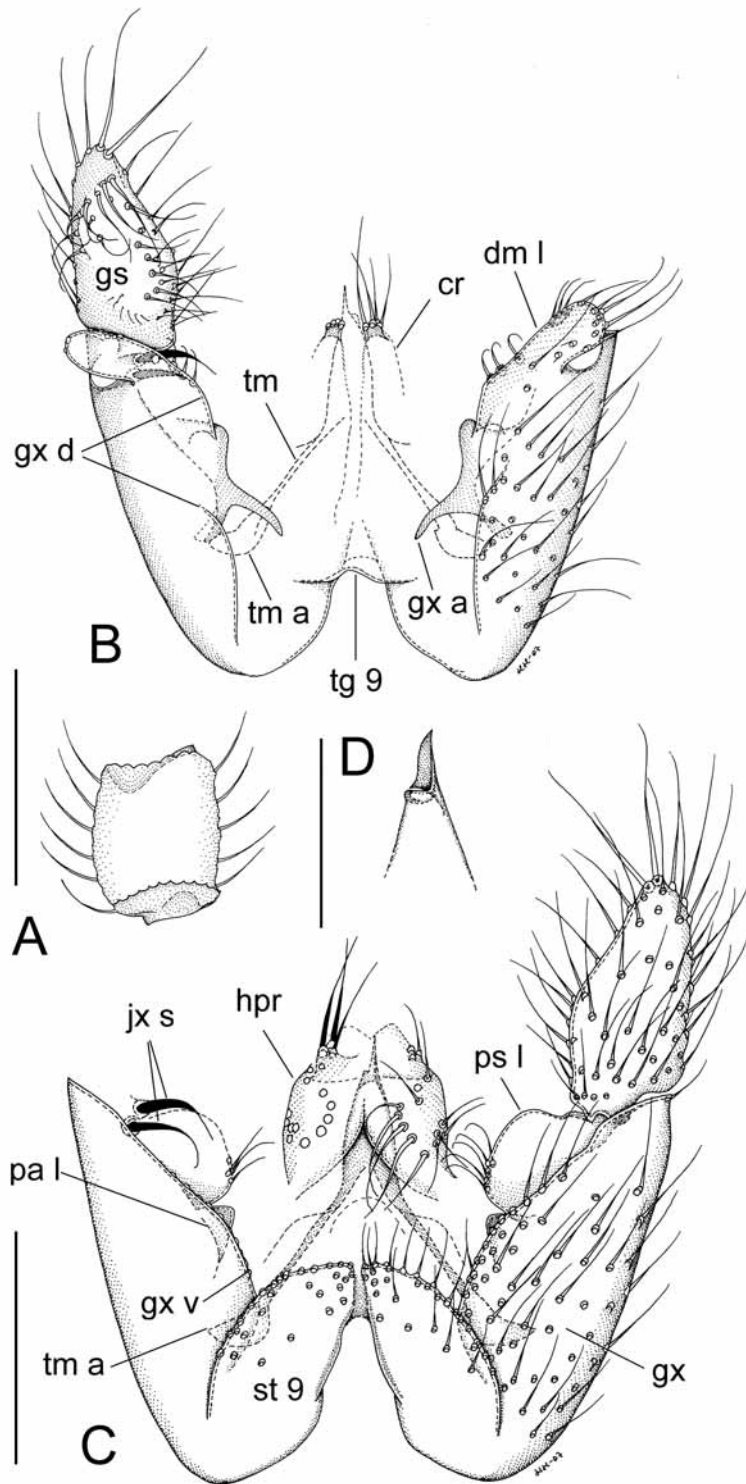


FIGURE 2. *Manota aconcinna* **sp. n.** (A, B, C holotype, D paratype): **A.** Antennal flagellomere 4, lateral view. **B.** Hypopygium, dorsal view. **C.** Hypopygium, ventral view. **D.** Apical part of tegmen, ventral view. Scale 0.10 mm.

Discussion. *M. aconcinna* is similar to *M. mirifica* Hippa and Papp and *M. submirifica* **sp. n.** all of which differ from the other known *Manota* by the asymmetric apex of tegmen. It differs from both by having the base of parastylar lobe narrow, about half the distance between the posterior margin of sternite 9 and the base of gonostylus, whereas it is very broad in the two other species, two-thirds or more of the distance between sternite 9 and the gonostylus. The apex of the tegmen is similar to *M. mirifica* in being straight, not down-

turned as in *M. submirifica*. There is a subapical lobe on the dorsal mesial margin of gonocoxa as in *M. submirifica* but not in *M. mirifica*, and the setae on the hypoproct are in groups as in *M. submirifica*, not evenly distributed as they are in *M. mirifica*. *M. aconcinna*, *M. mirifica* and *M. submirifica* are similar to *M. collina* sp. n. and *M. planilobata* sp. n. The two latter differ, in addition to the symmetric apex of the tegmen, by having one of the two juxtagonostylar megasetae conspicuously stronger than the other one.

Types. *Holotype*. Male, THAILAND, Chalyaphum, Pa Hin Ngam NP Tung, Dok Grajeaw 720 m, 15°38.208'N 101°23.556'E, Malaise trap 6–12.viii.2006, K. Sa-nog and B. Adnafai leg., T331 (in QSBG).

Paratype. 1 male, THAILAND, Chiang Mai, Doi Inthanon NP, Vachiratharn Falls, 700m, 18°32.311'N 98°36.048'E, Malaise trap 22.vii–2.viii.2006, Y. Areeluk leg., T116 (in SMNH).

***Manota ancylchaeta* sp. n.**

(Figs 3 A, B, C, 4 A, B)

Male. Colour. Head pale brown, frons, vertex and occiput darker brown, antennal flagellum slightly darker than scape and pedicel, mouthparts pale yellowish. Thorax pale brown, preepisternum 2 ventrally paler than other parts. Legs pale yellowish, femora 2 and 3 with inconspicuous infuscation at base. Wing unicolorous yellowish-brown; haltere yellowish-brown with dark brown knob. Abdomen pale brown. All the setosity pale, yellowish or brownish, the thicker setae seeming darker than the finer setae and trichia. **Head.** Antennal flagellomere 4, Fig. 3 A. Palpomere 3 of maxillary palpus with apicomesial extension, with 4–6 apically expanded curved sensilla; palpomere 4 with parasegment. Number of postocular setae 10–11. **Thorax.** Anepisternum setose, with 50–65 setae, anterior basale non-setose, preepisternum 2 setose, with 11–27 setae, laterotergite non-setose, episternum 3 setose, with 15–21 setae. **Wing.** Length 1.8–2.0 mm. **Hypopygium,** Figs 3 B and C, 4 A and B: Sternite 9 about one-half of the ventral length of gonocoxa, lateral margin sharply delimited, posterior margin transverse, anterior margin deeply incised, the setae similar to the ventral setae of gonocoxa. Ventral mesial margin of gonocoxa sigmoid. Parastylar lobe large, with a thick transversely-directed seta on mesial margin and one or two thinner more anterior transverse setae arising from a small lobe. Paraapodemal lobe distinct, well exposed in ventral view. Dorsal mesial margin of gonocoxa simple except for a subapical rather weakly expressed setose lobe. Gonocoxa with a large apico-lateral lobe with a few prominent setae on mesial margin. Two juxtagonostylar setae present, both of these subequal in size, varying from slightly curved to geniculate, arising from a common basal body which is about half the length of the setae. Gonostylus simple, elongate, slightly curved, with rather short unmodified setae, apically with a few very long setae, subapically on the dorsal side with a slightly tuberculate area with short curved setae. Tegmen subtriangular, short, the lateral shoulders distinct but rather weak. Hypoproct posteriorly scarcely reaching the middle of gonostylus, with some 12 setae in a longitudinal row or zone on each half. Cerci medially separate.

Female unknown.

Discussion. The two specimens from Doi Inthanon National Park differ from the other specimens studied by having the juxtagonostylar setae slightly curved, not geniculate, and by having two setae anterobasally on the parastylar lobe instead of one. It is not impossible that they represent a separate species.

M. ancylchaeta resembles many of those Oriental species which have a non-setose laterotergite, laterally well demarcated sternite 9 and a large apicolateral mesially setose lobe on the gonocoxa, especially *M. acutangula* Hippa, *M. calcarata* Hippa, *M. curvata* Hippa, *M. fera* Hippa, *M. ferrata* Hippa, *M. pectinata* Hippa, *M. procera* Hippa, and *M. transversa* Hippa. *M. ancylchaeta* is distinguished from all these similar species by the stout transverse seta at the middle of the mesial margin of the parastylar lobe.

Types. *Holotype*. Male, THAILAND, Phetchabun, Khao Kho NP office, 1 m, 16°39.479'N 101°08.105'E, Malaise trap 12–19.vii.2006, Somchai Chachumnan and Saink Singtong leg., T166 (in QSBG).

Paratype. 1 male, THAILAND, Nakhon Nayok, Khao Yai behind vegetable garden, 14°24.761'N 101°22.815'E, Malaise traps 19–28.vii.2006, Pong Sandao leg., T149 (in SMNH).

Other material. 1 male, THAILAND, Chiang Mai, Doi Inthanon NP, Kew Mae Pan, 2200 m, 18°33.163'N 98°28.8'E, Malaise trap 24–30.viii.2006, Y. Areeluk leg., T233 (in SMNH). 1 male with same data but Doi Inthanon NP, campground pond, 1200 m, 18°32.657'N 98°31.482'E, Malaise trap 16–24.viii.2006, Y. Areeluk leg., T183 (in QSBG). 1 male, MALAYSIA, Pahang, Cameron Highlands, Gunung Beremban, 1800 m, Malaise trap 20–26.XI.1994, T. Pape (in SMNH).

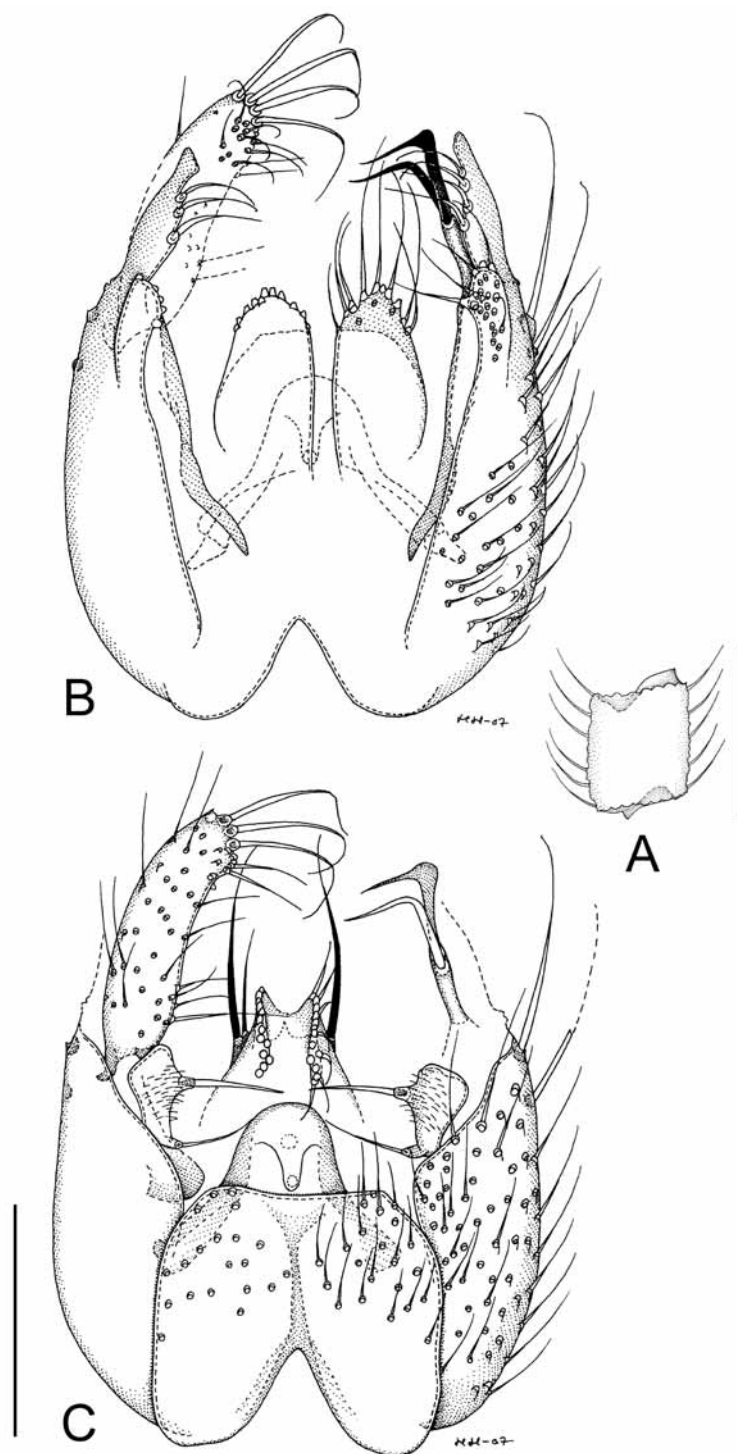


FIGURE 3. *Manota ancylchaeta* sp. n. (holotype). **A.** Antennal flagellomere 4, lateral view. **B.** Hypopygium, dorsal view. **C.** Hypopygium, ventral view. Scale 0.10 mm.

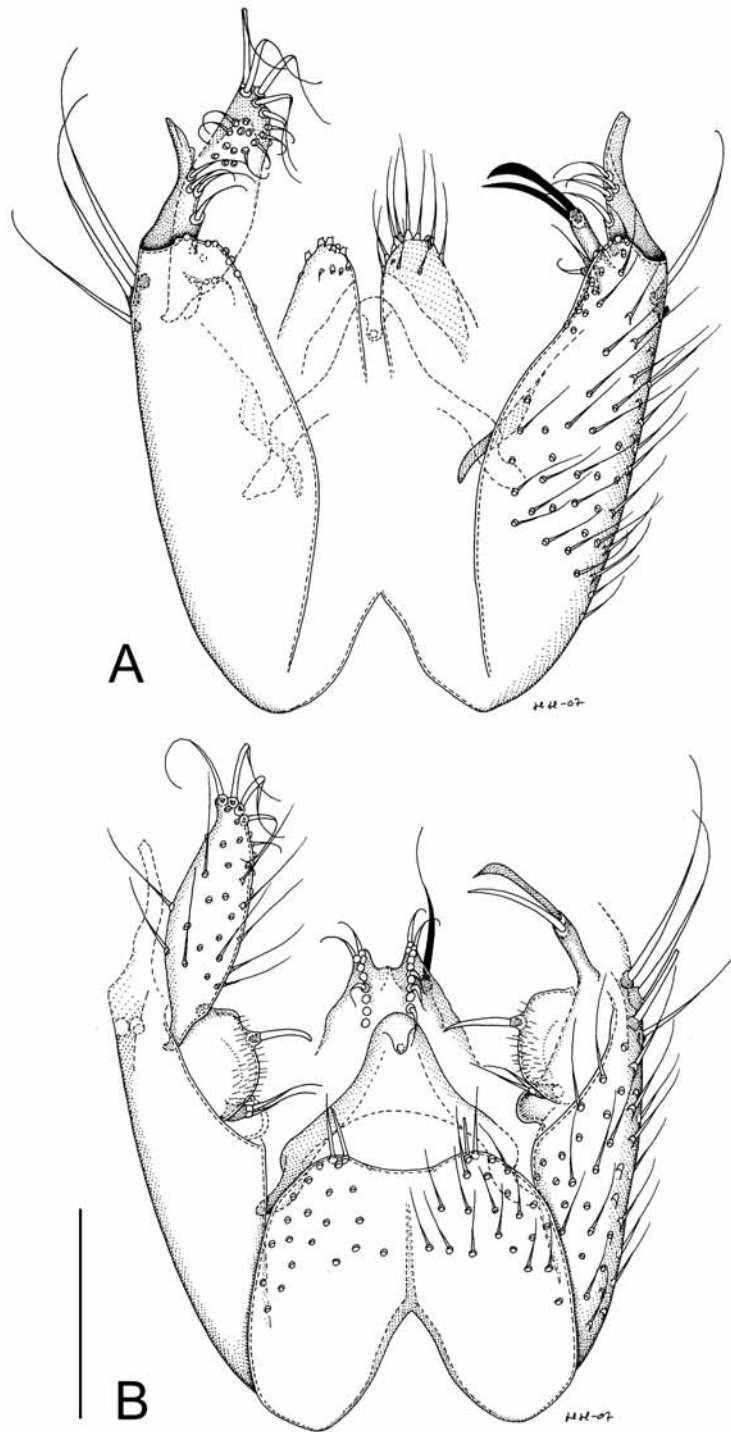


FIGURE 4. *Manota ancylchaeta* **sp. n.** (from Doi Inthanon NP). **A.** Hypopygium, dorsal view. **B.** Hypopygium, ventral view. Scale 0.10 mm.

***Manota auriculata* sp. n.**

(Figs 5 A, B, C)

Male. **Colour.** Head brown, frons, vertex and occiput not distinctly darker brown, antennal scape, pedicel and basal flagellomeres slightly paler brown, mouthparts pale yellowish. Thorax unicolorous brown. Legs pale yellowish-brown, darker than mouth parts, femur 3 infuscated at apical fourth, very slightly so also at base.

Wing unicolorous yellowish-brown; haltere yellowish-brown with dark brown knob. Abdomen pale brown. All the setosity pale, yellowish or brownish, the thicker setae seeming darker than the finer setae and trichia. **Head.** Antennal flagellomere 4, Fig. 5 A. Palpomere 3 of maxillary palpus with apicomesial extension, with 4 apically expanded curved sensilla; palpomere 4 with parasegment. Number of postocular setae 13. **Thorax.** Anepisternum setose, with 39 setae, anterior basalar setose, with 8 setae, preepisternum 2 setose, with 10 setae, laterotergite non-setose, episternum 3 setose, with 4 setae. **Wing.** Length 1.9 mm. **Hypopygium,** Figs 5 B and C: Sternite 9 about two-thirds of the ventral length of gonocoxa, lateral margin sharply delimited, unusually oblique, posterior margin transverse, with a narrow, deep medial cleft, anterior margin incised, the setae similar to the ventral setae of gonocoxa. Ventral mesial margin of gonocoxa strongly concave. Parastylar lobe large, with several setae at mesial margin. Paraapodemal lobe distinct, large, well exposed in ventral view except for being partly covered by the parastylar lobe. Dorsal mesial margin of gonocoxa simple, with a group of prominent setae subapically. Two juxtagonostylar setae present, one of which is an unmodified megaseta, the other a very strong, partly flattened and spiralled megaseta, the setae without a distinct common basal body. Gonostylus simple, elongate-oval, with moderately long unmodified setae, on the apical half of the dorsal side with an area of densely placed rather short curved setae. Tegmen unusual in shape, almost equally broad from base to apex and with characteristic apico-lateral auricles. Hypoproct posteriorly reaching over the middle of gonostylus, with some 12 setae on each half. Cerci medially separate.

Female unknown.

Discussion. *M. auriculata* is not similar to any other described *Manota*. The apically broad tegmen with the unusual lateral auricles identify the species. The tegmen is reminiscent of one other species, *M. bifida* Hippa and Papp, in which it is also apically broad and has apicolateral lobes, but in *M. bifida* the lobes are very long, nearly as long as all the more basal part of the tegmen and they are directed posteriad. Other closer similarities between the two species are difficult to see. So far as the Oriental fauna is concerned, the deeply rectangularly concave ventral mesial margin of gonocoxa is unique. The more dorsal one of the juxtagonostylar megasetae is strongly incrassate, flattened and S-shaped and is reminiscent of *M. collina* **sp. n.**, but is twice as broad.

Types. *Holotype.* Male, THAILAND, Chiang Mai, Doi Inthanon NP, campground pond, 1200 m, 18°32.657'N 98°31.482'E, Malaise trap 27.ix–5.x.2006, Y. Areeluk leg., T348 (in QSBG).

***Manota clavulosa* sp. n.**

(Figs 1 A, B, 6 A, B, C)

Male. **Colour.** Head brown, frons, vertex and occiput slightly darker brown, antennal scape, pedicel and basal flagellomeres ventrally slightly paler, mouthparts pale yellowish. Thorax brown, episternum 1 and preepisternum 2 ventrally paler. Legs pale yellowish, femur 3 infuscated on apical third. Wing unicolorous pale brown; haltere pale brown with dark brown knob. Abdomen brown. All the setosity pale, yellowish or brownish, the thicker setae seeming darker than the finer setae and trichia. **Head.** Antennal flagellomere 4, Fig. 6 A. Palpomere 3 of maxillary palpus with apicomesial extension, with 4–5 apically expanded curved sensilla; palpomere 4 with parasegment. Number of postocular setae 9–13. **Thorax.** Anepisternum setose, with 26–31 setae, anterior basalar setose, with 3–4 setae, preepisternum 2 setose, with 28–33 setae, laterotergite non-setose, episternum 3 setose, with 16–17 setae. **Wing.** Length 2.0 mm. **Hypopygium,** Figs 6 B and C: Sternite 9 about one-half of the ventral length of gonocoxa, lateral margin sharply delimited, posterior margin narrow with a medial cleft, anterior margin deeply incised, the setae similar to the ventral setae of gonocoxa, densely placed posteriorly. Ventral mesial margin of gonocoxa sigmoid. Parastylar lobe large, with numerous setae at mesial margin and on dorsal side. Paraapodemal lobe distinct, partly covered by the parastylar lobe. Dorsal mesial margin of gonocoxa simple, but on the apical half with a plate-like lobe lying on a more ventral level

and bearing 5 transversely-cut megasetae. Two juxtagonostylar setae present, one of these a strong but otherwise unmodified seta, the other a strong peculiarly shaped megaseta, both arising from a low common basal body. Gonostylus simple, elongate-oval, with rather short unmodified setae, on the dorsal side with very strong setae at apicomésial margin and a group of densely placed weaker setae in more lateral position. Tegmen subtriangular, without lateral shoulders. Hypoproct extending posteriorly to the middle of gonostylus, with some 12 setae on each half, the most mesial of these unusually strong. Cerci medially separate.

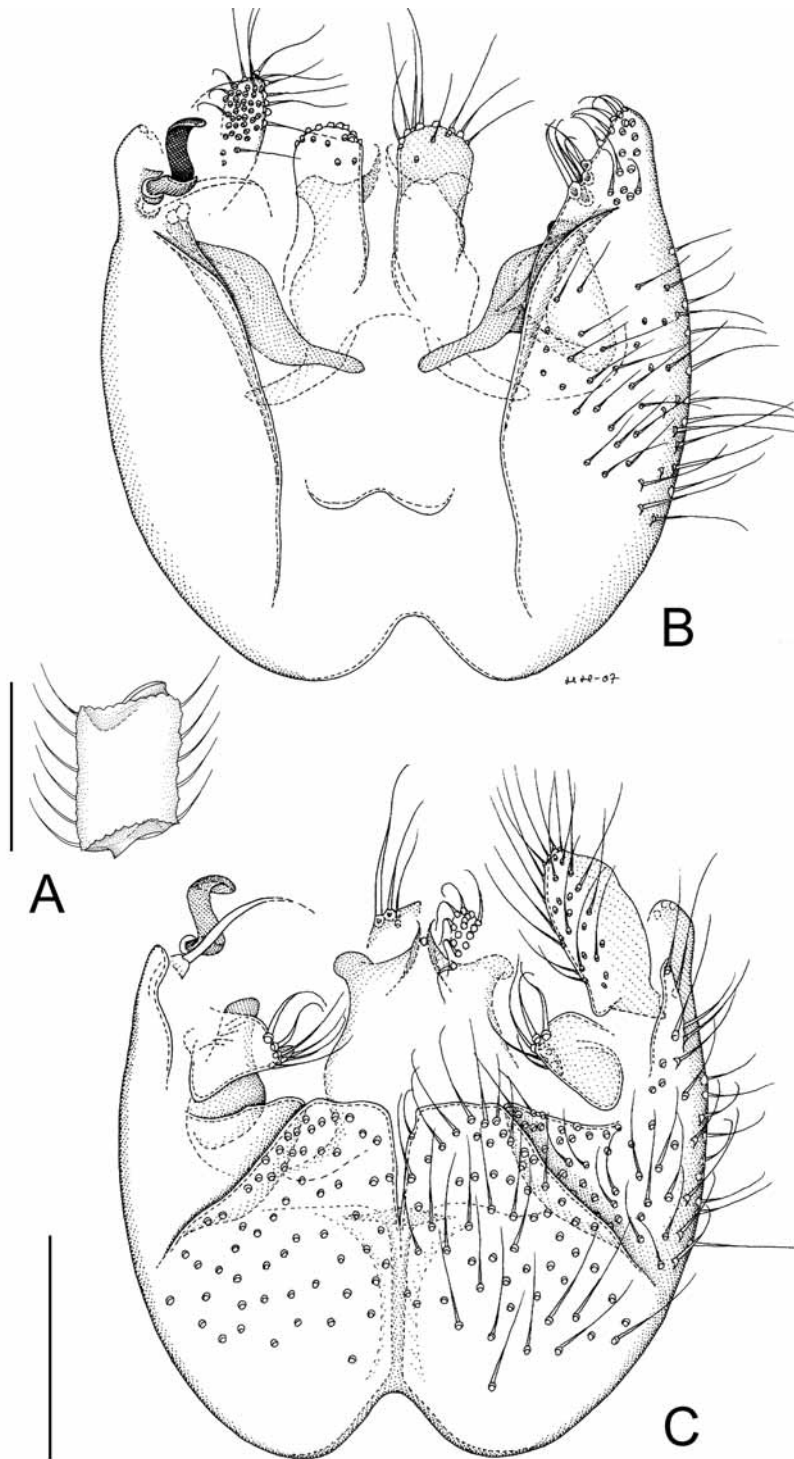


FIGURE 5. *Manota auriculata* sp. n. (holotype). **A.** Antennal flagellomere 4, lateral view. **B.** Hypopygium, dorsal view. **C.** Hypopygium, ventral view. Scale 0.10 mm.

Female. Similar to male. Antennal flagellomere 4, Fig. 1 A. Palpomere 3 with 3 apically expanded sensilla. Anepisternum with 41 setae, anterior basalare non-setose, preepisternum 2 with 19 setae, episternum 3 with 21 setae. Wing length 2.3 mm. Tip of abdomen, Fig. 1 B: cercus two-segmented with the basal segment unusually broad and the apical segment unusually small.

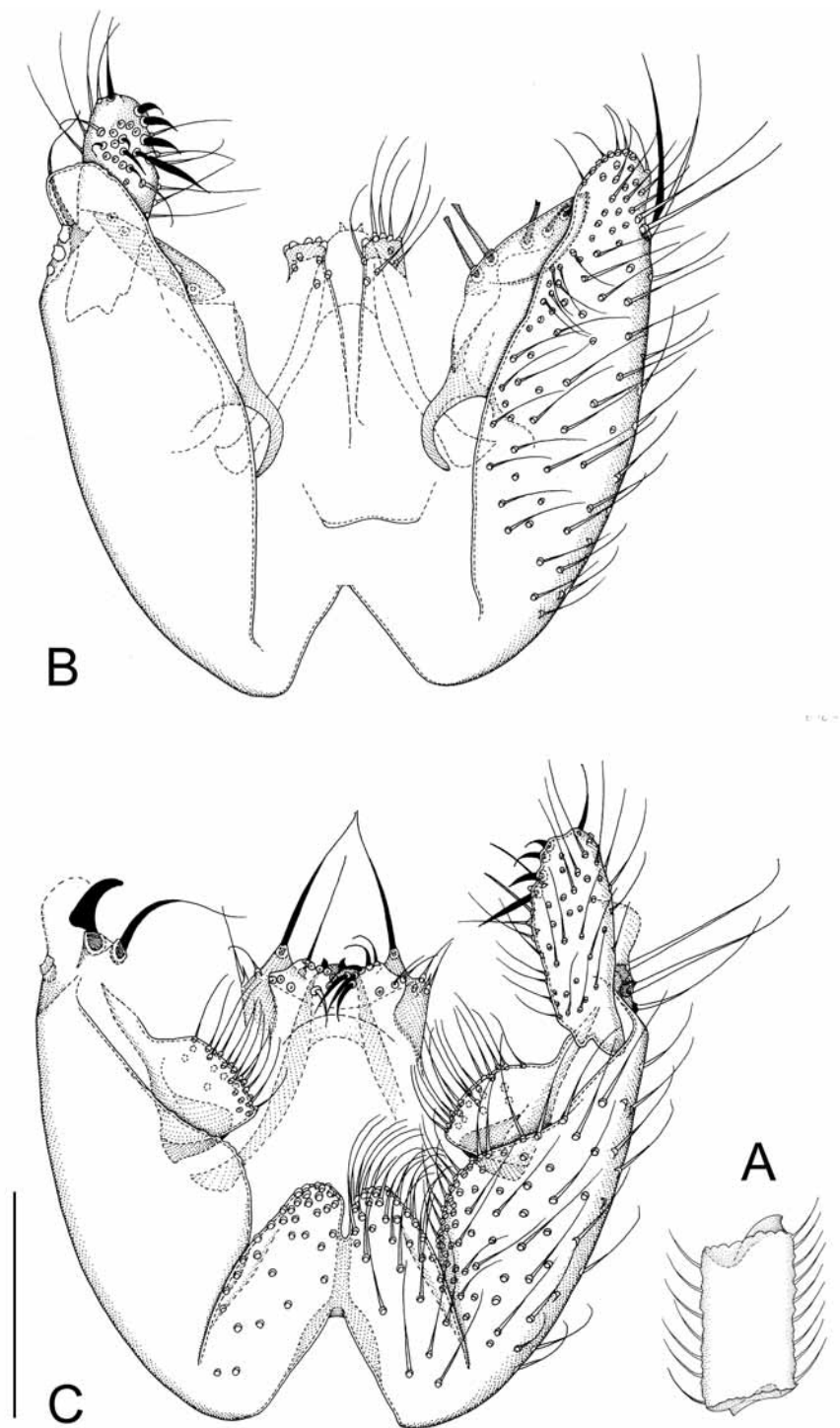


FIGURE 6. *Manota clavulosa* **sp. n.** (holotype). **A.** Antennal flagellomere 4, lateral view. **B.** Hypopygium, dorsal view. **C.** Hypopygium, ventral view. Scale 0.10 mm.

Discussion. *M. clavulosa* resembles *M. collina* **sp. n.** and *M. planilobata* **sp. n.** It differs from both by having thick claw-like setae mesially on the hypoproct and by having a pair of tooth-like projections at the apex of the tegmen, by having the thicker one of the juxtagonostylar megasetae flattened, and by having a few

very strong setae posterolaterally on the gonocoxa. The thicker one of the juxtagonostylar megasetae has a subbasal rounded corner visible from a suitable angle of view and is reminiscent of the strongly geniculate condition in *M. collina*. The gonostylus of *M. clavulosa* differs from that of *M. collina* and is similar to that of *M. planilobata* by having strong setae/megasetae. In *M. clavulosa* there are five such setae around the apical part of the mesial margin and there is a wide aggregation of similar but shorter setae on the apicodorsal part of the gonostylus, whilst in *M. planilobata* there are only three strong setae, two at the apicomesimal corner and one placed more basally on the mesial margin. In *M. clavulosa* the subapical lobe which is seen on the dorsal mesial margin of gonocoxa in *M. collina* and in *M. planilobata* appears to be absent. It is in fact present but difficult to recognize because it is very broad and forms the apical margin of the gonocoxa (Fig. 6 B). In *M. clavulosa* the plate-like lobe between this lobe and the gonocoxal apodeme has 5 strong setae on its ventral side as in *M. planilobata* but unlike that species they are apically flattened. For further discussion, see under *M. collina*. The female of *M. clavulosa* differs from other known *Manota* females with 2-segmented cercus by having the apical segment unusually small. The basal segment is unusually broad and is somewhat reminiscent of the one-segmented cercus of *M. perlobata* **sp. n.** except that the groups of hyaline sensilla are absent. The antennal flagellomeres are unusually long, longer than broad, but in this respect similar females can be expected in species in which the male has elongated flagellomeres.

Types. *Holotype*. Male, THAILAND, Chiang Mai, Doi Inthanon NP, checkpoint 2, 1700 m, 18°31.559N 98°29.941'E, Malaise trap 16–24. viii.2006, Y. Areeluk leg., T187 (in QSBG).

Paratype. 1 male with same data as holotype but 27.ix–5.x., T349 (in SMNH).

Other material. 1 female with same data as holotype but 2–9.viii.2006, T127 (in QSBG).

***Manota collina* sp. n.**

(Figs 7 A, B, C)

Male. Colour. Head brown, face slightly paler, mouthparts pale yellowish. Thorax unicolorous brown. Legs pale yellowish, paler than mouthparts, base and apex of coxa 3 and whole of trochanter 3 brown, femur 3 infuscated on apical half and on basal fourth and these infuscations diffusely connected on dorsal and ventral sides of femur (actually femur 3 can be described as brown with diffuse pale markings on basal half), tibia 3 infuscated at base; leg 2 with a reminiscent but weaker colour pattern. Wing bicolorous, the basal part pale yellowish-brown, about the apical third darker brownish, the colour pattern not very conspicuous; haltere pale brown with dark brown knob. Abdomen brown. All the setosity pale, yellowish or brownish, the thicker setae seeming darker than the finer setae and trichia. **Head** (lost in holotype). Antennal flagellomere 4, Fig. 7 A. Palpomere 3 of maxillary palpus with apicomesimal extension, with 1–3 apically expanded curved sensilla; palpomere 4 with parasegment. Number of postocular setae 11. **Thorax.** Anepisternum setose, with 47–57 setae, anterior basare setose, with 8–11 setae, preepisternum 2 setose, with 20–33 setae, laterotergite non-setose, episternum 3 setose, with 11–17 setae. **Wing.** Length 2.6 mm. **Hypopygium,** Figs 7 B and C: Sternite 9 about one-half of the ventral length of gonocoxa, lateral margin sharply delimited, posterior margin deeply emarginated, anterior margin deeply incised, the setae similar to the ventral setae of gonocoxa but slightly longer. Ventral mesial margin of gonocoxa simple. Parastylar lobe large, with numerous setae at mesial margin. Paraapodemal lobe distinct and well exposed in ventral view. Dorsal mesial margin of gonocoxa simple, but with a prominent setose lobe subapically. Two juxtagonostylar setae present, one of these a strong but otherwise unmodified seta, the other a strong geniculate megaseta, both arising from a basal body which is as long as the setae. Gonostylus simple, elongate-quadrangular, with rather short unmodified setae, the marginal setae on the apical half of gonostylus long. Tegmen subtriangular, with lateral shoulders, the apex straight, not bent ventrad. Hypoproct posteriorly extending near the middle of gonostylus, with some 12 setae on each half, arranged in two groups, the more mesial ones in a longitudinal row. Cerci medially separate.

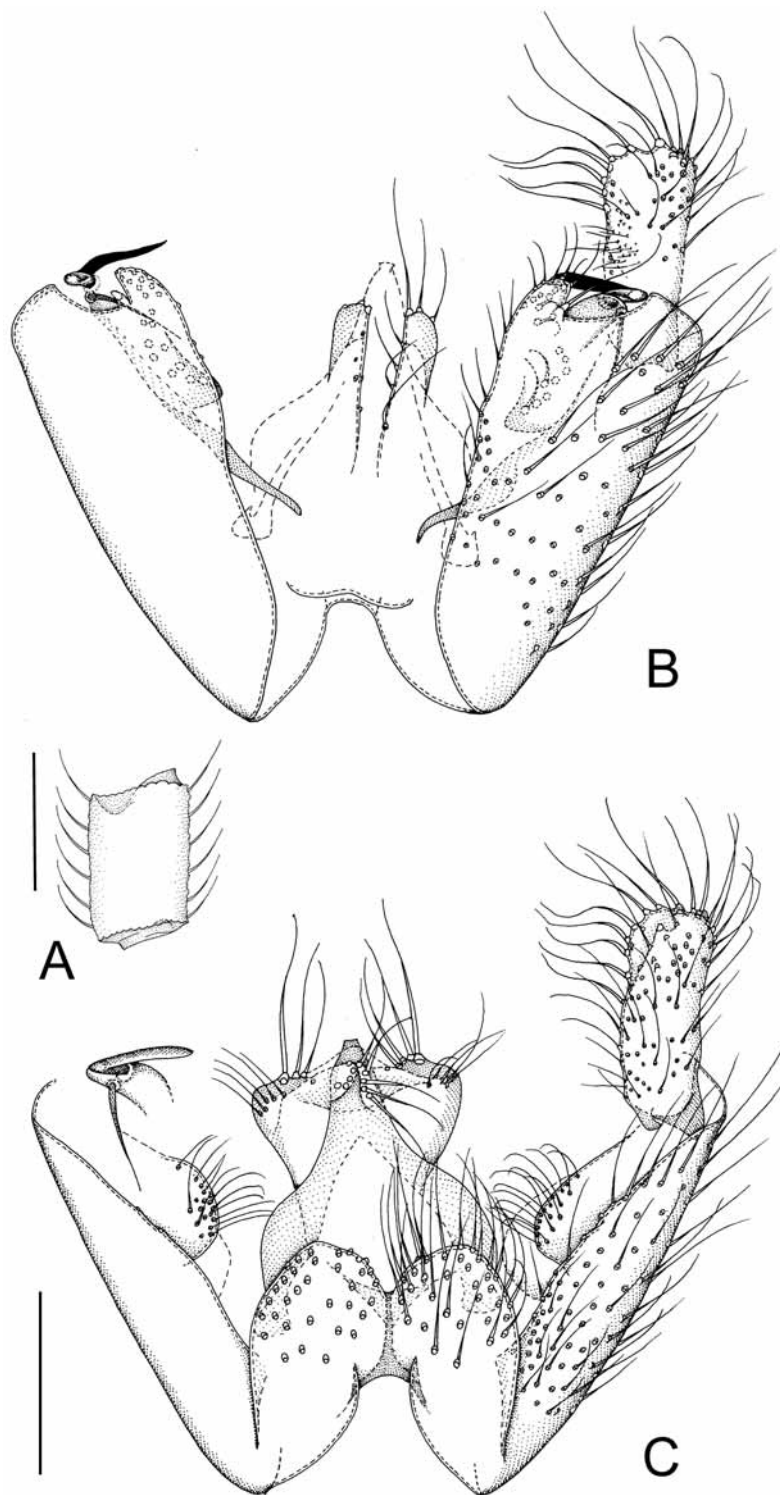


FIGURE 7. *Manota collina* **sp. n.** (holotype). **A.** Antennal flagellomere 4, lateral view. **B.** Hypopygium, dorsal view. **C.** Hypopygium, ventral view. Scale 0.10 mm.

Female unknown.

Discussion. *M. collina* is similar to *M. planilobata* **sp. n.** and *M. clavulosa* **sp. n.** It is distinguished from *M. planilobata* by the rounded, not angular, mesial margin of the parastylar lobe and by lacking the strong mesial setae on the gonostylus. Furthermore, the subapical lobe at the dorsal mesial margin of the gonocoxa is much larger, the plate-like lobe between this and the gonostylar apodeme, lying under the dorsal gonocoxal

surface, has the setae smaller and more numerous, and the thicker one of the juxtagonostylar megasetae is geniculate. In addition, *M. collina* is larger in size (wing length 2.6 mm) than *M. planilobata* (wing length 1.7 mm) and its wing is not unicolorous yellowish-brown but has the apical third infuscated. The only other Oriental species with a bicolourous wing is *M. forceps* Hippa and Papp. Otherwise these two species are very dissimilar. *M. collina* differs from *M. clavulosa* by lacking very strong setae on the gonostylus, by lacking thick claw-like setae mesially on the hypoproct, by having the larger one of the juxtagonostylar megasetae geniculate, and by lacking a pair of small tooth-like projections at the apical margin of tegmen. *M. collina*, *M. planilobata* and *M. clavulosa* resemble *M. aconcinna* **sp. n.**, *M. mirifica* **sp. n.** and *M. submirifica* **sp. n.**, but have the apex of the tegmen symmetric. They also differ by having one of the juxtagonostylar megasetae conspicuously stronger than the other one.

Types. *Holotype*. Male, THAILAND, Chiang Mai, Doi Inthanon NP, summit forest, 2500 m, 18°35.361'N 98°29.157'E, Malaise trap 27.ix–5.x.2006, Y. Areeluk leg. T352 (in QSBG).

Paratype. 1 male with same data as holotype but summit marsh, 6–13.ix.2006, T246 (in SMNH).

***Manota confixa* sp. n.**

(Figs 8 A, B, C)

Male. **Colour.** Head pale brown, frons and occiput darker brown, mouthparts pale yellowish. Thorax pale brown, preepisternum 2 ventrally paler yellowish. Legs pale yellowish, femur 3 infuscated on apical third. Wing unicolorous yellowish-brown; haltere yellowish-brown with dark brown knob. Abdomen brown. All the setosity pale, yellowish or brownish, the thicker setae seeming darker than the finer setae and trichia. **Head.** Antennal flagellomere 4, Fig. 8 A. Palpomere 3 of maxillary palpus with apicomesial extension, with 4 apically expanded curved sensilla; palpomere 4 with parasegment. Number of postocular setae 10. **Thorax.** Anepisternum setose, with 40 setae, anterior basalar setose, with 6 setae, preepisternum 2 non-setose, laterotergite setose, with 20 setae, episternum 3 setose, with 6 setae. **Wing.** Length 1.7 mm. **Hypopygium,** Figs 8 B, C and D: Sternite 9 laterally fused with gonocoxa, extending posteriorly as far as the ventral posterior margin of gonocoxa, anterior margin shallowly incised, the setae similar to ventral setae of gonocoxa. Parastylar lobe large but rather narrow, with 2–3 setae at mesial margin (apically). Paraapodemal lobe absent. Dorsal mesial margin of gonocoxa simple, arcuate, the mesial margin partly covering a more ventrally lying plate-like lobe bearing 12 blunt-ended megasetae on margin and on ventral side. Gonocoxa with a distinct curved apicolateral lobe with a few setae dorsally and at apex and extending posteriorly as far as apex of gonostylus. One juxtagonostylar seta present, which is an unmodified megaseta lacking a distinct basal body. At the juxtagonostylar seta there is a finger-like lobe. Gonostylus oval with a slightly expressed apico-lateral lobe, with rather short unmodified setae ventrally, largely non-setose dorsally, with a group of prominent long setae at mesial margin. Tegmen characteristic in shape, with prominent lateral shoulders, with the narrow apical part rather short and the broader basal part narrowing anteriad. Hypoproct large, extending posteriorly over the apex of gonostylus, with some 25 setae on each half. Cerci medially separate.

Female unknown.

Discussion. *M. confixa* is similar to *M. juncta* **sp. n.** It differs from the latter e.g. by the following characters: 1) the narrow apical part of tegmen is short, about one-third of the length of the tegmen, instead of being more than half of the length, 2) the tegmen is narrowed at base instead of being broadest at base, 3) the posterior margin of sternite 9 is convex, not slightly concave, 4) there is a hyaline finger-like lobe at the base of the juxtagonostylar seta, 5) there is a hyaline lobe mesially at the apex of the apicolateral lobe of gonocoxa, 6) the dorsal mesial margin of the gonocoxa at the megasetae-bearing lobe is gently curved instead of being more angularly curved. *M. confixa* and *M. juncta* resemble *M. dentata* Hippa and Papp and *M. heptacantha* Hippa but differ e.g. by having the megasetae-bearing lobe at the dorsal mesial margin of gonocoxa shorter and

placed on the apical half of gonocoxa instead of extending to its basal half, and by having the gonocoxal apodemes in a more posterior position. *M. confixa* and *M. juncta* have also the gonostylus produced slightly lobe-like apicolaterally, unlike the other two species.

Types. *Holotype*. Male, MALAYSIA, Sabah, Kinabalu Nat. Park, 1600 m, Malaise trap 2–4. XI.1994, T. Pape (in SMNH).

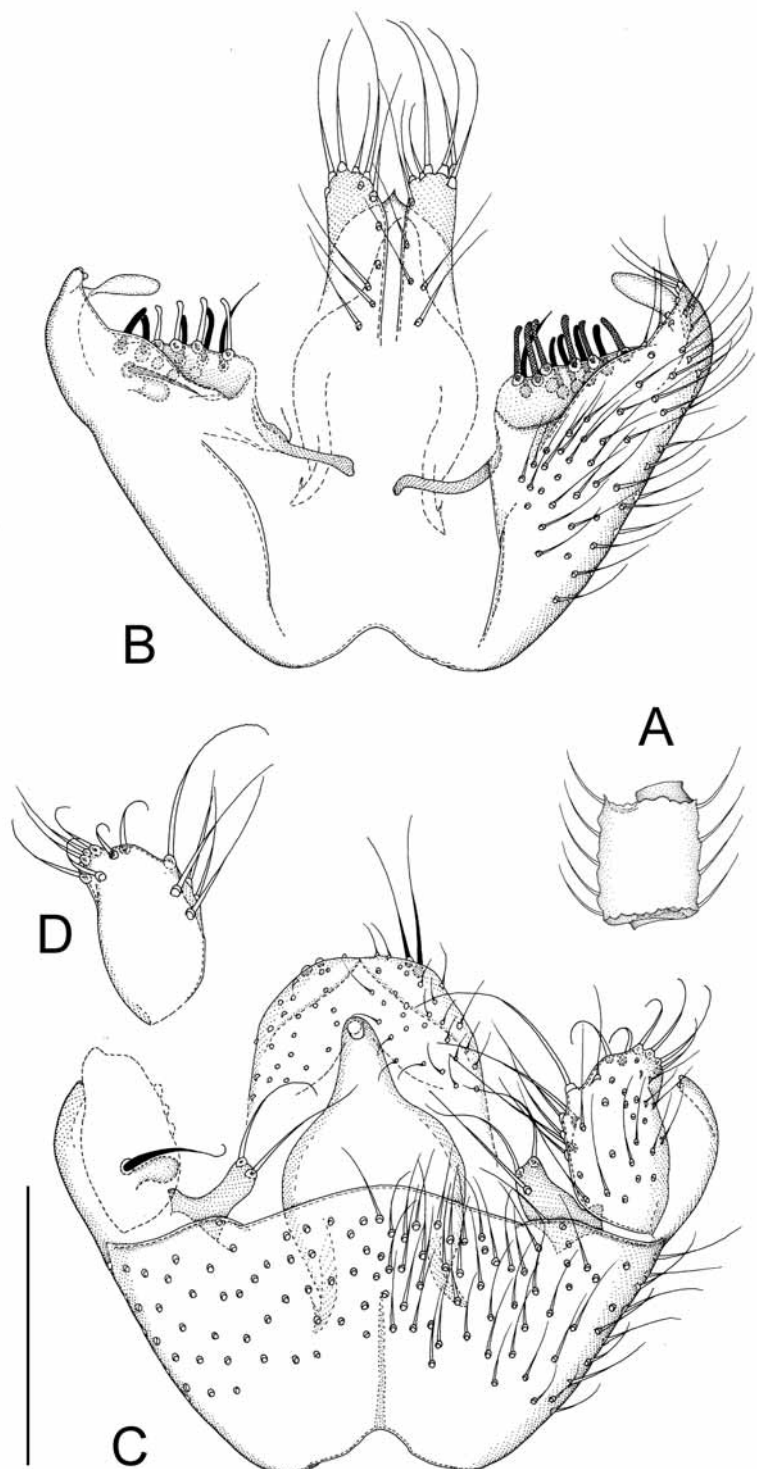


FIGURE 8. *Manota confixa* sp. n. (holotype). **A.** Antennal flagellomere 4, lateral view. **B.** Hypopygium, dorsal view. **C.** Hypopygium, ventral view. **D.** Gonostylus, ventral view. Scale 0.10 mm.

***Manota crinita* sp. n.**

(Figs 9 A, B, C)

Male. **Colour.** Head pale brown, frons and occiput darker brown, mouthparts pale yellowish. Thorax pale brown, posterior medial part of scutum, scutellum and dorsal part of metanotum darker brown. Legs pale yellowish. Wing unicolorous yellowish-brown; haltere yellowish-brown with dark brown knob. Abdomen pale brown, becoming darker brown posteriad. All the setosity pale, yellowish or brownish, the thicker setae seeming darker than the finer setae and trichia. **Head.** Antennal flagellomere 4, Fig. 9 A. Palpomere 3 of maxillary palpus with apicomesial extension, with 3–4 apically expanded curved sensilla; palpomere 4 with parasegment. Number of postocular setae 10. **Thorax.** Anepisternum setose, with 54 setae, anterior basalare non-setose, preepisternum 2 setose, with 14 setae, laterotergite non-setose, episternum 3 setose, with 10 setae. **Wing.** Length 2.5 mm. **Hypopygium,** Figs 9, B and C: Sternite 9 about one-half of the ventral length of gonocoxa, lateral margin sharply delimited, posterior margin broadly notched, anterior margin deeply incised, the setae similar to the ventral setae of gonocoxa, longer at posterior margin. Ventral mesial margin of gonocoxa simple. Parastylar lobe rather small, with 3–4 rather fine setae at mesial margin. Paraapodemal lobe distinct, well exposed in ventral view. Dorsal mesial margin of gonocoxa sigmoid, with subapical setose lobe. Gonocoxa with an apicolateral lobe which is dorsally setose apically and on mesial margin. Two juxtagonostylar setae present, one a curved seta, the other an equally long curved megaseta, both arising from a common basal body which is about half the length of the setae. Gonostylus simple, slightly curved, elongate-oval, the setae on ventral side rather short except for a mesial row of thick exceedingly long setae, the dorsal side largely non-setose. Tegmen subtriangular with rather weak lateral shoulders. Hypoproct extending posteriorly to middle of gonostylus, with some 20 on each half, the setae mostly very long. Cerci medially separate.

Female unknown.

Discussion. *Manota crinita* resembles a number of those Oriental species which have a prominent apicolateral setose lobe on the gonocoxa, usually an oblique sickle-shaped parastylar lobe, setose preepisternum 2 and non-setose laterotergite, e.g. *M. acutangula* Hippa, *M. calcarata* Hippa, *M. curvata* Hippa, *M. fera* Hippa, *M. ferrata* Hippa, *M. gemella* Hippa, *M. inflata* sp. n., *M. orientalis* Senior-White, *M. pectinata* Hippa, *M. procera* Hippa, and *M. transversa* Hippa. *M. crinita* is not especially similar to any of these and is at once distinguished from all by the fringe of very long and strong setae at the ventral mesial margin of the gonostylus.

Types. *Holotype.* Male, MALAYSIA, Pahang, Cameron Highlands, Gunung Jasar, 1700 m, Malaise trap, 20–23.XI.1992, T. Pape (in SMNH).

***Manota cristata* sp. n.**

(Figs 10 A, B, C)

Male. **Colour.** Head pale brown, frons, vertex and occiput darker brown, mouthparts pale yellowish. Thorax brown, pro- and mesothoracic pleura paler brown. Legs pale yellowish, trochanter and femur 2 infuscated, femur 3 infuscated at base on apical third. Wing unicolorous pale brown; haltere pale brown with dark brown knob. Abdomen brown. All the setosity pale, yellowish or brownish, the thicker setae seeming darker than the finer setae and trichia. **Head.** Antennal flagellomere 4, Fig. 10 A. Palpomere 3 of maxillary palpus with apicomesial extension, with 3 apically expanded curved sensilla; palpomere 4 with parasegment. Number of postocular setae 12. **Thorax.** Anepisternum setose, with 27 setae, anterior basalare non-setose, preepisternum 2 setose, with 7 setae, laterotergite non-setose, episternum 3 setose, in the single specimen 1 seta is visible at the middle near ventral margin, about posterior third is covered by haltere preventing visibility of possible additional setae. **Wing.** Length 2.0 mm. **Hypopygium,** Figs 10 B and C: Sternite 9 about one-half of the ventral length of gonocoxa, lateral margin sharply delimited, contiguous around the narrow convex posterior margin,

anterior margin deeply incised, the setae similar to the ventral setae of gonocoxa. Ventral mesial margin of gonocoxa simple, slightly angular at lateral margin of sternite 9. Parastylar lobe large, broad, with two setae at mesial margin. Paraapodemal lobe distinct and exposed in ventral view. Dorsal mesial margin of gonocoxa anteriorly (basally) simple, posteriorly (apically) with a large plate-like lobe with a number of mostly blunt-ended megasetae on mesial margin and on ventral side. Two juxtagonostylar setae present, one a strong but otherwise unmodified seta, the other a strong apically flattened and expanded megaseta, the setae arising from a low, indistinct, common basal body. Gonostylus parallel-sided, but slightly angularly curved at middle, the ventral setae strong, in apical, lateral and mesial groups, the latter forming a comb-like row, the dorsal side of gonostylus with a subapical lobe with a fringe of rather weak marginal setae, otherwise the dorsal side non-setose. Tegmen subtriangular, with lateral shoulders. Hypoproct extending posteriorly to middle of gonostylus, with some 25 setae on each half, the two anteriormost setae on each side unusually long. Cerci medially separate.

Female unknown.

Discussion. *M. cristata* is not similar to any other described *Manota*. It is readily distinguished e.g. by the slightly angled gonostylus with a comb-like row of setae on the ventral surface. The presence of two conspicuous long setae anteriorly on each half of the hypoproct is also a unique character. Only *M. perissochaeta* Hippa from New Guinea and the Solomon Islands is reminiscent, but it has only one seta on each side. Otherwise *M. cristata* and *M. perissochaeta* are not similar. In the Oriental fauna *M. cristata* is unique in having a laterally well delimited sternite 9 in combination with a long row of blunt megasetae at the dorsal mesial margin of gonocoxa. Such species occur in the Afrotropical and Neotropical regions, but otherwise they are greatly dissimilar.

Types. *Holotype*. Male, THAILAND, Chiang Mai, Doi Inthanon NP, checkpoint 2, 1700 m, 18°31.559'N 98°29.941'E, Malaise trap 2–9.viii.2006, Y. Areeluk leg., T127 (in QSBG).

Manota fimbriata sp. n.

(Figs 11 A, B, C)

Male. **Colour.** Head pale brown, frons and occiput darker brown, mouthparts pale yellowish. Thorax pale brown, posterior part of scutum medially and scutellum darker brown, preepisternum 2 ventrally paler yellowish. Legs pale yellowish, femur 3 apparently infuscated on apical third but the character is very difficult to estimate in the single specimen. Wing unicolorous yellowish-brown; haltere yellowish-brown with dark brown knob. Abdomen brown, as dark as scutellum. All the setosity pale, yellowish or brownish, the thicker setae seeming darker than the finer setae and trichia. **Head.** Antennal flagellomere 4, Fig. 11 A. Palpomere 3 of maxillary palpus with apicomésial extension, with at least 3 apically expanded curved sensilla but the exact number not possible to see in the single specimen; palpomere 4 with parasegment. Number of postocular setae 10. **Thorax.** Anepisternum non-setose, anterior basalar non-setose, preepisternum 2 non-setose, laterotergite non-setose, episternum 3 setose, with 5 setae. **Wing.** Length 1.8 mm. **Hypopygium,** Figs 11 B and C: Sternite 9 unusually broad, its length about one-third of the ventral length of gonocoxa, lateral margin sharply delimited, posterior margin slightly convex, anterior margin not incised or notched, apparently transversely straight but the character is difficult to see because the area is membranous, the setae of sternite 9 present only posteriorly and those at margin unusually strong. Ventral mesial margin of gonocoxa simple. At the corner between the posterior margin of sternite 9 and mesial margin of gonocoxa with an elongate globular lobe bearing a number of short curved setae, which may be the paraapodemal lobe; it seems to have a membranous connection with the unusually basally situated gonocoxal apodeme. More posteriorly, near the gonostylus, with an elongated lobe with 3 long setae which is probably the parastylar lobe. The proportions in the dorsal side of gonocoxa are unusual, the gonocoxal apodemes with associated structures being shifted to an unusually ante-

rior position. Posterior two-thirds of gonocoxa with a fringe of very long setae near the mesial margin. One juxtagonostylar seta present, which is an unmodified megaseta arising from a low basal body. Gonostylus small and narrow with rather strong setae. The gonostylus is rather high in the dorso-ventral direction, which cannot be seen in the drawing. Tegmen with a long narrow apical half and broad subtriangular basal half in which the basalmost part is narrowed. Hypoproct long and narrow, but not reaching base of gonostylus, with some 15 setae on each half. Cerci medially separate, unusually anterior in position.

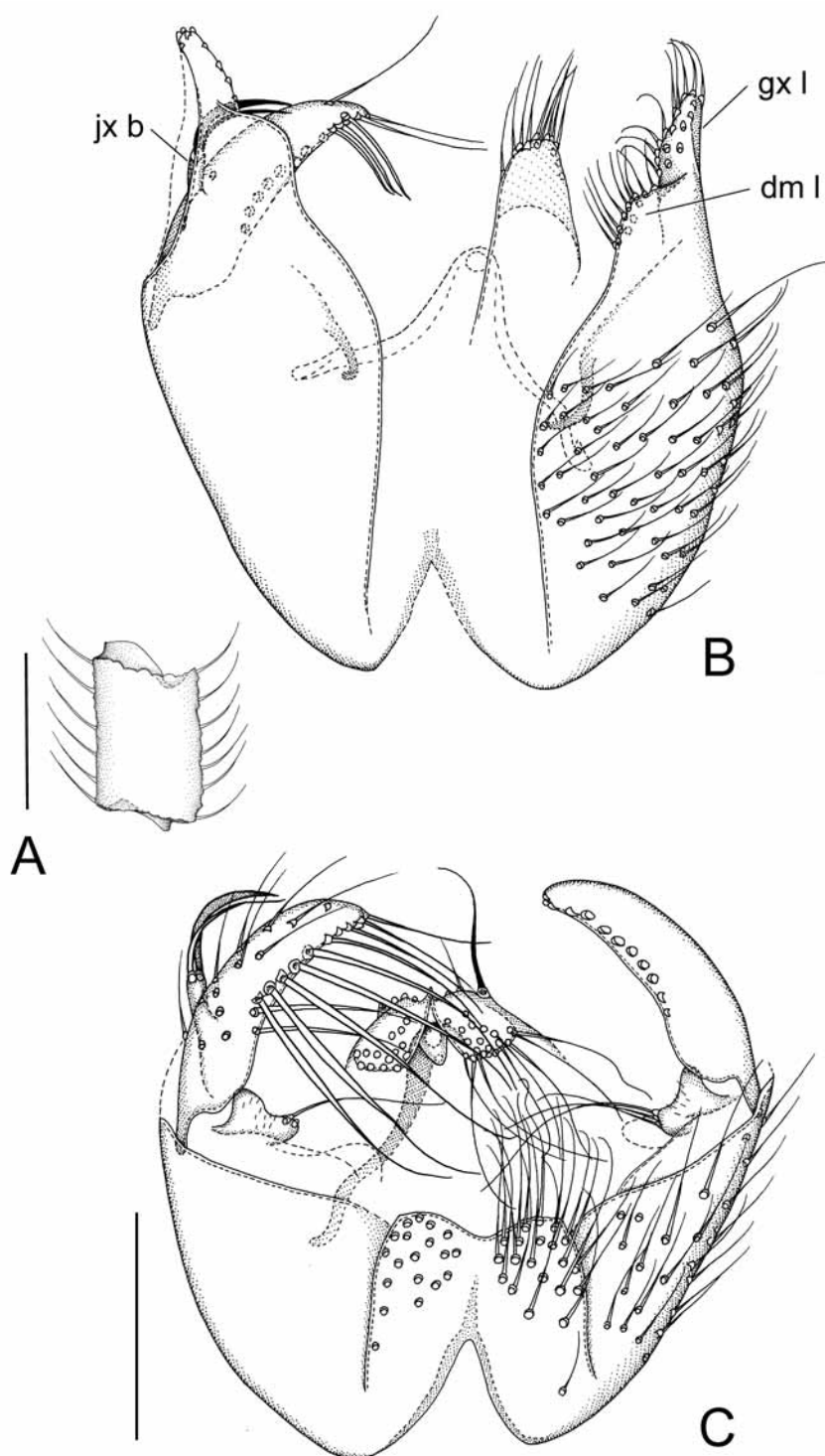


FIGURE 9. *Manota crinita* sp. n. (holotype). **A.** Antennal flagellomere 4, lateral view. **B.** Hypopygium, dorsal view. **C.** Hypopygium, ventral view. Scale 0.10 mm.

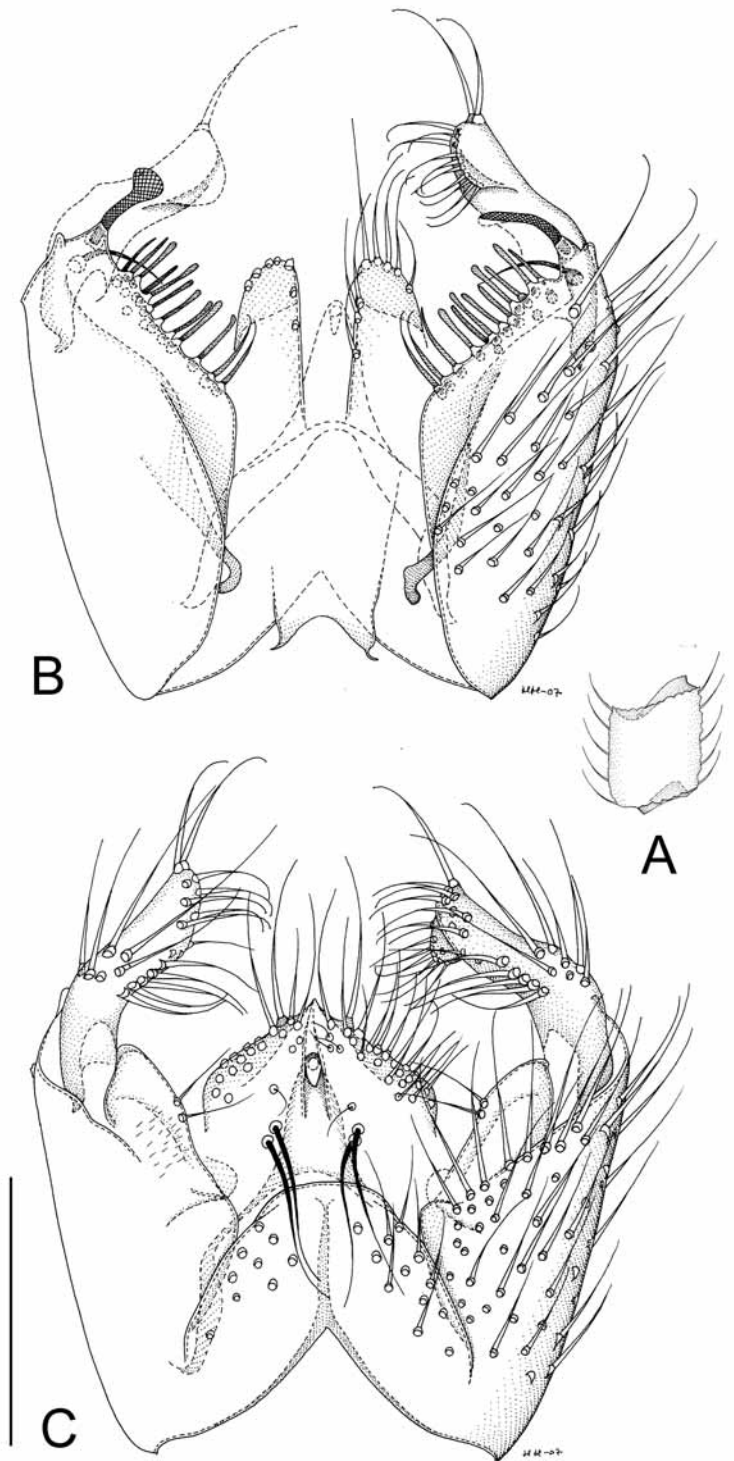


FIGURE 10. *Manota cristata* **sp. n.** (holotype). **A.** Antennal flagellomere 4, lateral view. **B.** Hypopygium, dorsal view. **C.** Hypopygium, ventral view. Scale 0.10 mm.

Female unknown.

Discussion. *M. fimbriata* is one of the few species of *Manota* which have a non-setose anepisternum. The other similar species are the Palearctic *M. unifurcata* Lundström and the four Oceanian species *M. maorica* Edwards, *M. ctenophora* Matile, *M. taedia* Matile and *M. serawei* Hippa. In other respects *M. fimbriata* is not similar to any of these. Because of the very anterior placement of the gonostylar apodemes and tegmen as well as the constricted basalmost part of the latter, *M. fimbriata* is reminiscent of *M. globigera* Hippa and *M. parv-*

istylata **sp. n.** but otherwise there is no special similarity between the species. In *M. fimbriata* the anterior parts of gonocoxa are shortened and the posterior parts elongated which leads to unusual proportions, e.g. the great distance between parastylar lobe and paraapodemal lobe. *M. fimbriata* is readily distinguished from any described *Manota* by the fringe of very long setae at the dorsal mesial margin of gonocoxa, covering about two-thirds of the whole gonocoxal length.

Types. *Holotype.* Male, MALAYSIA, Pahang, Genting Highlands, Awana, 3360 ft, Malaise in forest 9–22.III.1997, H. Hippa, M. Jaschhof, B. Viklund (in SMNH).

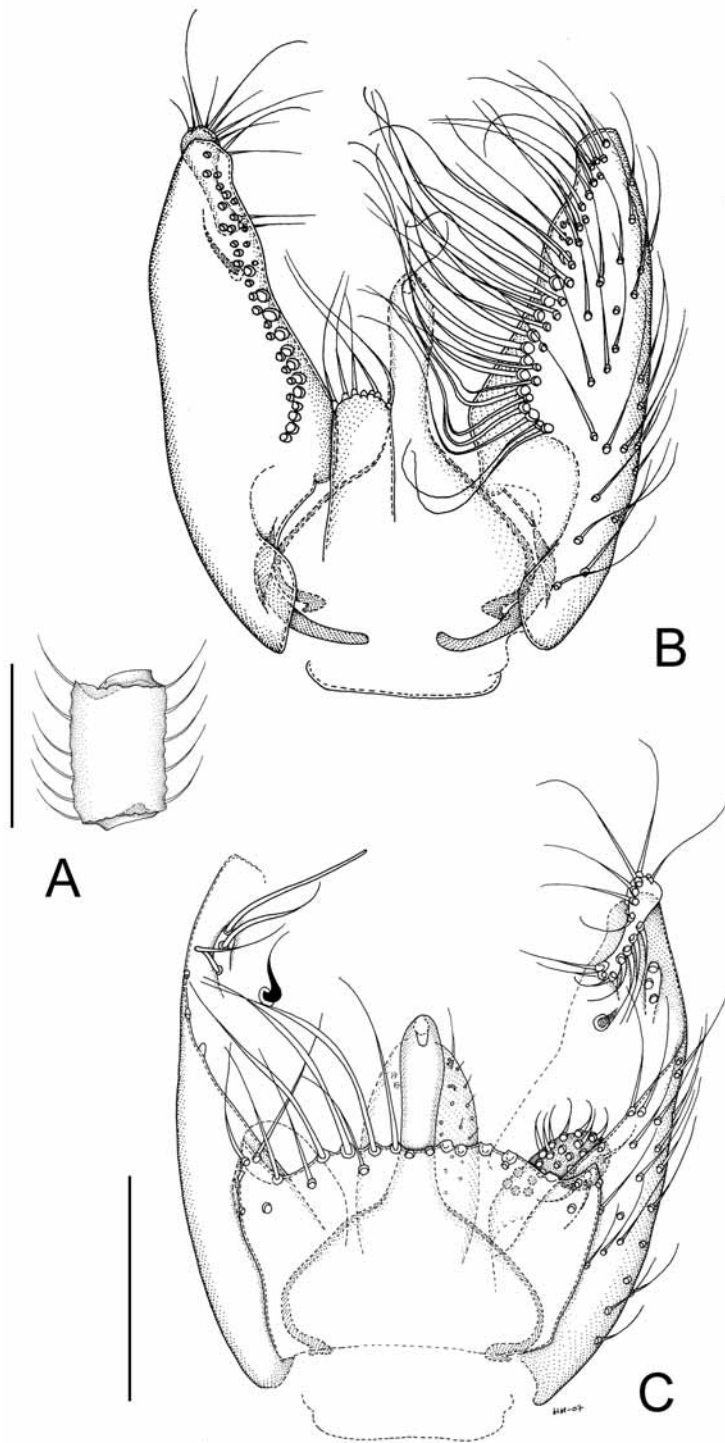


FIGURE 11. *Manota fimbriata* **sp. n.** (holotype). **A.** Antennal flagellomere 4, lateral view. **B.** Hypopygium, dorsal view. **C.** Hypopygium, ventral view. Scale 0.10 mm.

***Manota index* sp. n.**

(Figs 12 A, B, C)

Male. Colour. Head pale brown, frons and occiput darker brown, mouthparts pale yellowish. Thorax pale yellowish-brown, posterior part of scutum and scutellum darker brown, preepisternum 2 ventrally paler yellowish. Legs pale yellowish-brown, trochanter 3 and femur 3 at base infuscated. Wing unicolorous yellowish-brown; haltere yellowish-brown with dark brown knob. Abdomen brown, as dark as scutellum. All the setosity pale, yellowish or brownish, the thicker setae seeming darker than the finer setae and trichia. **Head.** Antennal flagellomere 4, Fig. 12 A. Palpomere 3 of maxillary palpus with apicomesial extension, with 4 apically expanded curved sensilla; palpomere 4 with parasegment. Number of postocular setae 12. **Thorax.** Anepisternum setose, with 41 setae, anterior basallare non-setose, preepisternum 2 setose, with 15 setae, laterotergite setose, with 20 setae, episternum 3 setose, with 12 setae. **Wing.** Length 1.9 mm. **Hypopygium,** Figs 12 B and C: Sternite 9 about one-half of the ventral length of gonocoxa, lateral margin sharply delimited, posterior margin with a shallow notch, anterior margin deeply incised, the setae similar to the ventral setae of gonocoxa. Ventral mesial margin of gonocoxa simple. Parastylar lobe large, the mesial margin angular and with several setae. Paraapodemal lobe absent. Dorsal mesial margin of gonocoxa simple. Two juxtagonostylar setae present: they are simple strong setae rather than megasetae and arise from a long basal body which is about one-half of the length of the setae. Gonostylus bilobate, with a narrower lateral and a broader mesial lobe; both lobes with two apical megasetae, otherwise the setosity absent except for a few rather short setae ventrally on the lateral lobe, dorsally across base of mesial lobe and at mesial margin of the latter with those on dorsal side being stronger than those on ventral side. Tegmen narrow, with a long parallel-sided apical part and distinct lateral shoulders. In the hypopygium mount of the single specimen, the median parts, tegmen, gonocoxal apodemes and hypoproct, are probably displaced posteriad. Hypoproct setose only posteriorly where there are a few long setae. Cerci medially united.

Female unknown.

Discussion. *M. index* is not similar to any described *Manota*. It is readily distinguished by its characteristic bilobed gonostylus with the two megasetae at the apex of each lobe. There are other species with bilobed gonostylus, e.g. the Oriental *M. biloba* Hippa and *M. flavipes* (Enderlein) from the Seychelles, but they lack the megasetae and have sternite 9 laterally fused with the gonocoxa.

Types. *Holotype.* Male, MALAYSIA, Pahang, Bukit Fraser, 4020 ft, Malaise in forest 14–17.III.1997, H. Hippa, M. Jaschhof, B. Viklund (in SMNH).

***Manota inflata* sp. n.**

(Figs 1 E, F, 13 A, B, C)

Male. Colour. Head pale brown, frons, vertex, occiput and antennal flagellum darker brown, mouthparts pale yellowish. Thorax pale brown, posterior part of scutum, scutellum and part of mediotergite darker brown, pro- and mesothoracic pleura paler brown. Legs pale yellowish, femur 3 slightly infuscated on apical third. Wing unicolorous pale brown; haltere pale brown with dark brown knob. Abdomen brown. All the setosity pale, yellowish or brownish, the thicker setae seeming darker than the finer setae and trichia. **Head.** Antennal flagellomere 4, Fig. 13 A. Palpomere 3 of maxillary palpus with apicomesial extension, with 3–6 apically expanded curved sensilla; palpomere 4 with parasegment. Number of postocular setae 10–12. **Thorax.** Anepisternum setose, with 34–72 setae, anterior basallare non-setose, preepisternum 2 setose, with 11–28 setae, laterotergite non-setose, episternum 3 setose, with 4–20 setae. **Wing.** Length 1.8–2.1 mm. **Hypopygium,** Figs 13 B and C: Sternite 9 large, nearly as long as the ventral length of gonocoxa, lateral margin sharply delimited, posterior margin convex or acuminate, anterior margin deeply incised, the setae similar to the ventral setae of

gonocoxa. Ventral mesial margin of gonocoxa convex. Parastylar lobe rather small, partly covered by the mesial margin of gonocoxa, subtriangular in shape so that the apex with two setae is directed obliquely anteriorly. Paraapodemal lobe well exposed in ventral view, unusually large, globular. Dorsal mesial margin of gonocoxa simple except for a rather small setose lobe subapically. Gonocoxa with an apicolateral lobe with a few setae at mesial margin, the basal part of apicolateral lobe in dorsal view partly covered by the subapical lobe on the mesial margin. Two juxtagonostylar setae present, one being a strong but otherwise unmodified seta, the other a slightly longer apically curved megaseta, both setae arising from a common basal body which is about half the length of the setae. Gonostylus with a broad basal and narrow apical part, the setae unmodified, moderately long, very long at mesial margin. Tegmen subtriangular with strong lateral shoulders. Hypoproct posteriorly scarcely reaching the middle of gonostylus, with some 15 setae on each half. Cerci medially united except for the apical parts.

Female. Similar to male. Antennal flagellomere 4, Fig. 1 E. Palpomere 3 with 5 apically expanded sensilla. Anepisternum with 54–66 setae, preepisternum 2 with 24–30 setae, episternum 3 with 9–11 setae. Wing length 1.9–2.1 mm. Tip of abdomen, Fig. 1 F: Cercus two-segmented.

Discussion. *Manota inflata* is similar to a number of other Oriental *Manota* which have a non-setose laterotergite, more or less sickle-shaped oblique parastylar lobe, two long unequal juxtagonostylar setae arising from a long common basal body, and an apicolateral setose lobe on the gonocoxa. It is distinguished from all of these by the very large globular paraapodemal lobes, which are very conspicuous. Among these species, the gonostylus resembles that of *M. plusiochaeta* Hippa but is more strongly widened on basal half, has the setae at the mesial margin less distinctly in a row and lacks a group of short, thick, black setae apicodorsally. The female may be impossible to distinguish from similar species by the known characters. The two females mentioned above have been associated to *M. inflata* because they were caught together with males that they resemble. Females probably belonging to other species occur in the same samples.

Types. *Holotype.* Male, THAILAND, Chiang Mai, Doi Inthanon NP, Vachiratharn Falls, 700m, 18°32.311'N 98°36.048'E, Malaise trap 13–21.ix.2006, Y. Areeluk leg., T248 (in QSBG).

Paratypes. 14 males with same data as holotype but from different dates between 22.vii and 5.x, T116, T175, T182, T242, T341, T347 and T350 (1 in LACM, 1 in SMNH, rest in QSBG). 1 male with same data as holotype but Doi Inthanon NP, campground pond, 1200 m, 18°32.657'N 98°31.482'E, Malaise trap 2–9.viii.2006, T123 (in QSBG). 1 male with same data as holotype but Doi Inthanon NP, Kew Mae Pan, 2200 m, 18°33.163'N 98°28.8'E, Malaise trap 24–30.viii.2006, Y. Areeluk leg., T233 (in QSBG).

***Manota juncta* sp. n.**

(Figs 14 A, B, C)

Male. **Colour.** Head pale brown, frons and occiput darker brown, mouthparts pale yellowish. Thorax pale brown, preepisternum 2 ventrally paler yellowish. Legs pale yellowish. Wing unicolorous yellowish-brown; haltere yellowish-brown with dark brown knob. Abdomen very pale brown after treatment with KOH. All the setosity pale, yellowish or brownish, the thicker setae seeming darker than the finer setae and trichia. **Head.** Antennal flagellomere 4, Fig. 14 A. Palpomere 3 of maxillary palpus with apicomeresial extension, with 3–4 apically expanded curved sensilla; palpomere 4 with parasegment. Number of postocular setae 8. **Thorax.** Anepisternum setose, with 27 setae, anterior basalare setose, with 6 setae, preepisternum 2 non-setose, laterotergite setose, with 12 setae, episternum 3 setose, with 1 seta. **Wing.** Length 1.6 mm. **Hypopygium,** Figs 14 B and C: Sternite 9 laterally fused with gonocoxa, extending posteriorly as far as the ventral posterior margin of gonocoxa, anterior margin incised, the setae similar to ventral setae of gonocoxa. Parastylar lobe large but rather narrow, with 2 setae apically. Paraapodemal lobe absent. Dorsal mesial margin of gonocoxa roundly angular on apical half, the angle covering a more ventrally lying plate-like lobe bearing 8 blunt-ended megas-

etae at margin. With a distinct curved apicolateral lobe on gonocoxa with a few setae laterally and at apex, extending posteriorly nearly as far as the apex of gonostylus. One juxtagonostylar seta present: it is an unmodified strong seta arising from a basal body which is about one-third of the length of the seta. Gonostylus short-oval with a slightly expressed apicolateral lobe, with rather short unmodified setae ventrally, largely non-setose dorsally, with two prominent long setae at mesial margin. Tegmen characteristic in shape, with prominent lateral shoulders and with a long and narrow apical part. Hypoproct large, extending posteriorly as far as the apex of gonostylus, with some 30 setae on each half. Cerci medially separate.

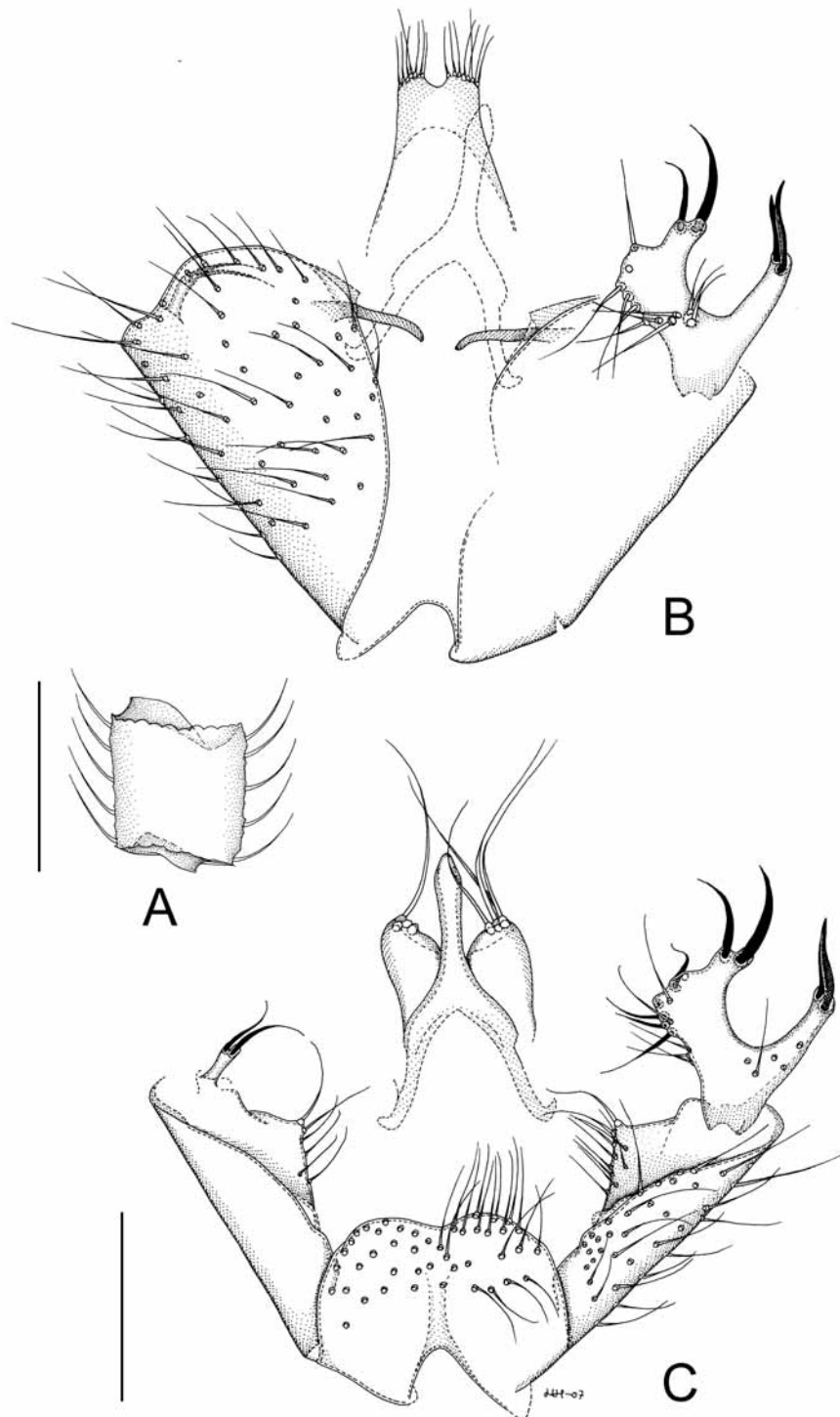


FIGURE 12. *Manota index* sp. n. (holotype). **A.** Antennal flagellomere 4, lateral view. **B.** Hypopygium, dorsal view. **C.** Hypopygium, ventral view. Scale 0.10 mm.

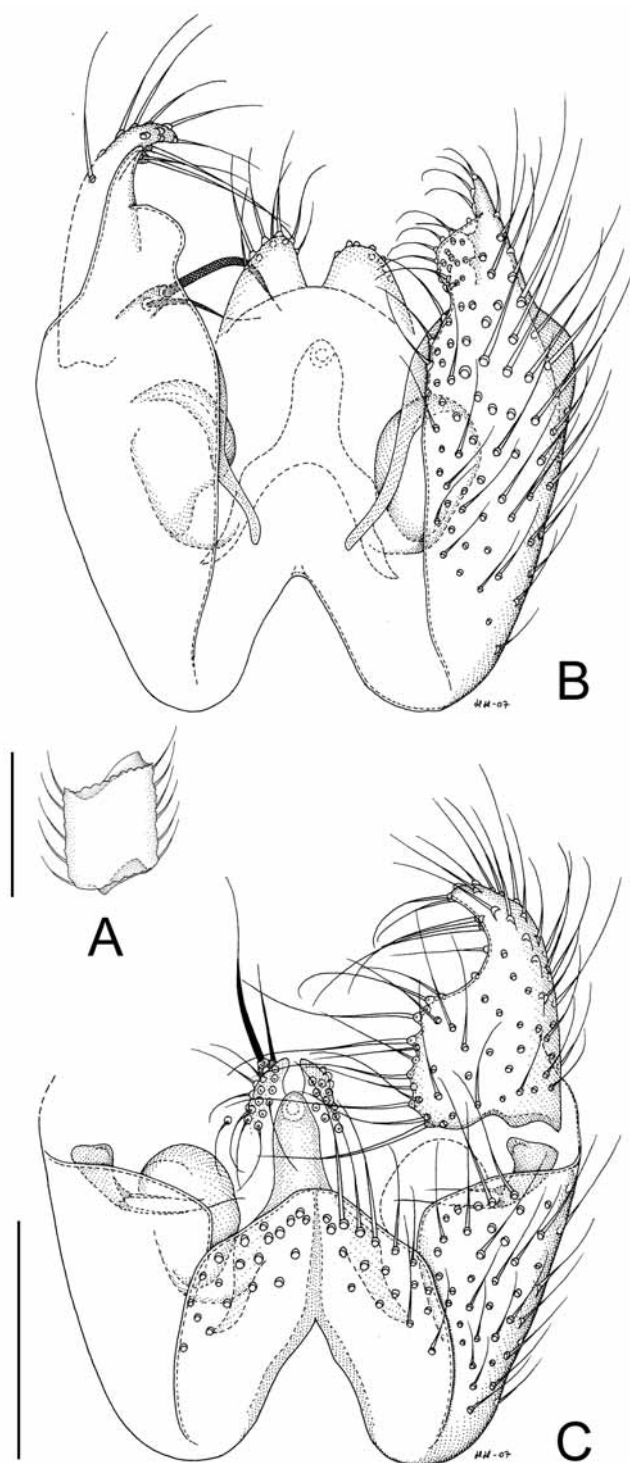


FIGURE 13. *Manota inflata* **sp. n.** (holotype). **A.** Antennal flagellomere 4, lateral view. **B.** Hypopygium, dorsal view. **C.** Hypopygium, ventral view. Scale 0.10 mm.

Female unknown.

Discussion. *M. juncta* is similar to *M. confixa* **sp. n.** For distinguishing characters, see under the latter.

Types. *Holotype.* MALAYSIA, Selangor, Genting Highlands, Gunung Ulu Kali, GPS 3.26N 101.47E, 5725 feet, Malaise trap 12–22.III.1997, H. Hippha, M. Jaschhof, B. Viklund leg. (in SMNH).

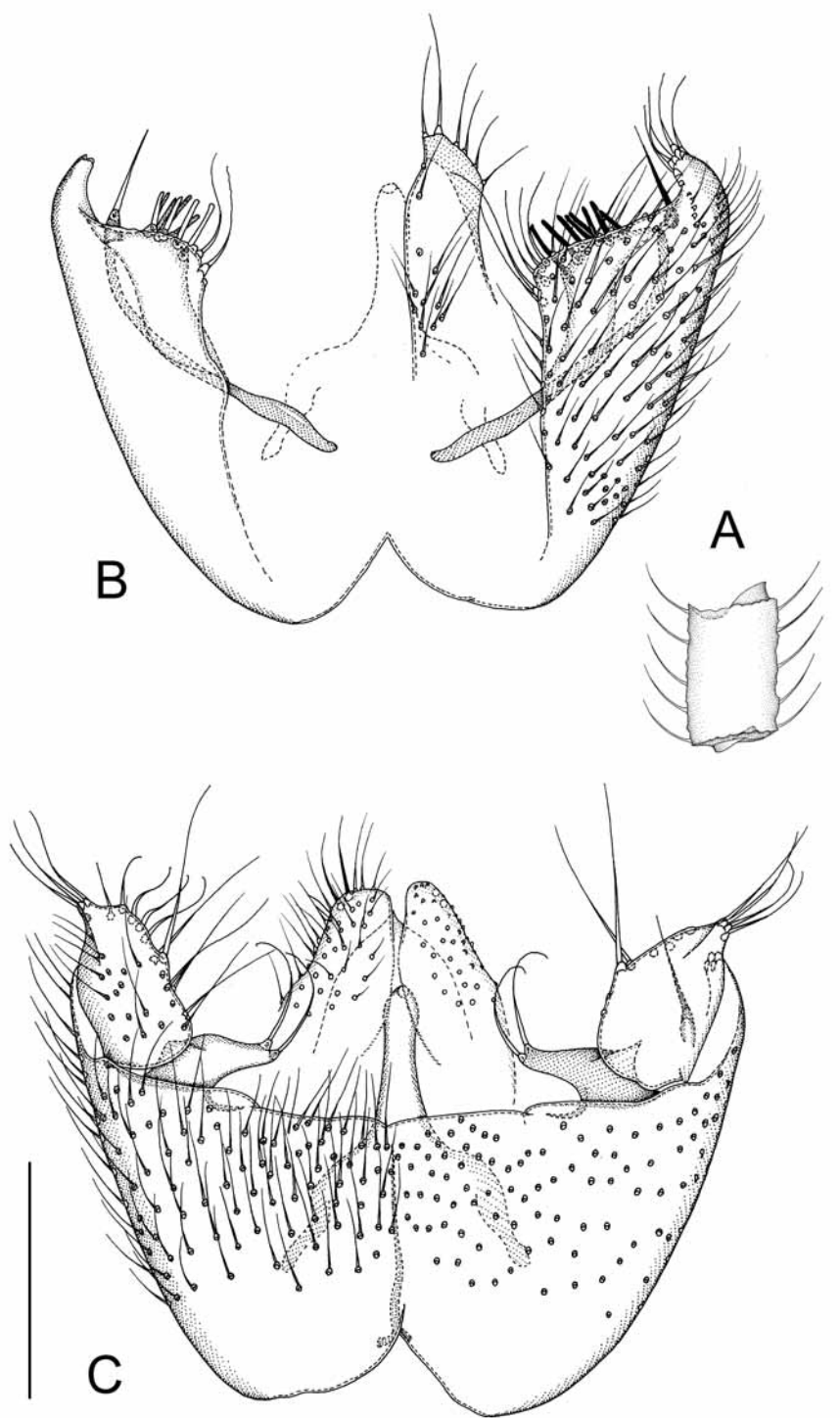


FIGURE 14. *Manota juncta* **sp. n.** (holotype). **A.** Antennal flagellomere 4, lateral view. **B.** Hypopygium, dorsal view. **C.** Hypopygium, ventral view. Scale 0.10 mm.

***Manota oblonga* sp. n.**
(Figs 15 A, B, C)

Male. **Colour.** Head pale brown, frons, vertex, occiput and antennal flagellum darker brown, mouthparts pale yellowish. Thorax pale brown, posterior part of scutum, scutellum and part of mediotergite darker brown, pro- and mesothoracic pleura paler brown. Legs pale yellowish, femur 3 slightly infuscated on apical third. Wing

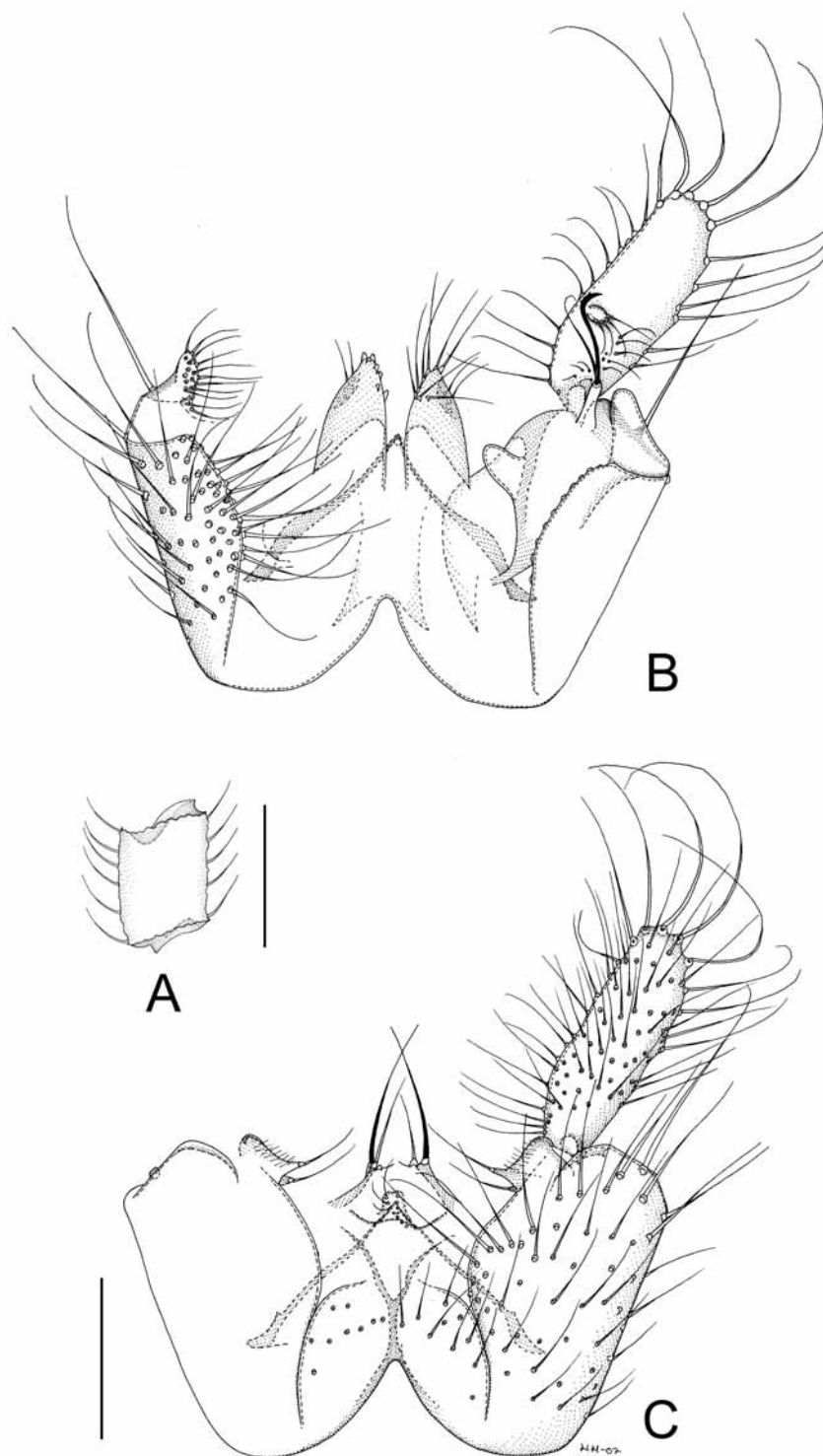


FIGURE 15. *Manota oblonga* **sp. n.** (holotype). **A.** Antennal flagellomere 4, lateral view. **B.** Hypopygium, dorsal view. **C.** Hypopygium, ventral view. Scale 0.10 mm.

unicolorous pale brown; haltere pale brown with dark brown knob. Abdomen brown. All the setosity pale, yellowish or brownish, the thicker setae seeming darker than the finer setae and trichia. **Head.** Antennal flagellomere 4, Fig. 15 A. Palpomere 3 of maxillary palpus with apicomesial extension, with 5 apically expanded curved sensilla; palpomere 4 with parasegment. Number of postocular setae 11. **Thorax.** Anepisternum setose, with 42 setae, anterior basalare non-setose, preepisternum 2 setose, with 18 setae, laterotergite

non-setose, episternum 3 setose, with 6 setae. **Wing.** Length 2.0 mm. **Hypopygium,** Figs 15 B and C: Sternite 9 slightly less than one-half of the ventral length of gonocoxa, lateral margin sharply delimited, posterior margin indistinct, merging without any distinct boundary with the more posterior membranous structures in the single specimen, anterior margin deeply incised, the setae similar to the weakest ventral setae of gonocoxa. Ventral mesial margin of gonocoxa convex. Parastylar lobe rather small, with two setae mesially, each arising from an acute small lobe. Paraapodemal lobe distinct, not clearly seen in ventral view, drawn in Fig. 15B. Dorsal mesial margin of gonocoxa simple, apically angularly curved laterad and connected to a setose apicolateral lobe. Two juxtagonostylar setae present, one a long sigmoid seta, the other a similar megaseta, both arising from a common basal body which is about half the length of the setae. Gonostylus very elongate-oval, the ventral setae unmodified, moderately long, the apical setae very long, the dorsal side non-setose except for a few rather weak setae on basal half, some of these setae arising from a small tuberculate lobe. Tegmen broadly subtriangular, with weak lateral shoulders. Hypoproct extending posteriorly only to the level of parastylar lobes, with some 10 setae on each half, those at the mesial margin unusually weak. Cerci medially separate.

Female unknown.

Discussion. *Manota oblonga* belongs to a rather common structural type among the Oriental *Manota*, i.e. among species which have a non-setose laterotergite, a more or less sickle-shaped oblique parastylar lobe, two long unequal juxtagonostylar setae arising from a long common basal body and a more or less well expressed apicolateral setose lobe on the gonocoxa. *M. oblonga* differs from all similar species by having an area of densely placed, very long setae dorsally on the gonocoxa. The very elongate-oval gonostylus is rather similar to that of *M. pectinata* Hippa but the apical setae are much longer and the whole apical half on the dorsal side of gonostylus is non-setose. The small setose lobe or tubercle on the dorsal side of gonostylus is not found in any other reminiscent species.

Types. *Holotype.* Male, THAILAND, Chiang Mai, Doi Inthanon NP, Vachiratharn Falls, 700m, 18°32.311'N 98°36.048E, Malaise trap 13–21.ix.2006, Y. Areeluk leg., T248 (in QSBG).

Manota parvistylata sp. n.

(Figs 16 A, B, C)

Male. **Colour.** Head pale brown, frons and occiput darker brown, mouthparts pale yellowish. Thorax brown, ventral parts of pleura paler brown to yellowish. Legs pale yellowish, femur 3 infuscated on apical third, which is not apparent in all mounts. Wing unicolorous yellowish-brown; haltere yellowish-brown with dark brown knob. Abdomen brown, concolorous with dorsal part of thorax. All the setosity pale, yellowish or brownish, the thicker setae seeming darker than the finer setae and trichia. **Head.** Antennal flagellomere 4, Fig. 16 A. Palpomere 3 of maxillary palpus with apicomesial extension, with 3–4 apically expanded curved sensilla; palpomere 4 with parasegment. Number of postocular setae 8–13. **Thorax.** Anepisternum setose, with 20–43 setae, anterior basalar non-setose, preepisternum 2 setose, with 12–34 setae, laterotergite non-setose, episternum 3 setose, with 5–11 setae. **Wing.** Length 1.5–2.0 mm. **Hypopygium,** Figs 16 B and C: Sternite 9 slightly less than one-third of the ventral length of gonocoxa, laterally fused with gonocoxa except posteriorly where it is a short continuation of the convex curvature of the posterior margin, anterior margin only shallowly concave, the setae similar to the ventral setae of gonocoxa. Ventral mesial margin of gonocoxa convex. Apicoventral margin of gonocoxa with a transverse row of some 10 very long setae. Parastylar lobe absent as a definite lobe, probably represented by a few long setae at the middle of the ventral mesial margin of gonocoxa. Paraapodemal lobe absent. Dorsal mesial margin of gonocoxa simple except for a large lobe just on apical half which bears numerous marginal and ventral submarginal setae. Two juxtagonostylar setae present, one a strong curved seta, the other a partly flattened sigmoid megaseta, both arising from a rather low

common basal body. Gonostylus small, nearly parallel-sided, ventrally with long setae on the apical half, on dorsal side the mesial marginal area produced lobe-like and with a row of short setae at margin, otherwise with only a few rather weak dorsal setae. Tegmen unusual in shape, narrowly subtriangular with subbasal lateral lobes (shoulders), the basal part with the apodemes unusually narrow. Placement of tegmen as well as the gonocoxal apodemes unusually basal. Hypoproct large but extending posteriorly only near to base of gonostylus, with some 30 setae on each half. Cerci medially separate.

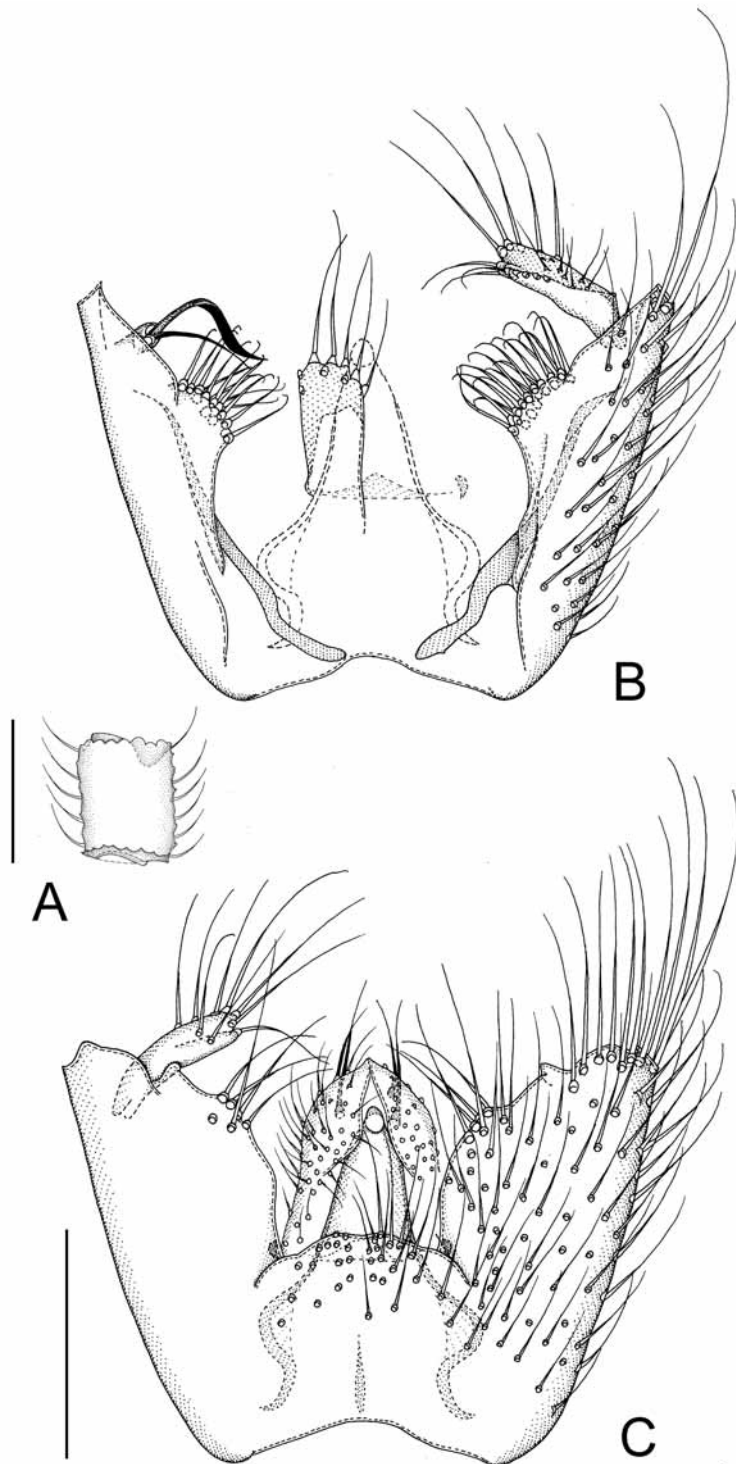


FIGURE 16. *Manota parvistylata* **sp. n.** (holotype). **A.** Antennal flagellomere 4, lateral view. **B.** Hypopygium, dorsal view. **C.** Hypopygium, ventral view. Scale 0.10 mm.

Female unknown.

Discussion. *M. parvistylata* is similar to *M. globigera* Hippa, especially in its unusually shaped, basally narrowed, tegmen, the very anterior placement of the tegmen, the gonocoxal apodemes and also the cerci. *M. parvistylata* can be distinguished from *M. globigera* e.g. as follows: 1) sternite 9 is short, posteriorly not extending to the middle of the gonocoxa, whereas in *M. globigera* it is much longer and extends posteriorly to the level of the parastylar lobes, 2) the parastylar lobe is fused with the gonocoxa and is distinguished only as a group of setae, whereas in *M. globigera* the parastylar lobe is a separate setose sclerite, 3) the posteroventral setae of the gonocoxa are very long, much longer than the more anterior setae, whereas in *M. globigera* the ventral setosity is all short. In both species the gonostylus is rather similar and may vary in appearances on different mounts. In *M. globigera* the gonostylus may roll on the mount so that a lobe-like basolateral widening appears. The same is seen in some mounts of *M. parvistylata* but is much more weakly expressed. In the original description of *M. globigera* (Hippa 2006), the anterior basalare was said to be setose. This is not true as the sclerite is non-setose in the holotype as it is in all the new material (p. 00) and in *M. parvistylata*. *M. parvistylata* resembles two other Oriental species, *M. secreta* Hippa and Papp and *M. occulta* Hippa and Papp, by lacking the parastylar lobe as a free sclerite, but otherwise the species are not similar. *M. parvistylata* can be distinguished from both e.g. by the non-setose laterotergite, by having sternite 9 laterally fused with gonocoxa, by having the above-mentioned long setae ventrally on gonocoxa, by having two, not one, juxtagonostylar setae and by having a basally narrowed tegmen.

Types. *Holotype.* Male, MALAYSIA, Pahang, Cameron Highlands, Bala's Hotel, 1500 m, light trap 22.XI.1994, B. Gustafsson (in SMNH).

Paratypes. 2 males, MALAYSIA, Pahang, Fraser's Hill, Malaise in forest 14–17.3.1997, H. Hippa, M. Jaschhof, B. Viklund (in SMNH). 2 males, MALAYSIA, Pahang, Genting Highlands, Awana, Malaise trap under cable car route 10–22.III. 1997, H. Hippa, M. Jaschhof, B. Viklund (in SMNH). 5 males, MALAYSIA, Pahang, Genting Highlands, GPS 3.24N 101.47E, 3900–4500 ft, Malaise 3–22.III.1997, H. Hippa, M. Jaschhof, B. Viklund (in SMNH).

***Manota pelli* sp. n.**

(Figs 17 A, B, C, D)

Male. Colour. Head pale brown, frons, vertex, occiput and antennal flagellum darker brown, mouthparts pale yellowish. Thorax pale brown, posterior part of scutum, scutellum and part of mediotergite darker brown, pro- and mesothoracic pleura paler brown. Legs pale yellowish, femur 3 slightly infuscated on apical third. Wing unicolorous pale brown; haltere pale brown with dark brown knob. Abdomen brown. All the setosity pale, yellowish or brownish, the thicker setae seeming darker than the finer setae and trichia. **Head.** Antennal flagellomere 4, Fig. 17 A. Palpomere 3 of maxillary palpus with apicomesial extension, with 5 apically expanded curved sensilla; palpomere 4 with parasegment. Number of postocular setae 11. **Thorax.** Anepisternum setose, with 71 setae, anterior basalare non-setose, preepisternum 2 setose, with 24 setae, laterotergite non-setose, episternum 3 setose, with 38 setae. **Wing.** Length 2.0 mm. **Hypopygium,** Figs 17 B, C and D: Sternite 9 about one-half of the ventral length of gonocoxa, lateral margin sharply delimited, posterior margin transverse with a medial notch, anterior margin deeply incised, the setae similar to the ventral setae of gonocoxa. Ventral mesial margin of gonocoxa strongly sigmoid. Parastylar lobe rather small, with 3 mesial setae arising from narrow projections. Paraapodemal lobe distinct and well exposed in ventral view. Dorsal mesial margin of gonocoxa simple, with a lobe-like setose apico-mesial angle. Ventrally from the latter with a setose lobe. Two juxtagonostylar setae present: these are two rather unmodified curved megasetae arising from the tip of a long common basal body, which is about twice as long as the megasetae. At the juxtagonostylar setae, on their dorsal side, is a seta which also arises from a similar narrow basal body. Gonostylus simple, short-

oval, narrowing towards base, its ventral setae moderately long, the setae apicodorsally strong but short, otherwise dorsal setae almost absent. Tegmen subtriangular, with lateral shoulders. Hypoproct extending posteriorly to middle of gonostylus, with some 10 setae on each half, forming a mesial row. Cerci medially separate.

Female unknown.

Etymology. The species epithet is dedicated to Mr Jarmo Pelli, Stockholm, whose assistance in the study of the World *Manota* has been indispensable.

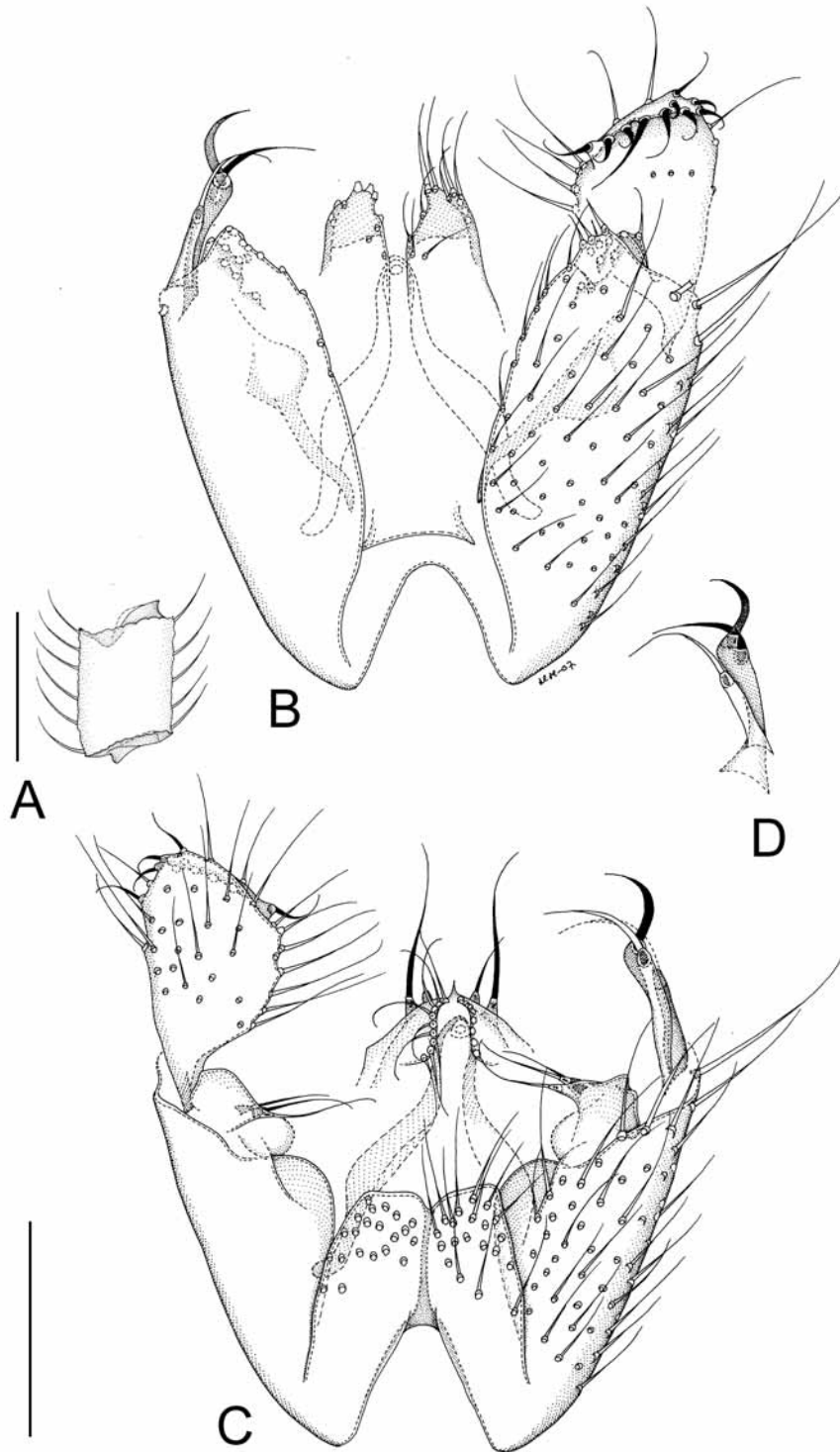


FIGURE 17. *Manota pelli* sp. n. (holotype). **A.** Antennal flagellomere 4, lateral view. **B.** Hypopygium, dorsal view. **C.** Hypopygium, ventral view. **D.** Juxtagonostylar setae with associated structures, dorsal view. Scale 0.10 mm.

Discussion. *M. pellii* resembles *M. perpusilla* Hippa in having two juxtagonostylar megasetae arising from a long and narrow common basal body and in having on the dorsal side of these a similar basal body with one seta. *M. pellii* differs from *M. perpusilla* in having the gonostylus much broader, short-oval instead of elongate-oval (twice as broad as long), and by lacking a very long flattened seta subbasally at its mesial margin. The diverging juxtagonostylar setae are probably also a diagnostic character of the species.

Types. Holotype. Male, THAILAND, Nakhon Nayok, Khao Yai, Behind Headmasters House, 14°24.781'N 101°22.689'E, Malaise traps 19–26. vii.2006, Pong Sandao leg., T150 (in QSBG).

***Manota perlobata* sp. n.**

(Figs 1 C, D, 18 A, B, C)

Male. Colour. Head brown, mouthparts pale yellowish. Thorax brown, pleura paler than other parts, ventral part of preepisternum 2 palest. Legs pale yellowish, femora 2 and 3 infuscated, more intensively at base and on apical fourth especially of femur 3, tibia 3 infuscated at base. Wing unicolorous pale yellowish-brown; haltere pale yellowish-brown with dark brown knob. Abdomen brown. All the setosity pale, yellowish or brownish, the thicker setae seeming darker than the finer setae and trichia. **Head.** Antennal flagellomere 4, Fig. 18 A. Palpomere 3 of maxillary palpus with apicomesial extension, with 4 apically expanded curved sensilla; palpomere 4 with parasegment. Number of postocular setae 11. **Thorax.** Anepisternum setose, with 50 setae, anterior basallare setose, with 6–9 setae, preepisternum 2 setose, with 16–17 setae, laterotergite non-setose, episternum 3 setose, with 7–10 setae. **Wing.** Length 2.1–2.3 mm. **Hypopygium,** Figs 18 B and C: Sternite 9 about one-half of the ventral length of gonocoxa, lateral margin sharply delimited, converging towards the narrow cleft posterior margin, anterior margin deeply incised, the setae similar to the ventral setae of gonocoxa. The ventral aspect of gonocoxa unusual, largely covered by a plate which widens posteriad. Parastylar lobe in the usual meaning not identifiable (see the discussion below). Paraapodemal lobe not identifiable. Dorsal mesial margin of gonocoxa with two large, flat, apically setose lobes on its apical half: a more anterior one which is oval in outline, and a more posterior and ventral one which is basally narrow but widens towards apex. At the position of the juxtagonostylar setae with three megasetae: two of these arising from a common basal body which is as long as the megasetae, the third one arising from a separate similar basal body. Gonostylus complicated, with a narrow basal part giving rise to three mesially-directed lobes of which one is ventral and rather short, one is dorsal and as long as the basal part of gonostylus, and the third one lies between the two others and is longer than the basal part of gonostylus; basal part of gonostylus with rather short setae ventrally, laterally and dorsally but not mesially, ventral lobe with some very long marginal setae, the middle and dorsal lobes with rather short setae apically and along mesial margin, middle lobe also on dorsal surface; dorsal side of dorsal lobe with a large submembranous area with obliquely-placed striae. It seems that the middle and dorsal lobes may be movable. Tegmen unusually small, with lateral shoulders, the apodemes directed obliquely posteriad, the apical tube directed posteriad. Hypoproct posteriorly extending to the base of gonostylus, with some 20 setae on each half. Cerci medially separate posteriorly, incompletely fused anteriorly.

Female. Similar to male. Antennal flagellomere 4, Fig. 1 C. Palpomere 3 with 4 apically expanded sensilla. Anepisternum with 24–37 setae, anterior basallare with 5 setae, preepisternum 2 with 14–20 setae, episternum 3 with 3 setae (this could be observed in only one of the specimens). Wing length 1.8–2.3 mm. Apical part of abdomen, Fig. 1 D: Cercus 1-segmented (in the drawing, the area marked with a broken line indicates a structure which is on the mesial surface), with 4 groups of hyaline sensilla, the number of these sensilla lower in all groups in the other female (which was not illustrated).

Discussion. In its hypopygium, *M. perlobata* is very dissimilar to any other described *Manota*, in that the homologies of many structures are difficult to see. The ventral surface of the gonocoxa is occupied by a large plate extending from sternite 9 to the base of gonostylus and laterally demarcated by a distinct margin. This

plate could represent the parastylar lobe. The lobes on the dorsal side of gonocoxa are somewhat reminiscent of the Oriental *M. forceps* Hippa and Papp and of the Oceanian *M. maorica* Edwards and *M. serawei* Hippa, but it has a more complicated structure of the lobes than any of these. The geniculate gonostylus with three apical lobes is very unlike other *Manota* and easily identifies the species. The female differs from other *Manota* in which the female is known by the one-segmented, not two-segmented, cercus and by having groups of finger-like hyaline sensilla on the cercus. The two females studied are not identical (see above) and could belong to different species. Apart from its many unusual characters in the male hypopygium and female terminalia, *M. perlobata* does not differ in any special way from other *Manota*.

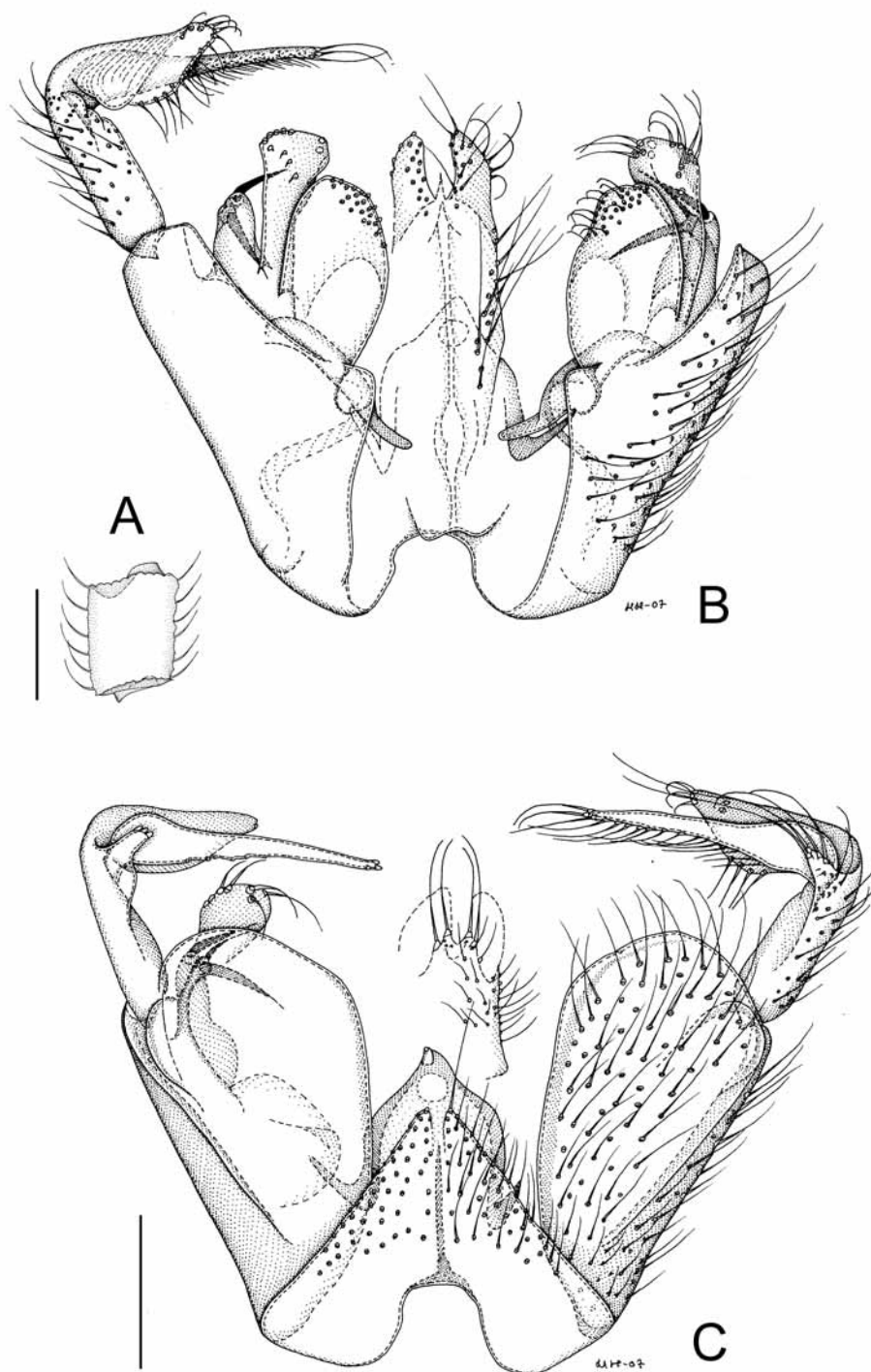


FIGURE 18. *Manota perlobata* sp. n. (holotype). **A.** Antennal flagellomere 4, lateral view. **B.** Hypopygium, dorsal view. **C.** Hypopygium, ventral view. Scale 0.10 mm.

Types. *Holotype*. Male, THAILAND, Chiang Mai, Doi Inthanon NP, checkpoint 2, 1700 m, 18°31.559'N 98°29.941'E, Malaise trap 21–27. ix.2006, Y. Areeluk leg., T343 (in QSBG).

Paratypes. 1 male with same data as holotype but 2–9.viii., T127 (in SMNH). 1 male (pinned, hypopygium on slide), BURMA, Kambaiti, 7000 ft., 25.V.1934, R. Malaise (in BMNH).

Other material. 2 females with same data as holotype but 2–9. viii and 16–24.viii, T127 and T187 (in QSBG).

***Manota planilobata* sp. n.**

(Figs 19 A, B, C, D)

Male. **Colour**. Head pale brown, frons, vertex and occiput darker brown, 2 basal antennal flagellomeres ventrally and apical part of flagellomere 14 paler than rest of flagellum, mouthparts pale yellowish. Thorax pale brown, ventral part of preepisternum 2 paler than the other parts. Legs pale yellowish, coxae 2 and 3 infuscated at tips and their respective trochanters infuscated, other parts of legs 2 and 3 lost in the single specimen. Wing unicolorous yellowish-brown; haltere yellowish-brown with dark brown knob. Abdomen brown. All the setosity pale, yellowish or brownish, the thicker setae seeming darker than the finer setae and trichia. **Head**. Antennal flagellomere 4, Fig. 19 A. Palpomere 3 of maxillary palpus with apicomesial extension, with 4 apically expanded curved sensilla; palpomere 4 with parasegment. Number of postocular setae 12. **Thorax**. Anepisternum setose, with 27 setae, anterior basalare setose, with 4 setae, preepisternum 2 setose, with 18 setae, laterotergite non-setose, episternum 3 setose, with 11 setae. **Wing**. Length 1.7 mm. **Hypopygium**, Figs 19 B and C: Sternite 9 about one-half of the ventral length of gonocoxa, lateral margin sharply delimited, contiguous with the rounded, deeply medially cleft posterior margin, anterior margin deeply incised, the setae similar to the ventral setae of gonocoxa. Ventral mesial margin of gonocoxa simple. Parastylar lobe large, with numerous setae at posteromesial margin. Paraapodemal lobe distinct, well exposed in ventral view. Dorsal mesial margin of gonocoxa simple, convex at middle, with a small subapical lobe with a couple of setae, and just posterior of it with a small lobe with a strong seta; on apical half of gonocoxa, situated ventrad from the dorsalmost margin, with a plate-like lobe bearing 5 strong setae. Two juxtagonostylar setae present, both being curved megasetae but greatly unequal in size and both arising from a low common basal body. Gonostylus simple, elongate-quadrangular, both ventral and dorsal side with moderately long unmodified setae, the apicomesial angle with two and the mesial margin with one strong seta differing from the other setosity. Tegmen subtriangular, with weak lateral shoulders, the apical tube directed posteriad. Hypoproct extending posteriorly to the base of gonostylus, with some 15 setae on each half, the mesialmost setae in an oblique row, a few setae forming an indistinct lateral group. Cerci medially separate.

Female unknown.

Discussion. *M. planilobata* is similar to *M. collina* sp. n. For further discussion, see under the latter.

Types. *Holotype*. Male, THAILAND, Chiang Mai, Doi Inthanon NP, campground pond, 1200 m, 18°32.657'N 98°31.482'E, Malaise trap 2–9.viii.2006, Y. Areeluk leg., T123 (in QSBG).

***Manota subdentata* sp. n.**

(Figs 20 A, B, C)

Male. **Colour**. Almost unicolorous brown, mouthparts and legs only slightly paler, femur 3 with a slight indication of darker infuscation on apical third, wing pale brown, knob of haltere dark brown. Setosity paler or darker brown, the thicker setae seeming darker than the finer setae and trichia. **Head**. Antennal flagellomeres 4 and 5, Fig. 20 A. Palpomere 3 of maxillary palpus with apicomesial extension, with 4 apically expanded curved sensilla; palpomere 4 with parasegment. Number of postocular setae 11. **Thorax**. Anepisternum set-

ose, with 20 setae, anterior basallare setose, with 8 setae, preepisternum 2 non-setose, laterotergite setose, with 21 setae, episternum 3 setose, with 3 setae. **Wing.** Length 1.8 mm. **Hypopygium,** Figs 20 B and C: Sternite 9 laterally fused with gonocoxa, extending posteriorly as far as ventral posterior margin of gonocoxa, anterior margin incised, the setae similar to ventral setae of gonocoxa. Parastylar lobe large, broad, with 3 setae at mesial margin. Paraapodemal lobe apparently absent. Dorsal mesial margin of gonocoxa simple, arcuate, with a few prominent setae on posterior half; the mesial margin partly covering on a more ventrally lying plate bearing 7–8 acute marginal megasetae. With a distinct slightly curved apicolateral lobe on gonocoxa with a few setae laterally and at apex, which extends posteriorly as far as the apex of gonostylus. One juxtagonostylar seta present, not differing much from other gonocoxal setae and arising from a rather short conical basal body. Gonostylus simple, small, oval, with rather short unmodified setae ventrally, largely non-setose dorsally, with prominent long setae at mesial margin. Tegmen subtriangular, the basal part and apodemes unusual (Figs 20 B, C). Hypoproct large, extending posteriorly over middle of gonostylus, with some 25 setae on each half. Cerci medially separate.

Female unknown.

Discussion. *M. subdentata* is similar to *M. dentata* Hippa and Papp and *M. heptacantha* Hippa, but is distinguished from them e.g. by having the dorsal mesial megasetae of gonocoxa simple, narrowing towards the pointed apex, whereas in *M. dentata* and *M. heptacantha* they are flattened and slightly expanded at a blunt apex. Furthermore, *M. subdentata* differs from both by having the setosity on the dorsal side of gonocoxa rather similar throughout, while in *M. dentata* and *M. heptacantha* there is a group of differing longer setae near the apex. The three species seem to differ in the setosity of the gonostylus: in *M. subdentata* at the mesial margin there is only a couple of setae, one of which is conspicuously strong, whereas in *M. dentata* there are several equally strong setae and in *M. heptacantha* there are several setae of which one is strong and differing from the others. *M. subdentata* resembles two additional Oriental species, *M. juncta* sp. n. and *M. confixa* sp. n., but differs e.g. by the pointed dorsomesial megasetae on the gonocoxa and by the more anterior position of the gonocoxal apodemes. For further discussion, see under *M. confixa*. *M. subdentata* resembles some Afro-tropical species, especially *M. serrata* Söli and *M. sespinea* Söli, but differs e.g. by the simple, not flattened juxtagonostylar seta.

Types. *Holotype.* Male, MALAYSIA, Pahang, Cameron Highlands, Tanah rata, forest, 4°28'N 101° 23'E, 4800–5000ft, 6.xi.1983, J. W. Ismay, BM 1984-71 (in BMNH).

Manota submirifica sp. n.

(Figs 21 A, B, C)

Male. **Colour.** Head brown, face paler brown, antennal flagellomeres 1 and 2 ventrally paler brown, mouth-parts pale yellowish. Thorax brown, episternum 1 and preepisternum 2 ventrally paler yellowish. Legs pale yellowish, femur 3 infuscated on apical half and very slightly at base, tibia 3 infuscated at base, in the preparation femur 2 appearing slightly darker than femur 1. Wing unicolorous yellowish-brown; haltere yellowish-brown with dark brown knob. Abdomen brown. All the setosity pale, yellowish or brownish, the thicker setae seeming darker than the finer setae and trichia. **Head.** Antennal flagellomere 4, Fig. 21 A. Palpomere 3 of maxillary palpus with apicomerial extension, with 4 apically expanded curved sensilla; palpomere 4 with parasegment. Number of postocular setae 11. **Thorax.** Anepisternum setose, with 28 setae, anterior basallare setose, with 9 setae, preepisternum 2 setose, with 16 setae, laterotergite non-setose, episternum 3 setose, with 2 setae. **Wing.** Length 2.0 mm. **Hypopygium,** Figs 21 B and C: Sternite 9 about one-third of the ventral length of gonocoxa, lateral margin sharply delimited, sternite 9 divided posteriorly into two parts by a large cleft extending as a furrow near to anterior margin, anterior margin deeply incised, the setae similar to the ventral setae of gonocoxa. Ventral mesial margin of gonocoxa simple. Parastylar lobe very broad (or in anterior-posterior direction unusually long), with several setae at mesial margin. Paraapodemal lobe distinct but in

ventral view totally covered by the parastylar lobe. Dorsal mesial margin of gonocoxa simple, with a finger-like setose lobe apically, ventrally from this lobe, between it and the gonocoxal apodemes, with a plate-like lobe bearing a few setae. Two juxtagonostylar setae present, both of these equally large simple megasetae and arising from a short common basal body which is about one-fourth of their length. Gonostylus simple, elongate, narrow, weakly curved, with moderately long unmodified setae on ventral side, with long needle-like mesiad directed setae on the dorsal side. Tegmen subtriangular, with the apex asymmetric, the lateral shoulders weak. Hypoproct large, extending posteriorly near to middle of gonostylus, with some 20 setae on each half, some 10 of these setae in an indistinct longitudinal row near the mesial margin, several setae in an indistinct lateral group. Cerci medially separate.

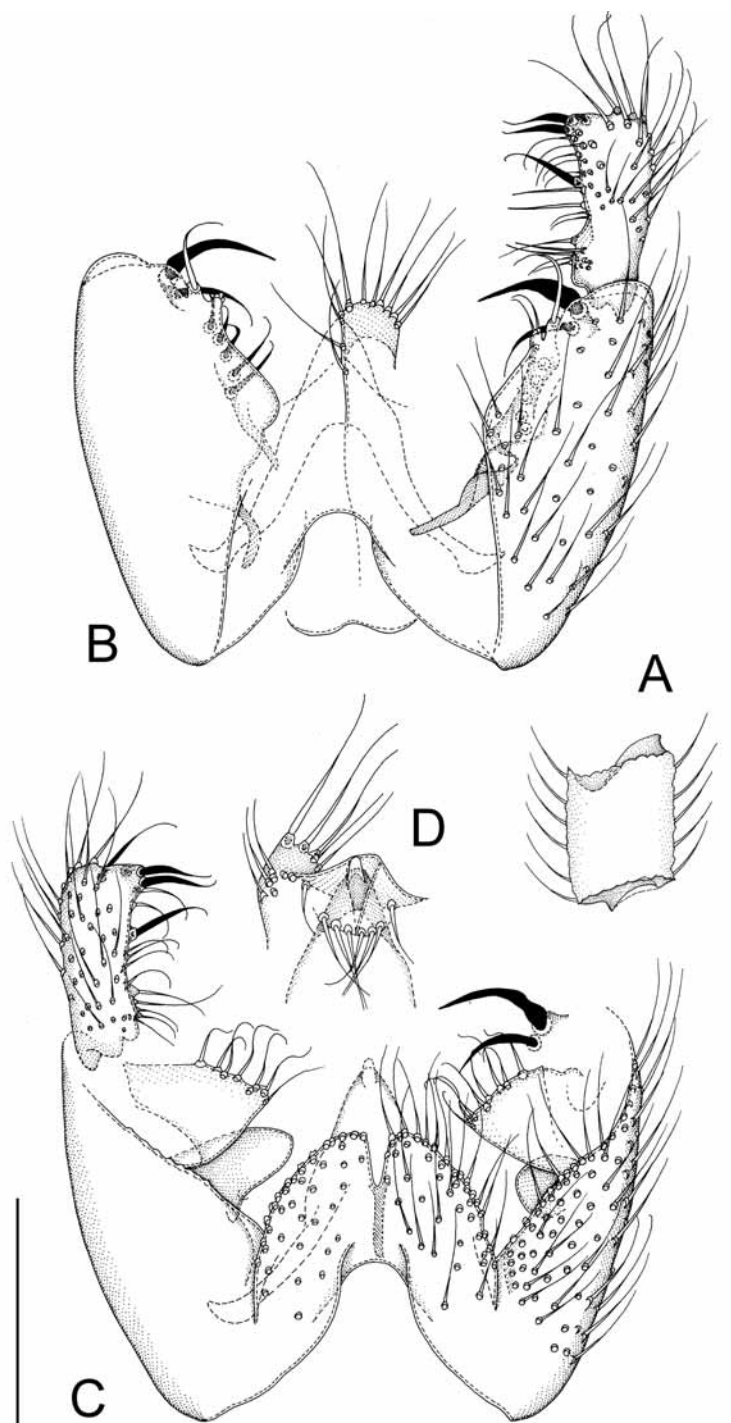


FIGURE 19. *Manota planilobata* sp. n. (holotype). **A.** Antennal flagellomere 4, lateral view. **B.** Hypopygium, dorsal view. **C.** Hypopygium, ventral view. **D.** Part of hypoproct and tegmen, removed posteriad. Scale 0.10 mm.

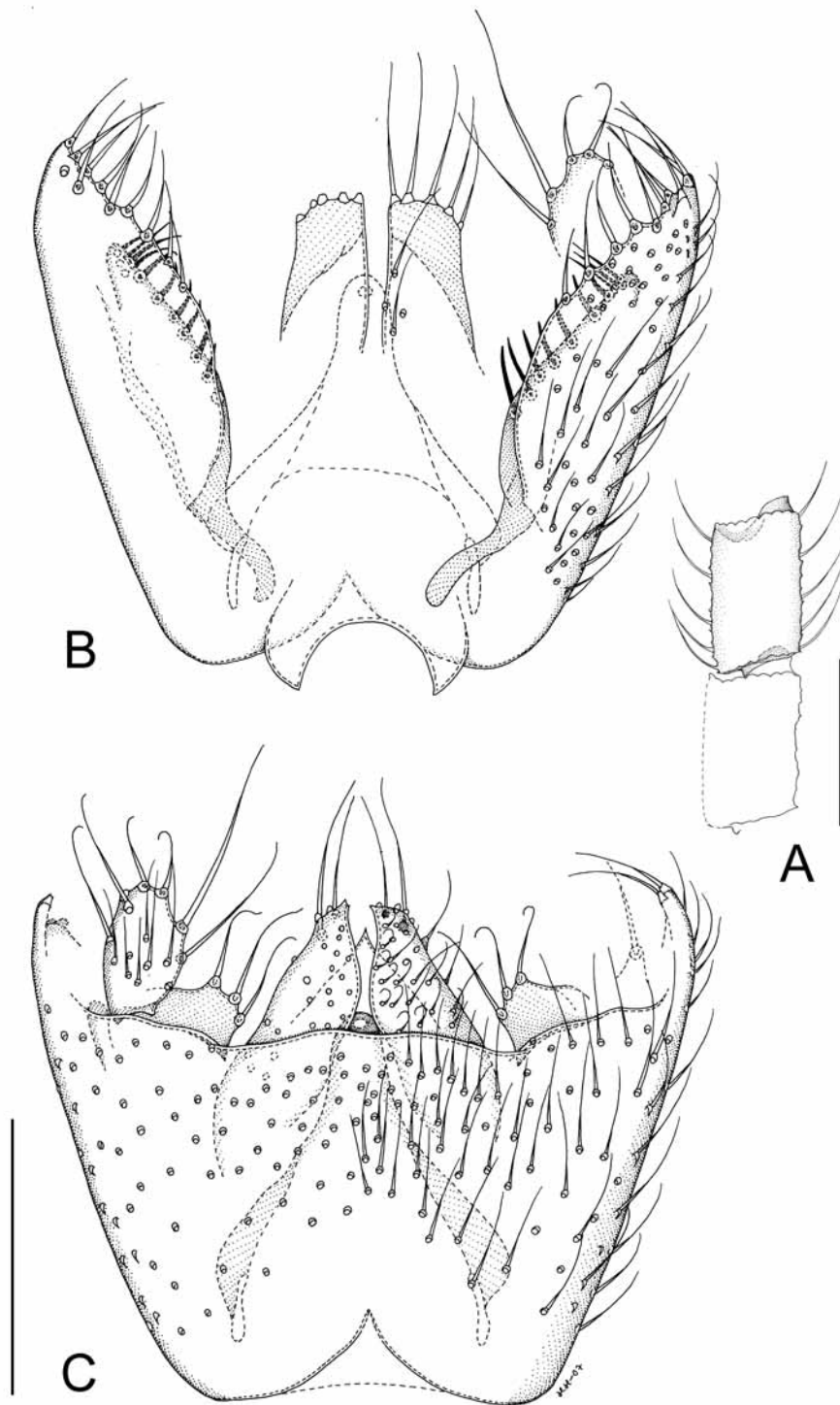


FIGURE 20. *Manota subdentata* **sp. n.** (holotype). **A.** Antennal flagellomeres 4 and 5, lateral view. **B.** Hypopygium, dorsal view. **C.** Hypopygium, ventral view. Scale 0.10 mm.

Female unknown.

Discussion. *M. submirifica* is similar to *M. mirifica* Hippa and Papp and *M. aconcinna* **sp. n.** All three species differ from other known *Manota* by the asymmetric apex of the tegmen. *M. submirifica* differs from the other two by having the apex of tegmen down-turned as in most *Manota*, not straight as in *M. aconcinna* and *M. mirifica*. *M. submirifica* is also distinguished from the other two by having a group of needle-like transverse setae on the dorsal surface of the gonostylus. For additional discussion, see under *M. aconcinna*.

Types. *Holotype*. Male, THAILAND, Chiang Mai, Doi Inthanon NP, checkpoint 2, 1700 m, 18°31.559N 98°29.941'E, Malaise trap 16–24. viii.2006, Y. Areeluk leg., T187 (in QSBG).

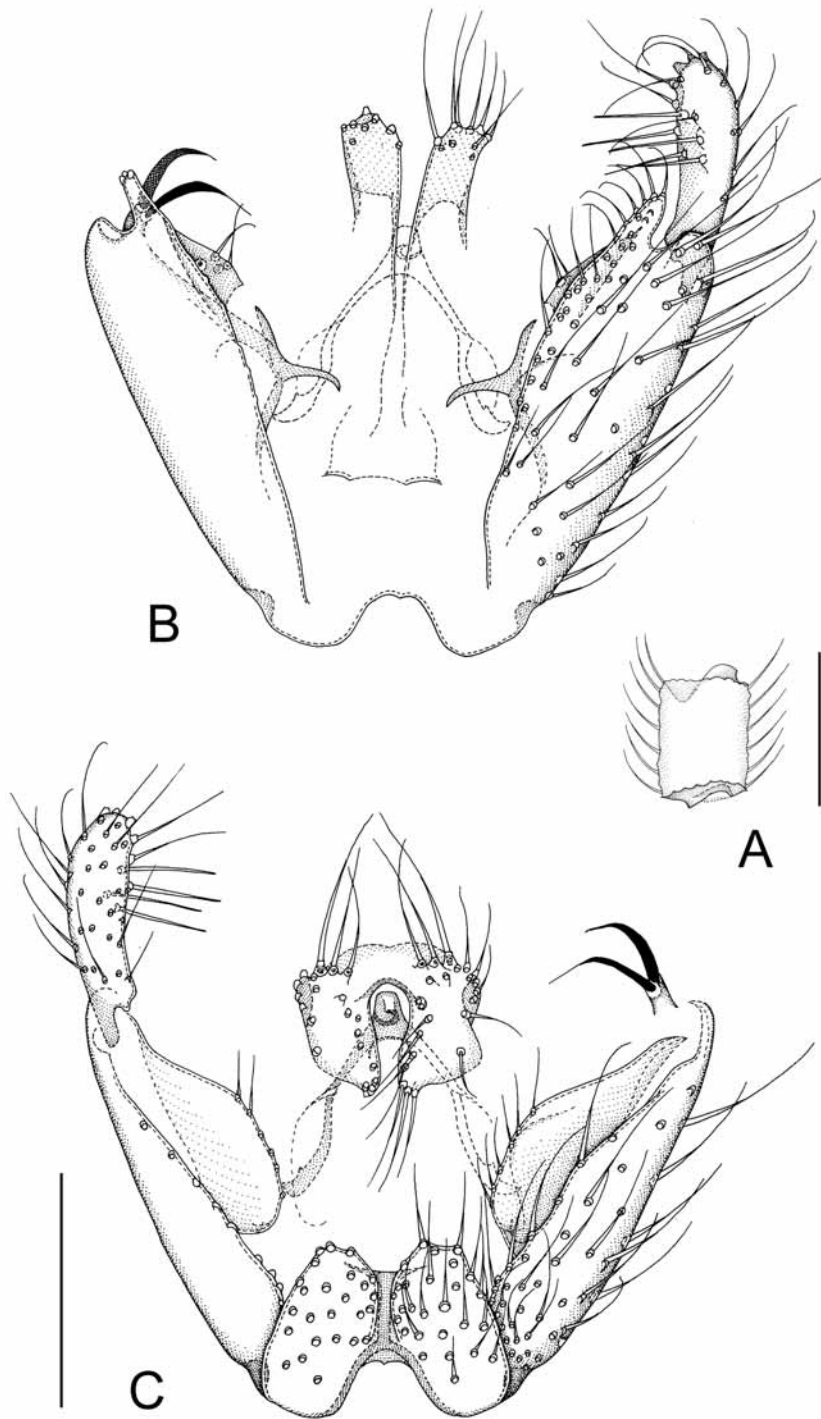


FIGURE 21. *Manota submirifica* **sp. n.** (holotype). **A.** Antennal flagellomere 4, lateral view. **B.** Hypopygium, dorsal view. **C.** Hypopygium, ventral view. Scale 0.10 mm.

New records

Manota acutangula Hippa, 2006

New records. 1 male, MALAYSIA, Pahang, Genting Highlands, Awana, Malaise trap under cable car route

10–22.III.1997, H. Hipa, M. Jaschhof, B. Viklund (in SMNH). 1 male, THAILAND, Phetchabun, Nam Nao National Park, helicopter landing ground, 16°43.156'N 101°35.118'E, 890 m, Malaise trap 24–30.vii.2006, N. Hongyothi and L. Janteab leg., T278 (QSBG). 1 male, THAILAND, Chiang Mai, Doi Inthanon NP, summit marsh, 2500 m, 18°35.361'N 98°29.157'E, Malaise trap 19–26.x.2006, Y. Areeluk leg., T347 (in QSBG). 2 males, THAILAND, Chiang Mai, Doi Inthanon NP, Vachiratharn Falls, 700m, 18°32.311'N 98°36.048E, Malaise trap 22.vii–2.viii.2006, Y. Areeluk leg., T116 (in QSBG); 1 male with same data but 16–24.viii.2006, T182 (in LACM); 4 males with same data but 6–13.ix.2006, T242; 3 males with same data but 27.ix–5.x.2006, T347 (in QSBG); 1 male with same data but 5–12 .x.2006, T360; 2 males with same data but 12–19.x.2006, T366 (in LACM).

Remarks. This species was previously known only from the type material from Ulu Gombak Field Studies Centre, Selangor, Malaysia.

***Manota cerciflex* Hipa, 2006**

New record. 1 male, MALAYSIA, Pahang, Genting Highlands, Awana, Malaise trap under cable car route 10–22.III.1997, H. Hipa, M. Jaschhof, B. Viklund (in SMNH).

Remarks. This species was previously known only from the type material from Ulu Gombak Field Studies Centre, Selangor, Malaysia.

***Manota curvata* Hipa, 2006**

New record. 1 male, MALAYSIA, Selangor, Kuala Selangor, Tanjung Karang, Malaise in peat swamp forest 19–21. III.1997, H. Hipa, M. Jaschhof, B. Viklund (in SMNH).

Remarks. This species was previously known only from the type material from Ulu Gombak Field Studies Centre, Selangor, Malaysia.

***Manota globigera* Hipa, 2006**

New records. THAILAND, Chiang Mai, Doi Inthanon NP, checkpoint 2, 1700 m, 18°31.559N 98°29.941'E, Malaise trap 2–8. vii.2006, Y. Areeluk leg. (in QSBG); 1 male with same data but 22.vii–2.viii.2006, T121 (in LACM); 1 male with same data but 9–16.viii.2006, T180 (in LACM); 1 male with same data but 13–21.ix.2006, T250 (in LACM); 1 male with same data but 21–27.ix.2006, T343 (in SMNH).

Remarks. In *M. globigera* the anterior basalare is non-setose, not setose as mentioned in the original description. The species was previously known only from the type material from Ulu Gombak Field Studies Centre, Selangor, Malaysia.

***Manota heptacantha* Hipa, 2006**

New record. 1 male, MALAYSIA, Pahang, Genting Highlands, Awana, Malaise trap under cable car route 10–22.III.1997, H. Hipa, M. Jaschhof, B. Viklund (in SMNH).

Remarks. This species was previously known from Ulu Gombak Field Studies Centre, Selangor, Malaysia (Hipa 2006) and Nam Tok Nam Pan Forest Park, Trang Province, Thailand (Hipa and Papp 2007).

***Manota ferrata* Hippha, 2006**

New record. 1 male, MALAYSIA, Pahang, Genting Highlands, Awana, Malaise trap under cable car route 10–22.III.1997, H. Hippha, M. Jaschhof, B. Viklund (in SMNH).

Remarks. This species was previously known only from the type material from Ulu Gombak Field Studies Centre, Selangor, Malaysia (Hippha 2006).

***Manota oligochaeta* Hippha, 2006**

New records. 1 male, MALAYSIA, Pahang, Genting Highlands, Awana, Malaise trap under cable car route 10–22.III.1997, H. Hippha, M. Jaschhof, B. Viklund (in SMNH).

1 male, THAILAND, Nakhon Nayok, Khao Yai NP, Nature trail in secondary moist evergreen forest, 750 m, 14°24.615'N 101°22.432'E, Malaise trap 5.vii–12.viii.2006, Pong Sandao leg., T400 (in QSBG).

Remarks. This species was previously known from Ulu Gombak Field Studies Centre, Selangor, Malaysia (Hippha 2006) and from Thung Kai Botanic Garden, Khao Chong Botanic Garden and Khao Pu-Khao Ya National Park, Trang Province, Thailand (Hippha and Papp 2007).

***Manota ovata* Hippha, 2006**

New record. 1 male, THAILAND, Nakhon Nayok, Khao Yai NP, Nature trail in secondary moist evergreen forest, 750 m, 14°24.615'N 101°22.432'E, Malaise trap 5.vii–12.viii.2006, Pong Sandao leg., T400 (in QSBG).

Remarks. This species was previously known from Ulu Gombak Field Studies Centre, Selangor, Malaysia (Hippha 2006) and Khao Chong Botanic Garden, Trang Province, Thailand (Hippha and Papp 2007).

***Manota pappi* Hippha, 2006**

New record. 2 males, MALAYSIA, Pahang, Genting Highlands, Awana, Malaise trap under cable car route 10–22.III.1997, H. Hippha, M. Jaschhof, B. Viklund (in SMNH).

Remarks. This species was previously known only from the type material from Ulu Gombak Field Studies Centre, Selangor, Malaysia.

***Manota pectinata* Hippha, 2006**

New record. 1 male, THAILAND, Chiang Mai, Doi Inthanon NP, Vachiratharn Falls, 700m, 18°32.311'N 98°36.048'E, Malaise trap 6–13.ix.2006, Y. Areeluk leg., T242 (in QSBG); 1 male with same data but 13–21.ix.2006, T248 (in LACM). 1 male, THAILAND, Chiang Mai, Doi Inthanon NP, campground pond, 1200 m, 18°32.657'N 98°31.482'E, Malaise trap 12–19.x.2006, Y. Areeluk leg., T367 (in QSBG).

Remarks. This species was previously known from Ulu Gombak Field Studies Centre, Selangor, Malaysia (Hippha 2006) and from three localities in Trang Province, Thailand: Khao Chong Botanic Garden, Ban Liphang and Nam Tok Nam Pan Forest Park (Hippha and Papp 2007).

***Manota perpusilla* Hippa, 2006**

New record. 1 male, MALAYSIA, Pahang, Genting Highlands, Awana, Malaise trap under cable car route 10–22.III.1997, H. Hippa, M. Jaschhof, B. Viklund (in SMNH).

Remarks. This species was previously known from Ulu Gombak Field Studies Centre, Selangor, Malaysia (Hippa 2006) and Thung Kai and Khao Chong Botanic Gardens, Trang Province, Thailand (Hippa and Papp 2007).

***Manota plusiochaeta* Hippa, 2006**

New records. 1 male, MALAYSIA, Pahang, Genting Highlands, Awana, Malaise trap under cable car route 10–22.III.1997, H. Hippa, M. Jaschhof, B. Viklund (in SMNH). 3 males, MALAYSIA, Pahang, Genting Highlands, GPS 3.24N 101.47E, 3900–4500 ft, Malaise trap 3–22.III.1997, H. Hippa, M. Jaschhof, B. Viklund (in SMNH).

Remarks. This species was previously known from Ulu Gombak Field Studies Centre, Selangor, Malaysia (Hippa 2006) and from three localities in Trang Province, Thailand: Thung Kai Botanic Garden, Phattalung Wildlife Breeding Research Centre, and Khao Pu-Khao Ya National Park (Hippa and Papp 2007).

***Manota pollex* Hippa, 2006**

New record. 1 male, MALAYSIA, Pahang, Genting Highlands, Awana, Malaise trap under cable car route 10–22.III.1997, H. Hippa, M. Jaschhof, B. Viklund (in SMNH).

Remarks. This species was previously known only from the type material from Ulu Gombak Field Studies Centre, Selangor, Malaysia.

***Manota procera* Hippa, 2006**

New record. 1 male, MALAYSIA, Sarawak, 4th Div., Niah, 3°49'N 113°46'E, Malaise in secondary growth on river bank, 9–17.x.1976, P. S. Cranston, B.M. 1977–19 (in BMNH).

Remarks. This species was previously known from Ulu Gombak Field Studies Centre, Selangor, Malaysia (Hippa 2006) and Thung Kai and Khao Chong Botanic Gardens, Trang Province, Thailand (Hippa and Papp 2007).

***Manota roslii* Hippa, 2006**

New records. 1 male, MALAYSIA Pahang, Fraser's Hill, 4020 ft, Malaise in forest 14–17.III.1997, H. Hippa, M. Jaschhof, B. Viklund (in SMNH). 2 males, Malaysia, Pahang, Genting Highlands, Awana, Malaise trap under cable car route 10–22.III.1997, H. Hippa, M. Jaschhof, B. Viklund (in SMNH). 2 males, MALAYSIA, Kelantan, nr. Gua Musang, <200 m, Malaise trap 12–14.XI.1994, B. Gustafsson (in SMNH). 2 males, THAILAND, Chiang Mai, Doi Inthanon NP, Vachiratharn Falls, 700m, 18°32.311'N 98°36.048E, Malaise trap 16–24.viii.2006, Y. Areeluk leg. T182 (in LACM); 4 males with same data but 27.ix–5.x.2006, T347; 2 males with same data but 5–12.x.2006, T360 (in QSBG). 1 male, THAILAND, Chiang Mai, Doi Inthanon NP, checkpoint 2, 1700 m, 18°31.559N 98°29.941'E, Malaise trap 22.vii–2.viii.2006, Y. Areeluk leg., T121 (in

LACM); 1 male with same data but 16–24.viii.2006, Y. T187; 1 male with same data but 13–21.ix.2006, T250 (in QSBG); 1 male with same data but 21–27.ix.2006, T343; 2 males with same data but 27.ix–5.x.2006, T349 (in QSBG). 1 male, THAILAND, Chiang Mai, Doi Inthanon NP, Kew Mae Pan, 18°33.163'N 98°28.8'E, 2200 m, Malaise trap 24–30.viii.2006, Y Areeluk leg., T233 (in QSBG).

Remarks. This species was previously known from Ulu Gombak Field Studies Centre, Selangor, Malaysia (Hippra 2006) and Nam Tok Nam Pan Forest Park, Trang Province, Thailand (Hippra and Papp 2007).

Manota simplex Hippra, 2006

New record. 1 male, THAILAND, Nakhon Nayok, Khao Yai NP, Nature trail in secondary moist evergreen forest, 750 m, 14°24.615'N 101°22.432'E, Malaise trap 19–26.viii.2006, Pong Sandao leg., T405 (in QSBG).

Remarks. This species was previously known only from the type material from Ulu Gombak Field Studies Centre, Selangor, Malaysia (Hippra 2006).

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