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On the Trichoptera of Batanta Island (Indonesia, Papua, Raja Ampat Archipelago), III*

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Abstract – A new genus and 15 new species of caddisflies are described from Batanta Island of West Papua, Indonesia: *Horvathomina* gen. n., *Chimarra kalija* sp. n., *Horvathomina gergoi* sp. n., *H. akosi* sp. n., *H. martoni* sp. n., *Tinodes topor* sp. n., *T. vagot* sp. n., *Nyctiophylax* (*Paranyctiophylax*) *egyes* sp. n., *Polyplectropus ollos* sp. n., *P. pohos* sp. n., *Abacaria kovacsi* sp. n., *Goera batanta* sp. n., *Triplectides dombos* sp. n., *T. karimas* sp. n., *T. rojtos* sp. n. and *T. sugaras* sp. n. New records of 40 species are given. Details of fine structure analysis of paraproct are discussed. The ancient plesiomorphic and derived apomorphic character states are surveyed in genera of the family Ecnomidae. Taxonomic value of wing venation, spur number and genitalic traits are evaluated for species delimitation in the genus *Triplectides* Kolenati, 1859. Harpagones and mesal lobe of the gonopods in *Triplectides* are non-neutral adaptive traits under directional sexual selection, and provide consistent and stable fine structure to delimit species boundaries. With 73 figures.

Key words – Batanta, caddisflies, New Guinea, new species, Trichoptera

INTRODUCTION

The New Guinea faunal region is the last unexplored biodiversity region of the world (Oláh 2012*a*). I have published two papers on the Trichoptera of Batanta Island (Oláh 2012*b*, 2013). My third study on the Trichoptera of the same area is based on material collected by Róbert Horváth, Tibor Kovács and Péter Juhász along streams of Batanta. They installed UV light traps, and also collected specimens from white sheet illuminated by MV bulbs powered by Honda generator.

MATERIAL AND METHODS

The material, including all holotypes and paratypes, is preserved in 70–80% ethanol and deposited in the collection of the author (Oláh Private Collection,

* The paper is dedicated to Dr László Móczár, doyen of the Hungarian hymenopterists, celebrating his 100th birthday.

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OPC) under presented property of the Hungarian Natural History Museum, Budapest.

TAXONOMIC PART

Philopotamidae

Chimarra agasa Oláh, 2013

Material examined – Indonesia, West Papua, Batanta Island, Welebed, valley of Kalijakut River, S0°53'12.88", E130°38'16.40", 138 m a.s.l., 23.I.2014, at light, T. Kovács, P. Juhász & R. Horváth (13 males, 1 male + 1 female in copula, OPC). Indonesia, West Papua, Batanta Island, Welebed, "waterwork", valley of Kalijakut River, S0°53'22.85", E130°38'25.91", 105 m a.s.l., 23.I.2014, UV light trap, T. Kovács, P. Juhász & R. Horváth (138 males, OPC). Indonesia, West Papua, Batanta Island, valley of Waridor River, S0°52'09.66", E130°32'11.54", 46 m a.s.l., 18.I.2014, at light, P. Juhász, T. Kovács & R. Horváth (3 males, OPC). Indonesia, West Papua, Batanta Island, valley of Waridor River, S0°51'48.7", E130°33'06.3", 88 m, 30.I.2014, at light, T. Kovács & P. Juhász (2 males, OPC). Indonesia, West Papua, Batanta Island, valley of Waridor River, S0°52'06.7", E130°31'26.1", 40 m a.s.l., 30.I.2014, at light, T. Kovács & P. Juhász (7 males, OPC).

Chimarra bobita Oláh, 2012

Material examined – Indonesia, West Papua, Batanta Island, Welebed, valley of Kalijakut River, S0°53'12.88", E130°38'16.40", 138 m a.s.l., 23.I.2014, at light, T. Kovács, P. Juhász & R. Horváth (2 males, OPC). Indonesia, West Papua, Batanta Island, valley of Waridor River, S0°52'06.7", E130°31'26.1", 40 m a.s.l., 30.I.2014, at light, T. Kovács & P. Juhász (1 male, OPC). Indonesia, West Papua, Batanta Island, between Arefi and Teluk Warai, valley of "dried estuary of a stream", S0°49'42.05", E130°38'12.23", 229 m a.s.l., 27.I.2014, at light, T. Kovács & P. Juhász (6 males, OPC).

Chimarra bogos Oláh, 2013

Material examined – Indonesia, West Papua, Batanta Island, Welebed, valley of Kalijakut River, S0°53'12.88", E130°38'16.40", 138 m a.s.l., 23.I.2014, at light, leg. T. Kovács, P. Juhász & R. Horváth (2 males, OPC). Indonesia, West Papua, Batanta Island, between Arefi and Teluk Warai, valley of "dried estuary of a stream", S0°49'42.05", E130°38'12.23", 229 m a.s.l., 27.I.2014, at light, T. Kovács & P. Juhász (1 male, OPC).

Chimarra elvala Oláh, 2013

Material examined – Indonesia, West Papua, Batanta Island, valley of Waridor River, S0°51'48.7", E130°33'06.3", 88 m, 30.I.2014, at light, T. Kovács & P. Juhász (1 male, OPC).

Chimarra erzek Oláh, 2013

Material examined – Indonesia, West Papua, Batanta Island, between Arefi and Teluk Warai, valley of "dried estuary of a stream", S0°49'42.05", E130°38'12.23", 229 m a.s.l., 27.I.2014, at light, T. Kovács & P. Juhász (1 male, OPC).

Chimarra felkora Oláh, 2012

Material examined – Indonesia, West Papua, Batanta Island, Welebed, "waterwork", valley of Kalijakut River, S0°53'22.85", E130°38'25.91", 105 m a.s.l., 23.I.2014, UV light trap, T. Kovács, P. Juhász & R. Horváth, (3 males, OPC). Indonesia, West Papua, Batanta Island, valley of Warmon Creck, below the lower waterfalls, mangrove forest, 21.I.2014, UV light trap, T. Kovács, P. Juhász & R. Horváth (1 male, OPC).

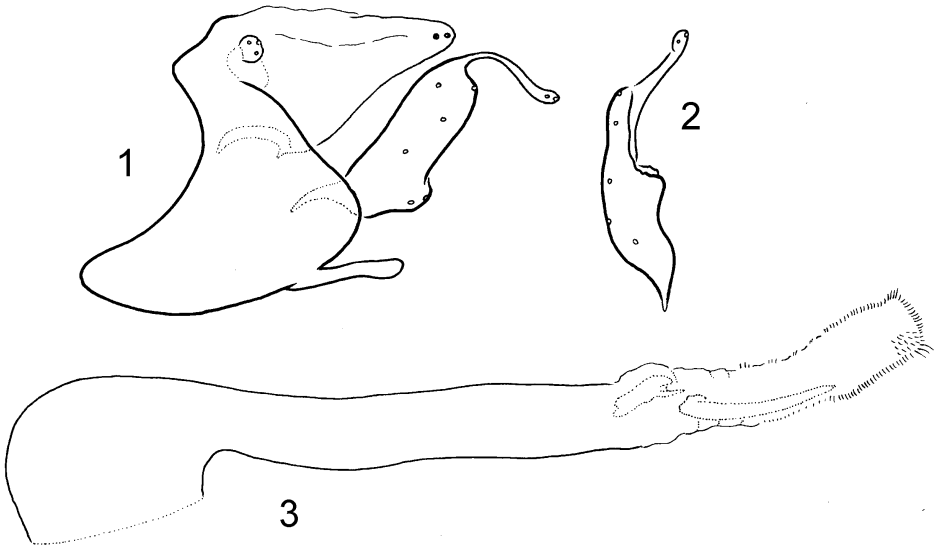
Chimarra holda Oláh, 2012

Material examined – Indonesia, West Papua, Batanta Island, Welebed, valley of Kalijakut River, S0°53'12.88", E130°38'16.40", 138 m a.s.l., 23.I.2014, at light, leg. T. Kovács, P. Juhász & R. Horváth (42 males, OPC). Indonesia, West Papua, Batanta Island, Welebed, "waterwork", valley of Kalijakut River, S0°53'22.85", E130°38'25.91", 105 m a.s.l., 23.I.2014, UV light trap, T. Kovács, P. Juhász & R. Horváth (138 males, OPC). Indonesia, West Papua, Batanta Island, valley of Waridor River, S0°52'09.66", E130°32'11.54", 46 m a.s.l., 18.I.2014, at light, P. Juhász, T. Kovács & R. Horváth (21 males, OPC). Indonesia, West Papua, Batanta Island, valley of Waridor River, S0°51'48.7", E130°33'06.3", 88 m, 30.I.2014, at light, T. Kovács & P. Juhász (26 males, OPC). Indonesia, West Papua, Batanta Island, valley of Waridor River, S0°52'06.7", E130°31'26.1", 40 m a.s.l., 30.I.2014, at light, T. Kovács & P. Juhász (12 males, OPC). Indonesia, West Papua, Batanta Island, between Arefi and Teluk Warai, valley of "dried estuary of a stream", S0°49'42.05", E130°38'12.23", 229 m a.s.l., 27.I.2014, at light, T. Kovács & P. Juhász (12 males, OPC). Indonesia, West Papua, Batanta Island, valley of Warmon Creck, lower waterfall, S0°50'04.50", E130°42'54.01", 37 m a.s.l., 21.I.2014, UV light trap, T. Kovács, P. Juhász & R. Horváth (1 male, OPC).

Chimarra kalija sp. n.
(Figs 1–3)

Diagnosis – Here I distinguish the new species complex of *C. papuana* Kimmins, 1962, as having long and arching filiform dorsoapical process on gonopods. The nominate species *C. papuana* was described from the Cyclops Mts, West Papua, whereas *C. kozela* Oláh et Mey, 2013 was described from Papua New Guinea, East New Britain Province. All the other species were described from Batanta Island: *C. agasa* Oláh, 2013, *C. bobita* Oláh, 2012, *C. tompa* Oláh, 2013 and *C. tulok* Oláh, 2013. The new species differs from all by having gonopods of different lateral pattern and endotheca with a large single black spine.

Description – Male (in alcohol). Medium-sized brown animal. Maxillary palp formula: I-IV-II-III-V. Fore tibial spurs reduced to diagnostic one: spur formula 144. Wing membrane brown; forewing length 4.2 mm; discoidal, median and thyridial cells on forewing having similar length, discoidal cell double tall than median and median cell, double tall than thyridial cell; R slightly, Rs strongly sinuous with thickening before discoidal cell, whose veins also thickened at base; hyaline window pattern (reduced pigmentation) less developed, present as lack of pigmentation on crossveins r-m, m, m-cu, and on arculus; on hindwing diagnostic looping of 2A to join 1A present, 3A present.



Figs 1–3. *Chimarra kalija* sp. n., holotype, male: 1 = genitalia in left lateral view, 2 = left gonopod in ventral view, 4 = phallic organ in left lateral view

Male genitalia (Figs 1–3). Tergite and sternite VIII distinct, sternite VIII with ventral process. Segment IX synsclerotised, long ventrum shorter dorsum; ventroapical keel developed into a long process. Segment X membranous, indistinct. Cerci reduced to small setose knot surrounded by light hollow. Paraproctal lateral vertical plates tapering with 2 closely positioned sensillae styloconica on the apex. Gonopods with filiform dorsal stalk and rounded apical margin. Phallic organ with slender horizontal phallotheca; internal structure of endotheca containing phallotremal sclerite complex, single long black spine and composed mostly by dark microtrichia covered part in erected, protruded state of holotype, embedded in retracted state of endotheca.

Type material – Holotype: Indonesia, West Papua, Batanta Island, Welebed, "waterwork", valley of Kalijakut River, S0°53'22.85", E130°38'25.91", 105 m a.s.l., 23.I.2014, UV light trap, T. Kovács, P. Juhász & R. Horváth (1 male, OPC). Paratype: Indonesia, West Papua, Batanta Island, Welebed, valley of Kalijakut River, S0°53'12.88", E130°38'16.40", 138 m a.s.l., 23.I.2014, at light, T. Kovács, P. Juhász & R. Horváth (1 male, OPC).

Etymology – Kalija, named for the type locality, Kalijakut River.

Chimarra kanala Oláh, 2012

Material examined – Indonesia, West Papua, Batanta Island, valley of Warmon Creck, upper waterfall, S0°50'23.25", 150 m a.s.l., 20.I.2014, at light, T. Kovács & P. Juhász (4 males, OPC). Indonesia, West Papua, Batanta Island, valley of Warmon Creck, below the lower waterfalls, mangrove forest, 21.I.2014, UV light trap, T. Kovács, P. Juhász & R. Horváth (3 males, OPC). Indonesia, West Papua, Batanta Island, valley of Warmon Creck, lower waterfall, S0°50'04.50", E130°42'54.01", 37 m a.s.l., 21.I.2014, UV light trap, T. Kovács, P. Juhász & R. Horváth (1 male, OPC).

Chimarra kerka Oláh, 2013

Material examined – Indonesia, West Papua, Batanta Island, Welebed, valley of Kalijakut River, S0°53'12.88", E130°38'16.40", 138 m a.s.l., 23.I.2014, at light, leg. T. Kovács, P. Juhász & R. Horváth (32 males, OPC). Indonesia, West Papua, Batanta Island, Welebed, "waterwork", valley of Kalijakut River, S0°53'22.85", E130°38'25.91", 105 m a.s.l., 23.I.2014, UV light trap, T. Kovács, P. Juhász & R. Horváth (38 males, OPC). Indonesia, West Papua, Batanta Island, between Arefi and Teluk Warai, valley of "dried estuary of a stream", S0°49'42.05", E130°38'12.23", 229 m a.s.l., 27.I.2014, at light, T. Kovács & P. Juhász (1 male, OPC).

Chimarra mrsale Oláh, 2013

Material examined – Indonesia, West Papua, Batanta Island, between Arefi and Teluk Warai, valley of "dried estuary of a stream", S0°49'42.05", E130°38'12.23", 229 m a.s.l., 27.I.2014, at light, T. Kovács & P. Juhász (4 males, OPC).

Chimarra sarkos Oláh, 2013

Material examined – Indonesia, West Papua, Batanta Island, Welebed, "waterwork", valley of Kalijakut River, S0°53'22.85", E130°38'25.91", 105 m a.s.l., 23.I.2014, UV light trap, T. Kovács, P. Juhász & R. Horváth (2 males, OPC).

Chimarra tulok Oláh, 2013

Material examined – Indonesia, West Papua, Batanta Island, between Arefi and Teluk Warai, valley of "dried estuary of a stream", S0°49'42.05", E130°38'12.23", 229 m a.s.l., 27.I.2014, at light, T. Kovács & P. Juhász (2 males, OPC).

Chimarra tuparna Oláh, 2013

Material examined – Indonesia, West Papua, Batanta Island, between Arefi and Teluk Warai, valley of "dried estuary of a stream", S0°49'42.05", E130°38'12.23", 229 m a.s.l., 27.I.2014, at light, T. Kovács & P. Juhász (1 male, OPC).

Chimarra ujjka Oláh, 2012

Material examined – Indonesia, West Papua, Batanta Island, valley of Warmon Creck, upper waterfall, S0°50'23.25", 150 m a.s.l., 20.I.2014, at light, T. Kovács & P. Juhász (1 male, OPC). Indonesia, West Papua, Batanta Island, valley of Warmon Creck, lower waterfall, S0°50'04.50", E130°42'54.01", 37 m a.s.l., 21.I.2014, UV light trap, T. Kovács, P. Juhász & R. Horváth (1 male, OPC).

Chimarra vekon Oláh, 2012

Material examined – Indonesia, West Papua, Batanta Island, Welebed, valley of Kalijakut River, S0°53'12.88", E130°38'16.40", 138 m a.s.l., 23.I.2014, at light, leg. T. Kovács, P. Juhász & R. Horváth (2 males, OPC). Indonesia, West Papua, Batanta Island, Welebed, "waterwork", valley of Kalijakut River, S0°53'22.85", E130°38'25.91", 105 m a.s.l., 23.I.2014, UV light trap, T. Kovács, P. Juhász & R. Horváth (9 males, OPC). Indonesia, West Papua, Batanta Island, valley of Waridor River, S0°51'48.7", E130°33'06.3", 88 m, 30.I.2014, at light, T. Kovács & P. Juhász (2 males, OPC). Indonesia, West Papua, Batanta Island, between Arefi and Teluk

Warai, valley of "dried estuary of a stream", S0°49'42.05", E130°38'12.23", 229 m a.s.l., 27.I.2014, at light, T. Kovács & P. Juhász (2 males, OPC).

Chimarra vegsem Oláh, 2013

Material examined – Indonesia, West Papua, Batanta Island, Welebed, valley of Kalijakut River, S0°53'12.88", E130°38'16.40", 138 m a.s.l., 23.I.2014, at light, leg. T. Kovács, P. Juhász & R. Horváth (2 males, OPC). Indonesia, West Papua, Batanta Island, between Arefi and Teluk Warai, valley of "dried estuary of a stream", S0°49'42.05", E130°38'12.23", 229 m a.s.l., 27.I.2014, at light, T. Kovács & P. Juhász (2 males, OPC).

Chimarra waridora Oláh, 2012

Material examined – Indonesia, West Papua, Batanta Island, valley of Waridor River, S0°52'09.66", E130°32'11.54", 46 m a.s.l., 18.I.2014, at light, leg. P. Juhász, T. Kovács & R. Horváth (6 males, OPC). Indonesia, West Papua, Batanta Island, valley of Waridor River, S0°51'48.7", E130°33'06.3", 88 m, 30.I.2014, at light, leg. T. Kovács & P. Juhász (4 males, OPC). Indonesia, West Papua, Batanta Island, valley of Waridor River, S0°52'06.7", E130°31'26.1", 40 m a.s.l., 30.I.2014, at light, leg. T. Kovács & P. Juhász (15 males, OPC).

Ecnomidae

Remarks – The paraproctal complex is variously formed in Ecnomidae, but present, sometimes in vestigial forms, in all genera at basomesad position of the cerci. Various names were given to structures in this position. Most of these structures are the paraproct, the vestigial somite structure of segment XI. The paraproct is usually heavily sclerotised, less setiferous and performing accessory copulatory and stimulatory functions, or seldom grasping function. It is more developed in Rhyacophilidae (Nielsen 1957). Well developed in most representatives of the superfamily Psychomyoidea and much reduced in some Integripalpia or highly modified in the superfamily Limnephiloidea. Paraprocts are located frequently above and besides the anal opening and above the phallic opening, the ventral parts can be fused forming a closed structure around the anal opening or sometimes around the phallic organ like the paraproctal subphallic sclerite at many species in Polycentropodidae and Dipseudopsidae families.

Following Nielsen (1957) we have treated (Oláh & Malicky 2010) the sclerite complex in genus *Ecnomus*, withdrawn deep inside the tergite of segment IX and represented by pairs of external and internal sclerites, as the vestigial paraproctal complex and not as the remnants of segment X (Gibon 1992, Li &

Morse 1997). In the genus *Agmina* Ward et Schefter, 2000, the paraproct is represented by a pair of sclerotised *phallic struts* attached to the mesal base of cerci (Ward & Schefter 2000). In the genus *Neboissomina* Cartwright, 2011, the paraproct is represented by a pair of long, dorsoventrally flattened (depressed) processes (mesal processes of tergum X) ventrobasal of cerci (Cartwright 2011).

Some venation details, like fork of R1 or crossveins are possible to reveal only by applying suitably directed reflected light.

Ecnomus bogos Oláh, 2013

Material examined – Indonesia, West Papua, Batanta Island, Welebed, valley of Kalijakut River, S0°53'12.88", E130°38'16.40", 138 m a.s.l., 23.I.2014, at light, leg. T. Kovács, P. Juhász & R. Horváth (6 males, OPC). Indonesia, West Papua, Batanta Island, Welebed, "waterwork", valley of Kalijakut River, S0°53'22.85", E130°38'25.91", 105 m a.s.l., 23.I.2014, UV light trap, leg. T. Kovács, P. Juhász & R. Horváth (7 males, OPC).

Ecnomus bunkos Oláh, 2012

Material examined – Indonesia, West Papua, Batanta Island, valley of Warmon Creck, upper waterfall, S0°50'23.25", 150 m a.s.l., 20.I.2014, at light, leg. T. Kovács & P. Juhász (2 males, OPC). Indonesia, West Papua, Batanta Island, valley of Warmon Creck, lower waterfall, S0°50'04.50", E130°42'54.01", 37 m a.s.l., 21.I.2014, UV light trap, leg. T. Kovács, P. Juhász & R. Horváth (2 males, OPC).

Ecnomus lelog Oláh, 2012

Material examined – Indonesia, West Papua, Batanta Island, between Arefi and Teluk Warai, valley of "dried estuary of a stream", S0°49'42.05", E130°38'12.23", 229 m a.s.l., 27.I.2014, at light, leg. T. Kovács & P. Juhász (2 males, OPC).

Ecnomus vekon Oláh, 2012

Material examined – Indonesia, West Papua, Batanta Island, valley of Warmon Creck, lower waterfall, S0°50'04.50", E130°42'54.01", 37 m a.s.l., 21.I.2014, UV light trap, leg. T. Kovács, P. Juhász & R. Horváth (1 male, OPC).

Horvathomina gen. n.
(Figs 4–6)

Type species – *Horvathomina gergoi* sp. n. by original designation, from Batanta Island, West Papua, Indonesia.

Diagnosis – According to the generic trait matrix (Table 1) the new genus *Horvathomina* differs

(1) from *Ecnomus* McLachlan, 1864*, Parecnomina* Kimmins, 1957, *Agmina* Ward et Schefter, 2000*, Daternomina* Neboiss, 2002*,* and *Austrotinodes* Schmid, 1955 by having transversal occipital wart, not longitudinal, although the transversal or longitudinal position of the occipital warts are not exact;

(2) from all genera by having transversally elongate mesoscutellar wart;

(3) from all genera by reduced spur number 244, however some *Ecnomus* species have reduced spur number of 244 (synonymized genera: *Ecnomiella* Mosely, 1935, *Psychomyiellodes* Mosely, 1931) and the spur number of new genera *Absensomina* Cartwright, 2010, *Daternomina*, *Neboissomina* Cartwright, 2011 and *Wellsomina* Cartwright, 2010 is not described;

(4) from some *Ecnomus* by having R1 forked on forewing; Ecnomidae family has plesiomorphic presence of forked R1 on forewing, except some species without such fork or species with obscured R1 ending;

(5) from *Ecnomus* and *Parecnomina* by having no fork 1 on forewing;

(6) from *Daternomina*, *Ecnomina* Kimmins, 1953, *Ecnomus* by having forewing fork 2 medium long stalked, not long and sessile;

(7) from *Ecnomus*, *Agmina* and *Absensomina* by having hindwing fork 3 present, not lacking;

(8) from all genera except *Ecnomus* by having separate gonopods;

(9) from all genera by having genital filaments.

Horvathomina gen. n. is a Gondwanian ecnomid genus near the Wallace line inside Wallacea, represented by three species of small, slender and dark caddisflies with narrow wings. It is most similar to genus *Neboissomina* from northern and eastern Australia and to species *Ecnomina kavinia* Ward et Schefter, 2000 from New Caledonia. In his *Ecnomina* revision Cartwright (2008) has not verified the generic status of *E. kavinia* due to the long footstalks of forwing forks 2 and 3 and hindwing fork 3. Cartwright (2010) described the genus *Wellsomina* with long foostalks of forewing forks 2 and 3, but "*Ecnomina*" *kavina* was not included due to different hind wing character states, hind wing fork 2 longer with short footstalk (Cartwright 2011).

Horvathomina gen. n. is close to *Neboissomina* and *Ecnomina kavinia*, but differs by the pentagonal shape of the mesoscutellum, by the reduced spur number and primarily by the very specialised male genital structure of the divided gonopods and of the unique long filament on gonopods.

Description (Figs 4–6) – Head with much fused wart pattern: large subquadrangular fused setose frontal wart on frons, fused vertexal antennal wart, a pair of vertexal ocellar warts; antennal wart and ocellar warts connected by two longitudinal narrow band along coronal groove. Pronotum with lateral and me-

Table 1. Ancient (plesiomorphic) and derived (apomorphic) character states of the ecnomid genera. (1. Occipital wart: 1 = transversal, 2 = longitudinal. 2. Mesoscutellar wart: 1 = oval, 2 = circular, 3 = heart-shaped, 4 = pentagonal. 3. Spur number: 1 = 344, 2 = 244. 4. Forewing R1: 1 = forked, 2 = unforked. 5. Forewing fork 1: 1 = present, 2 = absent. 6. Forewing fork 2: 1 = sessile, 2 = stalked. 7. Hindwing fork 3: 1 = present, 2 = absent. 8. Gonopods: 1 = separated, 2 = fused. 9. Genital filaments: 1 = absent, 2 = present)

	1	2	3	4	5	6	7	8	9
Agmina	2	1	1	1	2	2	2	2	1
Absensomina	1	1	?	1	2	2	2	2	1
Austrotinodes	2	1	1	1	2	2	1	2	1
Daternomina	2	3	?	1	2	1	1	2	1
Ecnomina	1	3	1	1	2	1	1	2	1
Ecnomus	2	1	1(2)	1(2)	1	1	2	1	1
Horvathomina gen. n.	1	4	2	1	2	2	1	1	2
Neboissomina	1	2	?	1	2	2	1	2	1
Parecnomina	2	1	1	1	1	2	1	2	1
Wellsomina	1	1	?	1	2	2	1	2	1

dian warts. Mesoscutal warts longitudinal ovoid, close together. Mesoscutellar wart extremely large, rounded subpentagonal, aligned transversely. Most striking feature of wing venation: all crossveins lacking tubular veins, only depigmented light, transparent vindow present along vein position; on forewing R1 divided distally, fork 2 nygma absent, forks 2, 3, 4, 5 present, fork 2 and 3 almost equally long with short footstalk; hind wing narrow, forks 2, 3, 5 present, each long, small humeral lobe present.

Male genitalia characterized by well developed cerci and partially fused paraproct; this fused paraprocts forming a mesal ridge on cerci; the halfring-shaped joint basement of the fused paraprocts serves as dorsal phallic guide. Gonopods evolved into a unique freely suspended complex without broad contact to sternite IX; both gonopods articulate to the apicolateral angle of sternite IX with a small pivot; gonopods composed of dorsal and ventral parts; the 2 gonopods fused together by an elaborated basal plate; most particular and unique substructure of the gonopods is the long flexible filament arising from the lower apical lobe of the dorsal branch, this long fine filament directed posterad and curved back anterad. Phallic organ with a pair of internal tiny tubes and evolved also a long filament, but stright and rigid.

Etymology – Horvathomina is named after the collector, Róbert Horváth, for his systematic and successful efforts devoted to collect Trichoptera in West Papua, Indonesia during 2010–2014. His family name is combined with the

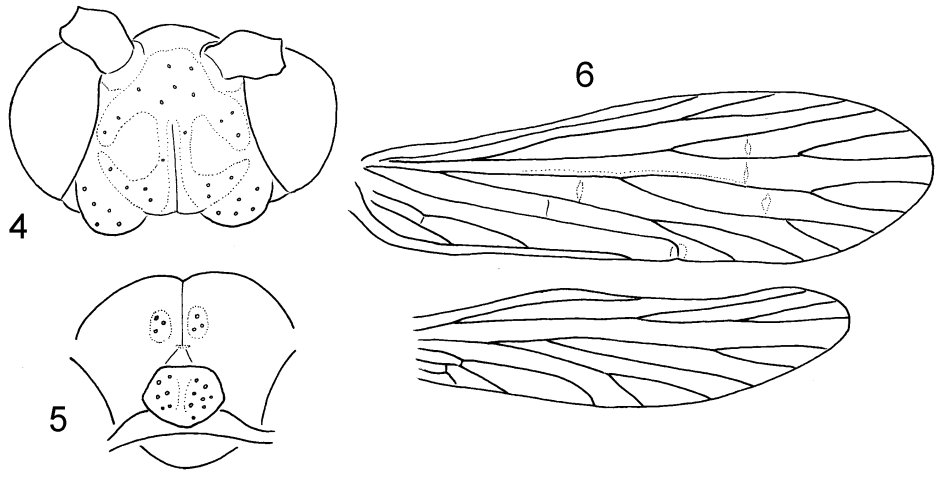
suffix of the related Gondwanian genera: *Agmina*, *Absensomina*, *Daternomina*, *Ecnomina*, *Neboissomina* and *Wellsomina*. This suffix comes from the type genus *Ecnomus* of the family Ecnomidae. Indirectly from Greek adjective: *ecnomos* = outlawed *ec* = out, *nomos* = tradition, law, and directly through the name of the second described genus *Ecnomina*, in Greek: *ecnomina* = diminutive form: little outlaw. The gender of *Horvathomina* is feminine.

Horvathomina gergoi sp. n.
(Figs 4–10)

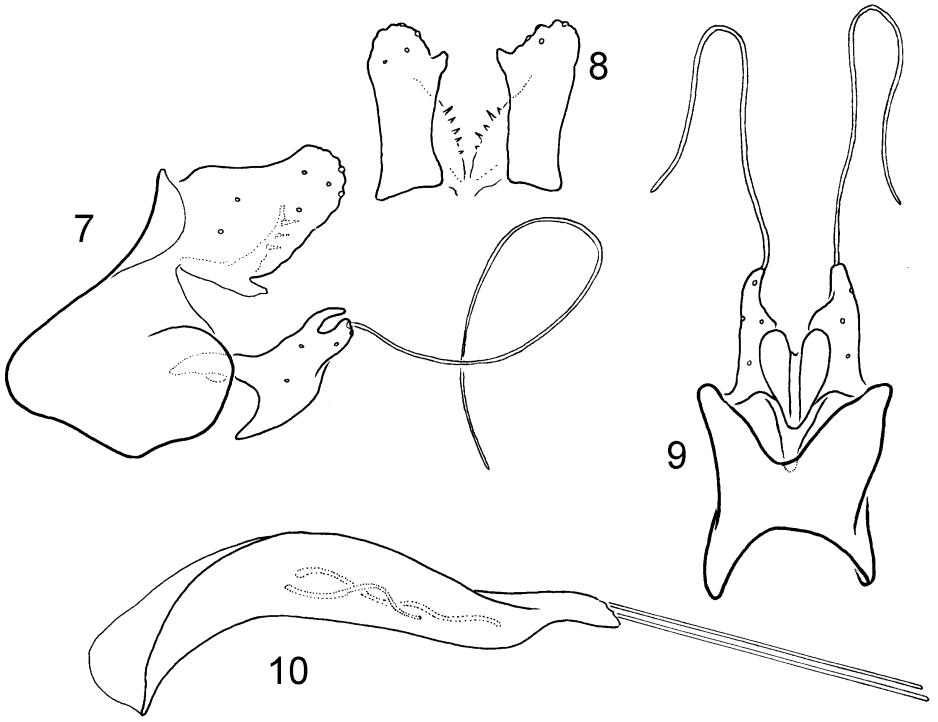
Diagnosis – This new species differs form *Horvathomina martoni* sp. n. by having sternite IX longer; the ventral branch of gonopod elongate anterad, not short; the filament bearing lower apical lobe of the dorsal branch of gonopods directed straight, not downward; gonopod filament double long; basal plate of gonopod with less curved lateral profile; longer phallic organ with a pair of long internal irregularly twisted slender tubes, not short and less twisted; phallic organ with a pair of long straight rigid arista-like very fine filament, discernible only with careful searc.

Description – Male (in alcohol) (Figs 4–6). Small castaneous brown animal. Sclerites medium brown, setal warts both on head and thorax lighter. Maxillary palp formula I-II-III-IV-V. Forewing length 3 mm. Spur formula 244.

Male genitalia (Figs 7–10). Sternite IX long; large cerci developed into subquadrangular plate, the ventral branch of gonopod elongate anterad, the filament bearing lower apical lobe of the dorsal branch of gonopods directed straight; go-



Figs 4–6. *Horvathomina gergoi* sp. n., holotype, male: 4 = head setal wart pattern in dorsal view, 5 = thoracic setal wart pattern in dorsal view, 6 = forewing and hindwing venation



Figs 7–10. *Horvathomina gergoi* sp. n., holotype, male: 7 = genitalia in lateral view, 8 = cerci in dorsal view, 9 = segment IX and gonopods in ventral view, 10 = phallic organ in lateral view

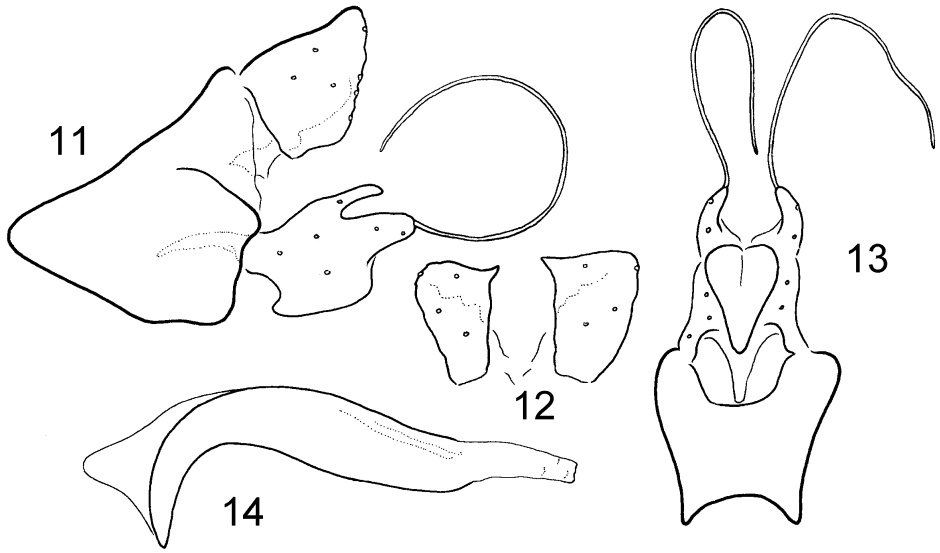
nopod filament long; basal plate of gonopod with less curved lateral profile; long phallic organ with a pair of long internal irregularly twisted slender tubes; phallic organ with a pair of long straight rigid arista-like very fine filament, discernible only with careful search.

Type material – Holotype: Indonesia, West Papua, Batanta Island, northern coast, Ron stream, S0°49'16.37", E130°49'23.72", at hut, 8.IX.2011, UV light trap, leg. R. Horváth (1 male, OPC). Paratype: same as holotype (1 male, OPC).

Etymology – *Gergoi,* named for Gergő Horváth, one of the twin sons of the collector, in recognition of his great contribution to caddisfly knowledge of Batanta Island.

Horvathomina akosi sp. n.
(Figs 11–14)

Diagnosis – This new species differs form the other species of the genus by having sternite IX longer triangular; cerci and gonopods abbreviated, anterior end of phallotheca turned downward almost in right-angle.



Figs 11–14. *Horvathomina akosi* sp. n., holotype, male: 11 = genitalia in lateral view, 12 = cerci in dorsal view, 13 = segment IX and gonopods in ventral view, 14 = phallic organ in lateral view

Description – Male (in alcohol). Small castaneous brown animal. Sclerites medium brown, setal warts both on head and thorax lighter. Maxillary palp formula I-II-III-IV-V. Forewing length 3 mm. Spur formula 244.

Male genitalia (Figs 11–14). Sternite IX long; large cerci developed into subtriangular plate, ventral branch of gonopod elongate, blunt anterad, filament bearing lower apical lobe of dorsal branch of gonopods directed slightly downward; gonopod filament long; basal plate of gonopod with slender curved lateral profile; long phallic organ with basal part of phallotheca curving strongly downward; phallic organ without long straight rigid arista-like very fine filament.

Type material – Holotype: Indonesia, Batanta Island, northern coast, Warmon stream, S0.83570°, E130.7140°, below first waterfall, 22.I.2013, light trap, leg. R. Horváth (1 male, OPC).

Etymology – Akosi, named for Ákos Horváth, one of the twin sons of the collector in recognition of his great contribution to caddisfly knowledge of Batanta Island.

Horvathomina martoni sp. n.
(Figs 15–17)

Diagnosis – This new species differs form *Horvathomina gergoi* sp. n., the type species of the new genus by having sternite IX shorter; the ventral branch of gonopod short truncate, not elongate anterad; the filament bearing lower apical

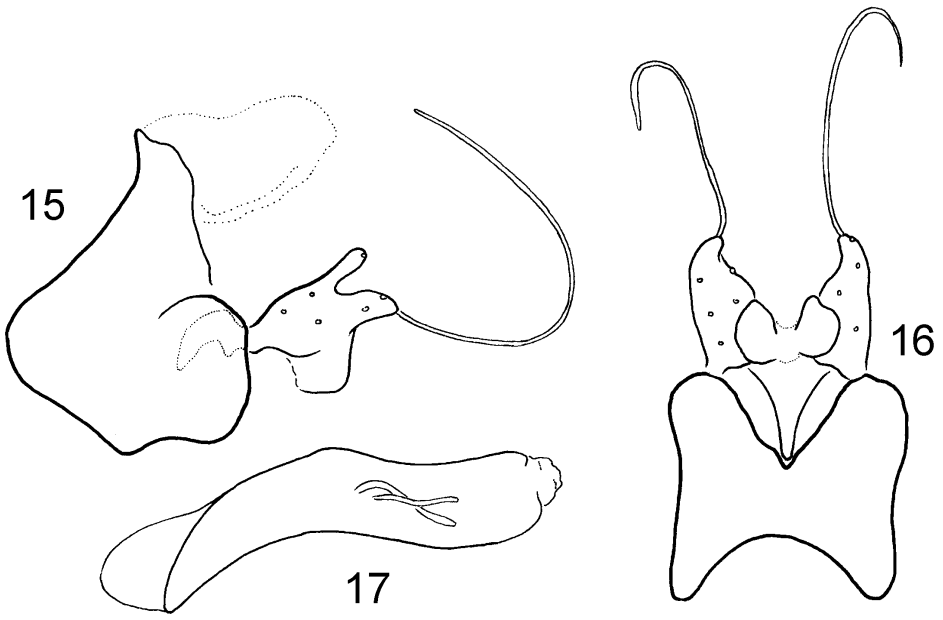
lobe of the dorsal branch of gonopods directed downward, not straight; gonopod filament half long; basal plate of gonopod with curved lateral profile; shorter phallic organ with a pair of short internal tubes, not with a pair of long and highly twisted tubes; phallic organ without a pair of long straight rigid arista-like filament. However, they could be broken on the single holotype.

Description – Male (in alcohol). Small castaneous brown animal. Sclerites medium brown, setal warts both on head and thorax lighter. Maxillary palp formula I-II-III-IV-V. Forewing length 3 mm. Spur formula 244.

Male genitalia (Figs 15–17). Sternite IX short; large cerci developed into subquadrangular plate, ventral branch of gonopod short, filament bearing lower apical lobe of dorsal branch of gonopods directed downward; gonopod filament shorter; basal plate of gonopod with curved lateral profile; long phallic organ with a pair of short internal slender tubes; phallic organ short.

Type material – Holotype: Indonesia, West Papua, Batanta Island, between Arefi and Teluk Warai, valley of "dried estuary of a stream", S0°49'42.05", E130°38'12.23", 229 m a.s.l., 27.I.2014, at light, leg. T. Kovács & P. Juhász (1 male, OPC).

Etymology – Martoni, named for Márton Horváth, firstborn son of the collector, in recognition of his great contribution to caddisfly knowledge of Batanta Island.



Figs 15–17. *Horvathomina martoni* sp. n., holotype, male: 15 = genitalia in lateral view, 16 = segment IX and gonopods in ventral view, 17 = phallic organ in lateral view

Psychomyiidae

Tinodes gomboc Oláh, 2012

Material examined – Indonesia, West Papua, Batanta Island, valley of Warmon Creck, upper waterfall, S0°50'23.25", 150 m a.s.l., 20.I.2014, at light, leg. T. Kovács & P. Juhász (1 male, OPC). Indonesia, West Papua, Batanta Island, northern coast, Warmon stream, S0.84152°, E130.70810°, above second waterfall, 22.I.2013, light trap, leg. R. Horváth (1 male, OPC).

Tinodes martoni Oláh, 2012

Material examined – Indonesia, Batanta Island, northern coast, Warmon stream, S0.83570°, E130.7140°, below first waterfall, 22.I.2013, light trap, leg. R. Horváth (1 male, OPC).

Tinodes rekae Oláh, 2012

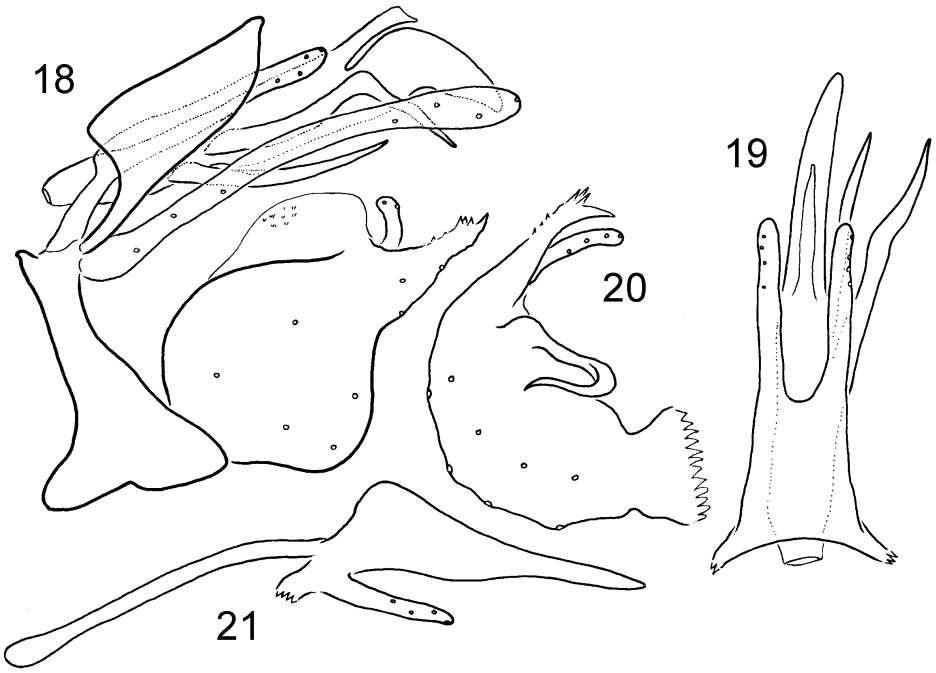
Material examined – Indonesia, West Papua, Batanta Island, valley of Warmon Creck, upper waterfall, S0°50'23.25", 150 m a.s.l., 20.I.2014, at light, leg. T. Kovács & P. Juhász (9 males, OPC). Indonesia, West Papua, Batanta Island, valley of Warmon Creck, lower waterfall, S0°50'04.50", E130°42'54.01", 37 m a.s.l., 21.I.2014, UV light trap, leg. T. Kovács, P. Juhász & R. Horváth (3 males, OPC). Indonesia, West Papua, Batanta Island, northern coast, Warmon stream, S0.84152°, E130.70810°, above second waterfall 22.I.2013, light trap, leg. R. Horváth (2 males, OPC). Indonesia, Batanta Island, northern coast, Warmon stream, S0.83570°, E130.7140°, below first waterfall, 22.I.2013, light trap, leg. R. Horváth (4 males, OPC). Indonesia, West Papua, Batanta Island, northern coast, Warmon stream, S0°50'23.25", E130°42'35.18", below second waterfall, 5.IX.2011, light trap, leg. R. Horváth (9 males, OPC). Indonesia, West Papua, Batanta Island, northern coast, small stream with dry mouth: S0°49'27.84", E130°38"45.02", 1000–1500 m above dry mouth, 28.I.2012, light trap, leg. R. Horváth (1 male, OPC).

Tinodes topor sp. n.
(Figs 18–21)

Diagnosis – This new species is close to *T. rekae* Oláh, 2012 described from Batanta Island but differs by having subcircular, not ovoid, coxopodite; lower process of coxopodite double curved and adhered; dorsum of coxopodite with a produced transparent plate, asymmetric parameres differently formed.

Description – Male (in alcohol). Small, castaneous brown. Sclerites medium brown, setal warts both on head and thorax lighter. Maxillary palp formula I-IV-II-III-V. Forewing length 3.2 mm, unlike most Holarctic and Oriental species, median cell open. Spur formula 244.

Male genitalia (Figs 18–21). Abdominal segment IX represented by sternite and tergite, both subtriangular in lateral view; setaless tergite apron-shaped and darker due to finely granulated surface densely packed with microtrichia and roofing directly over phallic apparatus and dorsal paraproctal processes; sternite tall triangular in lateral view joining high to fulcrum complex where met with tergite IX, cerci and paraproct as well as median bridge providing sclerous connection between phallic apparatus and sternite IX. Vestigial membranous segment X present and fused to tergum IX. Cerci filiform, strongly setose. Paraproct represented by pair of short digitiform setose processes, U-shaped in dorsal view. Gonopods the largest genital elements composed of subcircular coxopodites with trifid apex flanked dorsad by less sclerotised dorsomesad directed plate; harpago probably setiferous middle digitiform lobelike arm, 2 processes belong to coxopodite; lower process adhering to coxopodite surface and curving first



Figs 18–21. *Tinodes topor* sp. n., holotype, male: 18 = genitalia in lateral view, 19 = paraproct and aedeagus in dorsal view, 20 = left gonopod in ventral view, 21 = basal plate of gonopods in lateral view

mesad than laterad; basal plate of gonopods composed of long anterior apodeme and a tapering distal process; middle attached to gonopods by lateral wings and producing backward a pair of setose digitate processes. Phallic apparatus composed of aedeagus with aviform apex and with free ejaculatory duct arising from middle dorsum and of 2 asymmetric parameres.

Type material – Holotype: Indonesia, West Papua, Batanta Island, Welebed, "waterwork", valley of Kalijakut River, S0°53'22.85", E130°38'25.91", 105 m a.s.l., 23.I.2014, UV light trap, leg. T. Kovács, P. Juhász & R. Horváth (1 male, OPC). Paratypes: Indonesia, Batanta Island, northern coast, Warmon stream, S0.83570°, E130.7140°, below first waterfall, 22.I.2013, light trap, leg. R. Horváth (2 males, OPC).

Etymology – *Topor*, from "töpörödött", "töpör", wizened in Hungarian, refers to the abbreviated and/or curled genital substructures compared to the related species *Tinodes rekae* Oláh, 2012.

Tinodes vagot sp. n.
(Figs 22–24)

Diagnosis – This new species is most similar to *T. gomboc* Oláh, 2012 described from Batanta Island but differs by having coxopodite cut, truncated apically as visible in ventral view.

Description – Male (in alcohol). Small castaneous brown animal. Sclerites medium brown, setal warts both on head and thorax lighter. Maxillary palp formula I-IV-(II,III)-V. Forewing length 2.8 mm, forewing median cell closed. Spur formula 244.

Male genitalia (Figs 22–24). Abdominal segment IX represented by sternite and tergite, both subtriangular in lateral view; setaless tergite apron-shaped and darker due to finely granulated surface densely packed with microtrichia and roofing directly over phallic apparatus and dorsal paraproctal processes; sternite tall subtriangular with anterior lobe in lateral view joining high to fulcrum complex where met with tergite IX, cerci and paraproct as well as median bridge providing sclerous connection between phallic apparatus and sternite IX. Vestigial membranous segment X present and fused to tergum IX. Cerci filiform with constricted basal third, strongly setose. Paraproct represented by a pair of short digitiform setose processes with 4 megasetae each. Coxopodites with trifid apex; harpago probably setiferous middle digitiform lobelike arm, 2 processes, longer dorsal and shorter and more curved belong to coxopodite; basal plate of gonopods composed of long anterior apodeme and tapering and curving distal process; middle attached to gonopods by lateral wings. Phallic apparatus composed of aedeagus with truncate apex and with free ejaculatory duct arising from middle dorsum.

Type material – Holotype: Batanta Island, northern coast, Warmon stream, S0°50'18.40", E130°42'41.91", at fallen tree, 27.I.2012, light trap, leg. R. Horváth (1 male, OPC).

Etymology – *Vagot*, from "vágott", "levágott", truncated in Hungarian, refers to the straight apical margin of the gonocoxite in ventral view.

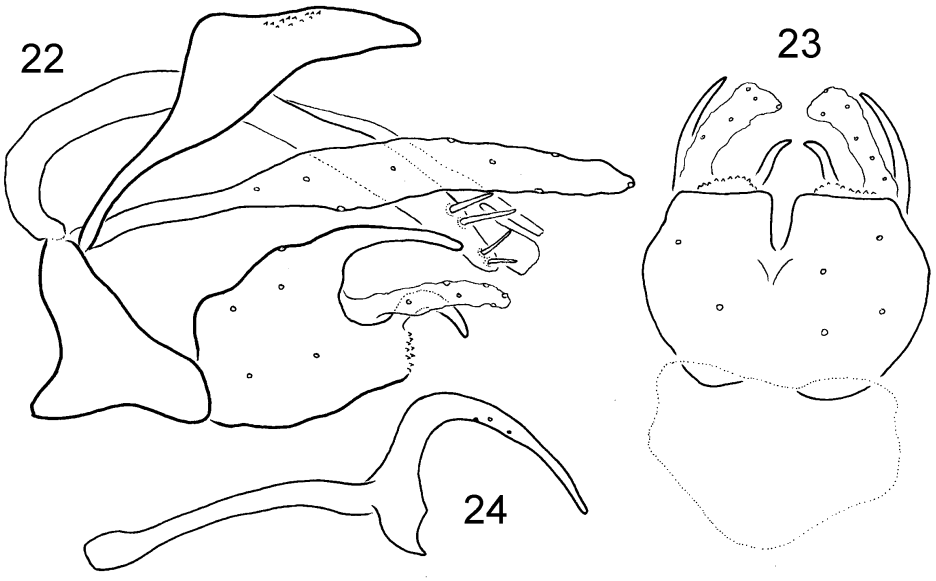
Polycentropodidae

Nyctiophylax (*Paranyctiophylax*) *batant* Oláh, 2012

Material examined – Indonesia, West Papua, Batanta Island, valley of Warmon Creck, lower waterfall, S0°50'04.50", E130°42'54.01", 37 m a.s.l., 21.I.2014, UV light trap, leg. T. Kovács, P. Juhász & R. Horváth (1 male, OPC).

Nyctiophylax (*Paranyctiophylax*) *bunk* Oláh, 2012

Material examined – Indonesia, West Papua, Batanta Island, valley of Waridor River, S0°51'48.7", E130°33'06.3", 88 m a.s.l., 31.I.2014, at light, leg. T. Kovács & P. Juhász (6 males, OPC). West Papua, Batanta Island, valley of Waridor River, S0°52'09.66", E130°32'11.54", 46 m a.s.l., 18.I.2014, at light, leg. P. Juhász, T. Kovács & R. Horváth (1 male, OPC). West Papua, Batanta Island, Welebed,



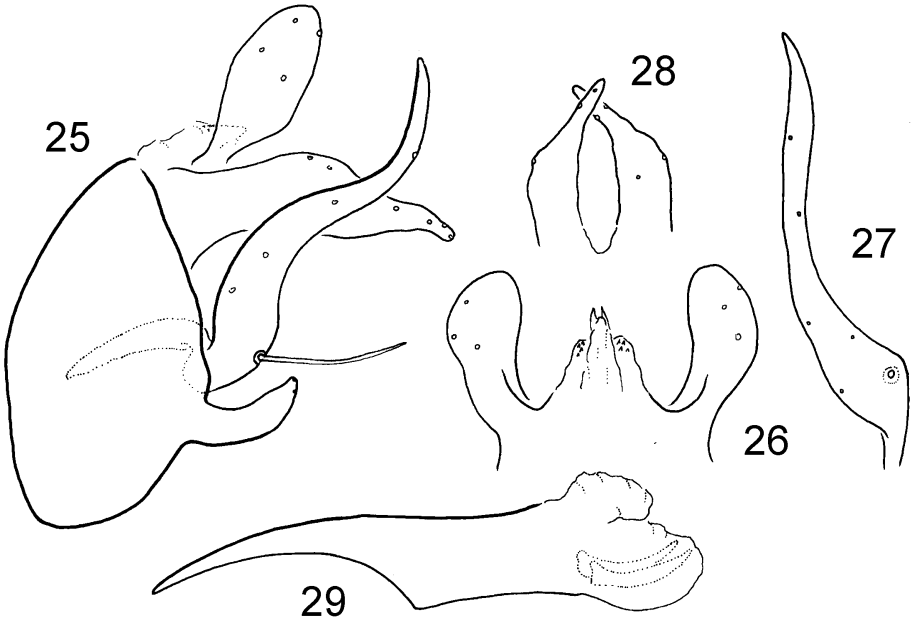
Figs 22–24. *Tinodes vagot* sp. n., holotype, male: 22 = genitalia in lateral view, 23 = = sternite VIII–IX and gonopods in ventral view, 24 = basal plate of gonopods in lateral view

valley of Kalijakut River, S0°53'12.88", E130°38'16.40", 138 m a.s.l., 23.I.2014, at light, leg. T. Kovács, P. Juhász & R. Horváth (7 males, OPC). Indonesia, West Papua, Batanta Island, northern coast, Warmon stream, S0.84152°, E130.70810°, above second waterfall, 22.I.2013, light trap, leg. R. Horváth (3 males, OPC).

Nyctiophylax (Paranyctiophylax) egyes sp. n.
(Figs 25–29)

Diagnosis – This new species having elongate monolobed gonopods belongs to the *Nyctiophylax flavus* species group of Oláh & Johanson (2010) and most similar to *N. ketes* Oláh, 2012, but differs by having segment IX ovoid, not triangular in lateral view; cerci elongate, not circular in lateral view; gonopod not S-shaped in ventral view; phallic organ with two spines, not with one spine.

Description – Male (in alcohol). Entire body rather uniformly pale yellow. Antennae rather stout. Maxillary palp formula II-I-IV-III-V, third segment inserted mesosubapicad on second. Spur formula 344. Forewing pale; forewing length 4 mm. Discoidal cells both on forewing and hindwing closed, median cell on forewing open unlike to most species. Forewing with apical forks 2, 3, 4, 5, hindwing with apical forks 2, 5 present. In forewing A1, A2 and A3 looped.



Figs 25–29. *Nyctiophylax* (*Paranyctiophylax*) *egyes* sp. n., holotype, male: 25 = genitalia in lateral view, 26 = segment X and cerci in dorsal view, 27= left gonopod in ventral view, 28 = paraproctal subphallic plates in ventral view, 29 = phallic organ in lateral view

Male genitalia (Figs 25–29). Segment IX represented by ovoid sternite, with a well developed upward tapering apicoventral mesal lobe; tergite IX small, almost indiscernible. Segment X membranous, indiscernible. Setose cerci elongate. Paraproctal subphallic plate present, subriangular in ventral view, aviform in lateral view with long pointed apices. Gonopods elongate slender, S-forming in lateral, curving in ventral view; ventrobasal elbow less developed. Basal plate of gonopods elongate. Phallic apparatus located dorsad, fixed and guided by paraproct; tube forming phallotheca less developed; phallobase modified into arching, long and narrow dorsal apodeme, very distinct, arching and narrowing into spine-like process in lateral view, but also narrowing in dorsal view; aedeagus membranous with two spines.

Type material – Holotype: Indonesia, West Papua, Batanta Island, Welebed, valley of Kalijakut River, S0°54'20.59", E130°38'31.70", 12 m a.s.l., 23.I.2014, light trap, leg. T. Kovács & P. Juhász (1 male, OPC). Paratypes: same as holotype (1 male, OPC). Indonesia, West Papua, Batanta Island, northern coast, Warmon stream, S0.84152°, E130.70810°, above second waterfall, 22.I.2013, light trap, leg. R. Horváth (2 males, OPC). Indonesia, West Papua, Batanta Island, northern coast, small stream with dry mouth, S0°49'27.84", E130°38"45.02", 1000–1500 m above dry mouth, 28.I.2012, light trap, leg. R. Horváth (2 males, OPC). Indonesia, West Papua, Batanta Island, northern coast, small stream with dry mouth, S0°49'27.84", E130°38"45.02", 500–900 m above dry mouth, 2.IX.2011, light trap, leg. R. Horváth (1 male, OPC).

Etymology – *Egyes*, from "egy S", single S in Hungarian, refers to the gonopods that are S-shaped only in lateral view, compared to the related species, *N. ketes* Oláh, 2012 having S-shaped gonopods both in lateral and ventral view.

Nyctiophylax (*Paranyctiophylax*) *ketes* Oláh, 2012

Material examined – Indonesia, Batanta Island, northern coast, Warmon stream, S0°50'23.25", E130°42'35.18", below second waterfall, 25.X.2010, leg. R. Horváth (2 males, OPC). Indonesia, West Papua, Batanta Island, northern coast, Warmon stream, S0.84152°, E130.70810°, above second waterfall, 22.I.2013, light trap, leg. R. Horváth (2 males, OPC). Indonesia, Batanta Island, northern coast, Warmon stream, S0.83570°, E130.7140°, below first waterfall, 22.I.2013, light trap, leg. R. Horváth (1 male, OPC).

Nyctiophylax (*Paranyctiophylax*) *kevert* Oláh, 2012

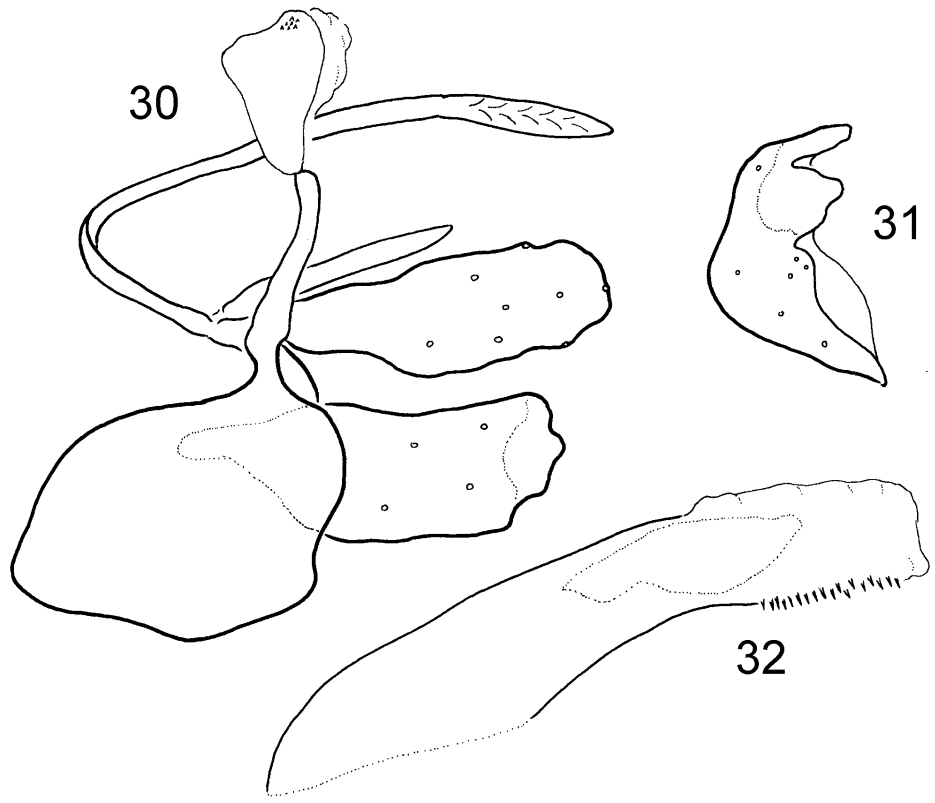
Material examined – Indonesia, West Papua, Batanta Island, northern coast, Waridor River, S0.84373°, S130.52457°, shipable endpoint, 6.II.2012, light trap, leg. R. Horváth (3 males, OPC).

Polyplectropus ollos sp. n.
(Figs 30–32)

Diagnosis – The brown male resembles *P. josaphat* Malicky, 1993 from Peninsular Malaysia, but differs by having shorter sternite IX; longer dorsal paraproctal arm with notched apical section, not with apical spine; gonopod shorter then cerci; and different gonopod shape.

Description – Male (in alcohol). Entire body rather uniformly brown, setal warts on head and thorax as well as antennae and palpi lighter. Spur formula 344. Maxillary palp formula I-II-IV-III-V, third segment inserted mesosubapicad on second. Forewing length 5 mm. Discoidal and median cells in forewing closed; forewing with apical forks 1, 2, 3, 4, 5, hindwing with apical forks 2, 5.

Male genitalia (Figs 30–32). Sclerotised sternite IX subquadrangular; small subtriangular distinct tergite IX present in continuation of sternite and meeting



Figs 30–32. *Polyplectropus ollos* sp. n., holotype, male: 30 = genitalia in lateral view, 31 = left gonopod in ventral view, 32 = phallic organ in lateral view

at or forming fulcrum with cerci and paraproctal complex. Segment X semimembranous fused to tergite IX. Cerci elongate, reaching to end of dorsal paraproctal process. Paraproctal complex fused to cerci; dorsal sclerotised spine-like paraproctal processes directed anterad and turned posterad, its apical part notched; subphallic paraproctal arms forming pair of flat bands supporting phallic organ. Gonopods subquadrangular in lateral view with cleft apex in ventral view; this scissor-like apex contrasting black Phallic apparatus located dorsad, fixed and guided very high by paraproctal complex; phallotheca tall and robust, endotheca with embedded sclerite complex; ventroapical surface covered with microtrichiae.

Type material – Holotype: Indonesia, West Papua, Batanta Island, valley of Waridor River, S0°52'09.66", E130°32'11.54", 46 m a.s.l., 18.I.2014, at light, leg. P. Juhász, T. Kovács & R. Horváth (1 male, OPC). Paratypes: Indonesia, West Papua, Batanta Island, valley of Waridor River, S0°51'48.7", E130°33'06.3", 88 m a.s.l., 31.I.2014, at light, leg. T. Kovács & P. Juhász (1 male, OPC).

Etymology – *Ollos* from "ollós", scissor-like in Hungarian with reference to the bifid gonopod apex with deep cleft.

Polyplectropus pohos sp. n.
(Figs 33–35)

Diagnosis – The pale male with enlarged abdomen and apparent brachyptery resembles *P. chapmani* Kumanski, 1979 from Papua New Guinea but differs by having more elaborate paraproct and differently shaped gonopods.

Description – Male (in alcohol). Entire body rather uniformly pale brown, setal warts on head and thorax whitish. Spur formula 344. Maxillary palp formula II-I-IV-III-V, third segment inserted mesosubapicad on second. Forewing length 5 mm. Discoidal and median cells in forewing closed; forewing with apical forks 1, 2, 3, 4, 5, hindwing with apical forks 2,5.

Male genitalia (Figs 33–35). Sclerotised sternite IX subtriangular; small subquadrangular distinct tergite IX present in continuation of sternite and meeting at or forming fulcrum with cerci and paraproctal complex. Segment X semimembranous fused to tergite IX. Cerci elongate, longer than dorsal and ventral paraproctal processes. Paraproctal complex fused to cerci; dorsal sclerotised spine-like paraproctal processes long bifid; subphallic paraproctal arms simple spines. Gonopods with bifid apex in ventral view. Phallic apparatus located dorsad, fixed and guided very high by paraproctal complex; phallotheca tall and robust, endotheca with embedded sclerite complex.

Type material – Holotype: Indonesia, West Papua, Batanta Island, northern coast, small stream with dry mouth: S0°49'27.84", E130°38'45.02", 500–900 m above dry mouth, 2.IX.2011, light trap, leg. R. Horváth (1 male, OPC). Paratype:

Indonesia, West Papua, Batanta Island, valley of Warmon Creek, upper waterfall, S0°50'23.25", E130°42'35.18", 150 m a.s.l., 20.I.2014, at light, leg. T. Kovács & P. Juhász (5 males, OPC).

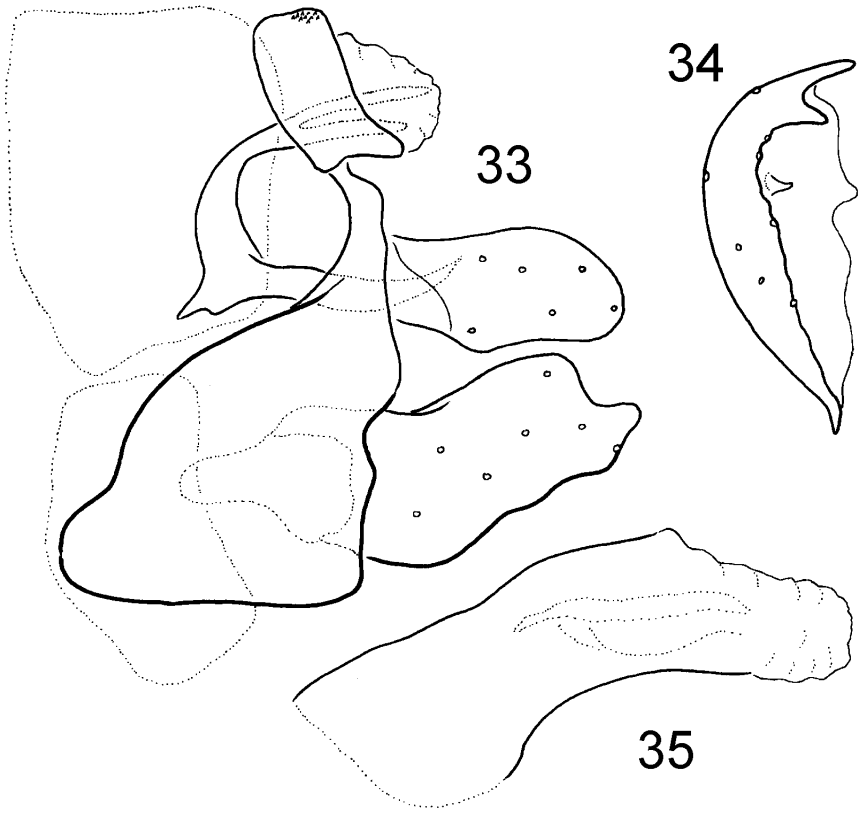
Etymology – Pohos, from "pohos", bellied in Hungarian with reference to the enlarged abdomen, only slightly shorter than forewing.

Hydropsychidae

Macronematinae

Baliomorpha barna Oláh, 2012

Material examined – Indonesia, West Papua, Batanta Island, Welebed, valley of Kalijakut River, S0°53'12.88", E130°38'16.40", 138 m a.s.l., 23.I.2014, at



Figs 33–35. *Polyplectropus pohos* sp. n., holotype, male: 33 = genitalia in lateral view, 34 = left gonopod in ventral view, 35 = phallic organ in lateral view

light, leg. T. Kovács, P. Juhász & R. Horváth (2 males, 1 female, OPC). West Papua, Batanta Island, between Arefi and Teluk Warai, valley of "dried estuary of a stream", S0°49'42.05", E130°38'12.23", 229 m a.s.l., 27.I.2014, at light, leg.T. Kovács & P. Juhász (1 male, 1 female, OPC).

Baliomorpha mariannae Oláh, 2012

Material examined – Indonesia, Papua, Raja Ampat, Batanta Island, northern Coast, Warmon stream, S0.84152°, E130.70810°, above second waterfall, 22.I.2013, light trap, leg. R. Horváth (3 males, 8 females, OPC). Indonesia, West Papua, Batanta Island, valley of Warmon Creck, upper waterfall, S0°50'23.25", E130°42'35.18", 150 m a.s.l., 21.I.2014, T. Kovács & P. Juhász (1 male, 3 females, OPC). Indonesia, West Papua, Batanta Island, between Arefi and Teluk Warai, valley of "dried estuary of a stream", S0°49'42.05", E130°38'12.23", 229 m a.s.l., 27.I.2014, at light, leg.T. Kovács & P. Juhász (1 male, 1 female, OPC). Indonesia, West Papua, Batanta Island, valley of Waridor River, S0°51'48.7", E130°33'06.3", 88 m a.s.l., 31.I.2014, at light, leg. T. Kovács & P. Juhász (4 males, OPC). Indonesia, West Papua, Batanta Island, valley of Warmon Creck, lower waterfall, S0°50'04.50", E130°42'54.01", 37 m a.s.l., 21.I.2014, UV light trap, leg. T. Kovács, P. Juhász & R. Horváth (1 female, OPC).

Macrostemum auriferum Neboiss, 1984

Material examined – Indonesia, West Papua, Batanta Island, valley of Waridor River, S0°51'48.7", E130°33'06.3", 88 m a.s.l., 31.I.2014, at light, leg. T. Kovács & P. Juhász (2 females, OPC). Indonesia, West Papua, Batanta Island, valley of Waridor River, S0°52'09.66", E130°32'11.54", 46 m a.s.l., 18.I.2014, at light, leg. P. Juhász, T. Kovács & R. Horváth (2 males, 1 female, OPC).

Macrostemum warmon Oláh, 2013

Material examined – Indonesia, Papua, Raja Ampat, Batanta Island, northern Coast, Warmon stream, S0.84152°, E130.70810°, above second waterfall, 22.I.2013, light trap, leg. R. Horváth (1 male, OPC).

Diplectroninae

Diplectrona szalma Oláh, 2013

Material examined – Indonesia, West Papua, Batanta Island, Welebed, "waterwork", valley of Kalijakut River, S0°53'22.85", E130°38'25.91", 105 m a.s.l., 23.I.2014, UV light trap, leg. T. Kovács, P. Juhász & R. Horváth (1 male, OPC).

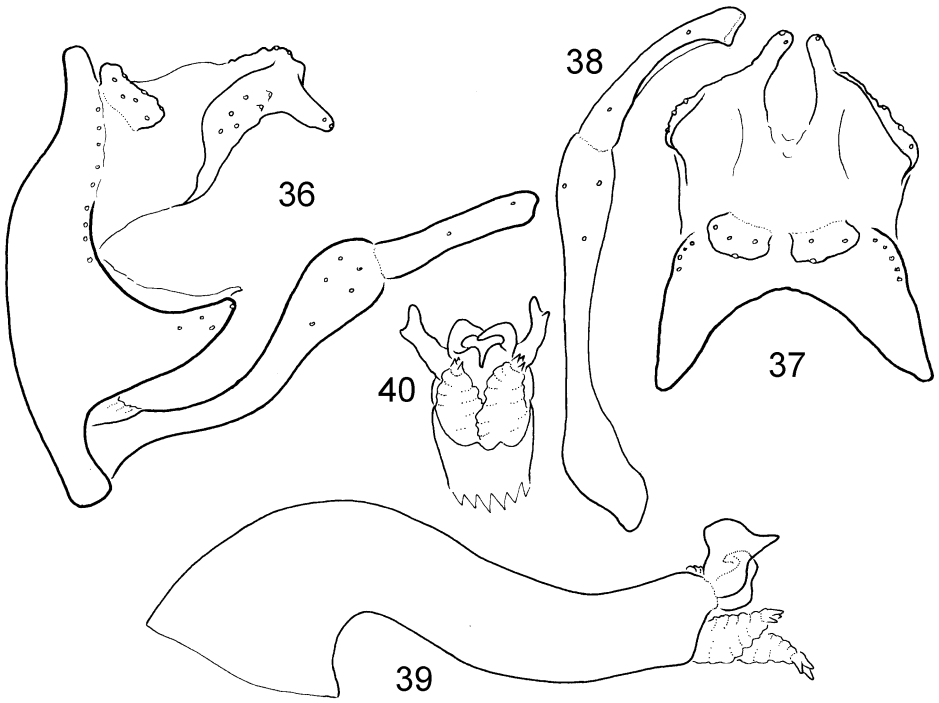
Hydropsychinae

Abacaria kovacsi sp. n.
(Figs 36–40)

Diagnosis – This species is most similar to *A. beroni*, but differs in the structure of segment X and in the fine structure of phallic organ.

Description – Male (in alcohol). Body and wings pale brown, stramineous. Maxillary palp formula I-(III,IV)-II-V. Proepisternal setal wart present. Spur formula 244. Forewing length 7 mm; hind wing median cell open; hind wing with forks 2, 3 and 5.

Male genitalia (Figs 36–40). Segment IX fused annular and short; its median keel reduced; apical lobe on posterolateral margin elongate triangular, slightly upward arching. Intersegmental profile between segments IX and X deep stepwise. Segment X elongate, low in lateral view and wide rounded in



Figs 36–40. *Abacaria kovacsi* sp. n., holotype, male: 36 = genitalia in lateral view, 37 = segment IX–X and cerci in dorsal view, 38 = left gonopod in ventral view, 39 = phallic organ in lateral view, 40 = tip of aedeagus in ventral view

dorsal view; unique lateral keels developed with setose apical and bare glabrous mesal surface; ventroapical lobes digitate; cerci produced lobe-like and shifted to segment IX. Coxopodit of gonopod clavate as long as apex of segment X, harpago truncate in ventral view. Phallic organ almost with equal diameter along downcurving basal and horizontal sections of phallotheca; horizontal section with upward curving apex producing S-shaped form for entire phallotheca; endothecal and phallotremal sclerite complex movable and positioned dorsoapicad; sclerotised endothecal processes aviform and phallotermal sclerites hook-shaped and mesad turned; pair of apical membranous endothecal processes present, located ventroapicad.

Material examined – Holotype: Indonesia, West Papua, Batanta Island, valley of Warmon Creck, lower waterfall, S0°50'04.50", E130°42'54.01", 37 m a.s.l., 21.I.2014, UV light trap, leg. T. Kovács, P. Juhász & R. Horváth (1 male, OPC). Paratype: same as holotype (4 males, OPC). Indonesia, West Papua, Batanta Island, valley of Warmon Creck, upper waterfall, S0°50'23.25", 150 m a.s.l., 20.I.2014, at light, leg. T. Kovács & P. Juhász (5 males, OPC).

Etymology – This species is named for Tibor Kovács, who collected the type specimens.

Remarks – This beautiful stramineous hydropsychid species has wing venation of the genus *Abacaria* Mosely, 1941, but has setose wart on proepisternum and symmetric protarsal claw without setal bundle present similarly to *Abacaria caledona* Oláh et Johanson, 2006 from New Caledonia and *Abacaria beroni* (Kumanski, 1979) from New Guinea. In the genus *Abacaria* the plesiomorphic proepisternal setose wart has been lost and the apomorphic asymmetric tarsal claw with setal bundle has been evolved. We need to discover and examine more species to separate a new genus for these ancestral species with *Abacaria* venation.

Cheumatopsyche ronbata Oláh, 2012

Material examined – Indonesia, West Papua, Batanta Island, valley of Waridor River, S0°52'09.66", E130°32'11.54", 46 m a.s.l., 18.I.2014, at light, leg. P. Juhász, T. Kovács & R. Horváth (1 male, OPC).

Cheumatopsyche ronujra Oláh, 2012

Material examined – Indonesia, Indonesia, West Papua, Batanta Island, valley of Waridor River, S0°51'48.7", E130°33'06.3", 88 m a.s.l., 31.I.2014, at light, leg. T. Kovács & P. Juhász (1 male, OPC).

Hydropsyche sabronensis (Kimmins, 1962)

Material examined – Indonesia, West Papua, Batanta Island, valley of Waridor River, S0°51'48.7", E130°33'06.3", 88 m a.s.l., 31.I.2014, at light, leg. T. Kovács & P. Juhász (5 males, 1 female, OPC). Indonesia, West Papua, Batanta Island, Welebed, "waterwork", valley of Kalijakut River, S0°53'22.85", E130°38'25.91", 105 m a.s.l., 23.I.2014, UV light trap, leg. T. Kovács, P. Juhász & R. Horváth (5 males, 128 females, OPC). Indonesia, West Papua, Batanta Island, valley of Waridor River, S0°52'09.66", E130°32'11.54", 46 m a.s.l., 18.I.2014, at light, leg. P. Juhász, T. Kovács & R. Horváth (16 males, 9 females, OPC).

Hydropsyche tuskes Oláh, 2013

Material examined – Indonesia, West Papua, Batanta Island, Welebed, "waterwork", valley of Kalijakut River, S0°53'22.85", E130°38'25.91", 105 m a.s.l., 23.I.2014, UV light trap, leg. T. Kovács, P. Juhász & R. Horváth (1 male, OPC).

Glossosomatidae

Agapetus fogaska Oláh, 2013

Material examined – Indonesia, West Papua, Batanta Island, valley of Waridor River, S0°51'48.7", E130°33'06.3", 88 m a.s.l., 31.I.2014, at light, leg. T. Kovács & P. Juhász (10 males, OPC). Indonesia, West Papua, Batanta Island, northern coast, small stream with dry mouth: S0°49'27.84", E130°38"45.02", 500–900 m above dry mouth, 1000–1500 m above dry mouth, 30.I.2012, 3 light traps, leg. G. Horváth (1 male).

Agapetus kivagot Oláh, 2012

Material examined – Indonesia, West Papua, Batanta Island, valley of Waridor River, S0°51'48.7", E130°33'06.3", 88 m a.s.l., 31.I.2014, at light, leg. T. Kovács & P. Juhász (6 males, OPC). Indonesia, West Papua, Batanta Island, valley of Waridor River, S0°52'06.7", E130°31'26.1", 40 m a.s.l., 30.I.2014, at light, leg. T. Kovács & P. Juhász (1 male, OPC). Indonesia, West Papua, Batanta Island, valley of Waridor River, S0°52'09.66", E130°32'11.54", 46 m a.s.l., 18.I.2014, at light, leg. P. Juhász, T. Kovács & R. Horváth (16 males, OPC). Indonesia, West Papua, Batanta Island, Welebed, "waterwork", valley of Kalijakut River, S0°53'22.85", E130°38'25.91", 105 m a.s.l., 23.I.2014, UV light trap, T. Kovács, P. Juhász & R. Horváth (1 male, OPC).

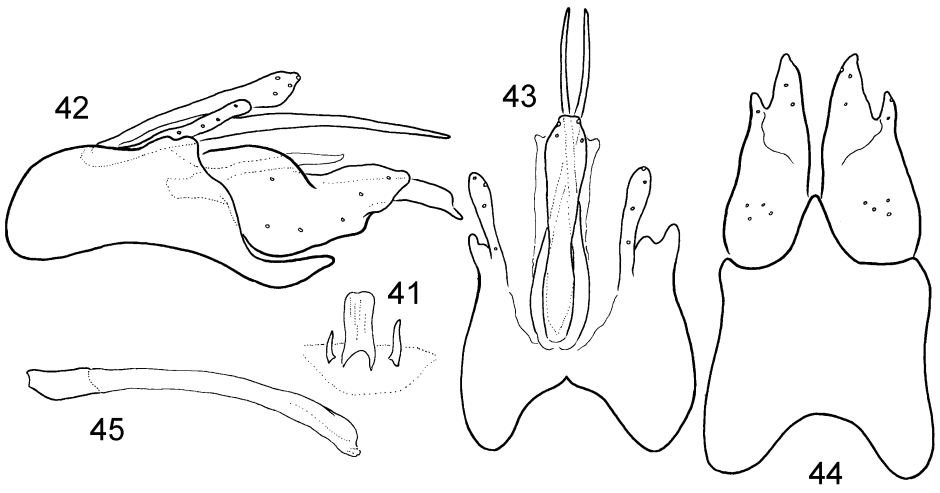
Goeridae

Goera batanta sp. n.
(Figs 41–45)

Diagnosis – This species is closest to *Goera abaca* Johanson et Oláh, 2008 described from Fiji Islands, but differs by having segment IX with very short apicoventrum, constricted coxopodite, differently shaped dorsomesal process and paraproct, and aedeagus slender, not high.

Description – Male (in alcohol). Small, dark animal with castaneous brown body and wings. Antennal scape 2 times as long as wide. Maxillary palp 3 segmented, its formula II-I-III; first 2 segments brown setose; first segment double long as second; distal segment less modified, just whitish transparent, slightly longer than first. Spur formula 244. Sternite VI bearing one fingerlike longitudinally stridulated process accompanied with single small spines on both sides. Forewing length 4 mm, fork 2 sessile. Hindwing with abbreviated first radial vein and central area covered with elongate scales.

Male genitalia (Figs 41–45). Segment IX recumbent with very short ventrum; actually this ventral region reduced to apical transversal band terminating in long triangular ventromesal lobe. Cerci apparently originating from dorsolateral corner of segment IX, flanked laterally by this duble humped lobe. Dorsomesal



Figs 41–45. *Goera batanta* sp. n., holotype, male: 41 = sternal VI process, 42 = genitalia in lateral view, 43 = segment IX, cerci and paraproct in dorsal view, 44 = segment IX and gonopods in ventral view, 45 = phallic organ in lateral view

process, vestigium of segment X broad with narrowing tip truncated. Paraproctal complex represented by a pair of long spinelike process, without setae, as usual for paraproct. Gonopods with high-based coxopodite with low apical half, constricted midway; harpagones fused apicomesad to coxopodite with discernible suture. Basal plate of gonopods developed into pair of long flat plate to serve as ventral phallic guide. Phallic organ just discernible as having short phallotheca and long slender aedeagus.

Material examined – Holotype: Indonesia, West Papua, Batanta Island, valley of Waridor River, S0°52'06.7", E130°31'26.1", 40 m a.s.l., 30.I.2014, at light, leg. T. Kovács & P. Juhász (1 male, OPC).

Etymology – This species is named for the type locality.

Leptoceridae

Triplectidinae

Triplectides Kolenati, 1859

Remarks – In revising triplectidine genera the apparent uniformity of the male and female genitalia inspired Mosely (1936) to rely upon almost entirely on characters afforded by neuration. He disregarded the generic importance of the subtle diversity in genitalic structure and rejected the generic diagnostic value of tibial spurs due to their high variability. The tibial spur formula has been found really unstable among genera and variable inside a single genus. Typical spur formula for *Triplectides* is 224, but numbers of 022, 023, 024, 122, 222, 223 and 224 have been recorded (Holzenthal 1988, Malm & Johanson 2008). The reduction in number of spurs is not uncommon. Mary & Ward (2001) also recorded apparent spur formula of 024 at *Triplectides smithi* Mary et Ward, 2001 from New Caledonia.

As a result, *Triplectides*, the most speciose genus of the subfamily Triplectidinae has been diagnosed by wing venation. Forewing has long discoidal cell whose lower distal angle produced downward towards the posterior margin, and the crossvein *s*, closing the discoidal cell, is generally concave. The downward production of this angle separates *Triplectides* from the other genera in the subfamily (Mosely 1936, Mosely & Kimmins 1953). Later the apically broadened discoidal cell with lower distal angle produced toward the median vein and the basad curving sectoral crossvein *s* have been confirmed as diagnostic characters for the genus *Triplectides* (Morse & Neboiss 1982). However, many newly described species in New Caledonia lack characteristics of the posteriorly extended apical part of the forewing discoidal cells and of the presence of fork 1 in the

hind wings (Malm & Johanson 2008). Apparently the variability of tibial spurs and wing venation among species of the genus *Triplectides* is so large that none of them are reliable enough for generic diagnosis. The wing venation and tibial spurs proved reliable only in diagnosing the species (Holzenthal 1988).

Genitalia, as usual, remained a promising suite of characters to differentiate between both genera and species in combination with other body structures, like wing venation and tibial spurs. The neutral traits of periphallic organs only indirectly involved in insemination processes during the sexual selection usually have higher species variability depending on the history of allopatry and on the intensity of gene flow. The shapes, lengths and correlated ratios of heavily setose sensory structures of cerci, apicodorsal and basoventral lobes of gonopods are variable within and between populations and proved to have low value in separating species (Holzenthal 1988). However, there are stable fine structures, the sexual selection driven adaptive traits with non-neutral variation under selective divergence. These more stable adaptive traits are associated with the intromittent phallic organ and with additional periphallic accessory setaless substructures with stimulatory or harm functions. In *Triplectides* the mesal lobes of the gonopods (lower penis-cover of Mosely & Kimmins 1953, phallic guide of Morse 1975) serving as a clasp for the movable harpago (Holzenthal 1988) and the setaless harpago are the most stable and reliable structures to differentiate between species. Holzenthal (1988) has reported segment X in male and the appendages of segment X in female as more reliable diagnostic structures.

The presumed variation of genital components produced historically some widely distributed and highly variable species in the genus: *T. australis*, *T. ceylanicus* Mosely, 1936, *T. indicus* (Walker, 1852), and *T. magnus* (Walker, 1852). Besides the variable neutral traits of most periphallic structures there are stable or less variable non-neutral adaptive traits that may help us to discover hiding species under these names in the Oriental and Australasian Regions. Yang & Morse (2000) and Oláh & Mey (2013) have already documented some new species in the *Triplectides australis* species group.

Fine structure analysis of harpago reveals a stable elaborate and rather complex organ in many species. Harpagones are heavily sclerotised and setaless structures without any trichoid tactile sensillum trichodeum or any more modified sensillum. The low density or absence of any setae on this highly movable structure infers stimulatory or arm device function in copulatory process. Both the size and the shape of harpago are stable traits exhibiting diagnostic value. The mesal surface of harpago is usually excavated producing ventral and dorsal edges. Edges may have simple, serrated or irregularly profiled margins. Apex pointed in various number and forms.

Another adaptive and stable trait having important diagnostic value is the mesal lobe on the gonopods. Mesal lobe is also well sclerotised having few variously developed ridges on the dorsum and modified sensilla, mostly sensilla basiconica or sensilla styloconica on the ventrum. These probably proprioceptive sensillae may detect the relative position either to another own body part or to the female body parts. Number and distributional pattern of these sensilla as well as the development magnitude of their alveolar tubercles have diagnostic value. Here we describe new species from Batanta Island relying mostly upon the stable structures of the mesal lobe and harpago on the gonopods as well as on the vaginal sclerite complex and external genital structures of the females.

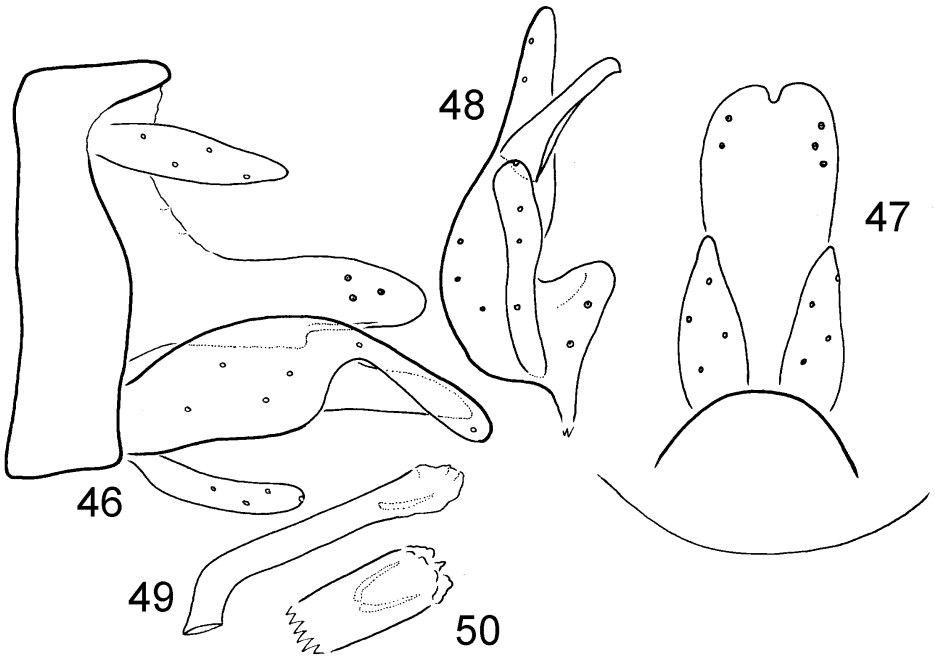
Triplectides dombos sp. n.
(Figs 46–53, 69)

Diagnosis – This new species with longitudinal plate, angle or margin present on the ventral margin of segment X belongs to the *Triplectides australicus* species group. It differs from each members of the group by having very broad based harpagones, and rounded triangular mesal lobe on gonopods.

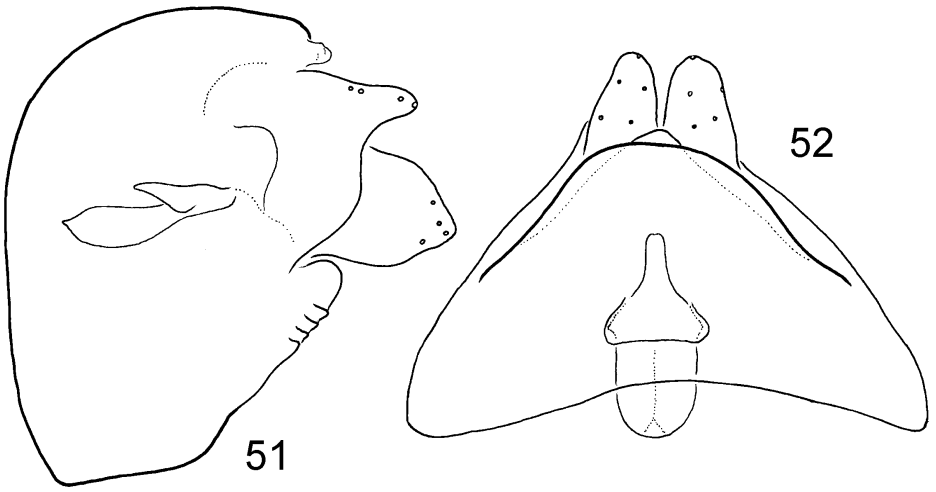
Description – Male (in alcohol) (Fig. 69). Brown animal, wing membrane lighter; on forewing discoidal cell apically broadened, its lower distal angle clearly produced by crossvein *r-m* toward median vein; crossvein *s* very concave being curved basad; discoidal cell clearly separated from thyridial cell by crossvein *r-m*; crossvein r-m near to crossvein *m-cu* that long and oblique basad; fork M far from meeting point of crossveins r-m and m-cu; forewing length 12 mm. Spur formula 222.

Male genitalia (Figs 46–50). Segment IX synsclerotised, short; posterad produced tergum IX semicircular in dorsal, elongate in lateral view; pleural lobe weakly produced. Segment X hoodlike, double long than cerci; rounded apex with apicomesal excision; several minute apical setae of sensilla styloconica scattered laterodorsad; edge of ventral longitudinal plates of segment X discernible accompanied by angled margin. Cerci tapering in dorsal wiev. Basal section of gonopods as long as dorsoapical lobe; basoventral lobe reaching to harpago; mesal lobe rounded triangular; 1 mesad curving dorsal ridges present; 2 sensilla styloconica on ventral surface present. Phallic organ with low angled basal section and with weakly visible small elongate phallotremal sclerite.

Female genitalia (Figs 51–52). Setose dorsal lobe short and broad in dorsal view, short finger-like in lateral view. Lamellae with few apicolateral long setae and with 4–5 long longitudinal weakly discernible dorsal striae. Fused gonopods with 8–9 conspicuous transversal striae. Both sensilla-bearing processes or sensilla-bearing small surface lacking on the downward continuation of dorsal



Figs 46–50. *Triplectides dombos* sp. n., holotype, male: 46 = genitalia in lateral view, 47 = segment IX–X and cerci in dorsal view, 48 = left gonopod in ventral view, 49 = phallic organ in lateral view, 50 = tip of aedeagus in ventral view



Figs 51–52. *Triplectides dombos* sp. n., allotype, female: 51 = genitalia in lateral view, 52 = genitalia including vaginal sclerite complex in dorsal view

lobe. Basal plate of vaginal sclerite complex, representing anterior half of sclerotised complex longitudinally subrectangular. Hood-shaped junction sclerite with low lateral lobes anteriorly and very narrowing posterad. Junction sclerite holding and stretching junction where ducts of accessory gland and ovarium meet as well as separating accessory duct from spermathecal duct. Spermathecal process visible as middle line window widening anterad; this substructure on ventrum of basal plate receiving ductus spermathecae and forming frequently longitudinal keel on ventrum of vaginal sclerite.

Type material – Holotype: Indonesia**,** Papua, Raja Ampat, Batanta Island, northern coast, Warmon stream, at first waterfall, S0°50'04.033", E130°42'54.14", 10.VI.2010, light trap, leg. R. Horváth (male, OPC). Allotype: Indonesia**,** Papua, Raja Ampat, Batanta Island, northern coast, Warmon stream, at first waterfall, S0°50'04.033", E130°42'54.14", 21.IX.2010, light trap, leg. R. Horváth (female, OPC).

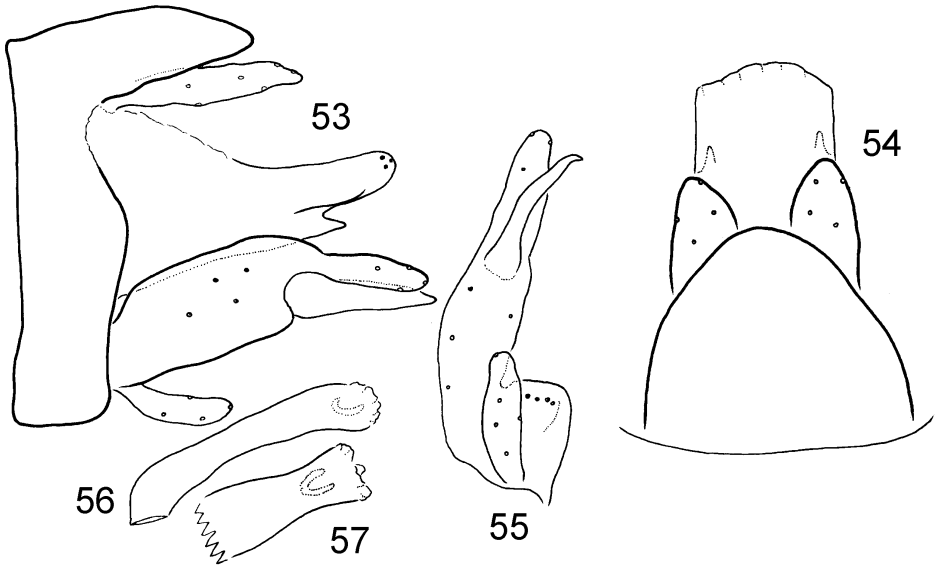
Etymology – Dombos, from "dombos", hilly in Hungarian, refers to the shape of the mesal lobe on gonopods.

Triplectides karimas sp. n.
(Figs 53–59, 70–71)

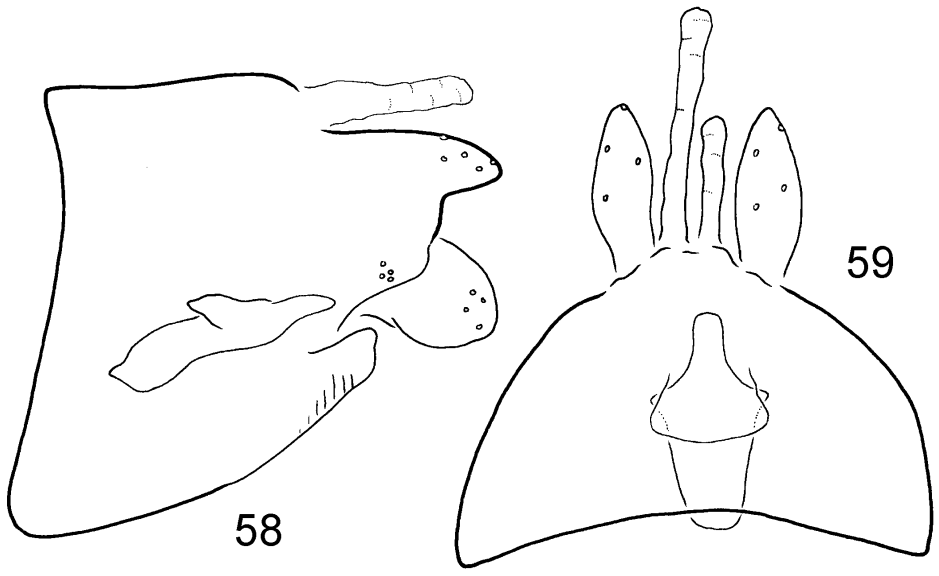
Diagnosis – This new species with longitudinal plate, angle or margin present on the ventral margin of segment X belongs to the *Triplectides australicus* species group. It is closest to *Triplectides ciuskus* Mosely, 1953 from Australia, but differs by having anastomosal forewing pattern different, discoidal cell less broadening apicad. Male genitalia with short and blunt cerci; pointed ventromarginal lobe on segment X long; apical profile of segment X different in dorsal view; harpagones slender. Female genitalia with right-angled ventral edge; a pair of unique, long asymmetric membranous digitiform processes present between cerci.

Description – Male (in alcohol) (Figs 70–71). Light brown animal, wing membrane lighter with numerous small light spots scattered on forewing; forewing discoidal cell apically broadened, its lower distal angle produced by crossvein *r-m* toward the median vein; crossvein *s* very concave being curved basad; discoidal cell clearly separated from the thyridial cell by crossvein *r-m*; folk M close to crossveins r-m; forewing length 14 mm. Spur formula 222.

Male genitalia (Figs 53–57). Segment IX synsclerotised with a weakly sclerotised constriction at cerci; posterad produced tergum IX semicircular in dorsal, long triangular in lateral view; pleural lobe weakly extends mesad between cerci and gonopods. Segment X hoodlike, longer than cerci; its apex produced apicomesad; few minute apical setae of sensilla styloconica present on both sides; edge of ventral longitudinal plates of segment X produced pointed lobe. Cerci



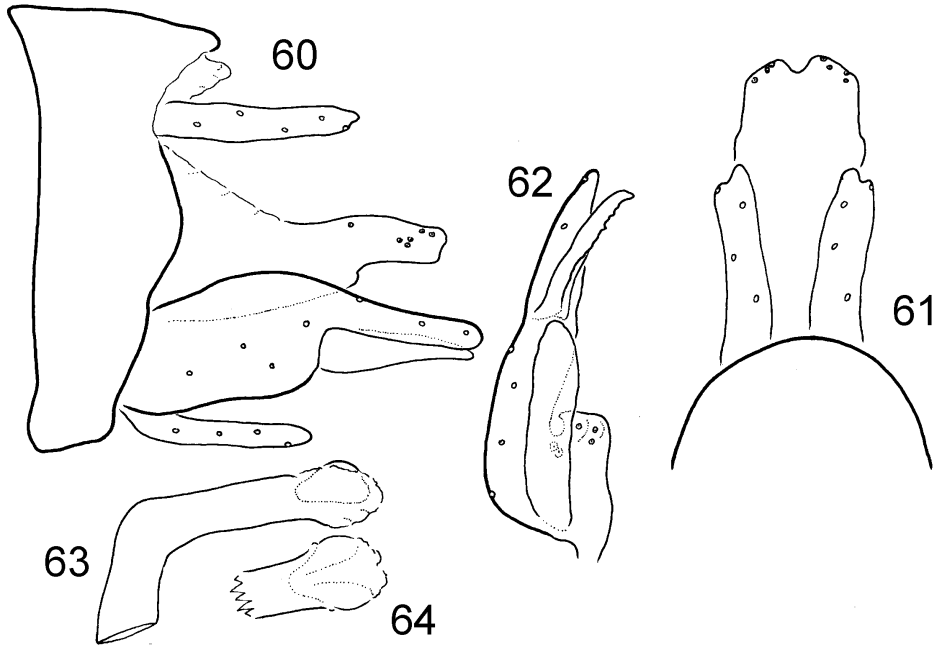
Figs 53–57. *Triplectides karimas* sp. n., holotype, male: 53 = genitalia in lateral view, 54 = segment IX–X and cerci in dorsal view, 55 = left gonopod in ventral view, 56 = phallic organ in lateral view, 57 = tip of aedeagus in ventral view



Figs 58–59. *Triplectides karimas* sp. n., allotype, female: 58 = genitalia in lateral view, 59 = genitalia including vaginal sclerite complex in dorsal view

visible, short broad in dorsal, long and low in lateral view unser the elongate dorsum of segment IX. Basal section of gonopods longer than dorsoapical lobe; basoventral lobe short; mesal lobe short truncate quadrangular rim-like; one laterad curving dorsal ridge present; few sensilla styloconica on ventral surface patterned in transversal line. Phallic organ with low angled basal section and small bilobed phallotremal sclerite.

Female genitalia (Figs 58–59). Setose dorsal lobe foliform in dorsal view, with right angled ventral edge in lateral view. Lamellae with a few apicolateral long setae and with 4–5 long longitudinal dorsal striae. The fused gonopods with 8–9 conspicuous transversal striae. Sensilla-bearing processes lacking; sensilla-bearing small surface present on the downward continuation of dorsal lobe. Basal plate of vaginal sclerite complex, representing anterior half of sclerotised complex longitudinally subrectangular, slightly narrowing posterad. Hood-shaped junction sclerite with lateral lobes anteriorly and narrowing posterad. Spermathecal process visible as middle line window widening anterad.



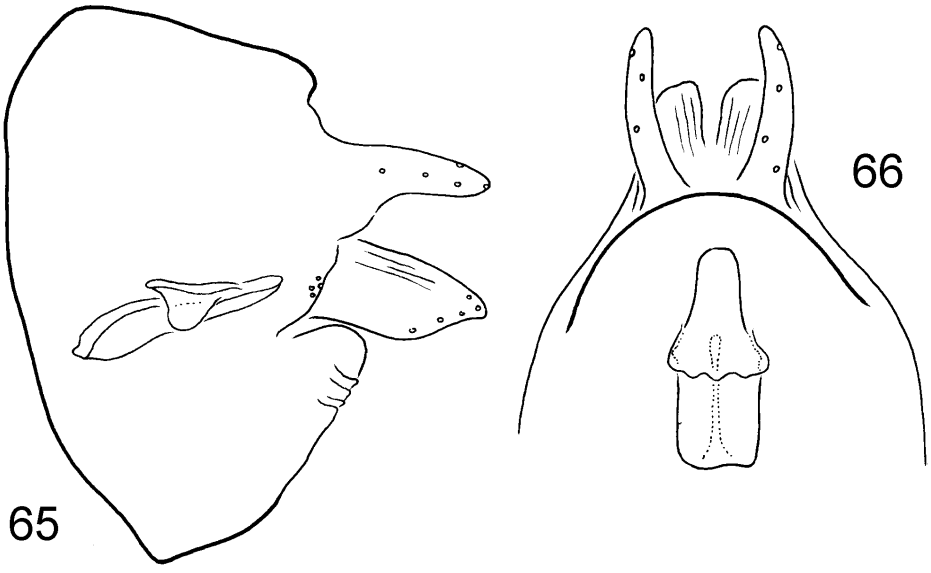
Figs 60–64. *Triplectides rojtos* sp. n., holotype, male: 60 = genitalia in lateral view, 61 = segment IX–X and cerci in dorsal view, 62 = left gonopod in ventral view, 63 = phallic organ in lateral view, 64 = tip of aedeagus in ventral view

Type material – Holotype: Indonesia**,** Papua, Raja Ampat, Batanta Island, northern coast, Waridor River, S0.86840°, E130.52516°, 18.I.2014, light, leg. R. Horváth, P. Juhász & T. Kovács (male, OPC). Allotype: same as holotype (female, OPC). Paratype: Indonesia**,** Papua, Raja Ampat, Batanta Island, northern coast, Waridor River, S0.86840°, E130.52516°, 18.I.2013, light trap, leg. R. Horváth (1 male, OPC).

Etymology – Karimas, from "karimás", rimmed in Hungarian, refers to low rim-like mesal lobe of the gonopods.

Triplectides rojtos sp. n.
(Figs 60–66, 72)

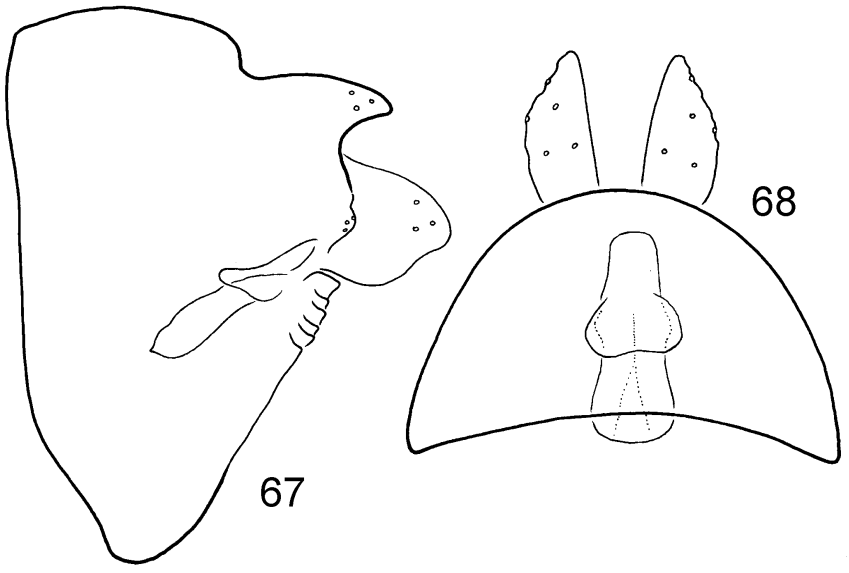
Diagnosis – This new species with longitudinal plate, angle or margin present on the ventral margin of segment X belongs to the *Triplectides australicus* species group. It is most close to *Triplectides ciuskus* Mosely, 1953 from Australia, but differs by having spur formula 122, not 222; anastomosal forewing pattern different. Male genitalia with bilobed cerci, not simply narrowing; apical profile of segment X different in dorsal view; harpagones having fringed or irregularly serrated ventral edge, not simple. Female genitalia with very long and narrow laterad arching dorsal setose lobe, not broad and short.



Figs 65–66. *Triplectides rojtos* sp. n., allotype, female: 65 = genitalia in lateral view, 66 = genitalia including vaginal sclerite complex in dorsal view

Description – Male (in alcohol) (Fig. 72). Light brown animal, wing membrane lighter; on forewing discoidal cell apically broadened, its lower distal angle clearly very produced by crossvein *r-m* toward median vein; crossvein *s* very concave being curved basad; discoidal cell clearly separated from thyridial cell by crossvein *r-m*; crossvein r-m meets crossvein *m-cu* that long and oblique basad; fork M far from meeting point of crossveins r-m and m-cu; forewing length 14 mm. Spur formula 122.

Male genitalia (Figs 60–64). Segment IX synsclerotised with weakly sclerotised constriction at cerci; posterad produced tergum IX semicircular in dorsal triangular in lateral view; pleural lobe slightly extending mesad between cerci and gonopods. Segment X hoodlike, longer than cerci; its apex with short apicomesal excision producing oblique truncate apicolateral margins; 6 minute apical setae of sensilla styloconica present on both sides in fixed pattern; edge of ventral longitudinal plates of segment X acute angled. Cerci long slender with bilobed apices. Basal section of gonopods as long as dorsoapical lobe; basoventral lobe reaching to harpago; mesal lobe truncate quadrangular with laterad produced corner; 2 mesad curving dorsal ridges present; few sensilla styloconica on ventral surface scattered; a small group of 3–4 almost fused sensilla with enlarged alveolus located below rounded sinus. Phallic organ with high angled basal section and very high bilobed phallotremal sclerite.



Figs 67–68. *Triplectides sugaras* sp. n., holotype, female: 67 = genitalia in lateral view, 68 = genitalia including vaginal sclerite complex in dorsal view

Female genitalia (Figs 65–66). Setose dorsal lobe long slender and laterad arching in dorsal view, long finger-like in lateral view. Lamellae with few apicolateral long setae and with 4–5 long longitudinal dorsal striae. Fused gonopods with 8–9 conspicuous transversal striae. Sensilla-bearing processes lacking; sensilla-bearing small surface present on downward continuation of dorsal lobe. Basal plate of vaginal sclerite complex, representing anterior half of sclerotised complex longitudinally subrectangular. Hood-shaped junction sclerite with lateral lobes anteriorly and narrowing posterad. Spermathecal process visible as middle line window widening anterad.

Type material – Holotype: Indonesia**,** Papua, Raja Ampat, Batanta Island, northern coast, Waridor River, S0.86840°, E130.52516°, 18.I.2013, light trap, leg. R. Horváth (male, OPC). Allotype: same as holotype (female, OPC). Paratypes: same as holotype (6 males, 2 females, OPC). Indonesia**,** Papua, Raja Ampat, Batanta Island, northern coast, Waridor River, shipable endpoint, S0.84373°, E130.52457°, 6.II.2012, light trap, leg. R. Horváth (1 female, OPC).

Etymology – Rojtos, from "rojtos", fringed in Hungarian, refers to the fringed, irregularly serrated ventral edge of the gonopods.

Triplectides sugaras sp. n.
(Figs 67–68, 73)

Diagnosis – This new species is known only by a single female specimen and closest to *Triplectides karima* sp. n., but differs by having different pattern of anastomosis; longer segment IX; lateral profile of setose dorsal lobe rounded concave ventroapicad, not angled; mesal margin of cerci straight radial in dorsal view, not rounded; position of sensilla-bearing area different.

Description – Female (in alcohol) (Fig. 73). Dark brown animal, wing membrane with a few small light spots along longitudinal vein Sc; pterostigmal area dark; on forewing discoidal cell apically slightly broadened, its lower distal angle clearly produced by crossvein *r-m* toward median vein; crossvein *s* very concave being curved basad; discoidal cell clearly separated from thyridial cell by crossvein *r-m*; fork III long petiolate; forewing length 13 mm. Spur formula 222.

Female genitalia (Figs 67–68). Setose dorsal lobe straight mesad in dorsal view, short triangular in lateral view. Lamellae with few apicolateral long setae and with 4–5 long longitudinal dorsal striae. Fused gonopods with 8–9 conspicuous transversal striae. Sensilla-bearing processes lacking; sensilla-bearing small surface present on downward continuation of dorsal lobe. Basal plate of vaginal sclerite complex, representing anterior half of sclerotised complex longitudinally subrectangular, slightly broadening anterad. Hood-shaped junction sclerite with

lateral lobes anteriorly and weakly narrowing posterad. Spermathecal process visible as middle line window widening anterad.

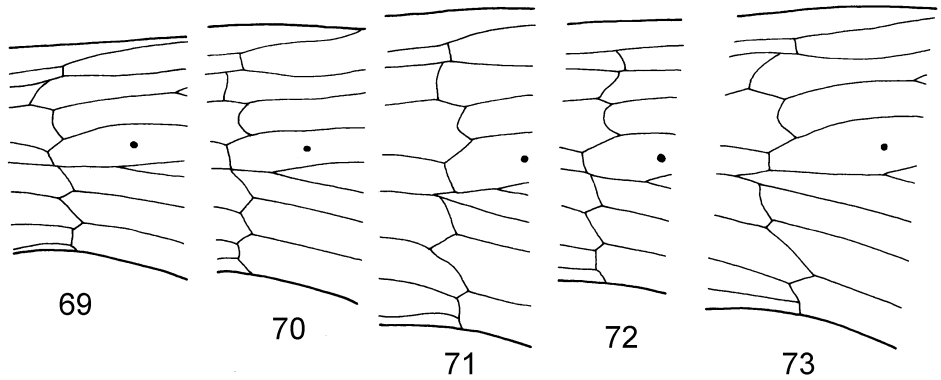
Type material – Holotype: Indonesia**,** Papua, Raja Ampat, Batanta Island, northern coast, Warmon stream, below second waterfall, S0°50'23.25", E130°42'35.18", 20.I.2014, light leg. P. Juhász & T. Kovács (female, OPC). Paratype: Indonesia**,** Papua, Raja Ampat, Batanta Island, northern coast, Warmon stream, S0.84152°, E130.70810°, above second waterfall, 22.I.2013, light trap, leg. R. Horváth (1 female, OPC).

Etymology – *Sugaras*, from "sugaras", radial in Hungarian, refers to the straight mesal margin of cerci in dorsal view.

Calamoceratidae

Anisocentropus horvathi Oláh, 2012

Material examined – Indonesia, Papua, Raja Ampat, Batanta Island, northern Coast, Warmon stream, S0.83570°, E130.7140°, below first waterfall, 22.I.2013, light trap, leg. R. Horváth (8 males, OPC). Indonesia, West Papua, Batanta Island, Welebed, valley of Kalijakut River, S0°53'12.88", E130°38'16.40", 138 m a.s.l., 23.I.2014, at light, leg. T. Kovács, P. Juhász & R. Horváth (4 males, 4 females; pharate, OPC). Indonesia, West Papua, Batanta Island, between Arefi and Teluk Warai, valley of "dried estuary of a stream", S0°49'42.05", E130°38'12.23", 229 m a.s.l., 27.I.2014, at light, leg.T. Kovács & P. Juhász (1 male, 2 females; pharate, OPC). Indonesia, West Papua, Batanta Island, valley of Warmon Creck, upper waterfall, S0°50'23.25", 150 m a.s.l., 20.I.2014, at light, leg. T. Kovács & P.



Figs 69–73. Forewing anastomosal cross-vein region: 69 = *Triplectides dombos* sp. n., male, 70 = *T. karimas* sp. n., male, 71 = *T. karimas* sp. n., female, 72 = *T. rojtos* sp. n., male, 73 = *T. sugaras* sp. n., female

Juhász (10 males, 11 females; 3 males pharate, 2 females fully pigmented, OPC). Indonesia, West Papua, Batanta Island, valley of Waridor River, S0°51'48.7", E130°33'06.3", 88 m a.s.l., 31.I.2014, at light, leg. T. Kovács & P. Juhász (1 male, OPC). Indonesia, West Papua, Batanta Island, valley of Warmon Creck, lower waterfall, S0°50'04.50", E130°42'54.01", 37 m a.s.l., 21.I.2014, UV light trap, leg. T. Kovács, P. Juhász & R. Horváth (1 male, OPC). Indonesia, West Papua, Batanta Island, valley of Waridor River, S0°52'09.66", E130°32'11.54", 46 m a.s.l., 18.I.2014, at light, leg. P. Juhász, T. Kovács & R. Horváth (5 males, 1 female, OPC).

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