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# Contribution to the knowledge of the caddisflies of the Philippines 2. The species of the Mt. Agtuuganon Range on Mindanao (Insecta: Trichoptera)[1]

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**Abstract:** The examination of caddisflies from a single locality in Mindanao resulted in the discovery of 66 new species. They belong to the following genera: *Rhyacophila:* 1 sp., *Agapetus:* 4 spp., *Ugandatrichia:* 1 sp., *Chrysotrichia:* 3 spp., *Scelotrichia:* 5 spp., *Stactobia:* 2 spp., *Orthotrichia:* 3 spp., *Oxyethira:* 1 sp., *Hydroptila:* 8 spp., *Gunungiella:* 1 sp., *Chimarra:* 4 spp.; *Hydropsyche:* 4 spp., *Cheumatopsyche:* 3 spp., *Polyplectropus:* 4 spp., *Psychomyia:* 1 sp., *Tinodes:* 4 spp., *Drepanocentron:* 1 sp., *Lepidostoma:* 1 sp., *Goera:* 1 sp., *Adicella:* 3 spp., *Triaenodes:* 4 spp., *Setodes:* 2 spp., *Oecetis:* 6 spp. 63 species are described and the genitalia of the males are illustrated. A total of 102 species has been found on the sampled site. The species are listed in systematic order in a checklist.

**Beitrag zur Kenntnis der Köcherfliegenfauna der Philippinen 2. Die Arten des Agtuuganon-Bergmassivs auf Mindanao (Insecta: Trichoptera)**

**Zusammenfassung:** Bei der Auswertung einer Trichoptera-Sammelausbeute von einem einzelnen Fundort auf Mindanao wurden 66 neue Arten festgestellt. Sie gehören zu folgenden Gattungen: *Rhyacophila:* 1 sp., *Agapetus:* 4 spp., *Ugandatrichia:* 1 sp., *Chrysotrichia:* 3 spp., *Scelotrichia:* 5 spp., *Stactobia:* 2 spp., *Orthotrichia:* 3 spp., *Oxyethira:* 1 sp., *Hydroptila:* 8 spp., *Gunungiella:* 1 sp., *Chimarra:* 4 spp.; *Hydropsyche:* 4 spp., *Cheumatopsyche:* 3 spp., *Polyplectropus:* 4 spp., *Psychomyia:* 1 sp., *Tinodes:* 4 spp., *Drepanocentron:* 1 sp., *Lepidostoma:* 1 sp., *Goera:* 1 sp., *Adicella:* 3 spp., *Triaenodes:* 4 spp., *Setodes:* 2 spp., *Oecetis:* 6 spp. Davon werden 63 Arten beschrieben. Insgesamt wurden an der Stelle 102 Arten gefunden. Die Arten werden in systematischer Reihenfolge in einer Tabelle zusammengefaßt.

## Introduction

With this article I continue to publish the results of the ongoing investigations on the caddisfly fauna of the Philippines. In this series special emphasis is laid on the registration and documentation of the species. In

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contrast to the first part (MEY 1995) the species presented in this second part come (with 3 exceptions) from a single locality. A total of 102 species have been found at this site on Mindanao (map 1). 66 species proved to be undescribed. This means a percentage of around 63 %. It is a remarkably high degree of unknown species. Usually, such numbers are encountered during very first entomological explorations of islands or larger, "virgin" areas. Since 44 species are already recorded from Mindanao, the island fauna cannot be regarded as totally unknown. The high number of new species rather points to a more diverse caddisfly fauna, than previously considered. The collecting period of 10 days certainly did not uncover the entire community of the area. How many of the really existing species have been found so far? There are no pronounced seasons in Eastern Mindanao. The species can be expected to be on the wing the year round. Thus, there should have been a good chance to find most of the existing species in the area during a limited period. However, there is an example to support a contrary view. The conspicous cases and larvae of *Helicopsyche* (first record of the family in the Philippines!) were found in several brooks in the area, but not a single adult could be netted in the daytime or collected at the light. This case could pertain to other species as well. Obviously, further collecting efforts in different seasons are necessary to achieve a more complete synopsis of the caddisfly fauna around Mt. Agtuuganon.

## Material and Methods

The caddisflies were collected by the author with a net in the daytime and by means of a mercury high-pressure lamp during night.

The collected material is either pinned or preserved in alcohol (70 %). The handling and preparation techniques are described in MEY (1995).

In addition, some unidentified caddisfly material from the National Museum of Natural History, Smithsonian Institution, Washington D. C., was at my disposal. It was not collected in the vicinity of Mt. Aguuganon. However, the material contained some specimens described herein, and thus, they were included in the type series.

In describing the species special attention was paid on producing detailed figures of the genitalia apparatus of the males. It is a highly complicate character complex, which bears all the necessary traits to define the species. Simultaneously, the genitalia exhibit the diagnostic differences

for a clear separation of the species. Other character complexes, like wing venation, colouration etc., are usually of minor importance on the species level. The illustrations of the morphological patterns of the genitalia make up a complete definition, and are more as sufficient to recognise the species. Thus, it is unnecessary to give an additional verbal description of the genitalic structures. However, the external characters (size, colouration, wing venation etc.) are given for each species to complete the descriptions.

## Description of the collecting area

The whole area is situated within the municipality of Boston, the northernmost part of the province Davao Oriental in Mindanao. The collecting activities started on 28th May and were finished 7th June 1996. Two different sites were selected:

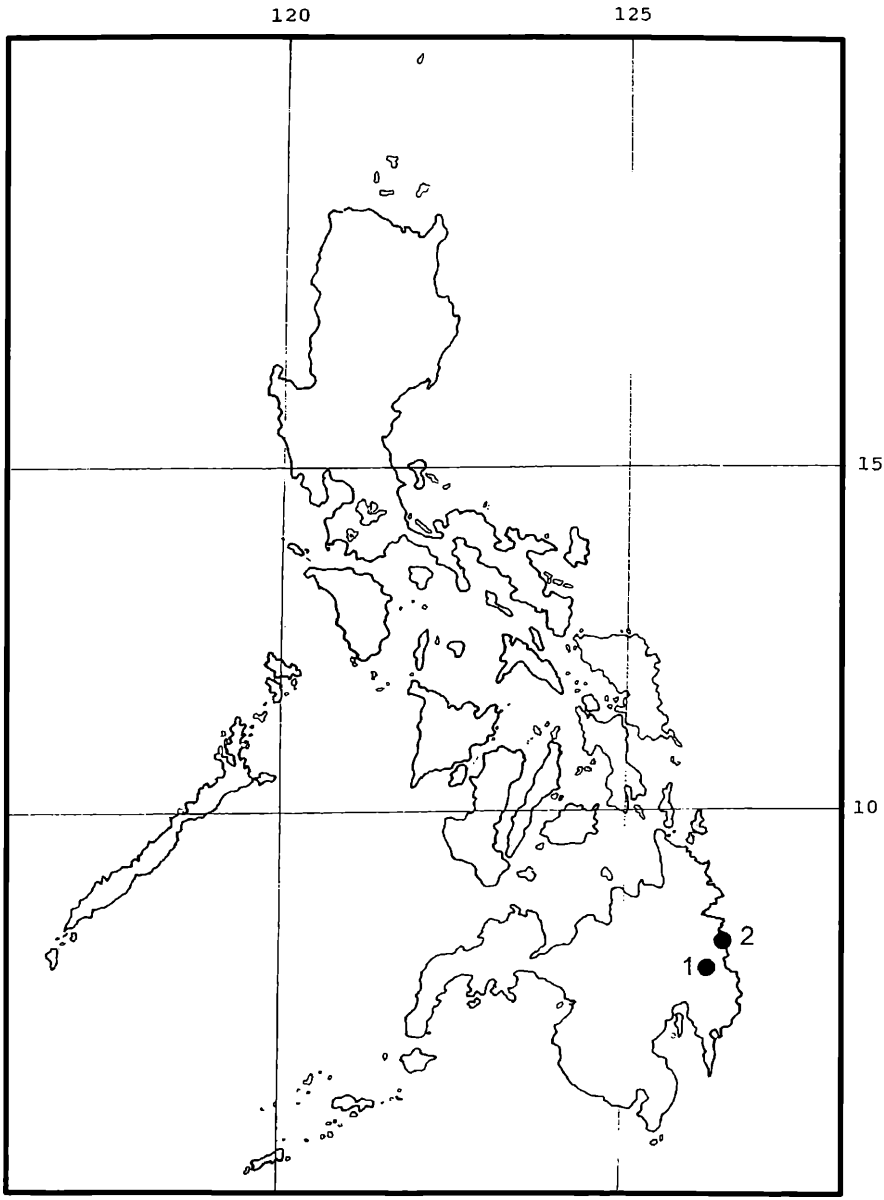
Locality 1 (loc. 1)

The expedition camp was set up at an elevation of 1050 m on a flat plateau of a small mountain ridge. The place is situated at the northern slope of the Mt. Agtuuganon range, with the highest peak reaching 1660 m (Mt. Agtuuganon). The path leading to the area is called route 55. The mountains are fully covered with rain forest. It is not virgin forest, because the tallest and oldest trees are almost entirely lacking. They have been cut down about 30 to 50 years ago. The dominating trees belong to the family Dipterocarpaceae and are species of the genera *Shorea, Dipterocarpus, Hopea* and *Pentacme*. Fern trees are commonly distributed in the understorey and on the steeper slopes. The many first and second order brooks originating in the range are flowing northwards. They are tributaries of the Simulau river system.

Locality 2 (loc. 2)

On the way to the target area one day and one night was spent near Caatijaan. This small village is in the valley of the Simulau river, approximately 20 km away from the camp in the mountains (loc 1).

After returning from the Agtuuganon range, the Tabon river near Mangagoy, Surigao del Sur, was sampled for caddisflies. Three further species could be found there, which were not encountered in the mountains (*Abaria* spec., *Chrysotrichia tabonensis* n. sp., *Tinodes tabonica* n. sp.). The descriptions of the two new species are included in the present paper.




**Map 1:** Map of the Philippines showing the position of the investigated areas (1: Mt. Agtuuganon, 7°48' N/126°12' E; 2: Mangagoy, 8°11' N/121°26' E).

## Checklist

Checklist of the Trichoptera species collected in the Mt. Agtuuganon range 1996. 3 species are from a locality near Mangagoy: *Chrysotrichia tabonensis* n. sp., *Abaria* spec., *Tinodes tabonica* n. sp.

### Rhyacophilidae

1. *Rhyacophila* ***tenebrosa*** **n. sp.**

### Glossosomatidae

2. *Agapetus* ***agtuuganonis*** **n. sp.**
3. *Agapetus curvidens* Ulmer, 1930
4. *Agapetus* ***loxozona*** **n. sp.**
5. *Agapetus* ***pedarius*** **n. sp.**

### Hydroptilidae

6. *Chrysotrichia* ***poecilostola*** **n. sp.**
7. *Chrysotrichia* ***tabonensis*** **n. sp.**
8. *Chrysotrichia* ***trifida*** **n. sp.**
9. *Hydroptila* ***bichromata*** **n. sp.**
10. *Hydroptila* ***caminopa*** **n. sp.**
11. *Hydroptila* ***dentina*** **n. sp.**
12. *Hydroptila* ***dorcas*** **n. sp.**
13. *Hydroptila* ***harpagula*** **n. sp.**
14. *Hydroptila* ***mindamontana*** **n. sp.**
15. *Hydroptila* ***simulauica*** **n. sp.**
16. *Hydroptila* ***spurcaria*** **n. sp.**
17. *Orthotrichia* ***agtuuganonica*** **n. sp.**
18. *Orthotrichia* ***egena*** **n. sp.**
19. *Orthotrichia* ***fortificata*** **n. sp.**
20. *Oxyethira* ***lobophora*** **n. sp.**
21. *Scelotrichia* ***dolichocera*** **n. sp.**
22. *Scelotrichia* ***hexalocha*** **n. sp.**
23. *Scelotrichia insularis* Mey, 1995
24. *Scelotrichia* ***melanella*** **n. sp.**

25. *Scelotrichia* ***melanoptera*** **n. sp.**
26. *Scelotrichia* ***miselia*** **n. sp.**
27. *Stactobia* ***cataphanes*** **n. sp.**
28. *Stactobia* ***miresa*** **n. sp.**
29. *Ugandatrichia* ***mindanaensis*** **n. sp.**
30. *Ugandatrichia* spec.

## Philopotamidae

31. *Doloclanes montana* BANKS, 1937
32. *Gunungiella marginalis* BANKS, 1939
33. *Gunungiella* ***spila*** **n. sp.**
34. *Chimarra alticola* BANKS, 1937
35. *Chimarra* ***heliaca*** **n. sp.**
36. *Chimarra* ***mindanensis*** **n. sp.**
37. *Chimarra nemet* MALICKY, 1993
38. *Chimarra* n. sp. A
39. *Chimarra* n. sp. B
40. *Chimarra tagalica* BANKS, 1937

## Hydropsychidae

41. *Macrostemum boettcheri* (ULMER, 1930)
42. *Macrostemum fastosum* (WALKER, 1852)
43. *Macrostemum bellum* (BANKS, 1916)
44. *Oestropsyche vitrina* (HAGEN, 1859)
45. *Polymorphanisus astictus* NAVAS, 1923
46. *Hydropsyche* ***fascelina*** **n. sp.**
47. *Hydropsyche forcipata* ULMER, 1930
48. *Hydropsyche* ***mindanensis*** **n. sp.**
49. *Hydropsyche* ***muelleri*** **n. sp.**
50. *Hydropsyche rizali* BANKS, 1937
51. *Hydropsyche schintlmeisteri* MEY, 1990
52. *Hydropsyche* ***secundaria*** **n. sp.**
53. *Cheumatopsyche albocincta* (BANKS, 1937)
54. *Cheumatopsyche* ***flavosulphurea*** **n. sp.**

55. *Cheumatopsyche* ***incomptaria*** **n. sp.**
56. *Cheumatopsyche reticulata* (BANKS, 1913)
57. *Cheumatopsyche* ***transmutata*** **n. sp.**
58. *Diplectrona* spec. A
59. *Diplectrona* spec. B
60. *Diplectrona* spec. C
61. *Diplectrona* spec. D
62. *Diplectrona* spec. E
63. *Diplectrona* spec. F

## Polycentropodidae

64. *Polyplectropus* ***diastictis*** **n. sp.**
65. *Polyplectropus* ***eubolus*** **n. sp.**
66. *Polyplectropus* ***mindamelea*** **n. sp.**
67. *Polyplectropus* n. sp.
68. *Pseudoneureclipsis* spec.

## Dipseudopsidae

69. *Dipseudopsis nervosa* BRAUER, 1868

## Psychomyidae

70. *Psychomyia* ***mindanella*** **n. sp.**
71. *Tinodes adjuncta* BANKS, 1937
72. *Tinodes* ***austrotagalica*** **n. sp.**
73. *Tinodes* ***compacta*** **n. sp.**
74. *Tinodes* ***miostyllos*** **n. sp.**
75. *Tinodes* ***tabonica*** **n. sp.**

## Ecnomidae

76. *Ecnomus lamech* MALICKY, 1993

## Xiphocentronidae

77. *Abaria* spec.
78. *Drepanocentron* ***mindanaicum*** **n. sp.**

## Lepidostomatidae

79. *Lepidostoma apoana* (BANKS, 1937)

80. *Lepidostoma bicolor* (BANKS, 1937)

81. *Lepidostoma* ***lenta*** **n. sp.**

## Goeridae

82. *Goera* ***mindanensis*** **n. sp.**

83. *Goera impar* ULMER, 1930

## Helicopsychidae

84. *Helicopsyche* spec.

## Leptoceridae

85. *Triplectides* spec.

86. *Adicella* ***linearia*** **n. sp.**

87. *Adicella* ***paramangyana*** **n. sp.**

88. *Adicella* ***rectangulata*** **n. sp.**

89. *Triaenodes* ***hauseri*** **n. sp.**

90. *Triaenodes* ***hybos*** **n. sp.**

91. *Triaenodes* ***spoliatus*** **n. sp.**

92. *Triaenodes* ***virgata*** **n. sp.**

93. *Allosetodes assimilis* BANKS, 1937

94. *Setodes aureonitens* SCHMID, 1987

95. *Setodes* ***chrysoplitis*** **n. sp.**

96. *Setodes* ***dissobolus*** **n. sp.**

97. *Tagalopsyche sisyroides* BANKS, 1913

98. *Oecetis* ***flavicoma*** **n. sp.**

99. *Oecetis claggi* BANKS, 1937

100. *Oecetis crassicornis* ULMER, 1930

101. *Oecetis* ***excentrica*** **n. sp.**

102. *Oecetis* ***graphata*** **n. sp.**

103. *Oecetis* ***insymmetrica*** **n. sp.**

104. *Oecetis* ***octophora*** **n. sp.**

105. *Oecetis* ***quadrofurcata*** **n. sp.**

## Descriptions of the new species

**Deposition of the type material:** All the type material is preliminarily deposited in the Museum für Naturkunde, Berlin. After finishing the faunistic explorations in the Philippines, a part of the material will be transferred to an appropriate Philippine institution, where the safe and permanent deposition of prepared caddisflies is secured.

### *Rhyacophila tenebrosa* n. sp.

Holotype ♂, paratypes: 3 ♂♂, 3 ♀♀, all loc. 1.

Length of forewing (lfw.) 7.5 mm; head and thorax brown; ocelli white; legs pale brown with darker spurs, spurs of forelegs small; forewings uniform brown, but covered in the females with numerous small patches of white hairs; fork 1 and 2 of same length, fork 3 and 4 stalked, fork 4 in the hindwings very small or lacking. Male genitalia in Figs. 1–2.

The new species is related to *R. spinosellata* Mey, 1995 from Mindoro. They belong to the *yosiiana*-group.

### *Agapetus pedarius* n. sp.

Holotype ♂, paratypes: 2 ♂♂, all loc. 1.

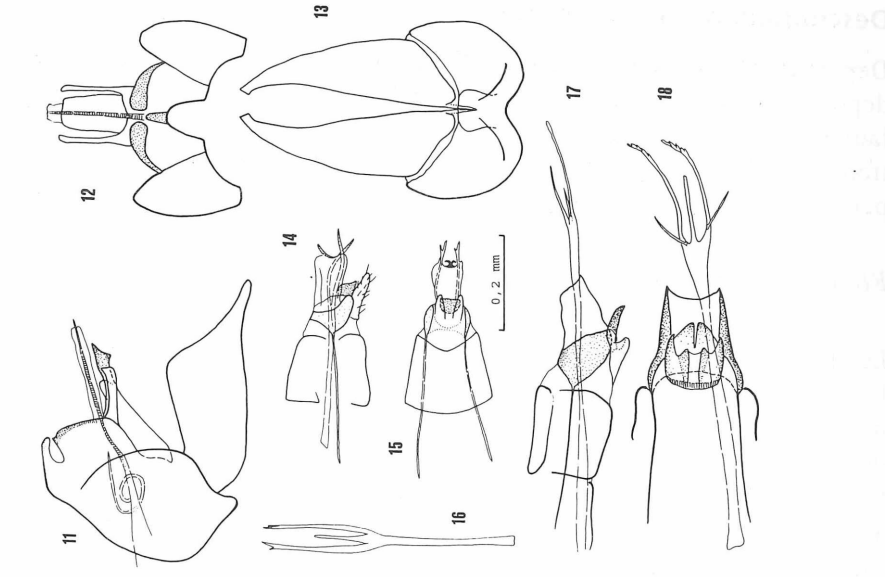
Lfw.: 3 mm; head and thorax brown, warts paler; antennae brown, with pale articulations; maxillary palpi short and thick, second joint enlarged medially; spurs 1.4.4.; tarsi annulated; forewings densely covered with brown hairs. Male genitalia in Figs. 3–4.

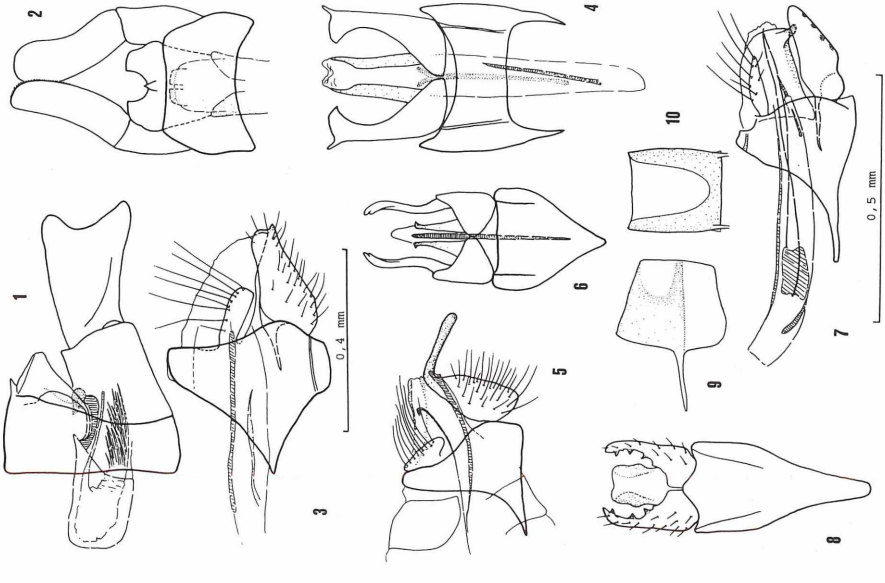
The new species shows a remarkable similarity to *A. sibiricus* Martynov, 1918. *A. alicaeae* Neboiss & Botosaneanu, 1988 from Sulawesi seems to be another relative.

### *Agapetus loxozona* n. sp.

Holotypus ♂, loc. 1.

Lfw.: 3 mm; head and thorax brown, warts pale brown; antennae with pale articulations; last segment of maxillary palpi rounded, no longer than the preceeding two; spurs 2.4.4., spurs of foretibia very small; wings brown, hindwings with M3+4 present. Male genitalia in Figs. 5–6.



## *Agapetus agtuuganonis* n. sp.

Holotype ♂, paratypes: 166 ♂♂, 30 ♀♀, all loc. 1.

Lfw.: 3-3.6 mm; head, thorax and abdomen brown; legs pale brown; sternite 5 with straight ventral processus; forewings brown. Male and female genitalia in Figs. 7-10.

The new species is related to *A. lindus* NEBOISS & BOTOSANEANU, 1988 from Sulawesi, but differs in the dilated and twisted distal corners of segment 10, the lacking basal paramere and the shape of the 9th segment.

## *Ugandatrichia mindanaensis* n. sp.

Holotypus ♂, paratypes: 1 ♂, 2 ♀♀, all loc. 1.

Lfw.: 3.8-4 mm; head and thorax brown; frons with black scaled hairs; antennae yellow, with broad basal and thin distal joints; legs with yellow tarsi; fingerlike process on segment 2 present; fore and hindwings of male with oval spot of black androconial hairs in the middle of upperside. Male genitalia in Figs. 11-13.

*U. mindanaensis* n. sp. shows affinities to *U. hairanga* OLAH, 1989 from Vietnam.

## *Chrysotrichia trifida* n. sp.

Holotypus ♂, loc. 1.

Lfw.: 1.2 mm; head and thorax brown; antennae pale brown; ocelli present; mesoscutellum with median groove; forewings greyish, with a basal and apical white spot. Male genitalia in Figs. 14-16; aedeagus a trifid fork, with tips of lateral arms bifid.

The closest relatives of *C. trifida* n. sp. are *C. tabonensis* n. sp. and *C. tigacabanga* WELLS, 1990 from Sulawesi. The main differences are found in the structure of the 10th segment, the intermediate appendages and in the form of the adeagus.

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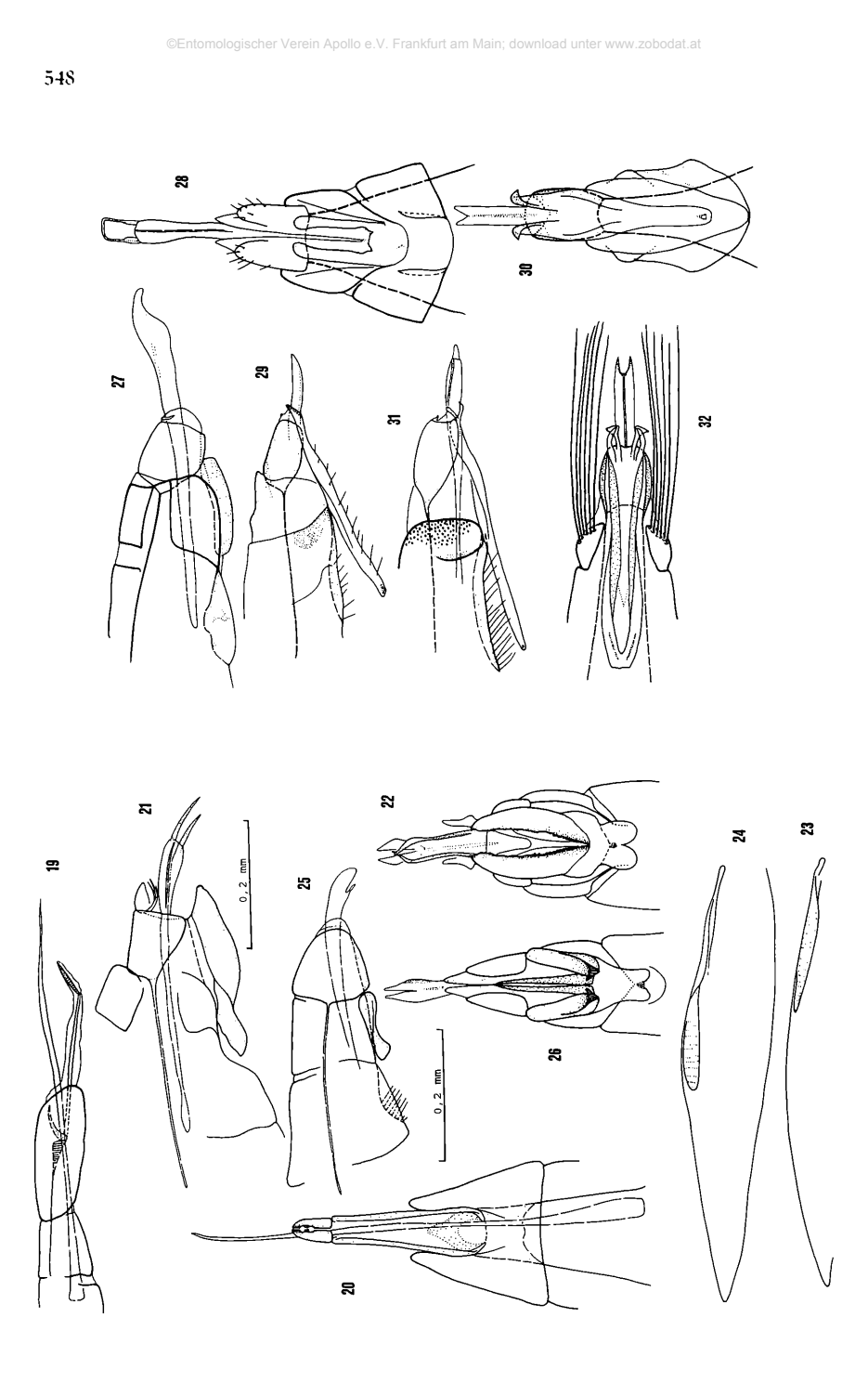
**Figs. 1–10:** Male and female genitalia. **Figs. 1–2:** *Rhyacophila tenebrosa* n. sp., Fig. 1: lateral, Fig. 2: dorsal view. **Figs. 3–4:** *Agapetus pedarius* n. sp., Fig. 3: lateral, Fig. 4: ventral view. **Figs. 5–6:** *Agapetus loxozona* n. sp., Fig. 5: lateral, Fig. 6: ventral view. **Figs. 7–10:** *Agapetus agtuuganonis* n. sp., Fig. 7: ♂ lateral, Fig. 8: ♂ ventral view, Fig. 9: ♀, segment 8, lateral, Fig. 10: ♀, dorsal view. **Figs. 11–18:** Male genitalia. **Figs. 11–13:** *Ugandatrichia mindanaensis* n. sp., Fig. 11: lateral, Fig. 12: dorsal, Fig. 13: ventral view. **Figs. 14–16:** *Chrysotrichia trifida* n. sp., Fig. 14: lateral, Fig. 15: dorsal view, Fig. 16: aedeagus. **Figs. 17–18:** *Chrysotrichia tabonensis* n. sp., Fig. 17: lateral, Fig. 18: ventral view.



## *Chrysotrichia tabonensis* n. sp.

Holotype ♂, 7 ♂♂, paratypes: 5 ♀♀, all: Mindanao, Surigao del Sur, Mangagoy, waterfall of Tabon river, 8. VI. 1996.

Lfw.: 1.2 mm; head and thorax brown; antennae light brown; ocelli and eyes black; legs pale brown; forewings without a pattern, brown. Male genitalia in Figs. 17–18.

This lowland species is closely related to the montane *C. trifida* n. sp.

## *Chrysotrichia poecilostola* n. sp.

Holotype ♂, paratypes: 4 ♂♂, all loc. 1.

Lfw.: 1.8 mm; head, thorax and abdomen brown; antennae and legs pale brown; ocelli present; spurs 0.2.4.; forwings brown, without distinctive pattern. Male genitalia in Figs. 19–20; segment 9 reduced and withdrawn into the 8$^{th}$ segment; inferior appendages very long.

This remarkable new species cannot be associated with any of the known species groups.

## *Scelotrichia melanella* n. sp.

Holotype ♂, paratypes: 11 ♂♂, 4 ♀♀, all loc. 2.

Lfw.: 1.8–2.2 mm; head and thorax brown, pilosity black; antennae with 15 flagellomeres, the last 5 yellow; maxillary palpi with very small basal segment; tibia of hindleg with long hairs; inflation in the costal area of the male forewing short (Fig. 23). Male genitalia in Figs. 21–22.

*S. melanella* n. sp. is related to *S. insularis* MEY, 1995 and *S. kakatu* WELLS, 1990 from New Guinea. The tip of the aedeagus is the most diagnostic character.

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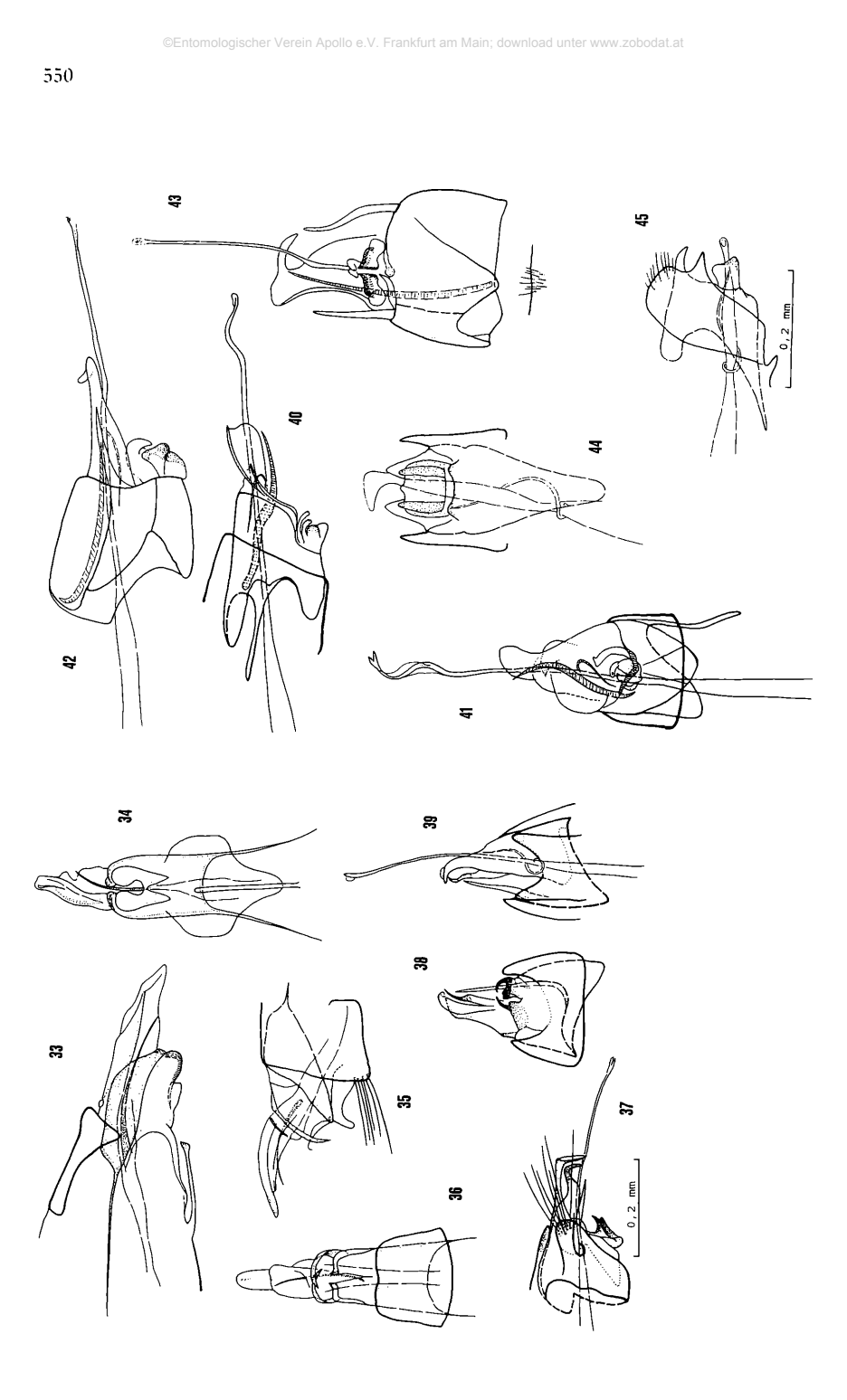
**Figs. 19–26:** Male genitalia. **Figs. 19–20:** *Chrysotrichia poecilostola* n. sp., Fig. 19: lateral, Fig. 20: ventral view. **Figs. 21–23:** *Scelotrichia melanella* n. sp., Fig. 21: lateral, Fig. 22: ventral, Fig. 23: forewing. **Figs. 24–26:** *Scelotrichia melanoptera* n. sp., Fig. 24: forewing, Fig. 25: lateral, Fig. 26: ventral. **Figs. 27–32:** Male genitalia. **Figs. 27–28:** *Scelotrichia hexalocha* n. sp., Fig. 27: lateral, Fig. 28: ventral view. **Figs. 29–30:** *Scelotrichia miselia* n. sp., Fig. 29: lateral, Fig. 30: ventral. **Figs. 31–32:** *Scelotrichia dolichocera* n. sp., Fig. 31: lateral, Fig. 32: ventral.



## *Scelotrichia melanoptera* n. sp.

Holotype ♂, paratypes: 11 ♂♂, 20 ♀♀, Loc. 2.; 3 ♂♂ paratypes, loc. 1.

Lfw.: 1.8-2 mm; head and thorax brown; antennae and palpi whitish, covered with dark hairs; maxillary palpi with 4 segments; labial palpi 3 segmented; midtibiae and tarsi yellowish; forewings black, with a tubelike inflation in the costal area of male wings (Fig. 24). Male genitalia in Figs. 25-26.

## *Scelotrichia hexalocha* n. sp.

Holotype ♂, paratypes: 7 ♂♂, 1 ♀, all loc. 1.

Lfw.: 2-2.2 mm; head and thorax dark brown; antennae annd palpi yellowish; legs pale brown; wings black, inflation of costal area present. Male genitalia in Figs. 27-28.

*S. hexalocha* n. sp. and *S. melanoptera* n. sp. belong to a species group which is defined by the enlargement of the tergum of segment 9, being nearly annular.

## *Scelotrichia miselia* n. sp.

Holotype ♂, paratypes: 2 ♂♂, all loc. 1.

Lfw.: 1.5 mm; head and thorax brown; antennae with 14-15 flagellomeres, brown; spurs 0.2.4.; forewings without erected hairs, instead covered with dark brown scales; costal area only slightly swollen; segment 7 with long, black bristles, covering the genitalia. Male genitalia in Figs. 29-30.

## *Scelotrichia dolichocera* n. sp.

Holotype ♂, paratypes: 10 ♂♂, all loc. 1.

Lfw.: 1.8 mm; body brown; antennae and legs pale brown; spurs 0.2.4.; ocelli present; costal inflation in the male forewings reaching nearly the centre of the wing. Male genitalia in Figs. 31-32.

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**Figs. 33–39:** Male genitalia. **Figs. 33–34:** *Stactobia miresa* n. sp., Fig. 33: lateral, Fig. 34: ventral view. **Figs. 35–36:** *Stactobia cataphanes* n. sp., Fig. 35: lateral, Fig. 36: ventral. **Figs. 37–39:** *Orthotrichia egena* n. sp., Fig. 37: lateral, Fig. 38: dorsal, Fig. 39: ventral. **Figs. 40–45:** Male genitalia. **Figs. 40–41:** *Orthotrichia agtuuganonica* n. sp., Fig. 40: lateral, Fig. 41: ventral. **Figs. 42–43:** *Orthotrichia fortificata* n. sp., Fig. 42: lateral, Fig. 43: ventral. **Figs. 44–45:** *Oxyethira lobophora* n. sp., Fig. 44: ventral, Fig. 45: lateral.

*S. dolichocera* n. sp. and *S. miselia* n. sp. are related species. They can be distinguished by the different inflation of the costal area in the forewings.

## *Stactobia miresa* n. sp.

Hototype ♂, paratype 1 ♂, loc. 1, hygropetric site.

Lfw.: 1.9–2 mm; head and thorax dark brown; palpi and antennae uniform brown; spurs 0.2.4.; forewings black, with pale spots in the distal part. Male genitalia in Figs. 33–34.

## *Stactobia cataphanes* n. sp.

Holotype ♂, loc. 1.

Lfw.: 1.5 mm; head, thorax and abdomen brown; antennae, maxillary palpi and legs dark brown; tarsi of hindlegs white. Male genitalia in Figs. 35–36.

*S. cataphanes* n. sp. is related to *S. mangyanica* Mey, 1995 from Mindoro. It differs mainly in the form of segment 10 and the long corntus of the phallic apparatus.

## *Orthotrichia egena* n. sp.

Holotype ♂, paratypes: 3 ♂♂, 1 ♀, all loc. 1.

Lfw.: 2.2 mm; head and thorax brown; antennae with 25 flagellomeres, 11th to 15th joint yellow, the others brown; maxillary palpi yellowish; legs brown; spurs 0.3.4.; forewings dark brown, with numerous small, white spots. Male genitalia in Figs. 37–39.

A species of the group of *O. kokodana* Kimmins, 1962 with remarkably shaped inferior appendages. *O. garbunga* Wells, 1990 from North Sulawesi is a similar species.

## *Orthotrichia agtuuganonica* n. sp.

Holotype ♂, paratype 1 ♂, loc. 1.

Lfw.: 2 mm; head and thorax light brown; warts darker; antennae yellow, last joints darker; eyes black; legs pale brown; spurs 0.3.4.; forewings pale brown, without any pattern. Male genitalia in Figs. 40–41.

The new species is related to *O. kokodana* Kimmins, 1962 from New Guinea.

## *Orthotrichia fortificata* n. sp.

Holotype ♂, paratypes: 5 ♂♂, all loc. 1.

Lfw.: 2.3–2.7 mm; head with frons and vertex brown, occipital part yellow; warts brown; 29 flagellomeres, first 9 flagellomeres brown and enlarged, the next 9 yellow; legs pale brown; forewings brown, with black, erected bristles. Male genitalia in Figs. 42–43.

The morphology of the genitalia shows a certain similarity with *O. ditenga* Wells, 1990 from North Sulawesi.

## *Oxyethira lobophora* n. sp.

Holotype ♂, paratypes: 2 ♂♂, all loc. 1.

Lfw.: 2.3 mm; head and thorax brown; warts darker; antennae yellowish, 32 flagellomeres, in the distal half with two black bands; ocelli black; legs greyish; spurs 0.3.4; wings brown, without erected stiff bristles, smoothly haired. Male genitalia in Figs. 44–45.

This is the first species of the genus *Oxyethira* reported from the Philippines. There is no related species in the region up to now.

## *Hydroptila mindamontana* n. sp.

Holotype ♂, paratypes: 2 ♂♂, 2 ♀♀, all loc. 1.

Lfw.: 2 mm; head pale brown; warts brown; eyes haired; antennae nearly as long as forewings; flagellomeres thick basally, becoming thinner to the end the antennae; forewing with dark basal half and a yellowish distal part. Male genitalia in Figs. 46–48.

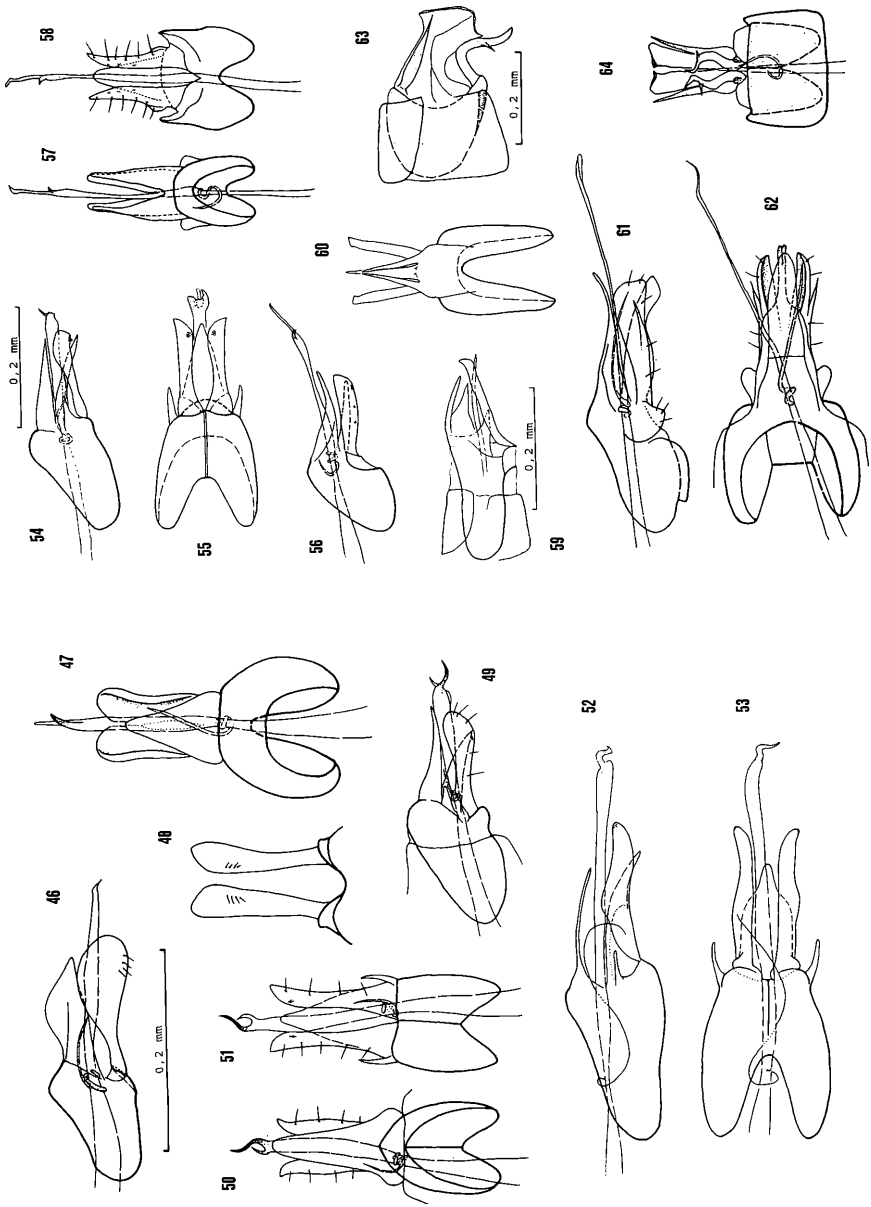
*H. mindamontana* n. sp. is related to *H. pedemontana* Mey, 1995 from Mindoro.

## *Hydroptila spurcaria* n. sp.

Holotype ♂, paratypes: 2 ♂♂, all loc. 1.

Lfw.: 2.3 mm; head and thorax pale brown; antennae yellowish, with weak vestiture; forelegs brown, other legs yellowish; forewings grey, with darker and paler spots in the fringe and in the membrane. Male genitalia in Figs. 49–51.

The new species is related to *H. terbela* Wells, 1990 and *H. obscura* Wells, 1979 from North Sulawesi.



## *Hydroptila simulauica* n. sp.

Holotype ♂, paratype 1 ♂, loc. 1.

Lfw.: 2.2 mm; head and thorax yellow; warts brown; basal joints of maxillary palpi brown; antennae yellowish, with 26 flagellomeres; tibia of forelegs brown; forewing with light and dark patches of hairs. Male genitalia in Figs. 52-53.

*H. simulauica* n. sp. shows some similarity with *H. terbela* WELLS, 1990 from North Sulawesi.

## *Hydroptila caminopa* n. sp.

Holotype ♂, loc. 1.

Lfw.: 2.2 mm; head and thorax grey; eyes black, with hairs; antennae yellowish, 24 flagellomeres, basal joints enlarged; foretibiae and foretarsi dark brown, other legs yellow; forewings yellowish, with dark spots. Male genitalia in Figs. 54-55.

The new species is related to *H. simulauica* n. sp.

## *Hydroptila harpagula* n. sp.

Holotype ♂, paratypes: 7 ♂♂, 9 ♀♀, loc. 1; 5 ♂♂, 3 ♀♀, loc. 2.

Lfw.: 1.8 mm; head and thorax pale brown; warts darker; antennae with 24 brown flagellomeres and a yellow band of 3 flagellomeres; forelegs brown, other legs yellow; forewings brown, with with a pale yellow apex. Male genitalia in Figs. 56-58.

*H. harpagula* n. sp. is related to *H. obscura* WELLS, 1979. It can be distinguished by the deeply divided dorsal plate and the form of the apex of the aedeagus.

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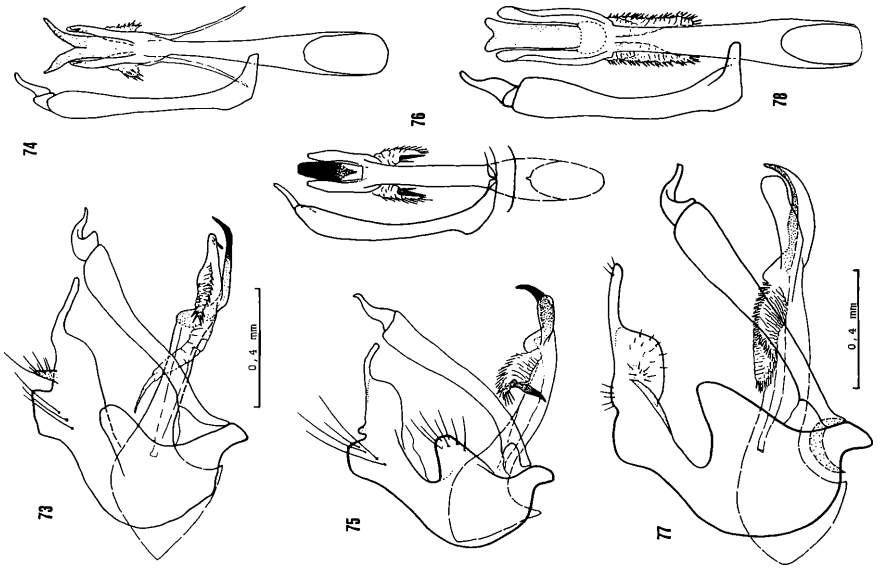
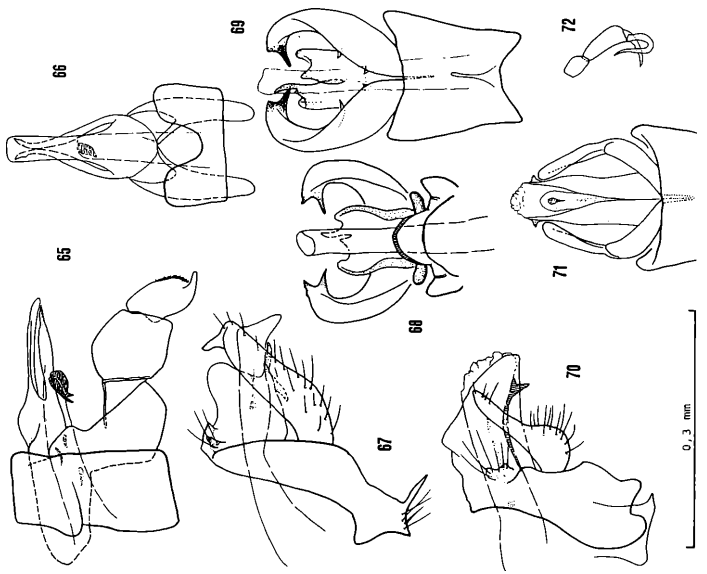
**Figs. 46–53:** Male genitalia. **Figs. 46–48:** *Hydroptila mindamontana* n. sp., Fig. 46: lateral, Fig. 47: dorsal, Fig. 48: ventral. **Figs. 49–51:** *Hydroptila spurcaria* n. sp., Fig. 49: lateral, Fig. 50: dorsal, Fig. 51: ventral. **Figs. 52–53:** *Hydroptila simulauica* n. sp., Fig. 52: lateral, Fig. 53: ventral. **Figs. 54–64:** Male genitalia. **Figs. 54–55:** *Hydroptila caminopa* n. sp., Fig. 54: lateral, Fig. 55: ventral. **Figs. 56–58:** *Hydroptila harpagula* n. sp., Fig. 56: lateral, Fig. 57: dorsal, Fig. 58: ventral. **Figs. 59–60:** *Hydroptila dorcas* n. sp., Fig. 59: lateral, Fig. 60: dorsal. **Figs. 61–62:** *Hydroptila bichromata* n. sp., Fig. 61: lateral, Fig. 62: dorsal. **Figs. 63–64:** *Hydroptila dentina* n. sp., Fig. 63: lateral, Fig. 64: ventral.



## *Hydroptila* ***dorcas*** **n. sp.**

Holotype ♂, paratype 1 ♂, loc. 1.

Lfw.: 1.4 mm; head and thorax brown; antennae grey, with 18 flagellomeres; legs and palpi pale brown; spurs 0.2.4., inner subapical spurs conspicuously long; wings grey. Male genitalia in Figs. 59–60.

This is one of the smallest caddisflies at all. According to the genitalia it is a somehow isolated species.

## *Hydroptila* ***bichromata*** **n. sp.**

Holotype ♂, loc. 1.

Lfw.: 2.1 mm; head and thorax yellowish; antennae with 28 flagellomeres; proximal half of forewings brown, distal half yellowish. Male genitalia in Figs. 61–62.

The species is a member of the *losida*-group.

## *Hydroptila* ***dentina*** **n. sp.**

Holotype ♂, loc. 1.

Lfw.: 1.6 mm; head and thorax brown; warts dark brown; antennae brown, with a white band in the middle and at the apex; forewings dark brown; no ventral process on sternites 7 and 6. Male genitalia in Figs. 63–64.

*H. dentina* n. sp. is an isolated species and has no close relatives in the region.

## *Gunungiella* ***spila*** **n. sp.**

Holotype ♂, paratypes: 2 ♂♂, 1 ♀, , loc. 1; 3 ♂♂, 1 ♀ from a small tributary of the Tabon river in Mangagoy, 8. VI. 1996.

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**Figs. 65–72:** Male genitalia. **Figs. 65–66:** *Gunungiella spila* n. sp., Fig. 65: lateral, Fig. 66: dorsal. **Figs. 67–69:** *Chimarra mindanensis* n. sp., Fig. 67: lateral, Fig. 68: dorsal, Fig. 69: ventral. **Figs. 70–72:** *Chimarra heliaca* n. sp., Fig. 70: lateral, Fig. 71: ventral, Fig. 72: male praetarsus. **Figs. 73–78:** Male genitalia. **Figs. 73–74:** *Hydropsyche muelleri* n. sp., Fig. 73: lateral, Fig. 74: ventral. **Figs. 75–76:** *Hydropsyche secundaria* n. sp., Fig. 75: lateral, Fig. 76: ventral. **Figs. 77–78:** *Hydropsyche fascelina* n. sp., Fig. 77: lateral, Fig. 78: ventral.

Lfw.: 5 mm; head black; thorax dark brown; maxillary palpi and antennae pale brown; legs dark brown; forewings uniform dark brown. Male genitalia in Figs. 65–66.

The new species is obviously related to *G. monticola* MEY, 1995 from Mindoro.

## *Chimarra mindanensis* n. sp.

Holotype ♂, paratypes: 13 ♂♂, 1 ♀, loc. 1; 6 ♂♂, loc. 2; 2 ♂♂, 1 ♀, from Tabon river, Mangagoy, 8. VI. 1996.

Lfw.: 4–4.8 mm; body brown; antennae fuscous; tarsi of fore and middle legs yellowish; forewings dark brown; fork 1 and 2 narrow and sessile, fork 4 lacking. Male genitalia in Figs. 67–69.

*C. mindanensis* n. sp. is similar to *C. adiatulla* MALICKY, 1993 from Sibuyan, but differs in the form of the 9$^{th}$ segment and the distal processes of segment 10.

## *Chimarra heliaca* n. sp.

Holotype ♂, paratypes: 6 ♂♂, 1 ♀, all loc. 1.

Lfw.: 4 mm; head and thorax brown; antennae dark brown; legs yellowish; spurs 1.4.4., dark brown; last joint of foretarsi enlarged, claws heteromorphous (Fig. 72); forewings brown; fork 1, 2, and 5 sessile in both wings, fork 3 with a long stalk; median cell very short. Male genitalia in Figs. 70–71.

The new species is related to *C. bacillorum* MEY, 1990 from Luzon.

## *Hydropsyche muelleri* n. sp.

Holotype ♂, paratypes: 1 ♂, loc. 1; 18 ♂♂, Mindanao, Tago, Meme River, 15. VI. 1996, leg. R. MÜLLER.

Lfw.: 6.5 mm; head and body pale brown; warts sligthly darker; antennae and legs brownish yellow; forewings pale brown, with numerous light and dark spots. Male genitalia in Figs. 73–74.

A species of the *hamifera*-group with a unique structure of the aedeagus.

Derivatio nominis: This species is named after Roland MÜLLER, St.Gallen, Swiss, the organiser and leader of the expedition to Mt. Agtuuganon range.

## *Hydropsyche secundaria* n. sp.

Holotype ♂, paratypes: 11 ♂♂, 2 ♀♀, loc. 1. Further paratypes: 1 ♂, Mt. Apo, Galog River, 6000 ft., 18. x. [no year indicated], leg. C. F. Clagg; 2 ♂♂, Mt. Apo, 12. xi. 1965, leg. D. Davis, all in coll. Smithsonian Institution Washington.

Lfw.: 7.5–8.3 mm; head and body yellowish; antennae dark brown in the apical part; forewings yellowish brown, with numerous pale spots. Male genitalia in Figs. 75–76.

The new species is related to *H. unitaria* Mey, 1990 from Luzon and differs in the form of the endothecal processes.

## *Hydropsyche fascelina* n. sp.

Holotype ♂, paratypes: 6 ♂♂, loc. 1. 1 ♂, paratype, Mt. Apo, Baclayan, 1650 m, 13.–15. xi. 1965, leg. D. Davis, in coll. Smithsonian Institution Washington.

Lfw.: 9 mm; head and body yellowish; antennae pale brown; forewings yellowish brown, with numerous pale spots. Male genitalia in Figs. 77–78.

*H. fascelina* n. sp. is similar to *H. calawiti* Mey, 1995 from Mindoro in the aedeagus tip. However, the endothecal appendages and segment 10 are clearly different.

## *Hydropsyche mindanensis* n. sp.

Holotype ♂, paratypes: 20 ♂♂ 2 ♀♀, all loc. 1. Further paratypes: 3 ♂♂, Mt. Apo, 22.–31. x. 1965, leg. D. Davis, in coll. Smithsonian Institution Washington.

Lfw.: 6–7.5 mm; head and body yellowish; warts darker; antennae yellowish; forewings yellowish brown, with numerous pale spots. Male genitalia in Figs. 79–80.

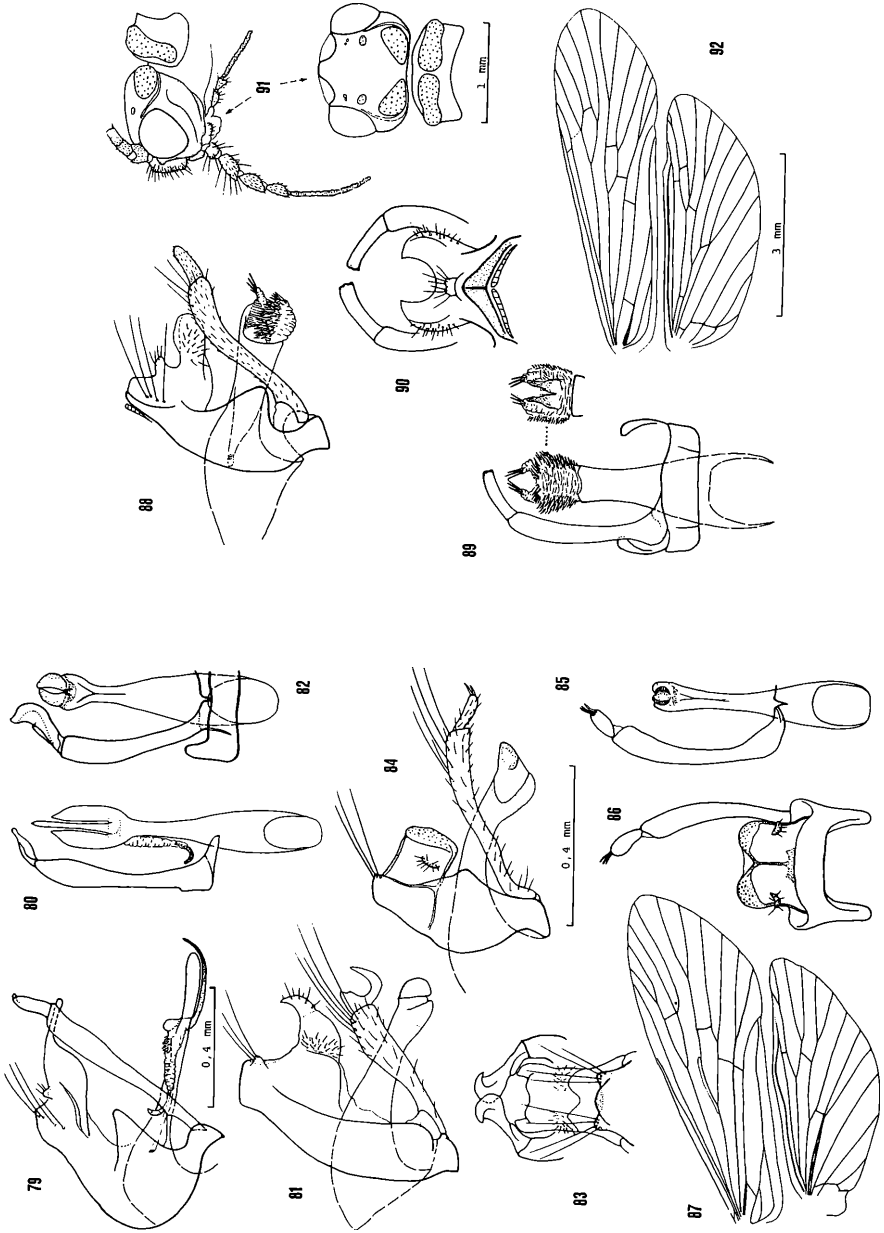
*H. mindanensis* n. sp. is related to *H. mindorensis* Mey, 1995 and *H. forcipata* Ulmer, 1930, but differs in the structure of the endothecal appendages.

## *Cheumatopsyche transmutata* n. sp.

Holotype ♂, paratypes: 1 ♂, 2 ♀♀, loc. 1; 2 ♂♂, 14 ♀♀, loc. 2.

Lfw.: 5–5,8 mm; head and thorax nearly black; warts dark brown; antennae yellow, darker toward tip, without oblique lines; legs brown; forelegs dark brown, sometimes with pale patches around the anastomoses; membrane of hind wings grey. Male genitalia in Figs. 81–83.

*C. transmutata* n. sp. appears to be the sister-species of *C. excisa* (Ulmer, 1930).



## *Cheumatopsyche incomptaria* n. sp.

Holotype ♂, paratype 1 ♀, loc. 1.

Lfw.: 6.5 mm; head and thorax brown; warts pale orange; antennae yellow, twice as long as forewings; last joint of the maxillary palpi longer than the preceding joints together; legs brown, tarsi of fore and middle legs yellow; praetarsus without bundle of black hairs; forewings brown; hind wings with grey membrane; venation in Fig. 87. Male genitalia in Figs. 84–86; ductus ejaculatorius invisible.

The new species is placed preliminarily in *Cheumatopsyche*. It has some peculiar characters (venation, aedeagus), which are not covered by the definition of the genus. A revision of the subfamily seems to be the only way to find the correct position of the species. There are some other species in the region of SE Asia and Australia, which fit only imperfectly to the characters of *Cheumatopsyche*. The following species is another example.

## *Cheumatopsyche flavosulphurea* n. sp.

Holotype ♂, paratypes: 2 ♂♂, 1 ♀, loc. 1; 1 ♂, 2 ♀♀, loc. 2.

Lfw.: 5.2(♂)–6.3(♀) mm; head, pro- and mesothorax, palpi, scapus, fore and middle legs sulphurous yellow; vertex darkened; hind legs brown; spurs 2.4.4.; no bundle of black hairs at praetarsus; wing venation in Fig. 92; forewings dark brown. Male genitalia in Figs. 88–91.

Presently is is not possible to indicate a related species (see the remarks under *C. incomptaria* n. sp.).

## *Polyplectropus eubolus* n. sp.

Holotype ♂, paratypes: 3 ♂♂, 11 ♀♀, loc. 1; 1 ♂, loc. 2.

Lfw.: 6–7.2 mm; head and thorax brown; antennae dark brown, with pale articulations; antennae dark brown; legs pale brown; forewings brown, with many yellow spots; hind wings densely covered with thickened, dark brown hairs. Male genitalia in Figs. 93–95; aedeagus without cornutus.

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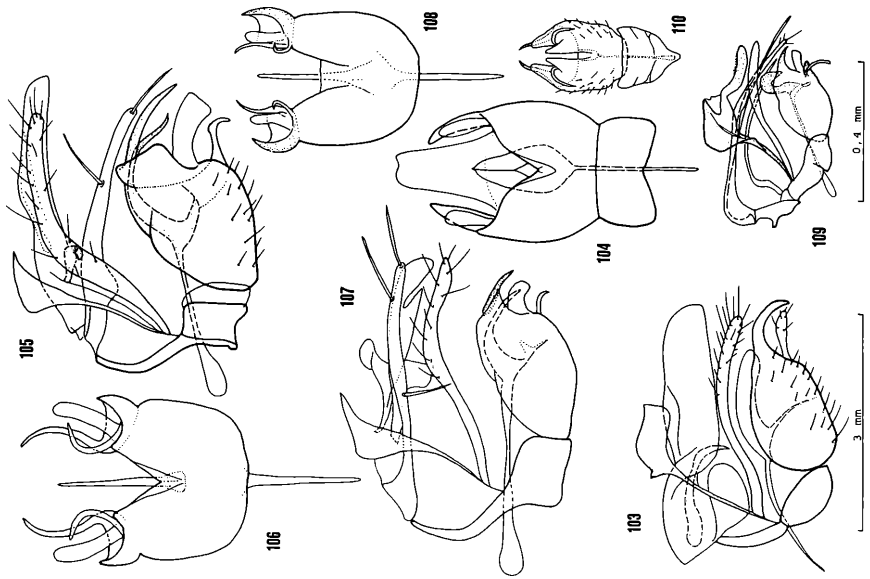
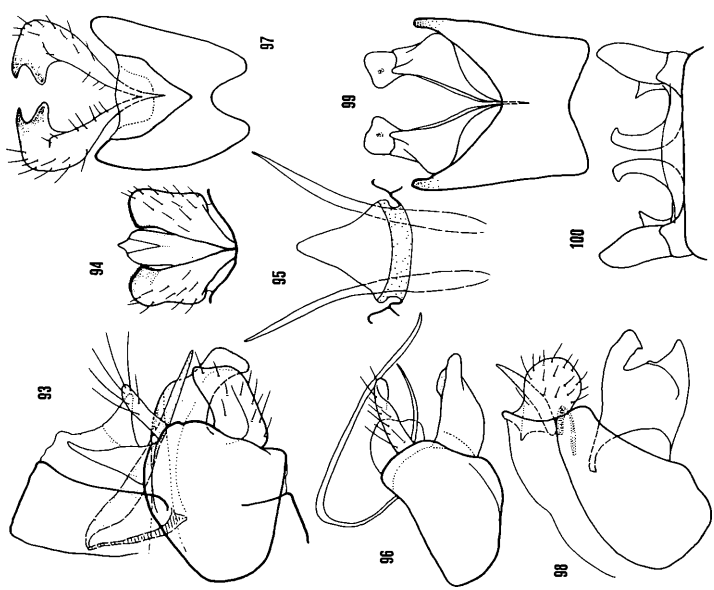
**Figs. 79–87:** Male genitalia. **Figs. 79–80:** *Hydropsyche mindanensis* n. sp., Fig. 79: lateral, Fig. 80: ventral. **Figs. 81–83:** *Cheumatopsyche transmutata* n. sp., Fig. 81: lateral, Fig. 82: ventral, Fig. 83: dorsal. **Figs. 84–87:** *Cheumatopsyche incomptaria* n. sp., Fig. 84: lateral, Fig. 85: ventral, Fig. 86: dorsal, Fig. 87: male venation. **Figs. 88–92:** *Cheumatopsyche flavosulphurea* n. sp., male, Fig. 88: genitalia, lateral, Fig. 89: genitalia, ventral view and aedeagus tip, dorsal view, Fig. 90: genitalia, dorsal, Fig. 91: head, lateral and dorsal, Fig. 92: venation.



*P. eubolus* n. sp. is related to *P. cardinis* MEY, 1990 from Luzon. The main difference is to find in the structure of the intermediate appendages in the male genitalia.

## *Polyplectropus diastictis* n. sp.

Holotype ♂, paratypes: 8 ♂♂, 4 ♀♀, loc. 1.

Lfw.: 5.4–6 mm; body brown; antennae yellow; legs pale brown; forewings brown, with some larger yellow spots. Male genitalia in Fig. 96–97.

The most closely related species is *P. hamatiformis* MEY, 1990 from Luzon. The main difference is the bifid form of the inferior appendages.

## *Polyplectropus mindamelea* n. sp.

Holotype ♂, paratype 1 ♂, loc. 1.

Lfw.: 3.9 mm; head and thorax brown; warts light brown; antennae yellow, darker towards tip, with white lines at the basal flagellomeres; palpi and legs pale brown; forewings brown. Male genitalia in Figs. 98–100.

The new species differs from *P. melea* MALICKY, 1993 in the rounded superior appendages and the shape of the inferior appendages.

## *Psychomyia mindanella* n. sp.

Holotype ♂, paratypes: 40 ♂♂, 57 ♀♀, loc. 1; 43 ♀♀, loc. 2.

Lfw.: 3–4 mm; head and thorax brown; antennae yellow; eyes black and haired; maxillary palpi dark brown; legs brown; spurs 2.4.4.; middle legs of female slightly broadened. Male genitalia in Figs. 101–102.

*P. mindanella* n. sp. shows affinities to *P. bruneiensis* MALICKY, 1993 from Borneo.

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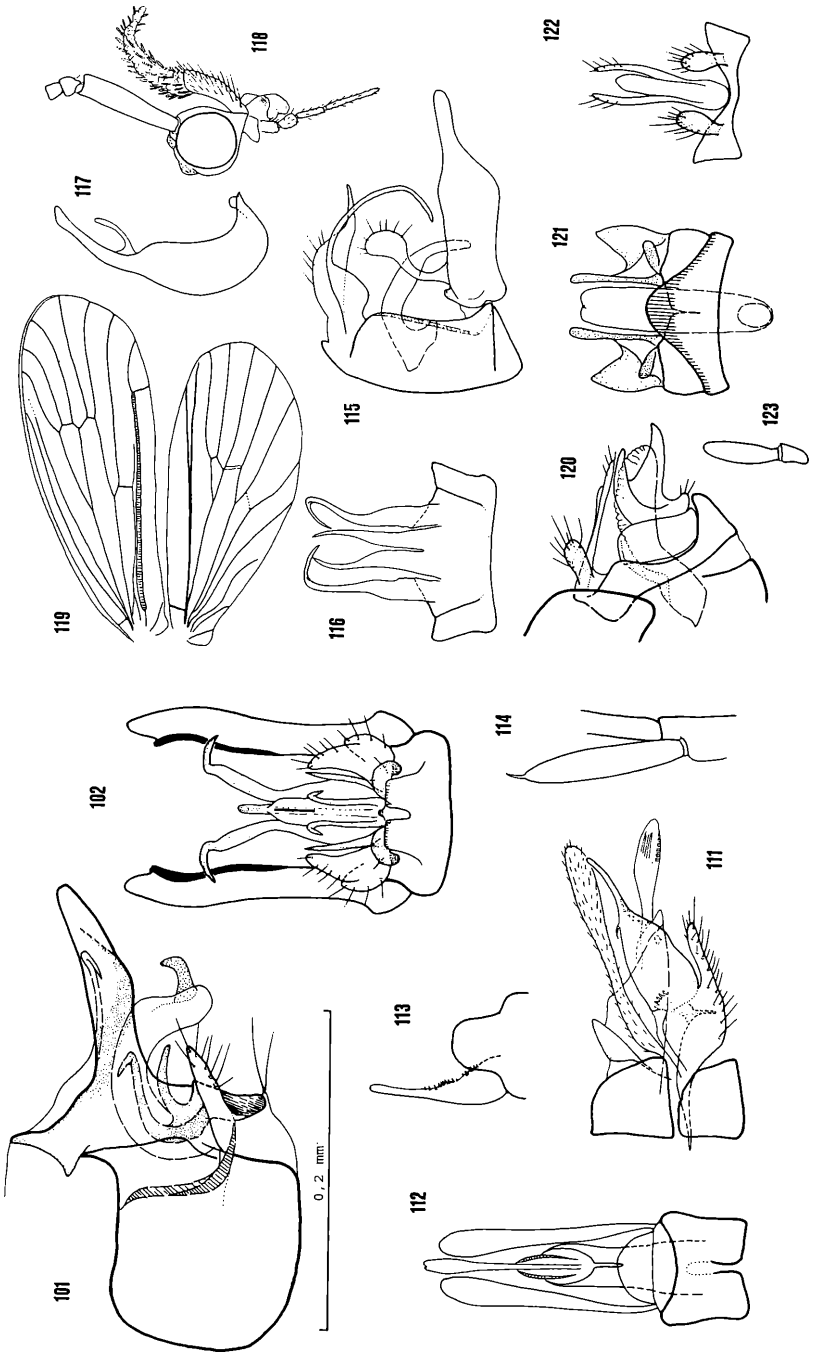
**Figs. 93–100:** Male genitalia. **Figs. 93–95:** *Polyplectropus eubolus* n. sp., Fig. 93: lateral, Fig. 94: ventral, Fig. 95: dorsal. **Figs. 96–97:** *Polyplectropus diastictis* n. sp., Fig. 96: lateral, Fig. 97: ventral. **Figs. 98–100:** *Polyplectropus mindamelea* n. sp., Fig. 98: lateral, Fig. 99: ventral, Fig. 100: dorsal. **Figs. 103–110:** Male genitalia. **Figs. 103–104:** *Tinodes compacta* n. sp., Fig. 103: lateral, Fig. 104: ventral. **Figs. 105–106:** *Tinodes miostyllos* n. sp., Fig. 105: lateral, Fig. 106: ventral. **Figs. 107–108:** *Tinodes tabonica* n. sp., Fig. 107: lateral, Fig. 108: ventral. **Figs. 109–110:** *Tinodes austrotagalica* n. sp., Fig. 109: lateral, Fig. 110: ventral.



## *Tinodes compacta* n. sp.

Holotype ♂, loc. 1.

Lfw.: 3 mm; body brown; eyes black; antennae yellow; maxillary palpi brown; labial palpi pale brown; second and third joint of maxillary palpi of same length, fourth joint shorter; forewings brown; fork 1 lacking in forewing, crossvein r-m with a pale spot. Male genitalia in Figs. 103-104.

The new species is a close relative of *T. tagalica* Banks, 1937. It differs in the compact structure of segment 10 and in the broad parameres of the male genitalia.

## *Tinodes miostyllos* n. sp.

Holotype ♂, loc. 1.

Lfw.: 3.3 mm; head and thorax brown; antennae yellowish, with pale annulations; maxillary palpi brown, second and third joint the same length; legs yellowish brown; tibiae with dark hairs; forewing pale brown; fork 1 lacking. Male genitalia in Figs. 105-106.

*T. miostyllos* n. sp. is probably the sister-species of *T. tabonica* n. sp.

## *Tinodes tabonica* n. sp.

Holotype ♂, Surigao del Sur, Mangagoy, Tabon river, 8. vi. 1996.

Lfw.: 2.4 mm; head and thorax brown; antennae yellowish; maxillary palpi and legs yellowish brown; forewings pale brown. Male genitalia in Figs. 107-108.

The new species differs from *T. miostyllos* in the architecture of the inferior appendages and in the paramers in the male genitalia.

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**Figs. 101–102, 111–114:** Male genitalia. **Figs. 101–102:** *Psychomyia mindanella* n. sp., Fig. 101: lateral, Fig. 102: ventral. **Figs. 111–114:** *Drepanocentron mindanaicum* n. sp., Fig. 111: lateral, Fig. 112: dorsal, Fig. 113: ventral, Fig. 114: male spur on hind tibia. **Figs. 115–123:** Male genitalia. **Figs. 115–119:** *Lepidostoma lenta* n. sp., Fig. 115: lateral, Fig. 116: dorsal, Fig. 117: ventral, Fig. 118: head, lateral, Fig. 119: male venation. **Figs. 120–123:** *Goera mindanensis* n. sp., Fig. 120: lateral, Fig. 121: ventral, Fig. 122: dorsal, Fig. 123: ♂ maxillary palpus.

## *Tinodes austrotagalica* n. sp.

Holotype ♂, paratypes: 28 ♂♂, 13 ♀♀, loc. 1.

Lfw.: 3.5–4 mm; head and thorax brown; antennae pale brown; maxillary palpi dark brown; forewings brown, with some paler spots in the apical cells and a distinct white spot around the arculus; female ovipositor long and slender, yellowish. Male genitalia in Figs. 109–110.

The new species is related to *T. tagalica* Banks, 1937 from southern Mindanao. Both species differ mainly in the structure of the 10th segment of the male genitalia.

## *Drepanocentron mindanaicum* n. sp.

Holotype ♂, paratypes: 3 ♂♂, 2 ♀♀, loc. 1; 2 ♂♂ from a small tributary to Tabon river, Mangagoy, Surigao del Sur, 8. vi. 1996.

Lfw.: 4 mm; head and thorax pale brown; antennae yellowish; legs brown, hind legs darker; spurs 2.4.3.; specialised spur of hind tibia in Fig. 114; forewings brown; hindwings in radial and medial area with thickened hairs; underside of media with a row of long hairs. Male genitalia in Figs. 111–113.

The new species is related to *D. mindoricum* Mey, 1995 from Mindoro. It differs mainly in the form of the ventral process in the male genitalia.

## *Lepidostoma lenta* n. sp.

Holotype ♂, paratypes: 25 ♂♂, 15 ♀♀, loc. 1.

Lfw.: 5.5–6.2 mm; head and mesoscutellum dark brown; thorax orange brown; warts yellowish; antennae with long pedicellus, without additional appendages, flagellum yellow; second joint of male maxillary palpus rectile, covered with scales (Fig. 118); legs pale brown; forewings dark brown, with some pale spots in the membrane; white scales on scapus, head and in the anterior half of forewings; wing venation of male in Fig. 119. Male genitalia in Figs. 115–117.

*L. lenta* n. sp. is related to *L. bicolor* Banks, 1937 and *L. apoana* Banks, 1937. The diagnostic characters of the new species are the elongated lateral processes of segment 10 and the wing venation.

## *Goera mindanensis* n. sp.

Holotype ♂, paratypes: 6 ♂♂, 2 ♀, loc. 1.

Lfw.: 4.5–5 mm; head and thorax brown; antennae and palpi brown; male maxillary palpus two-segmented (Fig. 123); inner side of tibiae with additional pale thorns; spurs 1.4.4.; sternite 5 without a ventral process; forewings brown, discoidal cell open; hind wings dark brown. Male genitalia in Figs. 120–122).

The new species is not an orthodox member of the genus. Some similarities occur with *G. parakiya* SCHMID, 1991 from South India. Externally it resembles much more closely the genera *Gastrocentrides* ULMER, 1930 and *Gastrocentrella* ULMER, 1951. However, both genera are imperfectly known, and their taxonomic position is uncertain. New material appears to be necessary to elucidate the validity of the genera and a possible relationship with *G. mindanensis* n. sp.

## *Adicella linearia* n. sp.

Holotype ♂, loc. 1.

Paratypes: 2 ♂♂, Indonesia, Talaud Islands, Pulau Karakelong, 4 km E Beo, 100 m, 14. III. 1997, leg. S. NAUMANN.

Lfw.: 7.5 mm; head and thorax pale brown; legs and antennae yellowish brown; spurs 1.2.2.; forewings brown with whitish veins; fork 1 of forewings stalked. Male genitalia in Figs. 124–126.

*A. linearia* n. sp. somewhat resembles *A. oviformis* ULMER, 1951 from Java and Bali.

## *Adicella paramangyana* n. sp.

Holotype ♂, loc. 1.

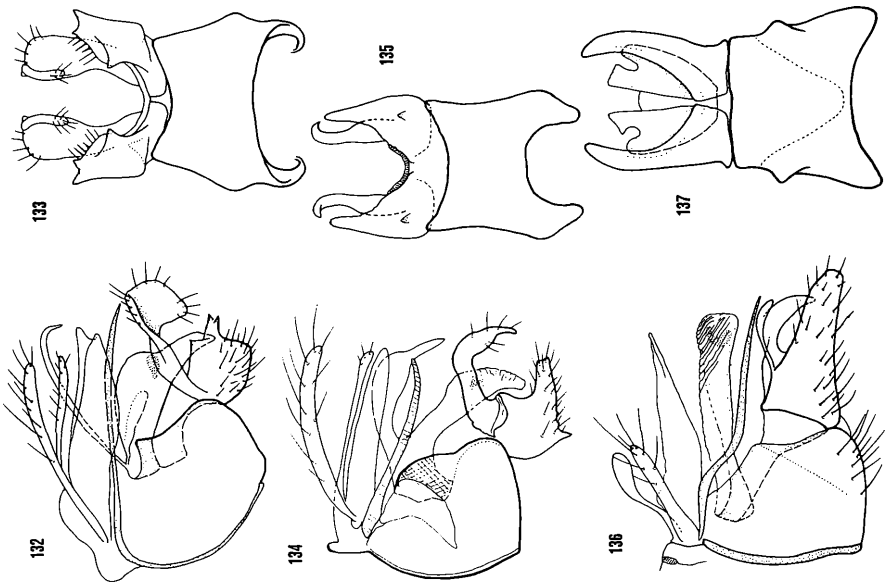
Lfw.: 7.5 mm; head and thorax brown; warts dark brown; antennae yellowish brown; forewings yellowish brown, with dense pilosity, black spots at the crossveins and in the costal cell. Male genitalia in Figs. 127–129.

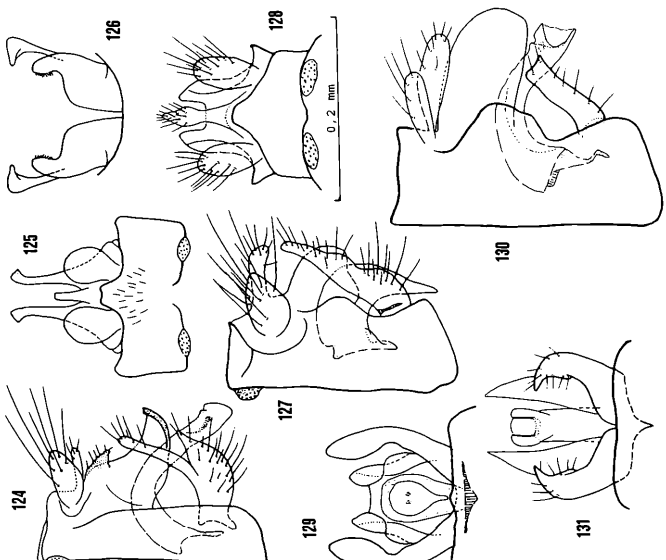
The new species is related to *A. mangyana* MEY, 1995 from Mindoro.

## *Adicella rectangulata* n. sp.

Holotype ♂, paratypes: 2 ♂, 1 ♀, loc. 1.

Lfw.: 5.5 (♀)–7.9 (♂) mm; head and thorax pale brown; mesoscutellum encircled with brown; antennae, palpi and legs yellow; first joint of maxil-



lary palpi with erect and stiff bristles; spurs 1.2.2.; forewings yellow brown, apex of both wings pointed. Male genitalia in Figs. 130-131.

*A. rectangulata* n. sp. belongs to a species group which includes *A. paramangyana* n. sp., *A. mangyana* MEY, 1995 and *A. ordinaria* MEY, 1995.

## *Triaenodes virgata* n. sp.

Holotype ♂, paratypes: 1 ♂, 1 ♀, loc. 1.

Lfw.: 7-8 mm; body and antennae yellow; eyes black; forewings yellowish brown, with pale spots beyond the anastomoses; apex broadly rounded; hind wings with long black hairs on the hind margin. Male genitalia in Figs. 132-133.

*T. virgata* n. sp. belongs to the subgenus *Triaenodella* MOSELY, 1932. The diagnostic features of the new species are the singular dorsal process of the phallobase and the appendages of segment 9. The closest relative is obviously the following species, *T. hybos* n. sp.

## *Triaenodes hybos* n. sp.

Holotype ♂, paratype: 1 ♀, loc. 1.

Lfw.: 6.8 mm; head and thorax yellowish; eyes black; scapus without androconial hairs; antennae yellow; palpi with brown hairs; legs yellow; forewing yellow brown, with two darker, vertical bands in and beyond the anastomoses; discoidal cell obliquely closed; subcosta and radius united in front of crossvein r-rs; wing margin thickened. Male genitalia in Figs. 134-135.

A *Triaenodella* species. *T. hybos* n. sp. is related to the preceding species, *T. virgata* n. sp. Both belong to a species group which probably also contains *T. costalis* KIMMINS, 1962 from New Guinea.

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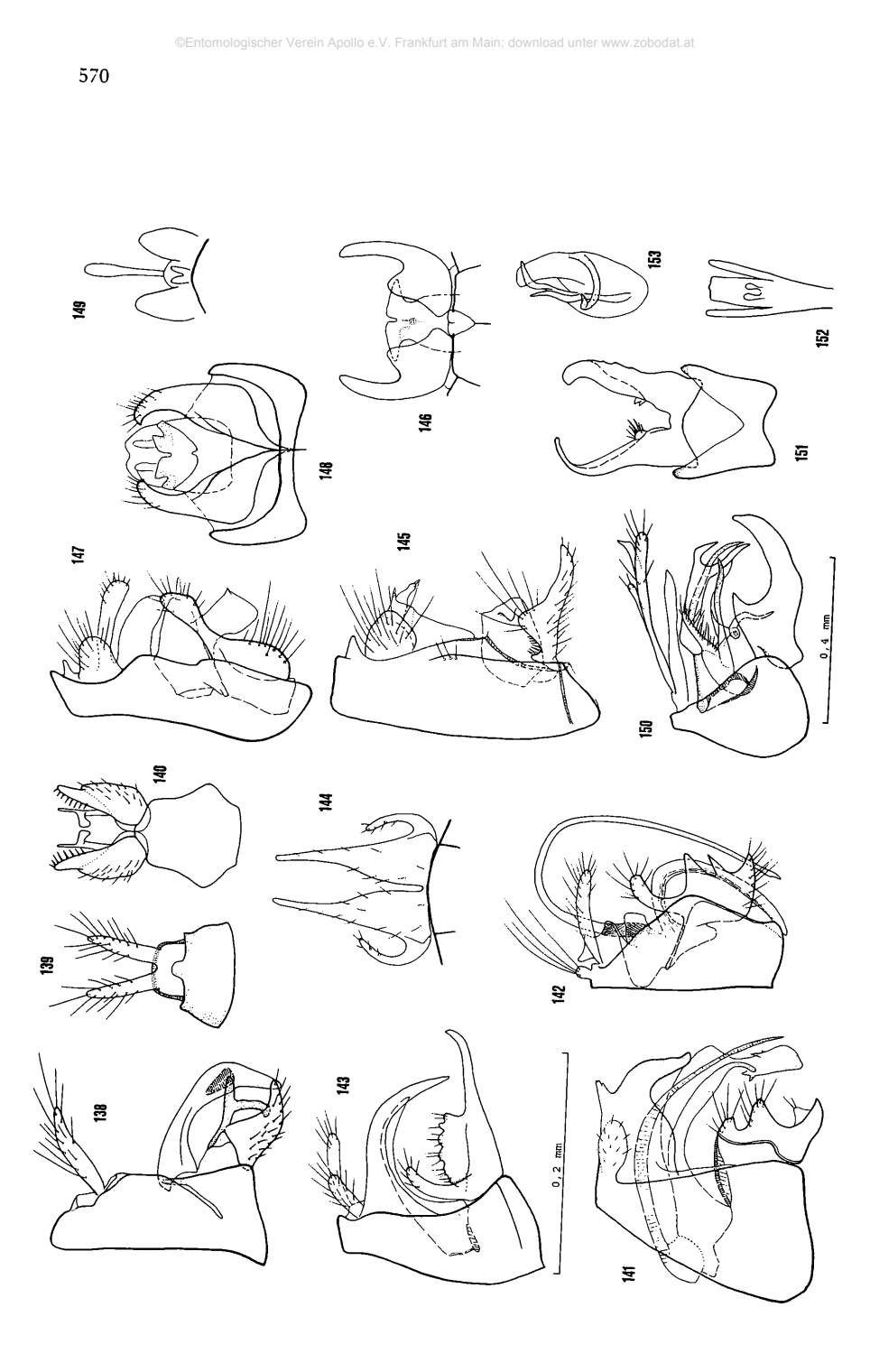
**Figs. 124–131:** Male genitalia. **Figs. 124–126:** *Adicella linearia* n. sp., Fig. 124: lateral, Fig. 125: dorsal, Fig. 126: ventral. **Figs. 127–129:** *Adicella paramangyana* n. sp., Fig. 127: lateral, Fig. 128: dorsal, Fig. 129: ventral. **Figs. 130–131:** *Adicella rectangulata* n. sp., Fig. 130: lateral, Fig. 131: ventral. **Figs. 132–137:** Male genitalia. **Figs. 132–133:** *Triaenodes virgata* n. sp., Fig. 132: lateral, Fig. 133: ventral. **Figs. 134–135:** *Triaenodes hybos* n. sp., Fig. 134: lateral, Fig. 135: ventral. **Figs. 136–137:** *Triaenodes hauseri* n. sp., Fig. 136: lateral, Fig. 137: ventral.



## *Triaenodes hauseri* n. sp.

Holotype ♂, loc. 1.

Lfw.: 5.8 mm; body, palpi and antennae yellowish; eyes black; scapus twice as long as the head, with long flap and androconial hairs; forewings yellowish, with sligthly darker spots, forming two indistinct fascia; hind wings with erected hairs on the veins. Male genitalia in Figs. 136-137.

The species is a member of the subgenus *Austrotriaena* YANG & MORSE 1993 as defined by YANG & MORSE (1993). It is very similar to *T. boettcheri* ULMER, 1930, but has shorter appendages of segment 9 and a stout aedeagus.

Derivatio nominis: The species is named after Ernst HAUSER, member of the expedition to Mindanao.

## *Triaenodes spoliatus* n. sp.

Holotype ♂, paratypes: 21 ♂♂, loc. 1.

Lfw.: 5-6.5 mm: body, legs and palpi yellow; eyes black; scapus with androconial hairs; antennae pale yellow; spurs 1.2.2.; forewings yellow brown; hind wings with forks 1 and 1 present. Male genitalia in Figs. 138-140.

The new species is best as well placed in the subgenus *Austrotriaena*. It is a remakable species which lacks the segment 10 and the appendages of the 9$^{th}$ segment in the male genitalia.

## *Setodes chrysoplitis* n. sp.

Holotype ♂, paratypes: 33 ♂♂, loc. 1; 5 ♂♂, loc. 2; 5 ♂♂, 6 ♀♀, Mindanao, Tago, Meme River, 15. VI. 1996, leg. R. MÜLLER.

Lfw.: 5.8-6.3 mm; head and thorax yellow; abdomen white; eyes black; palpi and legs pale yellow; first flagellomeres of antennae dorsally with brown; forewings yellow, fork 1 and 3 stalked, radius enlarged. Male genitalia in Fig. 141.

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**Figs. 138–144:** Male genitalia. **Figs. 138–140:** *Triaenodes spoliatus* n. sp., Fig. 138: lateral, Fig. 139: dorsal, Fig. 140: ventral. **Fig. 141:** *Setodes chrysoplitis* n. sp., lateral. **Fig. 142:** *Setodes dissobolus* n. sp., lateral. **Figs. 143–144:** *Oecetis flavicoma* n. sp., Fig. 143: lateral, Fig. 144: ventral. **Figs. 145–153:** Male genitalia. **Figs. 145–146:** *Oecetis graphata* n. sp., Fig. 145: lateral, Fig. 146: ventral. **Figs. 147–149:** *Oecetis octophora* n. sp., Fig. 147: lateral, Fig. 148: ventral, Fig. 149: dorsal. **Figs. 150–153:** *Oecetis excentrica* n. sp., Fig. 150: lateral, Fig. 151: ventral, Fig. 152: dorsal, Fig. 153: aedeagus, ventral.

The new species is related to *S. aureonitens* SCHMID, 1987 which occurs sympatrically in the area. The species can be distinguished immediately in the different structure of the aedeagus.

## *Setodes* ***dissobolus*** **n. sp.**

Holotype ♂, paratype: 1 ♀, loc. 1.

Lfw.: 4.8–5 mm; head and thorax pale grey; eyes black; antennae pale brown, with fine black articulations; dark lines on the sides of head and mesothorax; forewings brown, venation darker, fork 3 with short stalk; female wings with a more pointed apex. Male genitalia in Fig. 142.

The new species is to be placed in the *S. aparimeya* group. *S. klakahana* ULMER, 1951 from Java seems to be a related species.

## *Oecetis* ***flavicoma*** **n. sp.**

Holotype ♂, loc. 2. Paratypes: 1 ♂, 1 ♀, Mindanao, Surigao del Sur, Mandus, SW Lingig, 28. v. 1996, leg. W. MEY; 36 ♂♂,37 ♀♀, Palawan, Puerto Princesa, Irawan River, 7. IV. 1995, leg. W. MEY.

Lfw.: 4.8 mm; body yellow brown; eyes black; palpi with brown hairs; antennae yellow, with black articulations; forewings pointed, discoidal cell very long, obliquely closed; crossveins and bifurcations dark brown as well as vein ends at wing margin. Male genitalia in Fig. 143–144.

This small species is a representative of the subgenus *Paroecetis* LESTAGE, 1921. The closest relative is *O. claggi* BANKS, 1937 which has shorter inferior appendages.

## *Oecetis* ***graphata*** **n. sp.**

Holotype ♂, paratypes: 7 ♂♂, 3 ♀♀, loc. 1; 1 ♂, loc. 2.

Lfw.: 7–7.5 mm; head and thorax yellowish; warts brown; antennae yellow, first flagellomer haired; legs yellowish; spurs 2.2.2.; forewings with translucent membrane and brown veins; crossveins and bifurcations surrounded by dark spots, darker membrane spots also at the vein ends and between veins; Sc and R fused in front of discoidal cell. Male genitalia in Figs. 145–146.

This pretty species is difficult to place in any of the many species groups. The most conspicous character is the aedeagus with a broadly winged tip.

## *Oecetis octophora* n. sp.

Holotype ♂, paratypes: 7 ♂♂, 3 ♀♀, loc. 1.

Lfw.: 7 mm; body yellowish; eyes black; abdomen white; the first 7 flagellomeres of the antennae densely covered ventromedially with hairs, making the base of antennae conspicuously enlarged; forelegs brown; legs yellow; forewings with yellowish veins, fork 1 sessil, discoidal cell slightly longer than its stalk; bifurcations and crossveins dark brown and with a grey shadow in the membrane. Male genitalia in Figs. 147–149.

The new species is related to *O. crassicornis* Ulmer, 1930, described from Luzon. According to the figures in the original description (Ulmer 1930: 412) the inferior appendages and segment 10 of the male genitalia are of different shape.

## *Oecetis excentrica* n. sp.

Holotype ♂, loc. 1.

Lfw.: 6 mm; body yellowish; eyes black; antennae pale brown; maxillary palpi and legs light brown; forewings yellow, with dark spots at the crossveins and bifurcations. Male genitalia in Figs. 150–153.

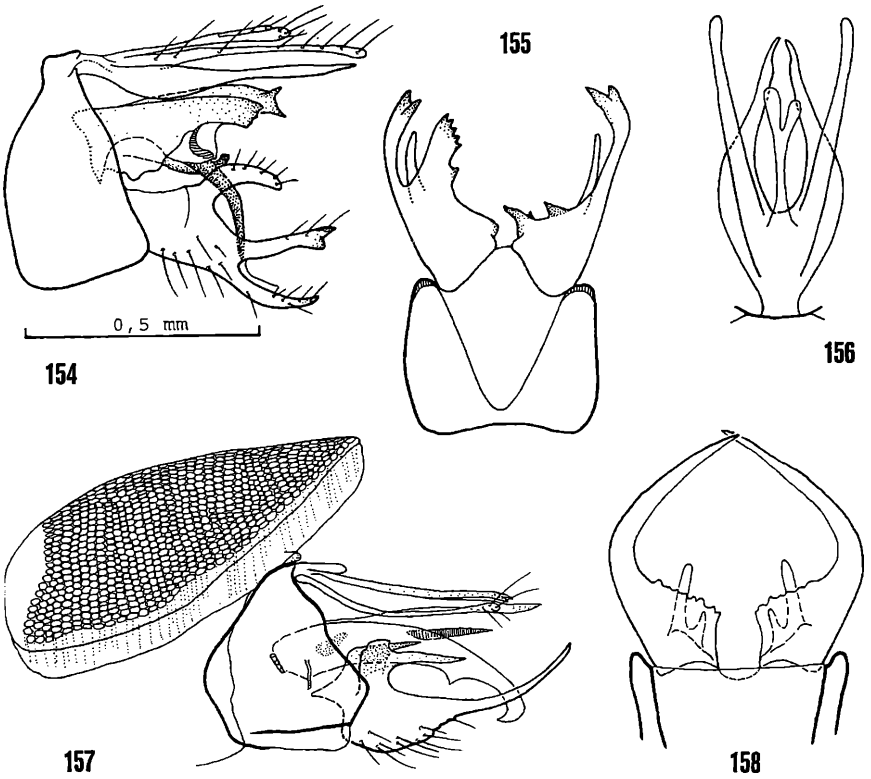
*O. excentrica* n. sp. has a unique morphology of the male genitalic apparatus. Related species are *O. separata* Banks, 1937, described from Mindanao, and *O. koyana* Kimmins, 1955 from Borneo.

## *Oecetis insymmetrica* n. sp.

Holotype ♂, paratypes: 3 ♂♂, 1 ♀, loc. 1

Lfw.: 6 mm; head and thorax yellow; eyes black; maxillary palpi and antennae yellow; forewings light brown, with dark patches at crossveins and on the wing margin; fork 1 sessile. Male genitalia in Figs. 154–156.

The new species is related to the preceding species, *O. excentrica* n. sp. It differs in the structure of the inferior appendages and the complicated architecture of the aedeagus.




**Figs. 154–158:** Male genitalia. **Figs. 154–156:** *Oecetis insymmetrica* n. sp., Fig. 154: lateral, Fig. 155: ventral, Fig. 156: dorsal. **Figs. 157–158:** *Oecetis quadrofurcata* n. sp., Fig. 157: lateral, Fig. 158: ventral.

## *Oecetis quadrofurcata* n. sp.

Holotype ♂, paratypes: 5 ♂♂, 3 ♀♀, Loc. 2.

Lfw.: 5.5-6 mm; head and thorax pale grey, with some brown spots; antennae, palpi and legs pale grey; spurs 0.2.2.; forewings with brown hairs on the pale veins; membrane colourless, only on crossveins and bifurcations with dark brown spots; crossveins r, r-m and m-cu forming a distinct brown line; male hindwing with dark brown hairs on the hind margin. Male genitalia in Figs. 157-158.

The species is a member of the *O. testacea* group (named *reticulata* group by NEBOISS, 1989). Related species are *O. pentafurcata* MEY, 1995 described from Mindoro and *O. asmada* MALICKY, 1979 from the Andaman Islands.

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## References

KIMMINS, D. E. (1955): Results of the Oxford University expedition to Sarawak, 1932. Order Trichoptera. – Sarawak Mus. Journal **6**: 374-442.

MALICKY, H. (1993): Neue asiatische Köcherfliegen (Trichoptera: Philopotamidae, Polycentropodidae, Psychomyidae, Ecnomidae, Hydropsychidae, Leptoceridae). – Linzer biol. Beitr. **25**: 1099-1136.

MEY, W. (1990): Neue und wenig bekannte Arten der Gattung *Hydropsyche* PICTET von den Philippinen (Trichoptera, Hydropsychidae). – Dtsch. entomol. Z., N.F. **37**: 413-424.

—— (1995): Beitrag zur Kenntnis der Köcherfliegenfauna der Philippinen, I (Trichoptera). – Dtsch. entomol. Z., N.F. **42**: 191-209.

NEBOISS, A. (1986): Atlas of Trichoptera of the SW Pacific-Australian Region. – Dordrecht (Junk), VIII + 286 pp.

—— (1989): The *Oecetis reticulata* species-group from the South-West Pacific area (Trichoptera: Leptoceridae). – Bijdragen Dierk. **59**: 191-202.

—— (1990): Trichoptera of the families Goeridae and Lepidostomatidae from Sulawesi, Indonesia. – Memoirs of the Museum of Victoria **51**: 87-92.

NEBOISS, A., & BOTOSANEANU, L. (1988): Caddisflies (Trichoptera) of the families Rhyacophilidae, Hydrobiosidae and Glossosomatidae from Sulawesi. – Bull. Zool. Mus. Amsterdam **11**: 157-167.

ROSS, H. H. (1956): Evolution and classification of the mountain caddisflies. – Urbana (University of Illinois Pr.), 213 pp.

SCHMID, F. (1987): Considerations diverses sur quelques genres leptocerins (Trichoptera, Leptoceridae). – Bull. Inst. Royal Sci. nat. Belg. **57 (supplement)**: 1-147.

ULMER, G. (1930): Trichopteren von den Philippinen und von den Sunda-Inseln. – Treubia **11** (4): 373-498.

—— (1951): Köcherfliegen (Trichoptera) von den Sunda-Inseln (Teil 1). – Archiv Hydrobiol., **Suppl. 19**: 1-528.

WELLS, A. (1990): The micro-caddisflies (Trichoptera: Hydroptilidae) of North Sulawesi. – Invertebr. Taxon. **1990** (3): 363-406.

YANG, L., & MORSE, J. C. (1993): Phylogenetic outline of Triaenodini (Trichoptera: Leptoceridae). – Proc. 7th Int. Symp. Trichoptera 1992: 161-167.

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