

# On the Trichoptera of Batanta Island, West Papua, Indonesia, VII. New leptocerids

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**Abstract.** Based on newly collected materials here we report new faunistic data for this diverse island and describe five new leptocerid species from the Batanta Island (Indonesia, West Papua, Raja Ampat Archipelago): *Oecetis anyam* Oláh, sp. nov., *O. apam* Oláh, sp. nov., *O. batanta* Oláh, sp. nov., *Leptocerus batanta* Oláh, sp. nov. *Setodes sarlos* Oláh, sp. nov. As well as to clear the taxonomic status of *Oecetis anyam* Oláh, sp. nov. it was necessary to survey the unsettled species group of *Oecetis hemerobioides* with description of new species from Indonesia, Sumba Island: *Oecetis sumbaensis* Oláh, sp. nov. and from the Cyclops Mountain of West Papua: *Oecetis cyclopensis* Oláh, sp. nov.

**Keywords.** Indonesia, Sumba Island, Batanta Island, West Papua, Cyclops Mountain, Trichoptera, new species.

## INTRODUCTION

Our expeditions to the Batanta Island, West Papua of Indonesia continuously result in new materials collected either from areas we have visited several times before or from newly sampled habitats (Kovács *et al.* 2015, Oláh 2016, Oláh & Kovács 2018). Our private effort made the wonderful Batanta Island the most studied and most explored land compared to all of any other islands under tropical climate at least for Odonata and Trichoptera. Nevertheless, the new materials of the new collecting trips resulted in new species records providing better understanding of the distribution patterns and processes of the species on the island as well as still yielded several species new to science.

## MATERIAL AND METHODS

The material including all holotypes and paratypes for the present paper was collected in Batanta Island during several field expeditions. We have installed UV light traps as well as collected specimens from white sheet illuminated by Honda generator or by battery powered lamps. Few specimens were collected day-time by

sweeping net or by umbrella along water habitats. The materials are preserved in 70-80% alcohol.

*Depositories.* The here reported specimens as well as the type material of the new species are deposited in the Oláh Private Collection, Debrecen, Hungary, under national protection by the Hungarian Natural History Museum, Budapest (OPC).

## TAXONOMY

### Philopotamidae Stephens, 1829

#### *Chimarra bogos* Oláh, 2013

*Material examined.* **Indonesia**, West Papua, Batanta Island, valley of Kalijakut River, S00° 52'49.10", E130°38'4.9", 19.II.2020, at light, leg. T. Kovács, R. Horváth, P. Juhász, K. Sauyai, R. Sauyai (1 male, OPC).

#### *Chimarra holda* Oláh, 2013

*Material examined.* **Indonesia**, West Papua, Batanta Island, valley of Kalijakut River, S00°52'49.10", E130°38'4.9", 19.II.2020, at

light, leg. T. Kovács, R. Horváth, P. Juhász, K. Sauyai, R. Sauyai (7 males, OPC). Indonesia, West Papua, Batanta Island, valley of Warai stream, S00°50'59.3", E130°35'18.0", 22.II.2019, at light, leg. T. Kovács, R. Horváth, P. Juhász, E. Kondorosy (2 males, OPC). Indonesia, West Papua, Batanta Island, valley of Waibin river, S00°50'01.9", E130°45'24.8", 17.II.2019, at light, leg. T. Kovács, R. Horváth, P. Juhász, E. Kondorosy (6 males, OPC). Indonesia, West Papua, Batanta Island, valley of Tanjung Lampu River, S00°53'43.0", E130°36'38.5", 18.II.2020., at light, leg. T. Kovács, R. Horváth, P. Juhász (3 males, OPC).

***Chimarra horgoka* Oláh, 2012**

*Material examined.* **Indonesia**, West Papua, Batanta Island, valley of Warai stream, S00°50'59.3", E130°35'18.0", 22.II.2019, at light, leg. T. Kovács, R. Horváth, P. Juhász, E. Kondorosy (2 males, OPC).

***Chimarra kanala* Oláh, 2012**

*Material examined.* **Indonesia**, West Papua, Batanta Island, valley of Warai stream, S00°50'59.3", E130°35'18.0", 22.II.2019, at light, leg. T. Kovács, R. Horváth, P. Juhász, E. Kondorosy (1 male, OPC).

***Chimarra kerka* Oláh, 2013**

*Material examined.* **Indonesia**, West Papua, Batanta Island, valley of Kalijakut River, S00°52'49.10", E130°38'4.9", 19.II.2020, at light, leg. T. Kovács, R. Horváth, P. Juhász, K. Sauyai, R. Sauyai (5 males, OPC). Indonesia, West Papua, Batanta Island, valley of Warai stream, S00°50'59.3", E130°35'18.0", 22.II.2019, at light, leg. T. Kovács, R. Horváth, P. Juhász, E. Kondorosy (2 males, OPC).

***Chimarra ujika* Oláh, 2012**

*Material examined.* **Indonesia**, West Papua, Batanta Island, valley of Waibin river, S00°50'

01.9", E130°45'24.8", 17.II.2019, at light, leg. T. Kovács, R. Horváth, P. Juhász, E. Kondorosy (2 males, OPC).

***Chimarra vekon* Oláh, 2013**

*Material examined.* **Indonesia**, West Papua, Batanta Island, valley of Kalijakut River, S00°52'49.10", E130°38'4.9", 19.II.2020, at light, leg. T. Kovács, R. Horváth, P. Juhász, K. Sauyai, R. Sauyai (6 males, OPC). Indonesia, West Papua, Batanta Island, valley of Warai stream, S00°50'59.3", E130°35'18.0", 22.II.2019, at light, leg. T. Kovács, R. Horváth, P. Juhász, E. Kondorosy (1 male, OPC).

**Ecnomidae Ulmer, 1903**

***Ecnomus bogos* Oláh, 2013**

*Material examined.* **Indonesia**, West Papua, Batanta Island, valley of Kalijakut River, S00°52'49.10", E130°38'4.9", 19.II.2020, at light, leg. T. Kovács, R. Horváth, P. Juhász, K. Sauyai, R. Sauyai (6 males, OPC). Indonesia, West Papua, Batanta Island, valley of Tanjung Lampu River, S00°53'43.0", E130°36'38.5", 18.II.2020., at light, leg. T. Kovács, R. Horváth, P. Juhász (7 males, OPC).

***Ecnomus lelog* Oláh, 2012**

*Material examined.* **Indonesia**, West Papua, Batanta Island, valley of Warai stream, S00°50'59.3", E130°35'18.0", 22.II.2019, at light, leg. T. Kovács, R. Horváth, P. Juhász, E. Kondorosy (1 male, OPC).

**Psychomiidae Walker, 1852**

***Tinodes simul* Oláh, 2018**

*Material examined.* **Indonesia**, West Papua, Batanta Island, valley of Kalijakut River, S00°52'49.10", E130°38'4.9", 19.II.2020, at light, leg. T. Kovács, R. Horváth, P. Juhász, K. Sauyai, R. Sauyai (1 male, OPC).

***Tinodes savos* Oláh, 2018**

*Material examined.* **Indonesia**, West Papua, Batanta Island, valley of Warai stream, S00°50'59.3", E130°35'18.0", 22.II.2019, at light, leg. T. Kovács, R. Horváth, P. Juhász, E. Kondorosy (1 male, OPC).

**Polycentropodidae Ulmer, 1903**

***Nyctiophylax bunk* Oláh, 2012**

*Material examined.* **Indonesia**, West Papua, Batanta Island, valley of Warai stream, S00°50'59.3", E130°35'18.0", 22.II.2019, at light, leg. T. Kovács, R. Horváth, P. Juhász, E. Kondorosy (1 male, OPC). **Indonesia**, West Papua, Batanta Island, valley of Tanjung Lampu River, S00°53'43.0", E130°36'38.5", 18.II.2020., at light, leg. T. Kovács, R. Horváth, P. Juhász (1 male, OPC). **Indonesia**, West Papua, Batanta Island, valley of Kalijakut River, S00°52'49.10", E130°38'4.9", 19.II.2020, at light, leg. T. Kovács, R. Horváth, P. Juhász, K. Sauyai, R. Sauyai (3 males, OPC).

***Polycentropus batant* Oláh, 2015**

*Material examined.* **Indonesia**, West Papua, Batanta Island, valley of Kalijakut River, S00°52'49.10", E130°38'4.9", 19.II.2020, at light, leg. T. Kovács, R. Horváth, P. Juhász, K. Sauyai, R. Sauyai (4 males, OPC).

**Hydropsychidae Curtis, 1835**

**Macronematinae Ulmer, 1905**

***Baliomorpha barna* Oláh, 2012**

*Material examined.* **Indonesia**, West Papua, between valleys of Tanjung Lampu River and Kalijakut River, S00°54'38.06", E130°36'50.17" and S00°54'20.59", E130°38'31.70", 13.II.2019, leg. E. Kondorosy (1 male, OPC). **Indonesia**, West Papua, Batanta Island, valley of Warai stream, S00°50'59.3", E130°35'18.0", 22.II.2019, at light, leg. T. Kovács, R. Horváth, P. Juhász, E. Kondorosy (2 males, OPC). **Indonesia**, West

Papua, Batanta Island, valley of Kalijakut River, S00°52'49.10", E130°38'4.9", 19.II.2020, at light, leg. T. Kovács, R. Horváth, P. Juhász, K. Sauyai, R. Sauyai (1 male, OPC).

***Macrostemum warmon* Oláh, 2013**

*Material examined.* **Indonesia**, West Papua, Batanta Island, valley of Warmon stream, between the lower and upper waterfall, S00°50'04.50", E130°42'54.01" and S00°50'23.25", E130°42'35.18", 15.II.2020, singled leg. T. Kovács, R. Horváth, P. Juhász (1 male, OPC).

*Remarks.* This species with its beautifully patterned forewing was described from the single holotype collected along the Warmon stream. Later, the second specimen was collected at Warmon stream (Oláh 2014), the third specimen in the valley of Tanjung Lampu, fourth, fifth and sixth specimens at Warai stream. This is the seventh specimen singled at the locus typicus at the Warmon stream.

**Hydropsychinae Curtis, 1835**

***Cheumatopsyche expeditionis* (Ulmer, 1938)**

*Material examined.* **Indonesia**, West Papua, Batanta Island, valley of Waibin river, S00°50'01.9", E130°45'24.8", 17.II.2019, at light, leg. T. Kovács, R. Horváth, P. Juhász, E. Kondorosy (1 male, OPC). **Indonesia**, West Papua, Batanta Island, valley of Warai stream, S00°50'59.3", E130°35'18.0", 22.II.2019, at light, leg. T. Kovács, R. Horváth, P. Juhász, E. Kondorosy (2 males, OPC). **Indonesia**, West Papua, Batanta Island, valley of Tanjung Lampu River, S00°53'43.0", E130°36'38.5", 18.II.2020., at light, leg. T. Kovács, R. Horváth, P. Juhász (2 males, OPC).

***Cheumatopsyche sorra* Oláh, 2013**

*Material examined.* **Indonesia**, West Papua, Batanta Island, valley of Kalijakut River, S00°52'49.10", E130°38'4.9", 19.II.2020, at light, leg. T. Kovács, R. Horváth, P. Juhász, K. Sauyai, R. Sauyai (3 males, OPC).

*Remarks.* This species was described and characterized by rows of larger light spots arranged mostly in longitudinal cells along the forewings. However, slight shape divergences have also been detected in the setaless mesocaudal lobes and in the ventroapical setose lobes between paratypes from the Dry (=Weras) and Waridor streams along the northern coast of the island. In the Valley of Kalijakut River of the southern coast we have collected three specimens with genital characters near to *C. sorra*, but without any discernible light spotted patterns. *Cheumatopsyche sorra* Oláh, 2013 may represent a species complex of several sibling species. However, more specimens need to study this potential species complex.

***Hydropsyche sabronensis* (Kimmins, 1962)**

*Material examined.* **Indonesia**, West Papua, Batanta Island, valley of Kalijakut River, S00° 52'49.10", E130°38'4.9", 19.II.2020, at light, leg. T. Kovács, R. Horváth, P. Juhász, K. Sauyai, R. Sauyai (3 males, OPC).

**Glossosomatidae Wallengren, 1891**

***Agapetus fogaska* Oláh, 2013**

*Material examined.* **Indonesia**, West Papua, Batanta Island, valley of Kalijakut River, S00° 52'49.10", E130°38'4.9", 19.II.2020, at light, leg. T. Kovács, R. Horváth, P. Juhász, K. Sauyai, R. Sauyai (2 males, OPC).

***Agapetus kivagot* Oláh, 2012**

*Material examined.* **Indonesia**, West Papua, Batanta Island, valley of Kalijakut River, S00° 52'49.10", E130°38'4.9", 19.II.2020, at light, leg. T. Kovács, R. Horváth, P. Juhász, K. Sauyai, R. Sauyai (1 male, OPC).

**Hydroptilidae Stephens, 1836**

***Hellyethira sarina* Oláh, 2012**

*Material examined.* **Indonesia**, West Papua, Batanta Island, valley of Tanjung Lampu River, S00°53'43.0", E130°36'38.5", 18.II.2020., at

light, leg. T. Kovács, R. Horváth, P. Juhász (1 male, OPC).

***Hydroptila explicata* Wells, 1984**

*Material examined.* **Indonesia**, West Papua, Batanta Island, valley of Tanjung Lampu River, S00°53'43.0", E130°36'38.5", 18.II.2020., at light, leg. T. Kovács, R. Horváth, P. Juhász (1 male, OPC).

***Hydroptila nemtompa* Oláh, 2012**

*Material examined.* **Indonesia**, West Papua, Batanta Island, valley of Tanjung Lampu River, S00°53'43.0", E130°36'38.5", 18.II.2020., at light, leg. T. Kovács, R. Horváth, P. Juhász (1 male, OPC).

***Orthotrichia eltera* Oláh, 2012**

*Material examined.* **Indonesia**, West Papua, Batanta Island, valley of Warai stream, S00° 50'59.3", E130°35'18.0", 22.II.2019, at light, leg. T. Kovács, R. Horváth, P. Juhász, E. Kondorosy (2 males, OPC).

***Orthotrichia waridora* Oláh, 2013**

*Material examined.* **Indonesia**, West Papua, Batanta Island, valley of Tanjung Lampu River, S00°53'43.0", E130°36'38.5", 18.II.2020., at light, leg. T. Kovács, R. Horváth, P. Juhász (1 male, OPC).

**Goeridae Ulmer, 1903**

***Goera batanta* Oláh, 2014**

*Material examined.* **Indonesia**, West Papua, Batanta Island, valley of Warai stream, S00° 50'59.3", E130°35'18.0", 22.II.2019, at light, leg. T. Kovács, R. Horváth, P. Juhász, E. Kondorosy (1 male, OPC).

**Calamoceratidae Ulmer, 1905**

***Anisocentropus horvathi* Oláh, 2012**

*Material examined.* **Indonesia**, West Papua, Batanta Island, valley of Kalijakut River, S00°

52°49.10", E130°38'4.9", 19.II.2020, at light, leg. T. Kovács, R. Horváth, P. Juhász, K. Sauyai, R. Sauyai (1 male, 4 females; OPC)

***Anisocentropus susannae* Oláh & Kovács, 2018**

*Material examined.* **Indonesia**, West Papua, Batanta Island, valley of Warai stream, S00° 50'59.3", E130°35'18.0", 22.II.2019, at light, leg. T. Kovács, R. Horváth, P. Juhász, E. Kondorosy (1 male, unpigmented; OPC).

**Leptoceridae Leach in Brewster, 1815**

***Oecetis hemerobioides* species group**

*Oecetis hemerobioides* species group is characterized by downward curving, fused segment X mostly with variously patterned digitate dorsal profile as well as much abbreviated phallic organ.

Represented by *O. hemerobioides* (McLachlan, 1866) on Sulawesi; *O. notos* Malicky, 2005 on Sumatra; *O. kyparissos* Malicky, 2005 on Bali; *O. peleus* Malicky, 2005 on Borneo; *O. hippolytos* Malicky, 2005, *O. halirrhotos* Malicky, 2005, *O. hellen* Malicky, 2005 from Brunei; *O. oecetinelae* Mey, 1990, *O. graphata* Mey, 1998, *O. panayensis* Mey, 1998, *O. luzonensis* Mey, 2003 in the Philippines; and *O. cepaforma* Wells, 2004 in Australia. Here we describe *O. sumbaensis* sp. nov. from Sumba Island; *O. anyam* sp. nov. from Batanta Island (West Papua) and *O. cyclopsensis* sp. nov. from the Cyclops Mountain (West Papua).

The nominate species *Oecetis hemerobioides* (McLachlan, 1866) was described without any drawings from a single male specimen collected in Sulawesi. Unfortunately this specimen is lost. *O. confluens* Ulmer, 1906 was described from Sulawesi with drawings and later synonymised with *O. hemerobioides* by Ulmer (1951) himself. Synonymy between *hemerobioides* and *confluens* was established simply by comparing wing venation and coloration based only upon the short description. Ulmer has never seen the single male of *O. hemerobioides* deposited in Mus. Saundersiano lost for today. As a result of synonymy our

present knowledge on *Oecetis hemerobioides* (McLachlan, 1866) is represented only by the original drawings of *O. confluens* Ulmer, 1906.

The species status of *O. oecetinelae* and *O. cepaforma* was questioned by Malicky (2005) and treated as synonyms of *O. hemerobioides*. Based upon their distribution, character states as well as comparing *O. oecetinelae* and *O. cepaforma* drawings with the original drawings of *O. confluens* the two species are distinct and valid species. Here we reinstate their species status *Oecetis oecetinelae* Mey, 1990 **stat. restit.** and *Oecetis cepaforma* Wells, 2004 **stat. restit.**

***Oecetis anyam* Oláh, sp. nov.**

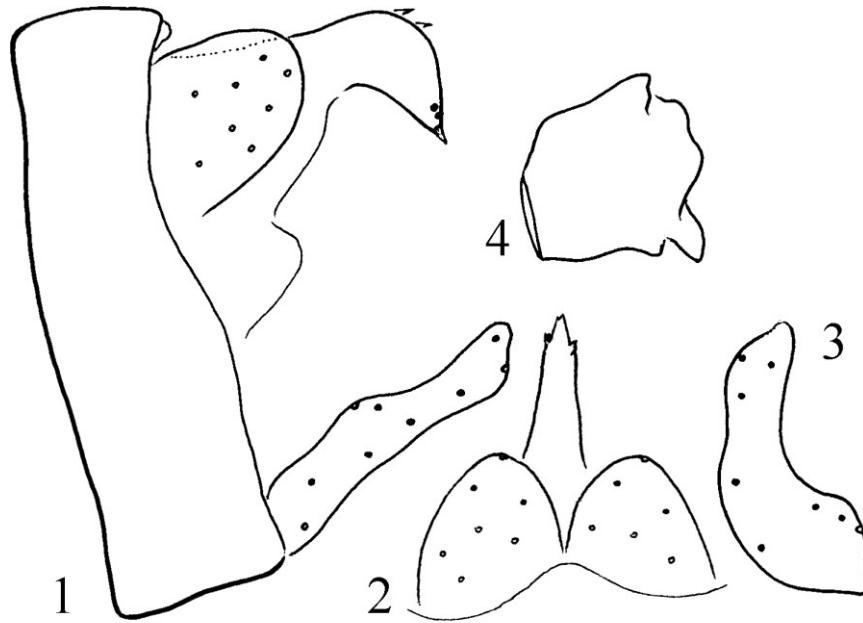
(Figures 1–4)

*Material examined.* Holotype: **Indonesia**, West Papua, Batanta Island, Ron Creek, at below wood-cutting area, S00°49'16.37", E130°49'23.72", 8.IX.2011, at light, leg. R. Horváth, (1 male, OPC).

*Diagnosis.* This new species is a member of the *Oecetis hemerobioides* (McLachlan, 1866) species group and has resemblance to the nominate species of the complex *O. hemerobioides*, but differs by the lateral profile of segment X having rather capitate, not slender downward curving apex, by both the lateral and ventral shape of gonopods as well as the abbreviated phallic organ has rather specific apical pattern.

*Description.* Male (in alcohol). Light brown animal. Forewings with discernible faded dark pattern along anastomose, cross-veins, fork bases and vein terminals. Forewing length 7 mm.

*Male genitalia.* Segment IX short, regular band-shaped in lateral view with almost identical lengths of its dorsum and ventrum. Segment X downward curving, rather robust with semicircular apex. Cerci semicircular setose lobe. Gonopods elongated rod with dorsal hump on midway. Phallic organ short with laterad turning wings and particular apical margin as well as without any discernible paramere.



**Figures 1–4.** *Oecetis anyam* sp. nov. Holotype male. 1 = genitalia in left lateral view; 2 = genitalia in dorsal view; 3 = left gonopod in ventral view; 4 = phallic organ in lateral view.

*Etymology.* Dedicated to the mother of the first author; coined from “*Anyám*”, my mother in Hungarian, a noun in apposition. Described and named during COVID-19 isolation, while correcting the first author’s science-poem book on eternity, *Philosophy of Light Being*, inspired by his family.

***Oecetis cycloensis* Oláh, sp. nov.**

(Figures 5–8)

*Oecetis hemerobioides* (McLachlan, 1866): Kimmins, 1962:154. Misidentification.

*Material examined.* Holotype: **Indonesia**, West Papua, Dutch New Guinea, Cyclops Mts. Sabron, 930 ft, 8.IX.2011, at light, leg. R. Horváth, (1 male, OPC).

*Diagnosis.* This new species is a member of the *Oecetis hemerobioides* (McLachlan, 1866) species group and has resemblance to the nominate species of the complex *O. hemerobioides*, but differs by the dorsal profile of segment X having broad base, not narrowing base, by the cerci with rounded, not quadratic apical region; by both the lateral and ventral shape of gonopods.

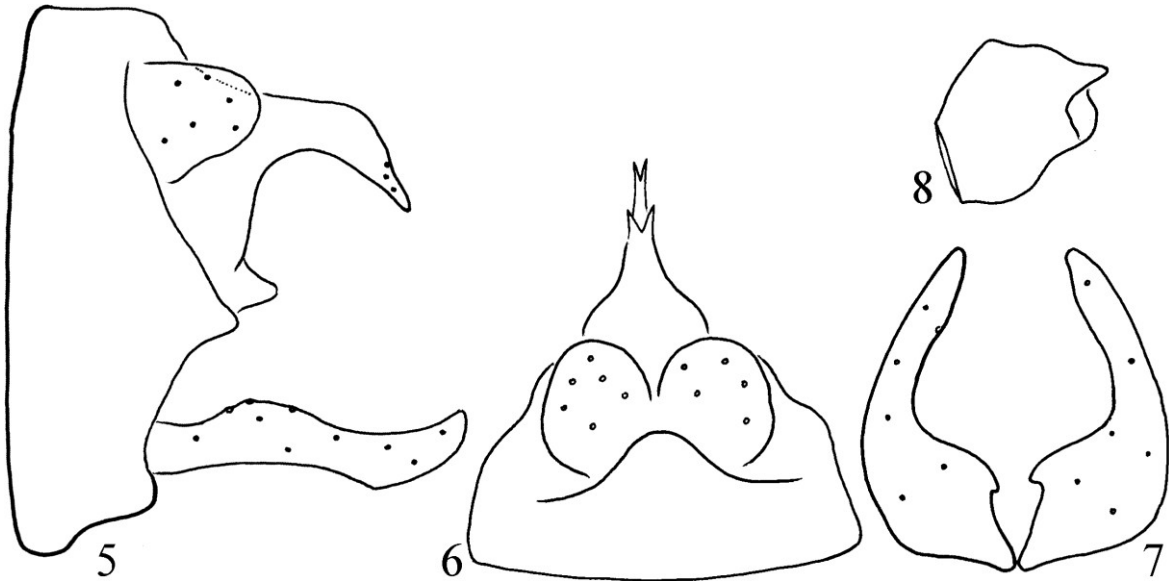
*Description.* Male (in alcohol). Light brown animal. Forewings with discernible faded dark pattern along anastomose, cross-veins, fork bases and vein terminals. Forewing length 7 mm.

*Male genitalia.* Segment IX short, regular band-shaped with triangular pleural margin apicad in lateral view and with almost identical lengths of its dorsum and ventrum. Segment X downward curving with slender digitate apex. Cerci semi-circular setose lobe. Gonopods elongated rod with dorsal hump on midway. Phallic organ short with laterad turning wings and particular apical margin as well as without any discernible paramere.

*Etymology.* Named after the locus typicus.

***Oecetis hemerobioides* (McLachlan, 1866)**

*Setodes hemerobioides* McLachlan, 1866:259–260. „Habitat ad Macassar, in insula Celebes (Wallace). In Mus. Saundersiano.” „The single specimen is mutilated, having lost its antennae, excepting the basal joints. In its broad, hyaline and naked anterior wings it bears a not remote resemblance to a species of *Hemerobius*; hence the specific name.” No drawing was published!



Figures 5–8. *Oecetis cyclopensis* sp. nov. Holotype male. 5 = genitalia in left lateral view; 6 = genitalia in dorsal view; 7 = gonopods in ventral view; 8 = phallic organ in lateral view.

*Oecetis hemerobioides* (McLachlan, 1866): Ulmer 1906:41: transferred to *Oecetis* genus.

*Oecetis confluens* Ulmer, 1906: 41–43. “1 Exemplar (♂), bez. Celebes, van Gelder, im Leidener Museum.” Dorsal and lateral genital drawings from the holotype of unknown locality inside Sulawesi!

*Oecetinella confluens* (Ulmer, 1906): Ulmer 1907: 133, 145. *Oecetinella* gen. nov. with type species of *Oecetis confluens*, monobasic (Ulmer 1906).

*Oecetinella hemerobioides* (McLachlan, 1866): Ulmer 1930. “Vielleicht ist diese Art, die ich nicht kenne, eine *Oecetinella*, verwandt oder identisch mit *O. confluens* Ulmer.”

*Oecetinella hemerobioides* (McLachlan, 1866): Ulmer 1951:461. Synonymised *Oecetinella confluens* Ulmer, 1906 with *Oecetinella hemerobioides* (McLachlan, 1866). *O. hemerobioides* became the type species of the *Oecetinella*. Detailed drawings of wings, lateral, dorsal and ventral view of genitalia are published, however from male specimen of Indonesia, Sumba Island.

*Oecetis hemerobioides* (McLachlan, 1866): Schmid 1958:140. *Oecetinella* synonymised with *Oecetis*. “Plusieurs genres ont été détachés de *Oecetis* sur la base de caractères de nervulation: *Oecetinella* Ul., *Oecetodella* Ulm., *Oecetina* Bks, *Oecetodes* Ul. Un certain nombre ont déjà fait retour à *Oecetis* et, aujourd’hui, je supprime aussi *Oecetinella*, représenté à Ceylan. Ces genres sont basés sur des

caractères trop peu importants pour avoir une portée générique.”

*Remarks.* Unfortunately, the single, mutilated male specimen of *Oecetis hemerobioides* (McLachlan, 1866) collected by Alfred Russel Wallace at Makassar, Sulawesi is not available for study. Probably it is lost, according to the information provided by Benjamin Price, Curator of Small Orders, The Natural History Museum, London. Similarly to the single male specimen of *Leptopsyche gracilis* McLachlan, 1866 collected also by Wallace in Insula Dorey (Manokwari, West Papua, Indonesia) and deposited also in „Mus. Saundersiano”, the private collection of W.W. Saunders, Esq., F.R.S, V.P.L.S., which is also lost (Oláh & Kovács 2015). *O. hemerobioides* was described by McLachlan without any drawings. Another male specimen collected from an unknown locality in Sulawesi was described by Ulmer (1906) as *Oecetis confluens* with a lateral and dorsal genital drawings but it was later synonymised with *O. hemerobioides* (McLachlan, 1866) (Ulmer 1951). Until new specimens will be collected near the locus typicus at Makassar in Sulawesi, we have to rely upon the published drawings of the synonymised *O. confluens* as *O. hemerobioides*.

***Oecetis sumbaensis* Oláh, sp. nov.**

*Oecetinella hemerobioides* (McLachlan, 1866): Ulmer 1951:461. "Material: 2 ♂, Ost-Sumba; Kananggar, 700 m, V. 1925, Dammerman leg., im Museum Buitenzorg, 1 jetzt in meiner Sammlung." Misidentification.

*Material.* Holotype: **Indonesia** (East Sumba), Kananggar, 700 m, V. 1925, leg. Dammerman (1 male, Museum Buitenzorg). Paratype: same as holotype (1 male in Ulmer's Collection).

*Diagnosis.* In his last monograph on the Trichoptera of Sunda-Islands, Ulmer (1951) published detailed drawings of wings, lateral, dorsal and ventral view of genitalia as *O. hemerobioides* however, based upon male specimen from Sumba Island, not from the original specimen of *O. hemerobioides* (McLachlan, 1866) and not from specimen of the synonymised *O. confluens* Ulmer, 1906. These drawings represent an independent species. This new species is a member of the *Oecetis hemerobioides* (McLachlan, 1866) species group and has resemblance to the nominate species of the complex *O. hemerobioides*, but differs by the dorsal profile of segment X having gradually tapering shape, not narrowing base, by the lateral profile of segment X long, slender with slightly aviform apex; by the cerci with rounded, not quadratic apical region; by both the lateral and ventral shape of gonopods.

*Description.* Male (Figures of Ulmer 1951: Table 23, Fig. 713–718). Light brown animal. Forewing length 8 mm.

*Male genitalia.* Segment X downward curving elongated slender, ending in an aviform apex in lateral view; gradually tapering in dorsal view. Cerci oviform setose lobe. Gonopods with broad basal half, slender apical half with upward curving pointed apex.

*Etymology.* *sumbaensis*, named after the *locus typicus* of the holotype.

***Oecetis apam* Oláh, sp. nov.**

(Figures 9–12)

*Material examined.* Holotype: **Indonesia**, West Papua, Batanta Island, Sarinam River, at the upper wood-cutting house, S00°50'04.28", E130°47'59.22", 17.X.2010, at light, leg. R. Horváth, (1 male, OPC).

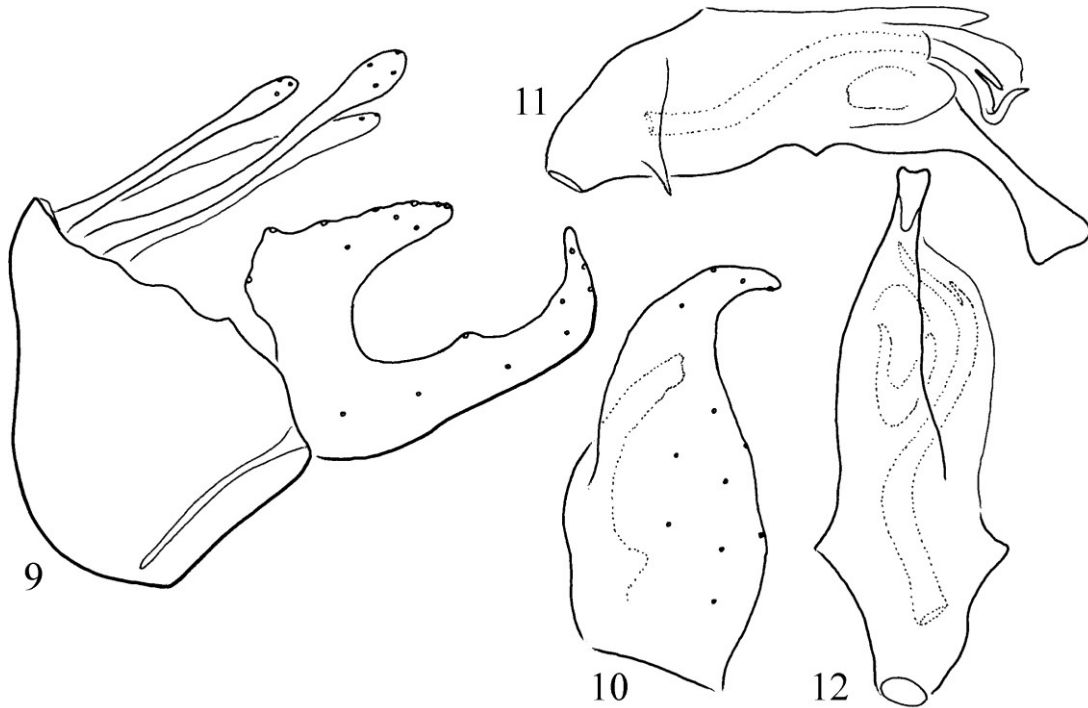
*Diagnosis.* This new species having honeycomb-like hexagonal cells on the entire surface of thickened tergites VII and VIII with regularly reticulated pattern belongs to the *Oecetis reticulata* species group. Has some similarity to *Oecetis kakaduensis* Neboiss, 1989 described from the Northern Territory, Australia, but differs by the lateral shape of the gonopods as well as by the very complex structure of the phallic organ.

*Description.* Male (in alcohol). Light brown animal. Forewings with pronounced dark pattern having large irregular patches along the entire length; more densely patched basad and almost lacking apicad. Forewing length 7 mm.

*Male genitalia.* Segment IX subtriangular with long ventrum and almost pointed dorsum; latero-ventrad with a long horizontal suture. Segment X consisting of a slender median process, accompanied ventrally by elongated process with setose apex. Cerci long, slender and digitate process with clavate apex. Gonopods with basodorsal and ventroapical converging lobes in lateral view. Phallic organ composed of an indistinct phallosome with well-produced and sclerotized ventral structure and a well discernible partially embedded single paramere with subapical arm and with slightly spiralling terminal region.

*Etymology.* Dedicating to the father of the first author: *apam*, coined from "Apám", my father in Hungarian, a noun in apposition. Described and named during COVID-19 isolation, while correcting the science-poem book on eternity, Philosophy of Light Being, inspired by the first author's family.





Figures 9–12. *Oecetis apam* sp. nov. Holotype male. 9 = genitalia in left lateral view; 10 = left gonopod in ventral view; 11 = phallic organ in lateral view, 12 = phallic organ in ventral view.

***Oecetis batanta* Oláh, sp. nov.**

(Figures 13–16)

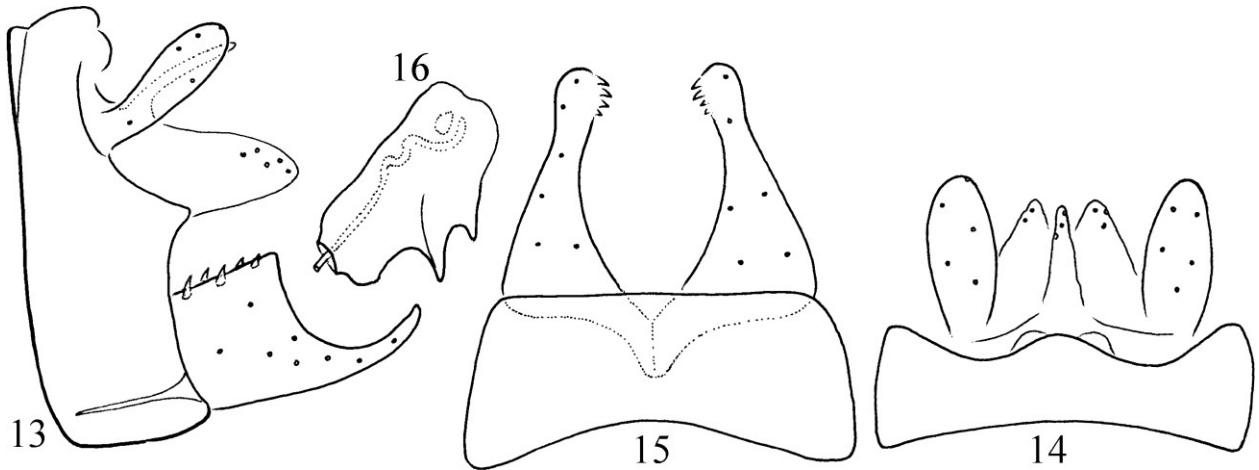
*Material examined.* Holotype: **Indonesia**, West Papua, Batanta Island, Sarinam River, at the upper wood-cutting house, S00°50'04.28", E130°47'59.22", 17.X.2010, at light, leg. R. Horváth, (1 male, OPC). Paratype: Indonesia, West Papua, Batanta Island, valley of Weras stream, S00°49'51.2", E130°38'00.0", 250 m., 28.I.2012, at light, leg. R. Horváth, (1 male, OPC).

*Diagnosis.* This is a close incipient sibling species of *Oecetis nausinoos* Malicky, 2006 described from Papua New Guinea (Bismarck Archipelago), but differs by body size: forewing is only 5 mm, not 9 mm; forewing has dark pattern along anastomose, fork bases and vein terminals, not lacking any pattern; gonopods are of the same basic architecture but differently patterned; phallic organ robust, not slender and with diverged pattern of ventral processes.

*Description.* Male (in alcohol). Light brown animal. Forewings with discernible faded dark pattern along anastomose, fork bases and vein terminals. Forewing length 5 mm.

*Male genitalia.* Segment IX short, ventrum little longer than dorsum; dorsoanterad with a distinct antecosta; dorsoapical margin with a pair of short rounded triangular lobes; lateroventrad with a long horizontal suture. Segment X consisting of a slender median process, rather slender accompanied ventrally by a pair triangular lateral plates with setose apex. Cerci elongated foliate. Gonopods with a large quadrangular plate continuing into a slender ventral upward curving digitate process in lateral view. Phallic organ composed of a robust, short quadrangular phalotheca with a pair of ventral processes without distinct parameres.

*Etymology.* *batanta*, named after the name of locus typicus of the holotype, as a noun in apposition.



Figures 13–16. *Oecetis batanta* sp. nov. Holotype male. 13 = genitalia in left lateral view; 14 = genitalia in dorsal view; 15 = gonopods in ventral view, 16 = phallic organ in lateral view.

***Leptocerus batanta* sp. nov.**

(Figures 17–20)

*Material examined.* Holotype: **Indonesia**, West Papua, Batanta Island, Ron creek, at wood-cutting house, S00°49'16.37", E130°49'23.72", 5.XI.2010, at light, leg. R. Horváth, (1 male, OPC). Paratype: Indonesia, West Papua, Batanta Island, New River, 2 km upstream from the mouth, S00°50'21.44", E130°31'11.17", 9.IX.2011, at light, leg. R. Horváth, (1 male, OPC). Indonesia, West Papua, Batanta Island, River Waridor, at a small side stream, S00.85582°, E130.52075°, 18.I.2013, at light, leg. R. Horváth, (1 male, OPC).

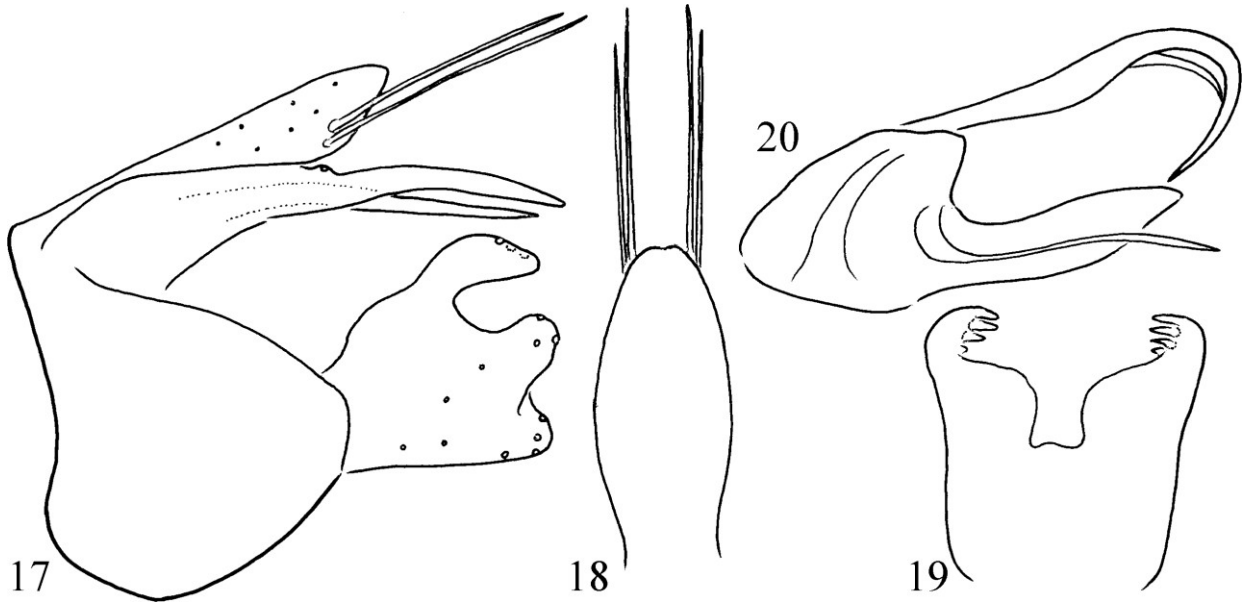
*Diagnosis.* This species belongs to the *Leptocerus assimulans* species group created by Schmid (1987). This small group contains only two known species: (1) *Leptocerus assimulans* (Ulmer, 1916), described as *Setodes assimulans* from the very northern tip of Queensland, Australia along the Cedar Creek, near to Papua New Guinea. The species was redrawn by Schmid (1987) from specimens collected from North Queensland, Australia, Middle Claudie River, Iron Range; (2) *Leptocerus cheesmanae* Kimmins, 1962 described from Papua New Guinea, Kokoda, the southeastern region of New Guinea. The new

species *Leptocerus batanta* sp. nov. is described from Batanta Island, West Papua, northwestern region of New Guinea. Closer to *L. cheesmanae*, but having the fused cerci and segment X narrowing in lateral view, not truncated as well as armed with 2–3 very long and stout setae lacking at both *L. assimulans* and *L. cheesmanae*; paraproct without a short dorsobasal digitate process present at *L. cheesmanae*; tip of both paraproct simple, not bifid; lateral profile of the gonopod different, clearly trilobed. There are differences in the basal region of the phallosome as well however, it is badly discernible.

*Description.* Male (in alcohol). Light brown animal. Forewings without any pattern. Forewing length 5 mm.

*Male genitalia.* Segment IX with long ventrum and short dorsum. Segment X fused to the tergum IX as well as to the cerci; paraproct from a pair of asymmetric spine-like process. Gonopods trilobed in lateral view. Phallic organ extremely modified and very complex; there is a dorsal pair of highly asymmetric strong spines beside the pair of more slender spine-like parameres.

*Etymology.* *batanta*, named after the name of locus typicus of the holotype, a noun in apposition.



Figures 17–20. *Leptocerus batanta* sp. nov. Holotype male: 17 = genitalia in left lateral view; 18 = genitalia in dorsal view; 19 = gonopods in ventral view, 20 = phallic organ in lateral view.

***Setodes sarlos* Oláh, sp. nov.**

(Figures 21–22)

*Material examined.* Holotype: **Indonesia**, West Papua, Batanta Island, Sarinam River, upper region, S00°50'10.54", E130°48'18.14", 21.X. 2010, at light, leg. R. Horváth, (1 male, OPC).

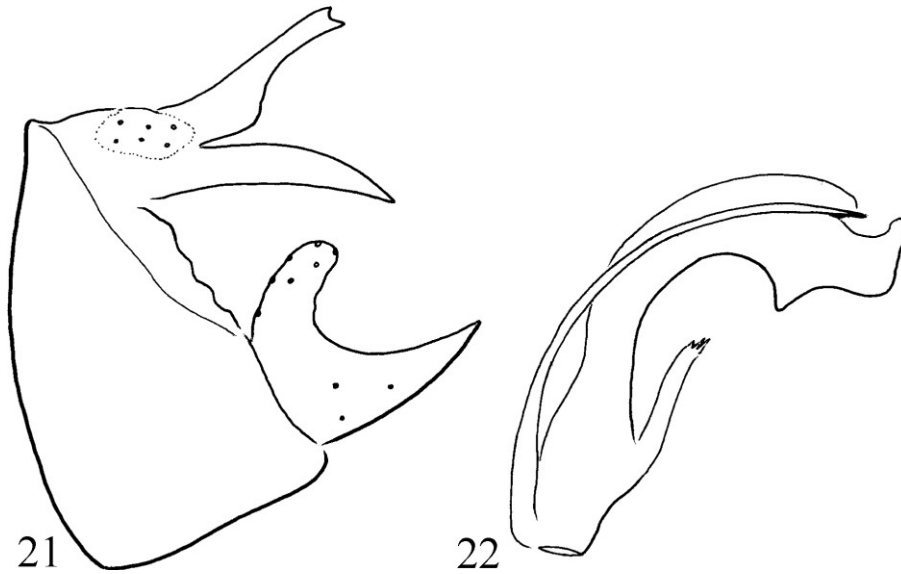
*Diagnosis.* The genus *Setodes* is represented only by four species in the Australasian Biogeographic Region. *Setodes bracteatus* Neboiss, 1982 from Australia as well as three species from Papua New Guinea; *S. niveogrammicus* Schmid, 1987, *S. niveolineatus* Kimmins, 1962 and *S. papuanus* Kimmins, 1962. The new species *Setodes sarlos* sp. nov. has resemblance to *S. niveolineatus*, but differs by the well-produced elongated dorsal arm of segment X; by the more developed ventral falcate shape on the gonopods and by the more elaborated shape of the phallicata having dorsoapical and ventrosubapical lobes in the lateral profile.

*Description.* Male (in alcohol). Light brown animal. Forewings without any discernible pattern of 4 mm length.

*Male genitalia.* Segment IX short, ventrum longer than dorsum. Segment X consisting of a dorsal bifid and ventral elongated falcate arm in lateral view. Cerci reduced to a setose surface on the basal region of segment X. Gonopods bilobed in lateral view, ventral lobe falcate, pointed. Phallic organ composed of an elaborated phallicata dorsoapical and ventrosubapical lobes in lateral profile and a pair of slender downward curving parameres.

*Etymology.* *sarlos*, coined form “sarlós” falcate in Hungarian, refers to the shape of the ventral arm of segment X, the paraproct as well as to the shape of the ventral arm of the gonopods.

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Figures 21–22. *Setodes sarlos* sp. nov. Holotype male: 21 = genitalia in left lateral view; 22 = phallic organ in lateral view.

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