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New species and records of Trichoptera from Batanta and Waigeo Islands (Indonesia, Raja Empat Archipelago, Papua [Irian Jaya])

János OLÁH

Abstract. New species of caddisflies from Batanta Island of Irian Jaya, Indonesia, are described and figured, belonging to the families Philopotamidae (7 species), Ecnomidae (3), Psychomyiidae (3), Polycentropodidae (5), Hydropsychidae (6), Glossosomatidae (1), Hydroptilidae (14) and Calamoceratidae (1). New records of other species of these families as well a New Synonym of *Anisocentropus banghaasi* ULMER, 1909 i.e. *Anisocentropus bipustulatus* BOTOSANEANU & DEVOS, 2004: **New Synonym** are presented.

Introduction

Batanta is a small island immediately near the extreme western edge of New Guinea. One sample is from nearby Waigeo Island.

The present study is based on material collected by ROBERT HORVÁTH on Batanta Island by installing an UV light trap at sunset and collecting it at sunrise with the incoming high tide. The material, including all holotypes and paratypes, is preserved in 70-80% alcohol in the collection of the author. The field and laboratory expenses were sponsored by Papua Paradise EcoResort (Birie Island, Raja Empat, Papua), the Nature Discovery Fund (Kisar-Hungary) and Sakertour, The Carpathian Birdwatching Company.

The collecting sites in Raja Empat Archipelago:

Batanta Island:

Habitat 3, small waterfall (no site name available), 0°50'04.03"S, 130°42'54.14"E: 10.6.2010

Henok River, no co-ordinates available: 29.9.2010

Marko house, 0°47'50,63"S, 130°49'05,57"E: 17.10.2010

Ron Creek, 0°49'16,37"S, 130°49'23,72"E: 12.10.2010, 5.11.2010

Ron Creek, 0°49'18,03"S, 130°49'26,03"E: 15.10.2010

Sarinam River, 0°50'10,54"S, 130°48'18,14"E: 21.10.2010

Sarinam River, 0°50'04,24"S, 130°47'59,22"E: 17.10.2010

Site A (no site name available) 0°50'04,03"S, 130°42'54,14"E: 10.-11.6.2010

Site B (no site name available), small stream, 250 m from mouth, 0°48'47,08"S, 130°38'18,91"E: 28.10.2010, 1.11.2010, 3.11.2010

Site C (no site name available), small stream, 600 m from mouth, 0°48'54,16"S, 130°38'09,04"E: 3.11.2010

Warmon Creek, 1. waterfall, no co-ordinates available: 21.9.2010

Warmon Creek, 2. waterfall, 0°50'23,25"S, 130°42'35,18"E: 21.9.2010, 24.9.2010, 25.10.2010

Wilson stream, no co-ordinates available: 12.5.2011

Waigeo Island:

Orobai River, 0°08'12,65"S, 130°35'46,21"E: 9.10.2010

Orobai River, 0°08'19,18"S, 130°35'46,74"E: 9.10.2010

The descriptions

***Chimarra bobita* new species (Philopotamidae)**

Diagnosis – Most close to the *C.papuana* KIMMINS, but differs by having outstanding knot on the dorsal process of gonopods; extremely elongated and slender paraprocts; 2 small clusters of microspines in the endotheca, not large spiny cluster embedding the entire apex of endotheca.

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 1:4:4. Wing membrane brown; forewing length 4 mm; discoidal, median and thyridial cells on forewing having similar lengths, discoidal cell twice the height of the median one; the median cell twice the height of the thyridial one; R slightly, Rs strongly sinuous with thickening before the discoidal cell, whose veins are also thickened at the base; hyaline window pattern (reduced pigmentation) less developed and present as a lack of pigmentation on crossveins r-m, m, m-cu, and on the arculus; on hindwing diagnostic looping of 2A to join 1A present.

Male genitalia (p.53). Tergite and sternite VIII distinct, sternite VIII with ventral process. Segment IX synsclerotized, triangular in lateral view; ventroapical keel developed into a long process. Segment X membranous, indistinct. Cerci reduced to small setose knot. Paraproctal lateral vertical plates long and slender with 2 sensillae styloconica. Gonopods with a thin dorsal stalk with capitate apex flat in sagittal plane and armed with 2 strong spines. Phallic organ with slender horizontal phalotheca; endotheca with 2 small clusters of 3-4 microspines, phalotremal sclerites and small indistinct.

Type material – Holotype ♂ and 4♂ Paratypes: Site A, 10.6.2010. – Paratypes: Warmon Creek, 1. waterfall, 21.9.2010, 6♂. – same, 24.9.2010, 4♂. – Marko house, 17.10.2010, 2♂. – Sarinam River, 21.10.2010, 4♂. – Warmon Creek, 2. waterfall, 25.10.2010, 4♂. – Site B, 1.11.2010, 4♂. – same, 3.11.2010, 3♂.

Etymology – The name refers to the outstanding stalked knot on the dorsal process of the gonopods, topknot "*bóbita*" in Hungarian.

***Chimarra fehera* new species**

Diagnosis – The vertical extension of dorsum IX and the heavily sclerotized black ventral process on the phalotheca are unique features of this almost entirely white new species. The generic diagnostic character of a looping 2A is also modified.

Description – Male (in alcohol). Medium-sized and almost white animal. Maxillary palp formula: I-IV-(II, III)-V. Fore tibial spurs reduced to diagnostic one: spur formula 1:4:4. Wing membrane brown; forewing length 4.8 mm; discoidal and median cells on forewing having similar lengths, thyridial cell longer, discoidal cell twice the height of the

median one; the median cell twice the height of the thyridial one; R slightly sinuous, Rs straight; discoidal cells without thickening at the base; hyaline window pattern (reduced pigmentation) less developed and present as a lack of pigmentation on crossveins r-m, m, m-cu, and on the arculus; on hindwing diagnostic looping of 2A to join 1A absent, 2A arises from 1A and 3A joining to the middle of 2A.

Male genitalia (p.53). Tergite and sternite VIII distinct, sternite VIII without ventral process. Segment IX synsclerotized, very short; its dorsum extremely produced vertically as a short bridle spreading the extension of membranous segment X; ventrum IX produced into a triangular body; ventroapical keel reduced. Segment X membranous, spread with indistinct shape. Cerci reduced to small setose hump. Paraproctal lateral vertical plates short with subapical lateral tooth, sensillae not discernible. Gonopods falcate both in lateral and ventral view; mesoapical margin with dentate profile. Phallic organ with 2 black spines and endotheca embedded with spiny clusters, phallosomal sclerites small and indistinct.

Type material – Holotype ♂ and 2♂ Paratypes: Site B, 28.10.2010. Paratype: same, 1.11.2010, 1♂.

Etymology – The name refers to the white colour of the animal, white “*fehér*” in Hungarian.

Chimarra felkora new species

Diagnosis – Similar to *Chimarra biramosa* KIMMINS from the Solomon Islands (Quadalcanal), but differs in having posterior margin of segment IX straight, not convex; ventroapical keel less developed; cerci small; paraproct and gonopods differently shaped.

Description – Male (in alcohol). Medium-sized animal, abdomen, lateral thoracic sclerites and upper part of legs whitish. Maxillary palp formula: I-IV-III-II-V. Fore tibial spurs reduced to diagnostic one: spur formula 1:4:4. Wing membrane brown; forewing length 4.5 mm; discoidal, median and thyridial cells on forewing having similar lengths, but discoidal cell twice the height of the median one; the median cell twice the height of the thyridial one; R and Rs slightly sinuous; discoidal cells strongly thickened at the base; hyaline window pattern (reduced pigmentation) less developed and present as a lack of pigmentation on crossveins r-m, m, m-cu, on the arculus and around the anterior thickening of discoidal cell; on hindwing 2A diagnostic looping to join 1A present, forming a closed cell.

Male genitalia (p.53). Tergite and sternite VIII distinct, sternite VIII produced into a triangular pointed ventral process. Segment IX synsclerotized, its dorsum open sclerotically; anterior margin and posterior margin triangular ventrad; upper posterior section straight; ventroapical keel small and triangle in lateral view. Segment X membranous, with indistinct shape. Cerci subquadratic in lateral view. Paraproctal lateral vertical plates ending in aviform apices; sensillae not discernible. Gonopods biarmed, semicircular in lateral view. Phallic organ with a single spine, phallosomal sclerites indiscernible.

Type material – Holotype ♂: Site B, 3.11.2010. - Paratypes: Warmon Creek, 2. waterfall, 25.10.2010, 4♂.

Etymology – The name refers to the semicircular shape of the gonopods, semicircular “*félkör*” in Hungarian.

Chimarra holda new species

Diagnosis – Close to *Chimarra mussaua* MALICKY from Papua New Guinea, but differs in having (1) anterior margin of segment IX different; apicoventral keel on segment IX present, not lacking; membranous segment X consisting of basodorsal striated fringes and narrowing mesal lobe, not

excised; (3) cerci auriform, not filiform; (4) paraproct without lateral and apical minute spiny outgrowths; (5) gonopods moon-shaped both in dorsal and ventral views; (6) endotheca with horizontal single apical and subapical spines and 6 vertical straight spines accompanied by a single curved spine below; spine complex preceded by the phallosomal sclerite complex.

Description – Male (in alcohol). Medium-sized light brown, almost yellow animal. Maxillary palp formula: I-IV-II-III-V. Fore tibial spurs reduced to diagnostic one: spur formula 1:4:4. Wing membrane brown; forewing length 5 mm; forewing discoidal, median cells having similar lengths, but discoidal cell twice the height; thyridial cell twice the length and low like median cell; RS almost straight, R slightly sinuate; hyaline window pattern (reduced pigmentation) less developed and present as a lack of pigmentation on crossveins r-m, m, m-cu, and on the arculus; on hindwing 2A diagnostic looping to join 1A present, forming a closed cell.

Male genitalia (p.53). Segment VIII unmodified except the pleuron separating tergum and sternum reduced and very low. Segment IX synsclerotized, its dorsum reduced to a short heavily pigmented-bridle; anterior margin concave, posterior margin convex, they are almost parallel-sided; ventroapical keel present, triangular. Segment X membranous, liguliform superimposed by basodorsal striated fringes. Cerci small and rounded. Paraproctal lateral vertical plate liguliform with small basoventral flank with a cluster of 8 sensillae. Gonopods moon-shaped both in lateral and ventral views. Phallic organ with 8 straight spines, 2 horizontal longer, 6 vertical shorter and with a single curved spine.

Type material – Holotype ♂ and 19♂♂ Paratypes: Site A, 10.6.2010. Paratypes: Warmon Creek, 1. waterfall, lighthouse, 24.9.2010, 6♂. - Warmon Creek, 2. waterfall, 25.10.2010, 6♂. - Site B, 1.11.2010, 8♂.

Etymology – The name refers to the moonlike shape of the gonopods both in lateral and ventral views, moon “*holda*” in Hungarian.

Chimarra horgoka new species

Diagnosis – closely related to *Chimarra xenillion* NEBOISS from Papua New Guinea, but differs in having short anterior concavity on segment IX; posterior margin of segment IX triangular, not concave; ventroapical keel less developed; cerci, paraproct and gonopods differently shaped.

Description – Male (in alcohol). Medium-sized animal, abdomen whitish below. Maxillary palp formula: I-IV-III-V-II. Fore tibial spurs reduced to diagnostic one: spur formula 1:4:4. Wing membrane brown; forewing length 5 mm; discoidal, median and thyridial cells on forewing having similar lengths, but discoidal cell twice the height of the median one; the median cell twice the height of the thyridial one; R and Rs straight, not sinuous; discoidal cells strongly thickened at the base; hyaline window pattern (reduced pigmentation) less developed and present as a lack of pigmentation on crossveins r-m, m, m-cu, and on the arculus and around the anterior of thickened discoidal cell; on hindwing 2A diagnostic looping to join 1A not complete, not forming a closed cell; 3A reduced.

Male genitalia (p.53). Tergite and sternite VIII distinct, sternite VIII produced into a triangular pointed ventral process. Segment IX synsclerotized, its dorsum reduced to a short bridle; anterior margin short concave, its ventrum produced as a triangle; posterior margin triangular; ventroapical keel small and triangle in lateral view. Segment X membranous, with indistinct shape. Cerci subquadratic in lateral view. Paraproctal lateral vertical plates ending in

upwards directed hooks; 2 sensillae styloconica present on hooks. Gonopods elongated and ovoid in lateral and falcate in ventral view with alveoli-serrated apical margin. Phallic organ with ventrally lowering and narrowing phalotheca; endotheca with 2 spines; endotheca partially protruded, with 1 spine; phallosclerites of half-ring shape exposed at the very apex.

Type material – Holotype ♂: Site A, 10.6.2010.

Etymology – The name refers to the hook-shaped apices of the paraproctal vertical plates, hooks “*horgok*” in Hungarian.

Chimarra kanala new species

Diagnosis – Allied to a group of species having a triangular ventral process on sternite VIII; long straight apicoventral process on segment IX; a pair of simple linguiform paraproctal plates and gonopods of massive basal body; all described from Papua New Guinea: *C. papuana* KIMMINS, *C. schmidi* KIMMINS, *C. sabrona* KIMMINS, *C. gressitti* SYKORA. *C. kanala* new species differs from each by having gonopods bifurcate in lateral and spatulate in ventral views.

Description – Male (in alcohol). Small brown animal, abdomen white below. Maxillary palp formula: I-IV-II-III-V. Fore tibial spurs reduced to diagnostic one: spur formula 1:4:4. Wing membrane brown; forewing length 3.6 mm; discoidal, median and thyridial cells on forewing having similar lengths, but discoidal cell twice the height of the median one; the median cell twice the height of the thyridial one; R slightly sinuate, Rs sinuous with thickening before the discoidal cell, whose veins are also thickened at the base; hyaline window pattern (reduced pigmentation) less developed and present as a lack of pigmentation on crossveins r-m, m, m-cu, and on the arculus; on hindwing 2A diagnostic looping to join 1A not complete, not forming a closed cell; 3A reduced.

Male genitalia (p.53). Tergite and sternite VIII distinct, sternite VIII produced into a triangular ventral process. Segment IX synsclerotized, its dorsum reduced to a short bridle; anterior margin produced as a triangle, posterior margin convex; ventroapical keel modified into an outstanding process with slightly dilated apex in lateral view. Segment X membranous, with indistinct shape. Cerci small and rounded. Paraproctal lateral vertical plate liguliform with 2 sensillae styloconica. Gonopods bifurcated in lateral view with spatulate apex in ventral view; posterior margin irregularly serrated; mediomesal surface crossed by a dark oblique ridge. Phallic organ with 2 straight black and 2 curved brown spines; apex of membranous aedeagus with microtrichia.

Type material – Holotype ♂ and 19♂♂ Paratypes: Site A, 10.6.2010. Paratypes: Warmon Creek, 1. waterfall, 21.9.2010, 6♂. – Same, 24.9.2010, 6♂. – Marko house, 17.10.2010, 8♂. – Warmon Creek, 2. waterfall, 25.10.2010, 6♂. – Site B, 28.10.2010, 8♂. – Same, 1.11.2010, 8♂. – Site B, 3.11.2010, 8♂. – Ron Creek, 5.11.2010, 1♂. – Wilson stream, 12.5.2011, 1♂.

Etymology – The name refers to the spatulate spoonlike apex of the gonopods in ventral view, spoon “*kanál*” in Hungarian.

Chimarra ujika new species

Diagnosis – Most similar to *Chimarra leopoldi* JACQUEMART from Papua New Guinea, but differs in having a very long ventroapical keel on segment IX; downwards directed horned paraproct; triangular gonopods angled.

Description – Male (in alcohol). Medium-sized animal, abdomen, lateral thoracic sclerites and upper part of legs whitish. Maxillary palp formula: I-IV-III-II-V. Fore tibial

spurs reduced to diagnostic one: spur formula 1:4:4. Wing membrane brown; forewing length 4.4 mm; discoidal, median and thyridial cells on forewing having similar lengths, but discoidal cell twice the height of the median one; the median cell twice the height of the thyridial one; R and Rs slightly sinuous; discoidal cells thickened at the base; hyaline window pattern (reduced pigmentation) less developed and present as a lack of pigmentation on crossveins r-m, m, m-cu, and on the arculus; on hindwing 2A diagnostic looping to join 1A present, forming a closed cell.

Male genitalia (p.53). Tergite and sternite VIII distinct, sternite VIII produced into a triangular pointed ventral process. Segment IX synsclerotized, its dorsum open sclerotically; anterior margin triangular ventrad; posterior margin straight; ventroapical keel a large triangle in lateral view. Segment X membranous, with indistinct shape. Cerci elongated. Paraproctal lateral vertical plates tall with downwards directed slightly excised apices; a small cluster of 4 sensillae present subapical. Gonopods subtriangular, upper angle produced into a long digitiform process visible both in lateral and ventral views. Phallic organ with 2 curved spines and a single straight spine, phallosclerites small and indistinct.

Type material – Holotype ♂ and 3♂ Paratypes: Site B, 3.11.2010. – Paratypes: Warmon Creek, 2. waterfall, 25.10.2010, 2♂.

Etymology – The name refers to the digitiform processes on the upper angle of the gonopods, finger diminutive “*ujjka*” in Hungarian.

Ecnomus bunkos sp. n. (Ecnomidae)

Diagnosis – Close to *Ecnomus milnensis* CARTWRIGHT from Papua New Guinea but differs in having parallel-sided cerci, not broad-based; cerci straight both in lateral and dorsal views, not curving; gonopods more straight; phallic organ differently constructed, parameres pointed.

Description – Male (in alcohol). Small brown animal with lighter legs and venter. Foretibial spurs complete, three; spur formula 3:4:4. Maxillary palp formula I-II-III-IV-V, second segment slightly longer than first and only slightly shorter than third; third segment positioned apically on second. Wing membrane pale brown; forewing length 2.6 mm; forewing forks complete, F1 present; corneous nygmae present and easily-visible in F2 and in thyridial cell; forewing vein R1 strongly hypertrophied, thickened along its entire length; false fork of R1 indistinct on the granulated pterostigmal area; median cell as long as discoidal cell; thyridial cell low and slightly shorter than discoidal.

Male genitalia (p.54). Tergum IX concave anteriorly and narrowing both ventrally and dorsally in lateral view; sclerotized strips, the skeletal holder connecting tergum IX to phallobase distinct; sternum IX long and subquadrangular, obliquely cut at tergal margin in lateral view without longitudinal median suture in ventral view. Vestigial segment X is discernible as small membranous mesal lobe. Cerci straight parallel-sided and slender digitiform in dorsal view with clavate apex in lateral view; cercal stout setae black, limited to the apical mesal surface; medium-sized and mesad directed. External paraproctal processes short digitiform with several small apical setae; internal paraproctal processes fused to external ones. Gonopod elongated lobiform slightly curving upwards and mesad; vertical bandlike basal plates running along the mesal surface of sternites and connected to phallic tenons. Phallic apparatus starts from a ringlike phallic apodeme followed by the short dorsobasal lobe and by the heavily sclerotized pointed aviform parameres; aedeagus with subapical dorsal lobe and with excised apex; tenons

connecting phallobase to the basal plate of the gonopods visible.

Type material – Holotype ♂ and 1♂ Paratype: Site B, 3.11.2010. - Paratypes: Site A, 10.6.2010, 4♂. - Warmon Creek, 1. waterfall, 21.9.2010, 4♂. – same, 24.9.2010, 1♂. - Warmon Creek, 2. waterfall, 25.10.2010, 12♂.

Etymology – The name refers to the clavate apex of the cerci, clavate “bunkós” in Hungarian.

Ecnomus lelog sp. n.

Diagnosis – Most similar to *Ecnomus milnensis* CARTWRIGHT from Papua New Guinea but differs in having cerci without basoventral process; apex of cerci not capitate; gonopod very long and slender; phallic organ with a pair of parameres slender, not stout.

Description – Male (in alcohol). Small brown animal with lighter legs and venter. Foretibial spurs complete, three; spur formula 3:4:4. Maxillary palp formula I-II-III-IV-V, second segment slightly longer than first and only slightly shorter than third; third segment positioned apically on second. Wing membrane pale brown; forewing length 3 mm; forewing forks complete, F1 present; corneous nygmae present and easily-visible in F2 and in thyridial cell; forewing vein R1 strongly hypertrophied, thickened along its entire length; false fork of R1 indistinct on the granulated pterostigmal area; median cell longer than discoidal cell; thyridial cell low and slightly shorter than discoidal.

Male genitalia (p.54). Tergum IX concave anteriorly, narrowing ventrally and broadening dorsally in lateral view; sclerotized strips, the skeletal holder connecting tergum IX to phallobase indistinct; sternum IX long and subquadrangular, without longitudinal median suture in ventral view. Vestigial segment X indiscernible. Cerci with tall basal and parallel-sided low apical half in lateral view; cercal stout setae black, limited to the apical and subapical mesal surface; small to medium-sized and mesad directed. External paraproctal processes deeply shifted down by the elongation of internal paraproctal processes; digitiform with setal apices. Gonopod extremely elongated, slender and apex upwards directed in lateral view. Phallic apparatus starts from a ringlike phallic apodeme followed by the dorsobasal lobe and by the slender pair of parameres; aedeagus tapering apicad in lateral view; tenons connecting phallobase to the basal plate of the gonopods indiscernible.

Type material – Holotype ♂: Site B, 1.11.2010.

Etymology – The name refers to the external paraproctal processes hanging deeply down, hanging down “lelóg” in Hungarian.

Ecnomus vekon sp. n.

Diagnosis – Close to *Ecnomus papuanus* ULMER from Papua New Guinea but differs in having cerci parallel-sided, not constricted midway; cerci slender; gonopod apex curving upwards, not straight in lateral view; phallic organ differently constructed.

Description – Male (in alcohol). Small brown animal with lighter legs and venter. Foretibial spurs complete, three; spur formula 3:4:4. Maxillary palp formula I-II-III-IV-V, second segment slightly longer than first and only slightly shorter than third; third segment positioned apically on second. Wing membrane pale brown; forewing length 3.6 mm; forewing forks complete, F1 present; corneous nygmae present and easily-visible in F2 and in thyridial cell; forewing vein R1 strongly hypertrophied, thickened along its entire length; false fork of R1 indistinct on the granulated pterostigmal

area; median cell as long as discoidal cell; thyridial cell low and slightly shorter than discoidal.

Male genitalia (p.54). Tergum IX concave anteriorly and narrowing both ventrally and dorsally in lateral view; sclerotized strips, the skeletal holder connecting tergum IX to phallobase indistinct; sternum IX long and subquadrangular, obliquely cut at tergal margin in lateral view without longitudinal median suture in ventral view. Vestigial segment X is discernible as small membranous mesal lobe slightly excised in the middle. Cerci parallel-sided, slender digitiform with rounded apex in lateral view; cercal stout setae black, limited to the apical and subapical mesal surface; small to medium-sized and mesad and anteriorly directed. External paraproctal processes short lobe with several small apical setae; internal paraproctal processes fused to external ones and similar in size and shape. Gonopod apex directed upwards in lateral view; slightly excised in ventral view. Phallic apparatus starts from a ringlike phallic apodeme followed by the dorsobasal lobe and by the blunt paramere with a pair of downward directed lateral digitate processes in lateral view; aedeagus with subapical dorsal lobe; tenons connecting phallobase to the basal plate of the gonopods visible.

Type material – Holotype ♂: Ron Creek, 5.11.2010. - Paratypes: same, 12.10.2010, 3♂. – same, 15.10.2010, 3♂. - Sarinam River, 17.10.2010, 3♂. - Warmon Creek, 2. waterfall, 25.10.2010, 9♂.

Etymology – The name refers to the slender cerci, thin “vékony” in Hungarian.

Tinodes gomboc sp. n. (Psychomyiidae)

Diagnosis – This new species has a rather unique character, the coxopodites are entirely fused into a circular structure in ventral view. A similar fused coxopodite is present in *T. lomholdti* MALICKY from Papua New Guinea (Bismarck Archipelago) but the new species differs in having the dorsal elongated angle of the triangular sternite IX vertical, not oblique anterad, cerci spatulate, not filiform; trilobed apex and basal plate of gonopods differently shaped; anterior apodeme of basal plate capitate, not filiform.

Description – Male (in alcohol). Small castanean brown animal. Sclerites medium brown. Maxillary palp formula is IV-I-II-III-V. Forewing length 2.9 mm, median cell closed; distinct hyaline pattern on forewing; characteristic rounded twin patches around crossveins r-m, m and small translucent patches at arculus and in the thyridial cell near the nygma around crossvein sc-r; distinct and contrasting hyaline line present along stem M. Spur formula is 244.

Male genitalia (p.54). IXth abdominal segment represented by sternite and tergite, tergite low, sternite tall and subtriangular in lateral view; setaless tergite is apron-shaped and darker due to the finely granulated surface densely packed with microtrichia and roofing directly over phallic apparatus and the dorsal paraproctal processes; sternite tall and triangular in lateral view joining high to fulcrum complex where it meets with tergite IX, cerci and paraproct as well as the median bridge providing sclerous connection between the phallic apparatus and sternite IX. Vestigial membranous segment X present and fused to the tergum IX. Cerci spatulate, strongly setose. Paraproct closely adpressed, with phallic organ indistinct with 5-6 megasetae. Gonopods, the largest genital element, composed of the fused coxopodite with trifid apex; harpago is probably the setiferous middle claviform lobelike arm, the 2 spinelike processes belong to coxopodite; spinelike processes curving apicad then ventrad enclosing a circular gap; the basal plate of gonopods

composed of long capitate anterior apodeme and an arching distal spinelike process; the middle is attached to gonopods by lateral straps. Phallic apparatus weakly discernible, being in the double cover of cercus and paraproct on both sides; its apex simple.

Type material – Holotype ♂ and 1♂ Paratype: Warmon Creek, 2. waterfall, 25.10.2010.

Etymology – The name refers to the almost completely fused coxopodites producing a circular shape in ventral view, fatty circular “gömböc” in Hungarian.

***Tinodes martoni* sp. n.**

Diagnosis – This new species has some resemblance to *T. lomholdti* MALICKY from Papua New Guinea (Bismarck Archipelago) but differs by having cerci clavate, not digitiform; paraproct with dorsal and ventral apical lobes, not simple monolobed; gonopods with tall and semicircular dorsal margin in lateral view; trilobed apex of gonopods including harpago differently shaped; phallic organ produced with upwardly directed apex and with ejaculatory duct.

Description – Male (in alcohol). Small castanean brown animal. Sclerites medium brown, setal warts both on head and thorax lighter. Maxillary palp formula is IV-I-II-III-V. Spur formula is 244. Forewing length 2.9 mm.

Male genitalia (p.54). IXth abdominal segment represented by sternite and tergite, both subtriangular in lateral view; setaless tergite is apron-shaped and darker due to the finely granulated surface densely packed with microtrichia and roofing directly over phallic apparatus and the dorsal paraproctal processes; sternite sagittiform in lateral view joining low to fulcrum complex where it meets with tergite IX, cerci and paraproct as well as the median bridge providing sclerous connection between the phallic apparatus and IXth sternite. Vestigial membranous segment X used to fuse to the tergum IX in *Tinodes* not discernible at all. Cerci clavate, strongly setose. Paraproct represented by a pair of dorsal paraproctal processes shorter than cerci, bilobed and dilated apicad; armed with 4-5 pairs of magasetae with well-developed alveoli. Gonopods, the largest genital element, composed of the dorsally extended and rounded semicircular coxopodites with trifid apex; harpago is probably the setiferous middle lobelike arm, the 2 spinelike processes belong to coxopodite; the basal plate with long anterior apodeme and a long arching distal spinelike process. Phallic apparatus weakly discernible located inside the paraproctal processes and being in the double cover of cercus and paraproct on both sides; its apex bifid, dorsal arm may represent free ejaculatory duct; phallobase or more accurately the basal part of the phallotheca, directed downwards to the median bridge of sternite IX; it is not easy to homologise the elements of the fulcrum, the meeting point of Schmid’s “jaws” of psychomyoids.

Type material – Holotype ♂: Site B, 1.11.2010. - Paratypes: Site A, 10.6.2010, 5♂. - Warmon Creek, 1. waterfall, 24.9.2010, 1♂. - Site B, 3.11.2010, 1♂.

Etymology – The name of this tiny castanean brown *Tinodes* species was dedicated to MÁRTON, the newly-born son of the collector, ROBERT HORVÁTH.

***Tinodes rekae* sp. n.**

Diagnosis – This new species is close to *T. aberrans* KIMMINS from Papua New Guinea (Kokoda) but differs in having cerci with bulbous base; paraproct with different length ratio of the setose and spiny processes; taller phallic organ in lateral view; trilobed apex and basal plate of gonopods differently shaped.

Description – Male (in alcohol). Small castanean brown animal. Sclerites medium brown, setal warts both on head and thorax lighter. Maxillary palp formula is IV-I-II-III-V. Forewing length 2.9 mm, unlike in most Holarctic and Oriental species, the median cell is open. Spur formula is 244.

Male genitalia (p.54). IXth abdominal segment represented by sternite and tergite, both subtriangular in lateral view; setaless tergite is apron-shaped and darker due to the finely granulated surface densely packed with microtrichia and roofing directly over phallic apparatus and the dorsal paraproctal processes; sternite tall and triangular in lateral view joining high to fulcrum complex where it meets with tergite IX, cerci and paraproct as well as the median bridge providing sclerous connection between the phallic apparatus and IXth sternite. Vestigial membranous segment X present and fused to tergum IX. Cerci filiform, strongly setose. Paraproct represented by a pair of short digitiform setose processes and by a pair of setaless, unequal spinelike processes. Gonopods, the largest genital element, composed of the dorsally extended and rounded ovoid coxopodites with trifid apex; harpago is probably the setiferous middle claviform lobelike arm, the 2 spinelike processes belong to coxopodite; the basal plate of gonopods composed of long anterior apodeme and a tapering distal process; the middle is attached to gonopods by lateral wings and producing backwards as a pair of setose digitate processes. Phallic apparatus rather tall, but weakly discernible being in the double cover of cercus and paraproct on both sides; its apex aviform combined with free ejaculatory duct arising from middle dorsum.

Type material – Holotype ♂ and 1♂ Paratype: Warmon Creek, 1. waterfall, 21.9.2010. Paratypes: Henok River, 29.9.2010, 1♂. - Warmon Creek, 2. waterfall, 25.10.2010, 11♂.

Etymology – The name was dedicated to RÉKA, the wife of the collector, who has accompanied his husband during several of his trips.

***Nyctiophylax (Paranyctiophylax) batant* sp. n.**

(Polycentropodidae)

Diagnosis – This new species having elongated monolobed gonopods belongs to the *Nyctiophylax flavus* species group of OLÁH & JOHANSON (2010). This gonopod structure is accompanied with downcurving ventral paraproctal processes forming a basal ventral half ring below the phallic organ. The usually sclerotized spinelike dorsal paraproctal processes are absent. IXth sternite frequently produces a ventroapical median lobe of various lengths. *Nyctiophylax batant* sp. n. is most similar to *N. anoana* MALICKY from Papua New Guinea (Bismarck Archipelago), but differs in having segment IX taller than long; ventroapical median lobe more developed; membranous segment X less developed; cerci broad spatulate, not long; setose, ventral paraproctal process triangular in lateral view, not filiform; its triangular shape is produced by tall basal ventral half ring; phallic apparatus with a single long median spine.

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

Male genitalia (p.57). The IXth abdominal segment is represented by a tall triangular robust sternite, with a well-developed apicoventral mesal lobe; tergite IX almost indiscernible. Segment X small and membranous; partially weakly visible under the cover of cerci. Setose cerci are broad spatulate; shorter than gonopods. Paraproctal complex well-developed; a pair of setose, triangular ventral paraproctal processes present with a ventrobasal half ring alongside and below the phallic organ; dorsal paraproctal processes lacking. Gonopods elongated and slender, arching angulate in ventral view; ventrobasal elbow less developed. The phallic apparatus located dorsad, fixed and guided by the paraproct and by the membranous Xth segment; the tube forming phallosome less developed; phallobase modified into an arching long and narrow dorsal apodeme, very distinct and clear-cut, arching and narrowing into a spine-like process in lateral view, but also narrowing in dorsal view; the aedeagus looks membranous with a long single spine.

Type material – Holotype ♂: Site B, 3.11.2010.

Etymology – The name refers to the type locality, Batanta island.

***Nyctiophylax (Paranyctiophylax) bunk* sp. n.**

Diagnosis – This new species, having elongated monolobed gonopods, belongs to the *Nyctiophylax flavus* species group of OLÁH & JOHANSON (2010) and is most similar to *N. anoana* MALICKY from Papua New Guinea (Bismark Archipelago) and *N. batant* sp. n., but differs from both in having cerci elongated in lateral and clavate in dorsal view; paraproct differently formed; endothena with 4+2 straight spines.

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

Male genitalia (p.57). The IXth abdominal segment is represented by a subtriangular robust sternite, with a less developed apicoventral mesal lobe; tergite IX small, almost indiscernible. Segment X present and membranous, excised apicomeres, apices covered with microtrichia. Setose cerci elongated in lateral and very clavate in dorsal view; as long as the gonopods. Paraproctal subphallic plate present and subtriangular in ventral view with pointed apices, very low in lateral view; dorsal paraproctal processes lacking. Gonopods elongated and slender, right-angled in lateral view; ventrobasal elbow less developed. The phallic apparatus located dorsad, fixed and guided by the paraproct and by the membranous Xth segment; the tube forming phallosome less developed; phallobase modified into an arching long and narrow dorsal apodeme, very distinct and clear-cut, arching and narrowing into a spine-like process in lateral view, but also narrowing in dorsal view; the aedeagus membranous with a 4+2 straight spines.

Type material – Holotype ♂ and 1♂ Paratype: Warmon Creek, 2. waterfall, 25.10.2010.

Etymology – The name refers to the cerci having a club shaped apex in dorsal view, club “bunko” in Hungarian.

***Nyctiophylax (Paranyctiophylax) ketes* sp. n.**

Diagnosis – This new species, having elongated monolobed gonopods, belongs to the *Nyctiophylax flavus* species group of OLÁH & JOHANSON (2010) and is most similar to *N. batant*

sp. n., but differs by having cerci circular, not spatulate; paraproct apex elongated and narrow in ventral view, not broad; gonopods more S-shaped both in lateral and ventral views.

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

Male genitalia (p.57). Segment IX is represented by a triangular sternite, with a less developed apicoventral mesal lobe; tergite IX small, almost indiscernible. Segment X indiscernible. Setose cerci circular. Paraproctal subphallic plate present and subtriangular in ventral view with long pointed apices. Gonopods elongated slender, S-shaped both in lateral and ventral views; ventrobasal elbow less developed. Basal plate of gonopods elongated. The phallic apparatus located dorsad, fixed and guided by the paraproct; the tube forming phallosome less developed; phallobase modified into an arching long and narrow dorsal apodeme, very distinct, arching and narrowing into a spine-like process in lateral view, but also narrowing in dorsal view; the aedeagus membranous with a single spine.

Type material – Holotype ♂: Warmon Creek, 2. waterfall, 25.10.2010.

Etymology – The name refers to the S-shaped gonopods both in lateral and ventral views, double S “kétés” in Hungarian.

***Nyctiophylax (Paranyctiophylax) kevert* sp. n.**

Diagnosis – This new species, having the elongated monolobed gonopods and apicoventral mesal process of the *Nyctiophylax flavus* species group, is the only *Nyctiophylax* species in the Australasian Faunal Region that produced also dorsal paraproctal process. The presence of a spiny dorsal paraproctal process together with monolobed gonopods is a character state of the *Nyctiophylax abaya* species group. The presence of an apicoventral mesal process on segment IX is most common in the *N. flavus* species group.

Description – Male (in alcohol). The entire body is rather uniformly pale brown. Antennae rather stout. Maxillary palp formula is II-I-IV-III-V, third segment inserted mesosubapical on the second. Spur formula 344. Forewing pale with small hyaline window around crossvein m-cu; forewing length 3.3 mm. Discoidal cells both on forewing and hindwing closed, median cell on forewing closed. Forewing with apical forks 2, 3, 4, 5, hindwing with apical forks 2, 5 present. In forewing A1, A2 and A3 looped.

Male genitalia (p.57). The IXth abdominal segment is represented by a subtriangular robust sternite, with outstanding apicoventral mesal lobe; tergite IX small, almost indiscernible. Segment X indiscernible. Setose cerci slender and elongated both in lateral and dorsal views, as long as the gonopods. Paraproctal subphallic plate present and downwardly curving in lateral view; dorsal paraproctal processes spiny and crossing in dorsal view. Gonopods elongated and slender, right-angled in lateral view; ventrobasal elbow well developed. Basal plate of gonopods triangular in lateral view. The phallic apparatus located dorsad, fixed and guided by the dorsal and ventral paraproctal processes; the tube forming phallosome less developed; phallobase modified into an arching long and narrow dorsal apodeme, very distinct and clear-cut, arching and narrowing

into a spine-like process in lateral view, but also narrowing in dorsal view; the aedeagus membranous with 2 straight vertical spines embedded in hollows in the apex.

Type material – Holotype ♂: Warmon Creek, 2. waterfall, 25.10.2010. Paratype: Site A, 10.6.2010, 1♂.

Etymology – The name refers to the presence of spiny dorsal paraproctal processes and the well-developed apicoventral mesal lobe, a mixed character state of two species groups, mixed “kevert” in Hungarian.

***Polyplectropus tagas* sp. n.**

Diagnosis – This small dark brown coloured species resembles *P. chapmani* Kumanski from Papua New Guinea but differs in having cerci low and elongated, not tall and short; bifid dorsal paraproctal process, not simple spine; gonopods with long excised ventral margin, not short.

Description – Male (in alcohol). The entire body is rather uniformly dark brown coloured. Spur formula 344. Maxillary palp formula is (I,II)-IV-III-V, third segment inserted mesosubapicad. Forewing length is 4.6 mm. Discoidal and median cells in forewing closed; forewing with apical forks 1, 2, 3, 4, 5, hindwing damaged.

Male genitalia (p.53). The sclerotized IXth sternite short and vertically elongated with a V-shaped excision above gonopods; there is a small triangular and indistinct tergite IX in continuation of the sternite and meeting at or forming a fulcrum with cerci and paraproctal complex. Segment X semimembranous, fused to tergite VIII and covered with microtrichia. Cerci are elongated, longer than the dorsal process of paraproct having a small basoventral setose digitiform process. Paraproctal complex is fused to the cerci; the dorsal sclerotized spine-like paraproctal processes bifid; the subphallic sclerite short and bandlike. Gonopods long, excised on ventral margin in lateral view. The phallic apparatus located dorsad, fixed and guided very high by the bifid dorsal paraproctal processes and by the paraproctal subphallic bandlike sclerite; phallosome tall and robust, endothea embedded by cluster of short spines.

Type material – Holotype ♂: Waigeo Island, Orobai River, 0°08'12,65"S, 130°35'46,21"E, 9.10.2010.

Etymology – The name refers to the long excision on the ventral margin of the gonopods in lateral view, excised “kivágot” in Hungarian.

***Cheumatopsyche batanta* sp. n. (Hydropsychidae)**

Diagnosis – This brown-winged animal with a faded and mottled wing pattern is a member of the *Cheumatopsyche expeditionis* species group and is similar to *Cheumatopsyche alampeta* NEBOISS from Australia, but differs in having forewing pale brown, not blackish brown; intersegmental profile different; ventroapical setose lobe very small and laterad directed, not large and mesad directed in dorsal view; mesocaudal lobe curving upwards, not downwards; harpago long and parallel-sided, not short and broad-based.

Description – Male (in alcohol). Cephalic and thoracic sclerites brown, legs paler brown. Maxillary palp formula: I-IV-III-II-V. Spur formula 2,4,4. Forewing length 6 mm; brown with veins slightly darker; membrane marble mottled except for a wide apical band; transparent hyaline line present on the first half of stem of M1+2. Forewing SC and R run free to margin, Cu₂ and A1 also run free to margin, not confluent. Hindwing SC and R met at r; r precedes s, fork 1 absent.

Male genitalia (p.55). IXth abdominal segment annular, tergum very short, sternum 2x wider; anterior margin convex; apical lobe of posterior margin rounded, slightly above

lightly sclerotized articulation cavity of gonopods; antecosta broad, gradually narrowing ventrad and dorsad with antecostal suture visible externally; small acrotergite present and visible both in lateral and dorsal views; spine row on posterior margin of segment IX with a short break subdorsally; in dorsal view dorsoapical spiny lobes separated by short and wide excision. Intersegmental lateral profile between segments IX and X is high and obtuse angled. Segment X short, trapezoid in lateral and quadratic in dorsal view; basal part slightly sclerotized; terminating distally by the less produced setaless mesocaudal lobe; upcurving mesocaudal lobe, small and triangular in lateral view and straight in dorsal view; ventroapical setose lobe small, located middle in lateral and very laterad in dorsal view. Sutures of segment X visible behind cerci. Cerci (lateral setose area) forming elevated wart. Coxopodite of the gonopods extends far beyond apex of segment X, straight rod-like in lateral view, slightly dilated at base in ventral view; harpago long, slender, parallel-sided and slightly S-shaped in ventral view. Phallosome robust, basal section slightly broader and bent at obtuse angle to stem; middle region slightly arched ventrad in lateral view, followed by apex broadening into a distinctive, ventral bulge at the very apex; endophallus long and broad, extending through and filling almost the entire phallosome, ending anteriorly in a narrow tube at the gonopore; chitinized endotheal process rounded, strongly pigmented; phallosomal sclerite indistinctly round in lateral view.

Type material – Holotype ♂ and 181♂♂, 59♀♀ Paratypes: Warmon Creek, 2. waterfall, lighttrap, 25.10.2010. - Paratypes: Site A, 10.6.2010, 3♂, 5♀. - Site A, 11.6.2010, 10♂. - Warmon Creek, 1. waterfall, 24.10.2010, 5♂, 9♀.

Etymology. – The name refers for the type locality.

***Cheumatopsyche ronbata* sp. n.**

Diagnosis – This yellow animal with a subtle mottled wing pattern is a member of the *Cheumatopsyche expeditionis* species group and is similar to *Cheumatopsyche oktedit* OLÁH & JOHANSON from Papua New Guinea, but differs in having intersegmental profile taller; dorsocaudal spiny lobe of segment X continuous, not divided mesad; ventroapical setose lobe definitely curving upwards in lateral view, not just upward directed; mesocaudal lobe semicircular, not straight; harpago broad in ventral view, not filiform.

Description – Male (in alcohol). Cephalic and thoracic sclerites yellowish brown, appendages including palps, antennae, legs bright yellow. Maxillary palp formula: I-IV-III-II-V. Spur formula 2,4,4. Forewing length 7 mm; brown with veins slightly darker; castanean brown membrane marble mottled; transparent hyaline line present on the first half of stem of M1+2. Forewing SC and R run free to margin, Cu₂ and A1 also run free to margin, not confluent. Hindwing SC and R met at r; r precedes s, fork 1 absent.

Male genitalia (p.55). IXth abdominal segment annular, tergum very short, sternum almost 3x wider; anterior margin convex; apical lobe of posterior margin rounded, slightly above lightly sclerotized articulation cavity of gonopods; antecosta medium-sized, gradually narrowing ventrad and dorsad with antecostal suture visible externally; spine row on posterior margin of segment IX with a long break at segment X; in dorsal view dorsoapical spiny lobes continuous, not separated mesad. Intersegmental lateral profile between segments IX and X is very high and right angled. Segment X short, low basad and taller apicad; basal part slightly sclerotized; terminating distally by the produced setaless and semicircular mesocaudal lobe; ventroapical setose lobe strongly turning upwards. Cerci circled with longitudinal and

transverse sutures. Cerci (lateral setose area) forming elevated wart. Coxopodite of the gonopods extend well beyond apex of segment X, straight rod-like in lateral view, strongly dilated mesad at apex in lateral view; harpago broad. Phallosome robust, basal section slightly broader and bent at an obtuse angle to stem; middle region constricted, followed by apex broadening into ventral bulge at subapical; endophallus long and broad, extending through almost the entire phallosome, ending anteriorly in a narrow tube at the gonopore; chitinized endothelial process strongly pigmented, rounded; phallosomal sclerite indistinctly vertical in lateral view.

Type material – Holotype ♂ and 1♂ Paratype: Ron Creek, 5.11.2010. - Paratypes: same, but 15.10.2010, 9♂, 19♀. - Sarinam River, upper section, 21.10.2010, 3♂, 9♀.

Etymology – The name *ronbata*, refers to the type locality, Ron stream on Batanta Island, being based on an imperfect anagram abbreviated for euphony.

Cheumatopsyche ronujra sp. n.

Diagnosis – This yellow animal without a wing pattern is a member of the *Cheumatopsyche expeditionis* species group and is similar to *Cheumatopsyche suteri* DEAN from Australia, but differs in having forewing unicolourous yellow, not irrorate dark brown; dorsocaudal spiny lobe of segment IX continuous, not divided mesad; ventroapical setose lobe large and slightly curving upwards in lateral view, not straight and horizontal; mesocaudal lobe semicircular, not subtriangular; interlobular gap narrow by 1.5x the width of ventroapical lobe, not 4x; harpago long and slender in lateral and broad in ventral view due to flattening on coronal plane.

Description – Male (in alcohol). Cephalic and thoracic sclerites yellowish brown, appendages including palps, antennae, legs bright yellow. Maxillary palp formula: I-IV-III-II-V. Spur formula 2,4,4. Forewing length 7 mm; brown with veins slightly darker; castaneous brown membrane marble mottled; transparent hyaline line present on the first half of stem of M1+2. Forewing SC and R run free to margin, Cu₂ and A1 also run free to margin, not confluent. Hindwing SC and R met at r; r precedes s, fork 1 absent.

Male genitalia (p.55). IXth abdominal segment annular, tergum very short, sternum almost 2x wider; anterior margin convex; apical lobe of posterior margin rounded, slightly above lightly sclerotized articulation cavity of gonopods; antecosta medium-sized, gradually narrowing ventrad and dorsad with antecostal suture visible externally; spine row on posterior margin of segment IX with a short break at segment X; in dorsal view dorsoapical spiny lobes continuous, not separated mesad. Intersegmental lateral profile between segments IX and X is high and obtuse-angled. Segment X short, slightly trapezoid both in dorsal and lateral views; basal part slightly sclerotized, indistinct; terminating distally by the less produced setaless mesocaudal semicircular lobe; ventroapical setose lobe large rounded, slightly turning upwards. Sutures of segment X visible around cerci. Cerci (lateral setose area) forming elevated wart. Coxopodite of the gonopods extend well beyond apex of segment X, straight and rod-like in lateral view, slightly dilated at apex in lateral view; harpago flattened in coronal plane; long, slender and curving upwards in lateral view, broad in ventral view. Phallosome robust, basal section slightly broader and bent at an obtuse angle to stem; middle region slightly arched ventrad in lateral view, followed by apex broadening into ventral bulge at the very apex; endophallus long and broad, extending through and filling almost the entire phallosome, ending anteriorly in a narrow tube at the gonopore; chitinized

endothelial process strongly pigmented, rounded with minute ventral incision; phallosomal sclerite indistinctly round in lateral view.

Type material – Holotype ♂: Ron Creek, 5.11.2010.

Etymology – The name *ronujra* is derived from an imperfect anagram, abbreviated for euphony, based on the name of the type locality (Ron Stream) and the Hungarian word “újra”, referring to “again”, one more new *Cheumatopsyche* species from this small stream.

Cheumatopsyche tarka sp. n.

Diagnosis – This castaneous brown-winged animal with light mottled wing pattern is a member of the *Cheumatopsyche expeditionis* species group and is similar to *Cheumatopsyche expeditionis* ULMER from New Guinea, but differs in having the forewing mottled, not unicolour; anterior margin of segment IX rounded, not flat; ventroapical setose lobe large; mesocaudal lobe rounded, not triangular both in dorsal and lateral views; harpago definite and broad based.

Description – Male (in alcohol). Cephalic and thoracic sclerites brown, legs paler brown. Maxillary palp formula: I-IV-III-II-V. Spur formula 2,4,4. Forewing length 6.5 mm; brown with veins slightly darker; castaneous brown membrane marble mottled; transparent hyaline line present on the first half of stem of M1+2. Forewing SC and R run free to margin, Cu₂ and A1 also run free to margin, not confluent. Hindwing SC and R met after r; r precedes s, fork 1 absent.

Male genitalia (p.55). IXth abdominal segment annular, tergum very short, sternum almost 2x wider; anterior margin convex, produced and rounded; apical lobe of posterior margin straight and vertical, slightly above lightly sclerotized articulation cavity of gonopods; antecosta broad, gradually narrowing ventrad and dorsad with antecostal suture visible externally; small acrotergite present and visible both in lateral and dorsal views; spine row on posterior margin of segment IX with a long break at segment X; in dorsal view dorsoapical spiny lobes separated by short and wide excision. Intersegmental lateral profile between segments IX and X is high and right angled. Segment X short, quadratic both in dorsal and lateral views; basal part slightly sclerotized; terminating distally with the less produced and setaless mesocaudal rounded lobe; ventroapical setose lobe large rounded. Sutures of segment X visible around cerci. Cerci (lateral setose area) forming elevated wart. Coxopodite of the gonopods extends beyond apex of segment X, straight rod-like in lateral view, slightly dilated at apex in ventral view; harpago broad based, slender, mesad curving in ventral view. Phallosome robust, basal section slightly broader and bent at an obtuse angle to stem; middle region slightly arched ventrad in lateral view, followed by apex broadening into a distinctive, ventral bulge at the very apex; endophallus long and broad, extending through and filling the entire phallosome, ending anteriorly in a narrow tube at the gonopore; chitinized endothelial process rounded, strongly pigmented; phallosomal sclerite indistinctly rounded in lateral view.

Type material – Holotype ♂: Site A, 10.6.2010. - Paratypes: same, 11.6.2010, 2♂. – Site C, 3.11.2010, 1♂.

Etymology – The name refers to the light-mottled castaneous brown forewing, mottled “tarka” in Hungarian.

Remarks – This beautiful *Cheumatopsyche* species was compared with the drawings of *C. expeditionis* ULMER by KUMANSKI (1979). ULMER's (1938) original drawings were prepared from uncleaned genitalia and were not detailed. We have not examined the holotype.

***Baliomorpha barna* sp. n.** (Hydropsychidae)

Diagnosis – This dark brown animal is easily distinguished from all known member of the genus by the dark unicolour forewing without light patches and by the particularly winged head of the phallic organ.

Description – Male (in alcohol). The body including flagellomeres and palps are brown except for the head, scapus, thorax, tibia and femur on the foreleg and midleg, these are bright yellow. Forewing dark brown, almost black, with a transparent window around the first median fork. Forewing length 8 mm. As in *Macronematini* genera, the head is rather glabrous, there being only a few compact setal warts present: a single small labral anteromedian compact setal wart, a small frontal interantennal compact setose wart and a pair of large reniform vertexal lateroocellar compact setal warts; frontal medial diffuse setose wart represented by scattered setae; there is no elevated transversal ridge on the occipital region. Maxillary palp formula is I-II-IV-III-V, segment III about 3x the length of segment II. Spur formula 1.4.4., Forewing rounded apically, crossvein sc-c absent, Sc indistinctly forked at the apex, however the fork connecting to R may represent crossvein sc-r; fork I sessile.

Male genitalia (p.55). IXth abdominal segment fused annular, very short, dorsum longer than ventrum; dorsoapical region developed into 2 rounded ridges; anterior margin straight vertical; apical margin produced dorsad by the 2 transversal ridges; posterior spine row continuous; lateral intersegmental profile between the ninth and tenth segments very deep, with 3 steps. Body of Xth segment short with slightly upwardly directed lateral apices; cerci present at the middle as a less pigmented rounded area with short setae; ventroapical setose lobe indistinct; dorsoapical setose lobe reduced to a setose diffuse surface on the apical margin; sutures diffused; well-sclerotized tergal straps connecting segment X to the dorsum of the phallic organ greatly broadening in coronal plane, platelike. Gonopods fused, straight in lateral and mesad curving in ventral view. Phallic apparatus with almost vertical enlarged basal section; this basal part is connected to the basal plate of gonopods ventrolaterad and to segment X by the pair of tergal plates; the tube of the horizontal phalotheca with lateral subapical wings and upwardly directed apex; this apex bilobed and curving mesad in ventral view; endophallus long, its phalotreme, the distal opening of the endophallus surrounded by rounded and pointed phalotremal sclerites.

Type material – Holotype ♂: Site C, 3.11.2010. - Paratypes: Warmon Creek, 200 m upstream of 1. waterfall, 24.9.2010, 2♂. - Warmon Creek, 2. waterfall, 25.10.2010, 1♂, 1♀. - Site B, 1.11.2010, 1 pharate male.

Etymology – The name refers to the brown colour of the animal, brown “barna” in Hungarian.

***Baliomorpha mariannae* sp. n.**

Diagnosis – This beautiful yellow caddisfly with its yellow patterned brown forewing is one of the most western member of this magnificent Australian macronematid genus. It is easy to differentiate from all the known members of the genus by its pure yellow body, yellow-patterned dark-brown forewing and especially by the bilanceolated dorsoapical process on the phallic organ. A visible tendency to develop this structure on the phallic head, with a stimulatory function in sexual selection, is detectable in three *Baliomorpha* species from Papua New Guinea: *B. caudicea* NEBOISS, *B. chiloma* NEBOISS and *B. echinata* NEBOISS.

Description – Male (in alcohol). The entire body including palps and legs are yellow, only antennae and the anterior half of mesoscutum darker brown. Forewing dark brown with a

pattern of six yellow patches; hindwing brown with transparent and long costal and subcostal window from middle to basad as well as with short costal, subcostal, radial and medial window subapical; on freshly collected animals, the contrasting bright yellow body and yellow patterned dark brown forewing fade quickly in alcohol. Forewing length 10 mm. As in other *Macronematini* genera, the head is rather glabrous. There are only a few compact setal warts present: a single small labral posteromedian compact setal wart and a pair of large quadrangular vertexal lateroocellar compact setal warts; there are few diffuse setal warts discernible: frontal medial, frontal interantennal and occipital diffuse setal warts; occipital diffuse setal wart is represented by a few setae anterolaterad on the elevated transversal ridge. Maxillary palp formula is I-II-IV-III-V, segment III about 4x the length of segment II. Spur formula 1.4.4., Forewing rounded apically, crossvein sc-c absent, Sc indistinctly forked at apex, fork I sessile.

Male genitalia (p.55). IXth abdominal segment fused annular, very short, dorsum longer than ventrum; dorsoapical region developed into 2 rounded ridges; anterior margin short and arciform; apical margin irregularly vertical; posterior spine row present on middle; lateral intersegmental profile between the ninth and tenth segments very deep, stepwise. Body of Xth segment short with slightly upwardly directed apices in lateral view; cerci present dorsolaterad on the basal half as less pigmented and longitudinally elongated area with short setae; ventroapical setose lobe present deep basoventrad, heavily setosed and pigmented; dorsoapical setose lobe reduced to setose diffuse surface on apical margin; there are transverse sutures present running parallel with the apical margin; a pair of well-sclerotized tergal straps present and connecting segment X to the dorsum of the phallic organ. Gonopods fused, slightly S-shaped in lateral view and mesad curving in ventral view. Phallic apparatus with almost vertical enlarged basal section; this basal part is connected to the basal plate of gonopods ventrolaterad and to segment X by the pair of tergal straps; the tube of the horizontal phalotheca with lateral rim and upward directed apex; phalotheca ending distad in an upwardly directed bilanceolated dorsoapical process; endophallus long and thin; phalotreme, the distal opening of the endophallus surrounded by pointed phalotremal sclerites.

Type material – Holotype ♂ and 1♂ Paratype: Habitat 3, small waterfall, 0° 50'04.03"S, 130° 42'54.14"E, 10.6.2010. - Paratypes: - Warmon Creek, 2. waterfall, 25.10.2010, 1♂. - Warmon Creek, 200 m upstream of 1. waterfall, 24.9.2010, 4♂, 1♀. - same, 21.10.2010, 1♀. - West Papua, Raja Ampat, Batanta Island, Warmon Creek, 500 m upstream of 1. waterfall, 24.10.2010, 2♂, 1♀.

Etymology – It is with great feeling that I dedicate this species to my daughter Mariann, who motivated and organised the collection of this beautiful animal.

***Agapetus kivagot* sp. n.** (Glossosomatidae)

Diagnosis – Closest to *A. ulmeri* ROSS, but differs in having convex ventral margin of gonopods, not concave; tapering apex of gonopods in lateral view, not blunt; excised apex of gonopods in ventral view, not simple pointed; aedeagus with dorsal and ventral arms accompanied by a sclerotized paramere, not a simple rod.

Description – Male (in alcohol). Dark brown animal, with legs and venter slightly lighter. Maxillary palp formula: I-II-IV-V-III, second segment with globular mesolateral projection. Wing membrane brown; forewing length 3 mm; Fork I on hindwing lost. Blister-like protuberance on the

dorsal margin of sternite V present and detached from the ridge; ventral process on sternite VI long.

Male genitalia (p.54). Segment IX synsclerotized, subtriangular in lateral view. Segment X membranous, indistinct, but discernibly deeply excised in dorsal view. Cerci downward and laterad directed setose lobe. Paraproctal lateral vertical plates (lateral lobe of segment X) quadrangular with ventroapical downward curving tip. Gonopods convex ventrum and tapering apex in lateral view with excised apex in ventral view. Phallic organ with aedeagus having well sclerotized dorsal and ventral arms, each with capitate apex; single sclerotized paramer present.

Type material – Holotype ♂ and 1♂ Paratype: Sarinam River, 21.X.2010. - Paratype: Warmon Creek, 2. waterfall, 25.10.2010, 1♂.

Etymology – The name refers to the excised apices of the gonopods in ventral view, excised “*kivágott*” in Hungarian.

Helyethira sarina sp. n. (Hydropsychidae)

Diagnosis – This small species is close to *H. kukensis* WELLS from Papua New Guinea, but differs in having dorsum IX with deep and sharply V-shaped excision anteriorly; ventrum with blunt V-shaped excision posteriorly; segment X bifid, not trifid; gonopods straight, not down-turned distally in lateral view; apex of phallic organ without collar-like expansion subapically.

Description – Male (in alcohol). Small species with forewing length of 1.6 mm. 3 ocelli present. Postoccipital setal warts medium-sized, semicircular, oblique between longitudinal and transversal; rounded laterad and straight-cut mesad; widely separated and without eversible globular scent organ. Tentorium discernible only as tentorial pits, very thin almost indiscernible between. Antennae broken; scapus longer than pedicel; pedicel only slightly longer than flagellar segments; flagellar segment cylindrical, longer than wide. Maxillary palp formula I-II-IV-III-V, first two segments extremely short, shorter than wide. Mesoscutellum subtriangular with anterior margin evenly convex, wide, not diamond-shaped and not narrow; transversal suture absent; metascutellum subtriangular. Tibial spurs 0,3,4. Sternum VII with long and slender apicomeral process.

Male genitalia (p.57). VIIIth segment short and only half length of segment VII, without any discernible apicomeral process. Segment IX forming a synsclerotized cylinder, subquadrangular in ventral view; V-shape excision anteriorly on dorsum and posteriorly on ventrum. Segment X (dorsal plate) bifid with upward hooked apices and taking over paraproctal function while embracing phallic organ dorsad, laterad and a little ventrad. Paraproct moved laterad from the base of segment X and stretching down to the base of gonopods, functioning like brace straps deep inside segment IX. Gonopods elongated and straight in lateral view, inflexed in ventral view; small setose protuberances present basodorsad. Phallic organ without titillator; apex with small twisted hook.

Type material – Holotype ♂: Sarinam River, 17.10.2010.

Etymology – The name refers to the type locality.

Hydroptila bozontos sp. n. (Hydroptilidae)

Diagnosis – This species belongs to the *H. losida* species group and closely resembles *H. bispina* KIMMINS from Papua, but differs in having segment X much shorter than gonopods, not longer; paraproct with hirsute apex, not bare; apex of phallic organ tapering and pointed, not dilated.

Description – Male (in alcohol). Small species with forewing length of 1.5 mm. Ocelli lacking. Postoccipital setal warts not sessile; eversible globular scent organ indiscernible. Tentorium reduced. Antennae broken; scapus curved, pedicel

slightly shorter; first flagellar segments longer than wide, rest quadrate. Maxillary palp formula I-II-IV-III-V, first two segments extremely short, shorter than wide. Mesoscutellum subtriangular with anterior margin evenly convex, wide, not diamond-shaped and not narrow; transversal suture absent; metascutellum triangular. Tibial spurs 0,2,4. VIIth sternum with small pointed apicomeral process.

Male genitalia (p.55). Segment IX synsclerotized with dorsal and ventral excision, ventral excision longer; posterolateral lobes present, slightly arching and pointed. Segment X (dorsal plate) forming the roof of genital chamber, bilobed with basomesal flange. Paraproct (subgenital plate) slightly shorter than gonopods, its narrowing apex hirsute; broadening basally and forming basolateral flanks overlapping dorsum of gonopod base. Gonopods almost parallel-sided with dilated apex in lateral view; lateral surface covered with a line of 8-10 peglike setae. Phallic organ is a long straight tube divided into slightly taller anterior and more slender posterior half by a middle constricted area from which a spiral titillator emerges; apex produced and narrowing to a point, supplied with a subapical curving spine.

Type material – Holotype ♂: Warmon Creek, 2. waterfall, 25.10.2010.

Etymology – The name refers to the hirsute apex of the paraproct, hirsute “*bozontos*” in Hungarian.

Hydroptila nemtompa sp. n.

Diagnosis – This small species belongs to the *H. losida* species group and closest to *H. incertula* MOSELY and *H. trilobata* KIMMINS but differs from both by having lateral lobes of segment X with mesad directed pointed apices, not rounded and laterad directed; paraproct longer than gonopods, not shorter; phallic organ with slender apical part, not dilating.

Description – Male (in alcohol). Small species with forewing length of 1.8 mm. Ocelli lacking. Postoccipital setal warts pronounced, eversible globular scent organ indiscernible. Tentorium reduced, not discernible. Antennae broken; scapus curved, pedicel slightly shorter; first flagellar segments longer than wide, rest quadrate. Maxillary palp formula I-II-IV-III-V, first two segments extremely short, shorter than wide. Mesoscutellum subtriangular with anterior margin evenly convex, wide, not diamond-shaped and not narrow; transversal suture absent; metascutellum triangular. Tibial spurs 0,2,4. VIIth sternum with small pointed apicomeral process.

Male genitalia (p.55). Segment IX synsclerotized with very long dorsal and ventral excisions, that result in produced lateral lobes and almost open dorsum and ventrum; posterolateral lobes present and pointed. Segment X (dorsal plate) forming the roof of genital chamber, trilobed mesal lobe slightly longer than lateral ones; lateral lobes pointed and curving mesad. Paraproct (subgenital plate) longer than gonopods, its broad rounded apex densely covered with microtrichia; a pair of small peglike setae located midway. Gonopods with outstanding right-angled shoulder basolaterad in ventral view; lateral surface covered with 8-10 peglike setae. Phallic organ is a long straight tube divided into slightly taller anterior and more slender posterior half by a middle constricted area from which a spiral titillator emerges; apex produced into a terminal spiral; short free ejaculatory duct visible at the starting basis of terminal spiral.

Type material – Holotype ♂: Ron Creek, 5.11.2010. - Paratype: Site A, 10.6.2010, 1♂.

Etymology – The name refers to the shape of the lateral lobes on segment X with pointed and not rounded blunt apex, not blunt “*nem tompa*” in Hungarian.

***Hydroptila obscura* WELLS, 1979**

Material examined – Ron Creek, 15.10.2010, 6♂, 8♀. – Sarinam River, 17.10.2010, 2♂. – Site A, 10.6.2010, 4♂. – Wilson stream, 12.5.2011, 3♂, 6♀.

***Missitrichia kunkora* sp. n. (Hydroptilidae)**

Diagnosis – This is the second species of this monobasic genus described from Papua New Guinea (WELLS, 1991). The new species differs from the type species *Missitrichia musam* WELLS in having segment IX with very long and thin ventromesal apodeme; segment X membranous and very small, not distinct; paraproct downward and mesad arching, not spiralling; basal plate of gonopods with modified setae.

Description – Male (in alcohol). Forewing length 2 mm. Antennae broken, the height of the scapus is twice its width, pedicel longer than flagellar segments; flagellar segments quadratic; maxillary palp formula I-II-IV-III-V, first two segments extremely short, shorter than wide; postoccipital setal warts prominent, ovoid, far from each other; not modified as scent organ. Stout anterior arm and tentorial bridge well visible, but indiscernible between. Ocelli lacking. Mesoscutellum without transversal suture. Metascutellum triangular. Forewing with jugal lobe present. Spur formula 02?, hindlegs broken. Sternum VII with small pointed apicomesal process.

Male genitalia (p.57). Segment IX highly reduced to a long triangular ventrum, dorsum missing; ventrum with a straight and strongly sclerotized enforced median suture that continuing into a very long ventromesal apodeme. Segment X (dorsal plate) reduced to a small membranous plate joining with very thin lateral apodemes to the enlarged paraproct. Paraproct present as a downward and mesad arching pair of spines integrating segment IX and X; protruding over all structures and representing the dominant structure of the genitalia. Gonopods separated, elongated parallel-sided and articulated each to segment IX by mesal and lateral knots of condyles. The basal plate of the gonopods present on basodorsal region of gonopods as small protuberances armed with an upwards directed long straight seta and with a modified upward curving reinforced seta on each of gonopods. Phallic organ is a simple tube with dilated apical region and without titillator; ejaculatory duct visible inside, ending in a more pigmented head; membranous subapical and small lateral wing present and easily visible in dorsal view.

Type material – Holotype ♂: Warmon Creek, 1. waterfall, 24.9.2010. – Paratypes: Warmon Creek, 2. waterfall, 25.10.2010, 3♂.

Etymology – The name refers to the enlarged and unusually upward curving modified seta on both lobes of basal plate, upward curving “kunkori” in Hungarian.

***Saranganotrichia oldalra* sp. n. (Hydroptilidae)**

Diagnosis – This monotypic genus was synonymized with *Ithytrichia* by MARSHALL, (1979) and recently resurrected from synonymy by MALICKY (2009) who transferred two species when synonymising his *Huayptila* genus with *Saranganotrichia*. This new species is the fourth *Saranganotrichia* and enlarges the distributional area of this small genus from Thailand to West Papua. The new species differs from all the other ones in having processes of segment IX, paraprocts, gonopods and basal plate shifted laterad forming a large empty mesal space occupied dorsad by phallic organ and segment X.

Description – Male (in alcohol). Forewing length 1.6 mm. Antennae broken, scapus twice as high as wide, pedicel longer than flagellar segments; flagellar segments quadratic; maxillary palp formula I-II-IV-III-V, first two segments

extremely short, shorter than wide; postoccipital setal warts prominent, ovoid, far from each other; not modified as scent organ. Stout anterior arm and tentorial bridge easily visible, but indiscernible between. Three ocelli. Mesoscutellum triangular, without a transverse suture. Metascutellum triangular. Jugal lobe absent on forewing. Spur formula 034. Sternum VII without any apicomesal process.

Male genitalia (p.57). Segment IX subquadrangular both in lateral and ventral views without any ventral excision; dorsum open sclerotically; dorsolateral pair of spinelike processes well-developed. Segment X (dorsal plate) long and membranous. Paraproct present as a pair of lateral shifted spinelike processes. Gonopods also laterad shifted, but articulating mesad and forming an L-shaped bifid pair of processes. The basal plate of the gonopods has a pair of less sclerotized digitiform processes sliding from mesad to laterad under the basal transversal section of the gonopods. Phallic organ is a simple dilated tube without a paramere; ejaculatory duct protruding with some subapical and apical structures.

Type material – Holotype ♂: Site A, 10.6.2010. – Paratypes: Warmon Creek, 2. waterfall, 25.10.2010, 3♂.

Etymology – The name refers to the laterad shifted processes of genitalia, laterad “oldalra” in Hungarian.

The genus *Orthotrichia* (Hydroptilidae)

In several *Orthotrichia* species, the paraproct is present in the capsule of segment IX and freely suspended alongside the phallic organ without sclerotic connection to any structures. It has a striking shape consisting of a long protruding spine united basally to a shorter curved spine and produced frequently as a long thin filament. The basal short curved spine and/or the thin filament are the vestigial components of the paired paraprocts. They are frequently indistinct or variously developed.

***Orthotrichia balra* sp. n.**

Diagnosis – This new species has a resemblance to *O. savoska* sp. n. in having a less produced right side of segment IX, right dorsum of segment IX diminished and shifted to the left side in the form of an inflexed horizontal lobe. Apex of segment X particularly developed into a filament like spine which turns anterad.

Description – Male (in alcohol). Medium animal with forewing length of 2 mm. Antennae broken, scapus twice as high as wide, pedicel shorter than flagellar segments; flagellar segments quadratic; maxillary palp formula I-II-IV-III-V, first two segments extremely short, shorter than wide; postoccipital setal warts prominent, ovoid, not modified as scent organ. Tentorium indiscernible, only anterior arm present. Ocelli lacking. Metascutellum short rectangular. Spur formula 034. Sternum VI with a very small pointed apicomesal process and sternum VII without any process.

Male genitalia (p.56). Sternite VIII with a tuft of strong setae apicomesad. Segment IX highly asymmetric, right dorsum diminished; left dorsum produced as a horizontal inflexed lobe embracing the left base of segment X. Segment X (dorsal plate) present as a long and less-pigmented lobe with an apical filament-like spine which turns anterad. Paraproct indiscernible. Gonopods forming an almost fused rounded complex, somewhat empty mesally. The basal plate of the gonopods visible as an unequal bilobed process with terminal setae; its apodeme indiscernible. Phallic organ forms a long tube with broader basal half and titillator having one coil, apex dilated and bifid.

Type material – Holotype ♂: Warmon Creek, 1. waterfall, 21.9.2010. - Paratypes: Site A, 10.6.2010, 1♂. - Warmon Creek, 2. waterfall, 25.10.2010, 7♂.

Etymology – The name refers to the diminished right dorsum of segment IX; which looks like it has been shifted to left side, to left “balra” in Hungarian.

***Orthotrichia bunkosa* sp. n.**

Diagnosis – The entirely fused gonopods with transversal extension relate this new species to *O. tombak* WELLS & MALICKY from Indonesia (Sumatra), but differs in having 4 lateral spines on segment IX; right side lateral spine strong, clavate and turning left across segment X; fused gonopods asymmetric and extended rightside.

Description – Male (in alcohol). Forewing length 1.8 mm. Antennae broken, scapus twice as high as wide, pedicel shorter than flagellar segments; flagellar segments quadratic; maxillary palp formula I-II-IV-III-V, first two segments extremely short, shorter than wide; postoccipital setal warts prominent, ovoid, not modified as scent organ. Tentorium indiscernible, only part of the anterior arm present. Ocelli lacking. Metascutellum short and rectangular. Spur formula 034. Sternum VI with a very small pointed apicomeral process and sternum VII without any process.

Male genitalia (p.56). Segment IX asymmetric, narrow ventrum and very long dorsum; right apicolateral setaless lobes strong clavate and turning left over segment X; flat at turning head; 3 spinelike processes on leftside. Segment X (dorsal plate) present as a long and less-pigmented lobe with 2 triangular pointed apices. Paraproctal spine vestigial. Gonopods completely fused, transversally broad and extended asymmetrically rightside. The basal plate of the gonopods asymmetrically bilobed with short rounded apodeme. Phallic organ forms a long tube with broader basal half and long looping paramere, apex dilated and bifid.

Type material – Holotype ♂: Site B, 1.11.2010.

Etymology – The name refers to the extremely enlarged right apicolateral spinelike process with clavate apex, clavate “bunkós” in Hungarian.

***Orthotrichia eltera* sp. n.**

Diagnosis – Its long gonopod is a character of the *O. morula* species group (WELLS, 1991) and most similar to *O. crutwelli* WELLS from Papua New Guinea, but differs in having both setaless lobe and spine like process on the right side of segment IX; long gonopods fused 2/3 basad; basal plate of gonopods differently shaped.

Description – Male (in alcohol). Forewing length 1.6 mm. Antennae broken, scapus twice as high as wide, pedicel shorter than flagellar segments; flagellar segments quadratic; maxillary palp formula I-II-IV-III-V, first two segments extremely short, shorter than wide; postoccipital setal warts prominent, ovoid, not modified as scent organ. Tentorium indiscernible, only anterior arm present. Ocelli lacking. Metascutellum short and rectangular. Spur formula 034. Sternum VI with very small and pointed apicomeral process. Sternum VII without any process.

Male genitalia (p.56). Segment IX asymmetric, dorsum a little longer than ventrum; only right apicolateral setaless lobes developed. Segment X (dorsal plate) present as a long less-pigmented lobe with slightly asymmetric apex. Paraproct present as a long spinelike process on the left side of the phallic organ; fused basally to a small curved spine and produced as a long filament curving to the right side and posterad along the right side of phallic organ. Gonopods elongated and parallel-sided with apical 1/3 separated, basal

2/3 fused. The basal plate of the gonopods robust, bilobed and asymmetric with long digitiform apodeme. Phallic organ forms a long tube with broader basal half and long titillator having complex multiple turning, apex dilated and bifid.

Type material – Holotype ♂: Warmon Creek, 1. waterfall, 21.9.2010. - Paratypes: Site B, 1.11.2010, 2♂, 2♀.

Etymology – The name refers to the deviations between the apicolateral lobes on segment IX and asymmetry of the basal plate of gonopods, deviation “eltérő” in Hungarian.

***Orthotrichia kisbunka* sp. n.**

Diagnosis – The fused gonopods and the clavate apex of the right lateral process on segment IX relates this new species to *O. bunkosa* sp. n. from Indonesia (West Papua), but differs in having the clavate apex small, not enlarged; left lateral process short, not long; ventral lobe of segment IX produced; paraproct unusually enlarged, not vestigial; gonopods and basal plate differently formed.

Description – Male (in alcohol). Forewing length 1.7 mm. Antennae broken, scapus twice as high as wide, pedicel shorter than flagellar segments; flagellar segments quadratic, elongating towards apicad; maxillary palp formula I-II-IV-III-V, first two segments extremely short, shorter than wide; postoccipital setal warts prominent, ovoid, not modified as scent organ. Tentorium indiscernible, only part of the anterior arm present. Ocelli lacking. Metascutellum short and rectangular. Spur formula 034. Sternum VI with very small pointed apicomeral process and sternum VII without any process.

Male genitalia (p.56). Segment IX asymmetric; short, narrow ventrum and longer wide dorsum; right apicolateral setaless process strong and clavate, turning slightly left over segment X; left apicolateral process short and spinelike. Segment X (dorsal plate) present as a long less-pigmented lobe with right turning apex. Paraproctal spine produced as a long straplike structure along the phallic organ with bulbous base and truncate apex. Gonopods fused, rounded and asymmetric; its right side lobe little pointed. The basal plate of the gonopods bilobed and asymmetric without pronounced apodeme. Phallic organ forms a long tube with broader basal half and long spiral paramere, apex dilated and bifid.

Type material – Holotype ♂ and 3♂ Paratypes: Warmon Creek, 2. waterfall, 25.10.2010.

Etymology – The name refers to the stout right apicolateral spinelike process with small clavate apex, small “kis”, club “bunkó” in Hungarian.

***Orthotrichia para* sp. n.**

Diagnosis – Having a pair of stout spines on tergite VIII, this new species belongs to the *O. gracilis* species group (WELLS, 1991) and most similar to *O. ensiformis* WELLS from New Guinea, but differs in the stout spinelike setae located middle and crossing, not laterad; left lateral spines of segment IX lacking; apex of segment X not flared; gonopods triangular, not rounded, processes on basal plate asymmetric, not symmetric; paramere short, not twisted towards apex.

Description – Male (in alcohol). Forewing length 1.3 mm. Antennae broken, scapus twice as high as wide, pedicel shorter than flagellar segments; flagellar segments quadratic; maxillary palp formula I-II-IV-III-V, first two segments extremely short, shorter than wide; postoccipital setal warts prominent, ovoid, not modified as scent organ. Tentorium indiscernible, only anterior arm present. Ocelli lacking. Metascutellum short and rectangular. Spur formula 034. Sternum VI with very small pointed apicomeral process and sternum VII without any process.

Male genitalia (p.56). Segment IX asymmetric, narrow ventrum produced anterad more than dorsum; only right apicolateral setaless lobes developed. Segment X (dorsal plate) present as a long less-pigmented lobe with slightly asymmetric apex. Paraproct indiscernible. Gonopods small and triangular. The basal plate of the gonopods bilobed and asymmetric with short digitiform apodeme. Phallic organ forms a long tube with broader basal half and short paramere, apex dilated and bifid.

Type material – Holotype ♂ and 5♂, 12♀ Paratypes: Site B, 1.11.2010.

Etymology – The name refers to its tiny size, tiny “parány” in Hungarian.

***Orthotrichia savoska* sp. n.**

Diagnosis – This highly asymmetric species has vestigial right-side pleuron on segment IX; the pleuron is reduced to a backward curving strap, no similar state of reduction occurs in the faunal region.

Description – Male (in alcohol). Small animal with forewing length of 1.8 mm. Antennae broken, scapus twice as high as wide, pedicel shorter than flagellar segments; flagellar segments are cylindrical and twice as long as wide; maxillary palp formula I-II-IV-III-V, first two segments extremely short, shorter than wide; postoccipital setal warts prominent, ovoid, not modified as scent organ. Tentorium indiscernible, only anterior arm present. Ocelli lacking. Metascutellum short and rectangular. Spur formula 034. Sternum VI with very small pointed apicomeral process and sternum VII without any process.

Male genitalia (p.56). Tergite VIII with 2 long setae in the middle. Segment IX highly asymmetric, right-side pleuron reduced to a backward curving strap. Segment X (dorsal plate) present as a long less-pigmented lobe with asymmetric apex. Paraproct indiscernible. Gonopods long and triangular, almost symmetrical with fused base. The basal plate of the gonopods visible as a small median bilobed process with terminal setae and with a long apodeme. Phallic organ forms a long tube with broader basal half and titillator having one coil, apex bilobed.

Type material – Holotype ♂: Sarinam River, 17.10.2010. - Paratype: Warmon Creek, 2. waterfall, 25.10.2010, 1♂.

Etymology – The name refers to the highly vestigial right pleuron of segment IX being reduced to a narrow curving strap, straplike diminutive “sávoska” in Hungarian.

***Orthotrichia tobфона* sp. n.**

Diagnosis – Having setaless, glabrous apicolateral lobes on both sides of segment IX, this species is most similar to *O. thistletoni* WELLS from Papua New Guinea, but differs in having apex of segment X without sclerotized spurs apically and subapically; gonopods rounded, not pointed triangular; basal plate of gonopods fused, not bilobed and slender.

Description – Male (in alcohol). Small animal with forewing length of 1.6 mm. Antennae broken, scapus twice as high as wide, pedicel shorter than flagellar segments; flagellar segments quadratic; maxillary palp formula I-II-IV-III-V, first two segments extremely short, shorter than wide; postoccipital setal warts prominent, ovoid, not modified as scent organ. Tentorium indiscernible, only anterior arm present. Ocelli lacking. Metascutellum short and rectangular. Spur formula 034. Sternum VI with very small pointed apicomeral process and sternum VII without any process.

Male genitalia (p.56). Segment IX asymmetric, dorsum elongated, ventrum only half length of the dorsum;

apicolateral setaless, glabrous lobes tapering. Segment X (dorsal plate) present as a long less-pigmented lobe with slightly asymmetric apex. Paraproct present as a long spinelike process on the left side of the phallic organ; fused basally to a small curved spine and produced as a long filament curving to the right side and posterad along the right side of phallic organ; a blade like long process indistinctly rises from the middle of the spine like paraproct. Gonopods forming an almost fused rounded complex, somewhat divided mesally. The basal plate of the gonopods fused into a median rounded lobe without discernible setae, but with a very long filiform apodeme. Phallic organ forms a long tube with broader basal half and long titillator having a complex multiple turning, apex dilated and bifid.

Type material – Holotype ♂: Warmon Creek, 1. waterfall, 21.9.2010. - Paratypes: same, 24.9.2010, 1♂. - Warmon Creek, 2. waterfall, 25.10.2010, 3♂.

Etymology – The name refers to several filaments visible inside the capsule of segment IX: long filament of titillator on the phallic organ; long right side filament of the paraproct; long filament like apodeme of the basal plate, several, “több”, filament “fonal” in Hungarian.

***Orthotrichia warmona* sp. n.**

Diagnosis – Most similar to *O. kisbunka* sp. n. from Indonesia (Papua), but differs in having both the right and left apicolateral processes on segment IX more complex; paraproct unusually enlarged, but tapering, not clavate; gonopods and basal plate differently formed.

Description – Male (in alcohol). Forewing length 2 mm. Antennae broken, scapus twice as high as wide, pedicel shorter than flagellar segments; flagellar segments quadratic, elongating towards apicad; maxillary palp formula I-II-IV-III-V, first two segments extremely short, shorter than wide; postoccipital setal warts prominent, ovoid, not modified as scent organ. Tentorium indiscernible, only part of the anterior arm present. Ocelli lacking. Metascutellum short rectangular. Spur formula 034. Sternum VI with very small pointed apicomeral process and sternum VII without any process.

Male genitalia (p.56). Segment IX asymmetric; short, narrow ventrum and longer wide dorsum; right apicolateral setaless process forming spine and plate complex; left apicolateral process produced into a bilobed plate. Segment X (dorsal plate) present as a long less-pigmented lobe with right turning apex. Paraproctal spine produced as a long straplike, tapering and striated structure along the phallic organ with additional basal vestigial spine and filament. Gonopods subtriangular and separated, slightly asymmetric. The basal plate of the gonopods almost symmetric and slender, bilobed with long apodeme. Phallic organ forms a long tube with broader basal half and long looping paramere, apex dilated and bifid.

Type material – Holotype ♂ and 1♂ Paratype: Warmon Creek, 2. waterfall, 25.10.2010.

Etymology – The name refers to the stream of the type locality.

***Stactobia zarva* sp.n. (Hydroptilidae)**

This small species is most similar to *Stactobia betiri* WELLS & MALICKY from Indonesia (Java) but differs in having dark, spinelike protruding and paired paraprocts regularly curved, not irregular; fused gonopod plates quadrangular in ventral view, not tapering digitate; phallic organ with a single well-developed subapical spine embedded. *S. betiri* was related to the *S. nielsenii* species group, however the main character of this group is the lost of the paraproct, which is retained and present both in *S. betiri* and *S. zarva* sp.n.

Male (in alcohol). Small species with forewing length of 1.4 mm. 3 ocelli present. Postoccipital setal warts pronounced. Tentorium well-developed without bridge. Antennae with 17 segments; pedicel little shorter than scapus; flagellar segments short and cylindrical, shorter than pedicel, flagellar segments with scattered setae and sensilla placodea, terminal segment pointed and conical. Maxillary palp formula I-II-IV-III-V, first two segments extremely short, shorter than wide. Mesoscutellum with transverse suture present; metascutellum long and narrow, not as wide as metascutum. Tibial spurs 1,2,4. VIIIth sternum with long apicomeral process having a clavate apex in lateral view.

Male genitalia (p.57). VIIIth segment modified, its tergite small, its sternite elongated with long V-shaped ventral excision. IXth segment quadrangular in lateral view with long and thin anteroventral apodemes and slightly produced downwards directed dorsoapical lobes, just above flaplike flank; dorsolateral margins with more sclerotized ridges; apicolateral margins produced uniquely as sagittally flat parallel-sided flaplike flank. Xth segment (dorsal plate) membranous, less discernible. Paraproct present as a pair of dark pigmented spinelike curved processes. Gonopods forming a fused quadrangular plate. Phallic robust, with a single subapical stout spine.

Type material – Holotype ♂: Warmon Creek, 2. waterfall, 25.10.2010.

Etymology – The name refers to the fused quadrangular platelike gonopods, median suture of fused gonopods seems completely closed with only a small apical excision, closed “zárva” in Hungarian.

Anisocentropus banghaasi ULMER, 1909 (Calamoceratidae)

Anisocentropus bipustulatus BOTOSANEANU & DEVOS, 2004:5-6. **New Synonym.**

Material examined – Waigeo Island, Orobai river, 0°08'19,18"S, 130°35'46,74"E, 9.10.2010, 2♂, 5♀.

Remarks – *A. bipustulatus* was collected in Papua (Cyclops Mts) and described from a single female. The authors remarked that the new species has definitely much in common with *A. banghaasi*, a widespread species in Moluccas, Papua New Guinea, New Britain, and northern Queensland. The new species was differentiated by the presence of only 2 blisters in the basal part of the forewing, between A1 and the postcostal margin. *A. banghaasi* has 3 blisters. Male and females of the Waigeo specimens have 2+ blisters. The blisters seems to be unstable and on some specimens, they are rather indistinct. Moreover the fine structure of the male genitalia is identical with *A. banghaasi*.

Anisocentropus hyboma NEBOISS, 1986

Material examined – Waigeo Island, Orobai river, 0°08'19,18"S, 130°35'46,74"E, 9.10.2010, 1♂.

Anisocentropus horvathi new species

Diagnosis – This medium-sized fulvous species is almost unicolour, without any pronounced wing pattern. Closest to *A. cretosus* McLachlan from Sulawesi, but differs in having the 3 light patches missing on the forewing; intersegmental profile between segments IX and X different; cerci small, not large, gonopods rounded, not pointed in ventral view.

Description – Male (in alcohol). Medium-sized species with fulvous wing membrane; with dark brown maxillary palp, vertex, thorax dorsum and with yellow antennae, labial palps, underparts including legs. Head is rectangular in dorsal view, almost as long as broad. Ocelli absent. Maxillary palp formula II-I-(IV,VI)-V-III. Spur formula 243. Forewing

length 7.4 mm, forewing membrane fulvous, rather bare and almost unicolour, slightly lighter from middle to apical margin; there is a patch of long setae below the thyridial cell. Male genitalia (p.54). Segment IX fused annular, tergum shorter than ventrum; anterior margin triangular, shifted a little ventrad of the middle; the entire posterior margin with a well developed lateral flank between the cerci and gonopods; the apical half of this flank glabrous, less pigmented, slightly transparent; tergum IX with a slightly protruding and very short mesal keel; spine row completely reduced on the posterior margin, the entire segment is glabrous, except for a smaller ventropleural setose area. Intersegmental depression between segment IX and segment X exhibits a short step in lateral view, due to the protruding mesal keel. Segment X much longer than the gonopods forming a broad hood with downward and laterad directed apical rim characterised by sinuous excavations visible in dorsal and ventral views, these excavations result in the formation of a tooth-like pattern on the downcurving margin; interlobular gap V-shaped. Cerci small and ovoid. Gonopods one segmented and without harpago, almost semicircular both in lateral and ventral views. Phallic apparatus a curving tube and as a result, slightly convex basad and concave ventrad with elongated more sclerotised ventral apical lobe. Above this ventral lobe, only part of the aedeagus is visible in its intruded state; a phalotremal sclerite visible in lateral view as a large compact structure in the membranous aedeagus, in ventral view the phalotremal sclerite complex visible clearly as a V-shaped configuration; thin ejaculatory duct visible clearly reaching near to the phalotremal sclerite complex, curving in lateral and straight in ventral view.

Type material – Holotype ♂: Site C, 3.11.2010. – Paratypes: Warmon Creek, 200 m upstream of 1. waterfall, 24.9.2010, 2♂, 5♀. – same, 21.9.2010, 4♂, 3♀. – Warmon Creek, 500 m upstream of 1. waterfall, 24.10.2010, 14♂, 3♀. – Warmon Creek, 2. waterfall, 25.10.2010, 1♂.

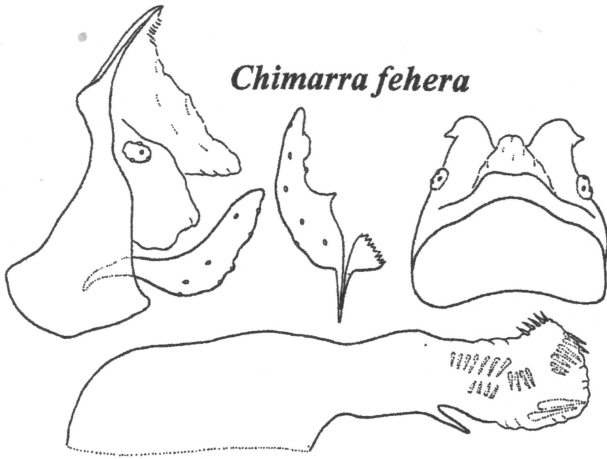
Etymology – Named after Robert Horváth, the collector of the type specimens, in recognition of the effort which he invested in collecting caddisflies in these remote habitats.

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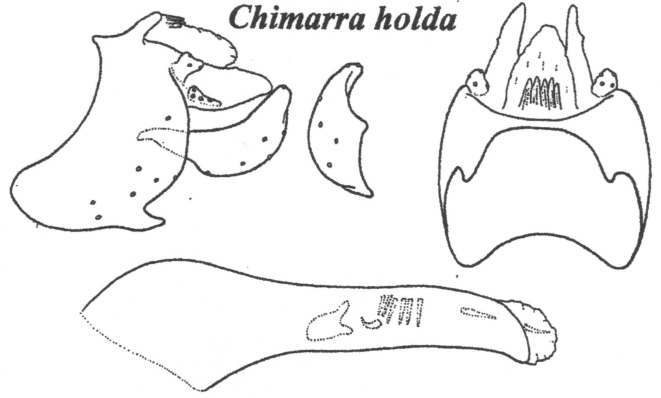
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Address of author: Tarján u. 28, H-4032 Debrecen, Hungary
profolah@gmail.com

Chimarra fehera



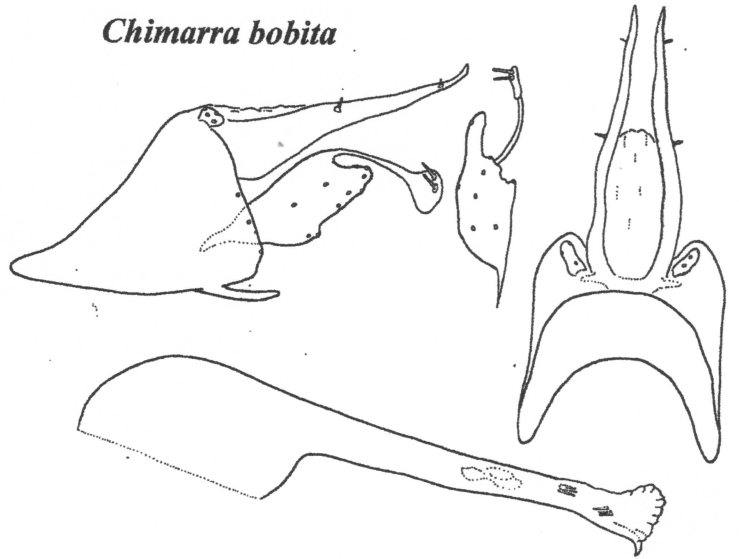
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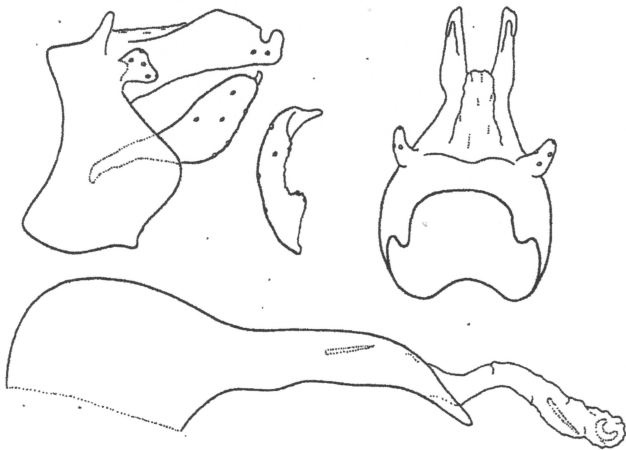
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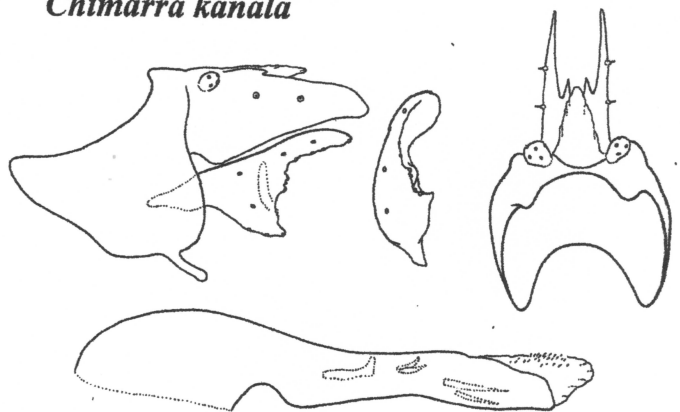
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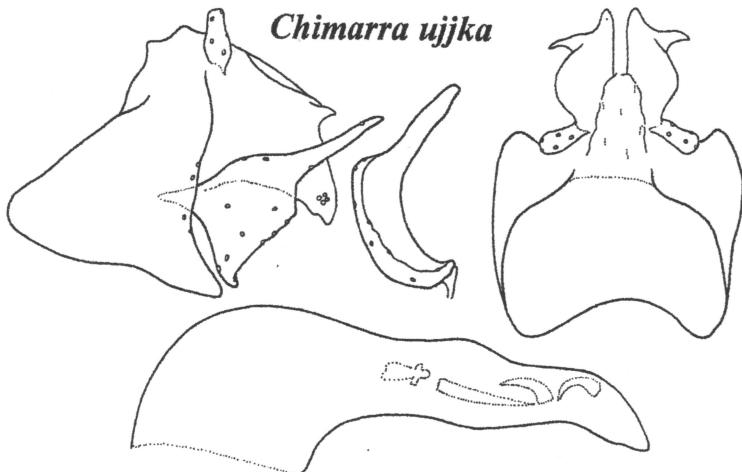
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Chimarra kanala



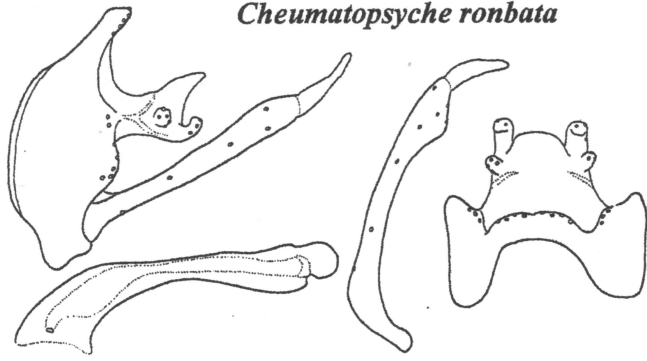
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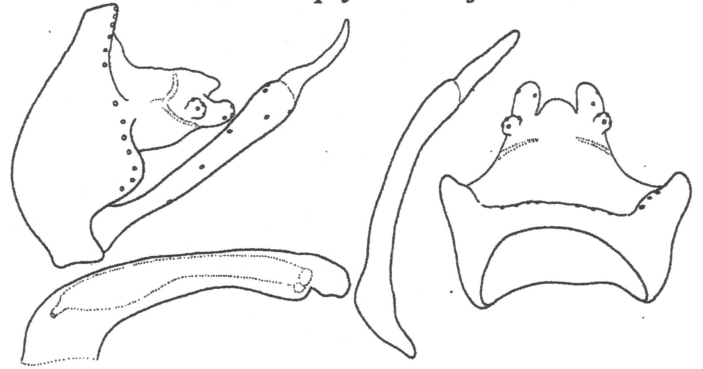
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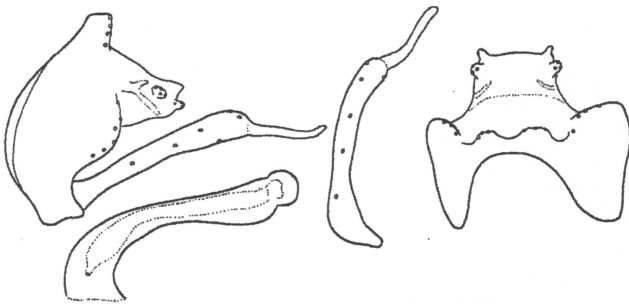
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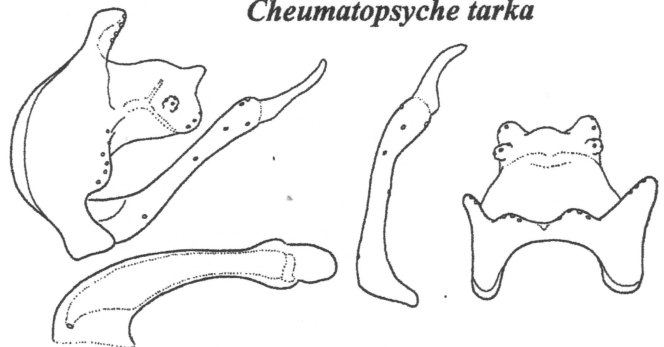
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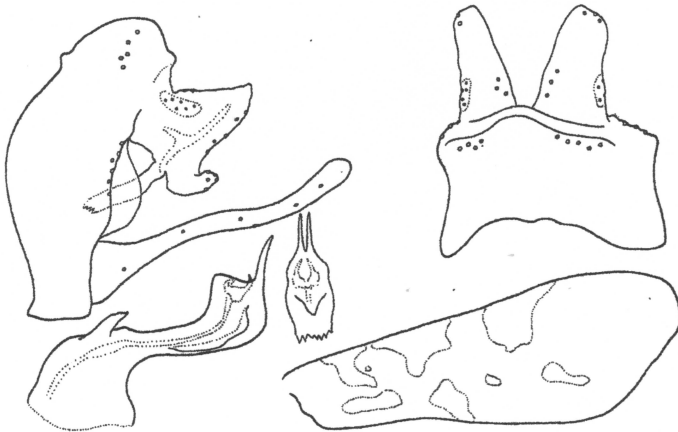
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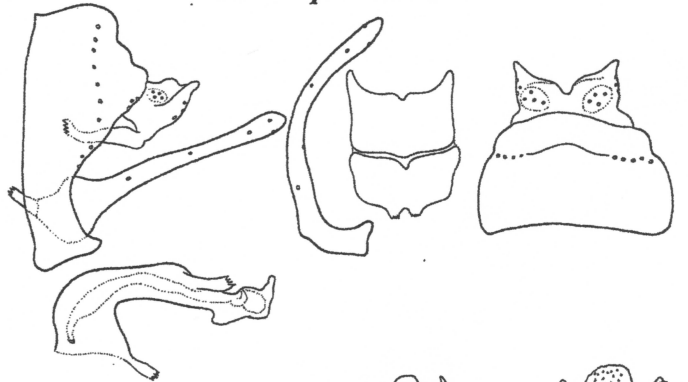
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Baliomorpha mariannae



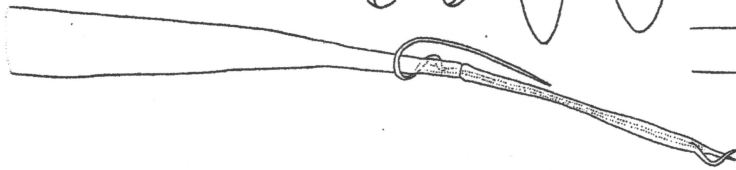
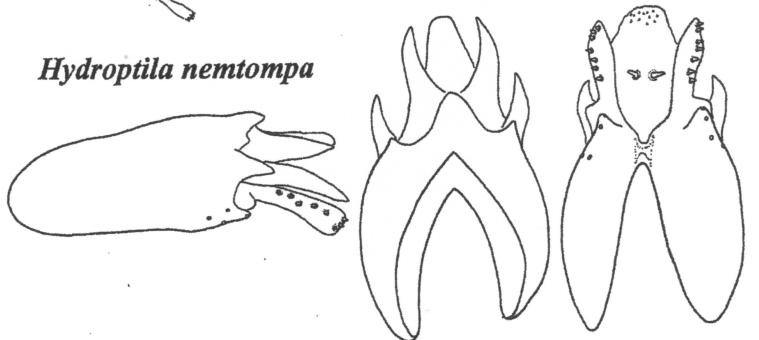
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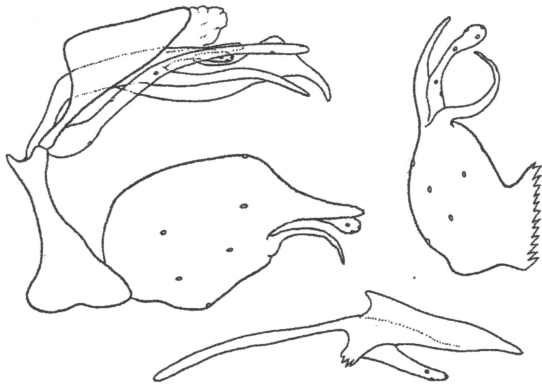
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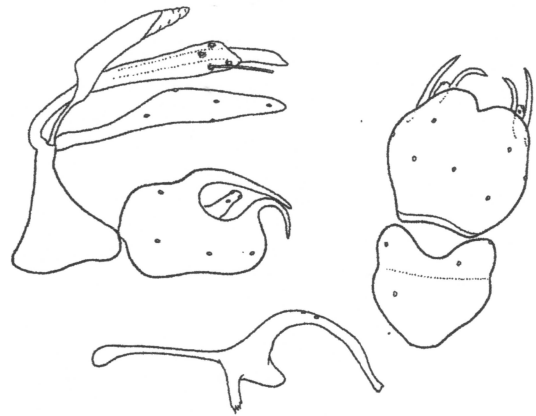
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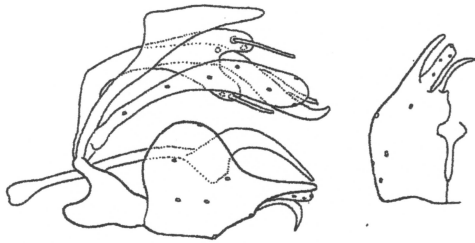
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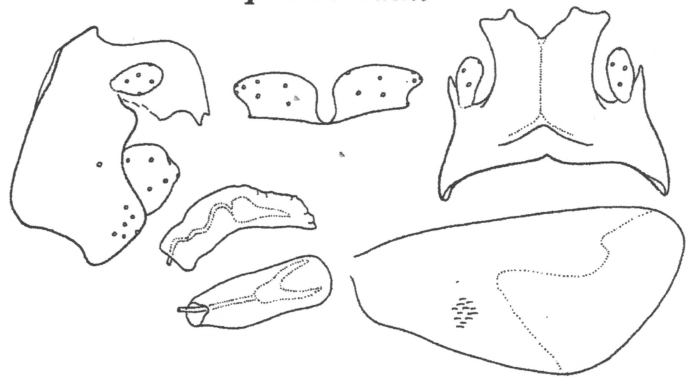
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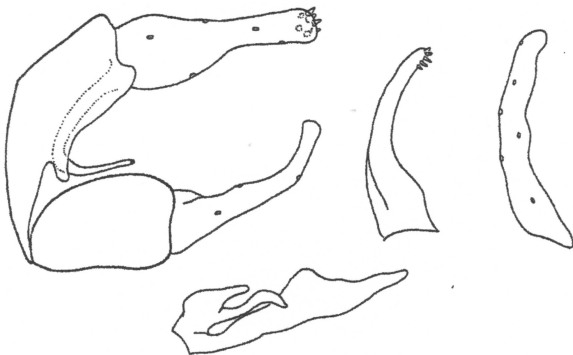
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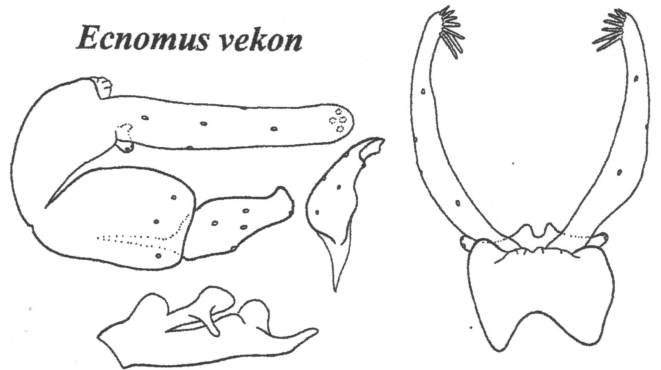
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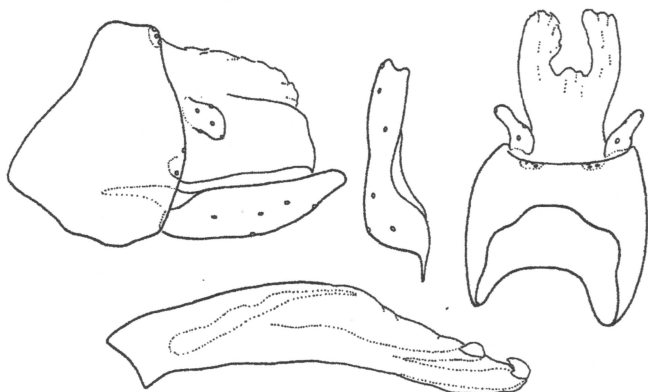
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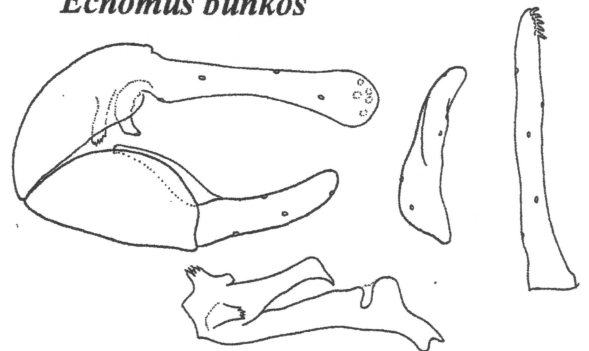
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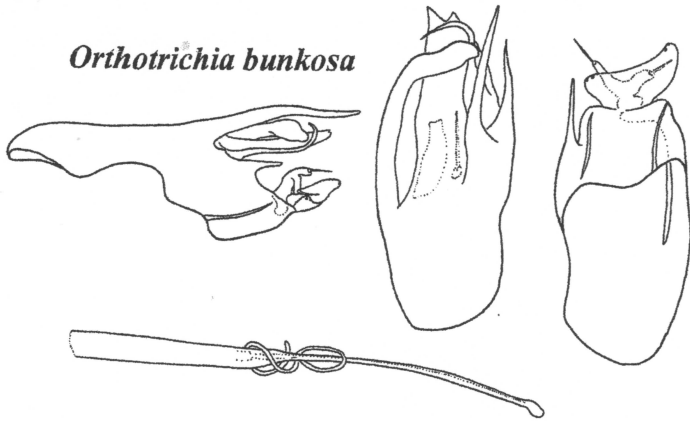
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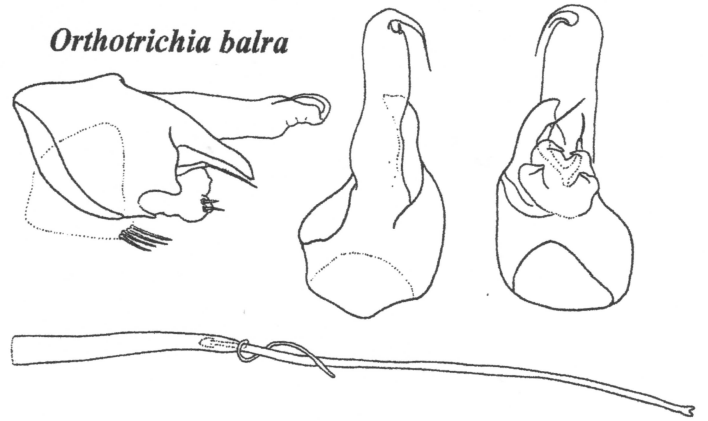
Ecnomus bunkos



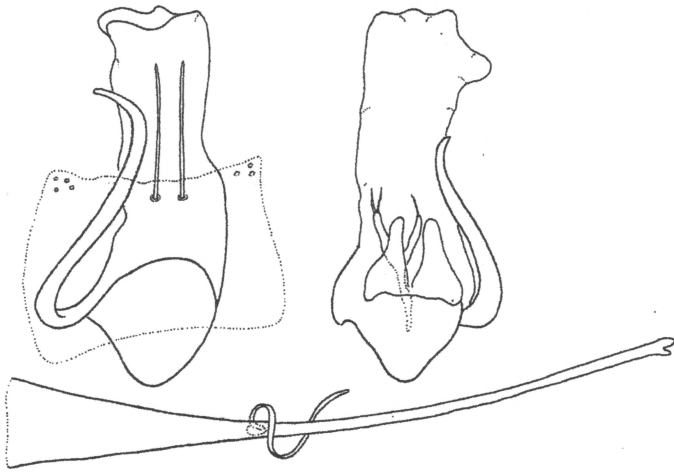
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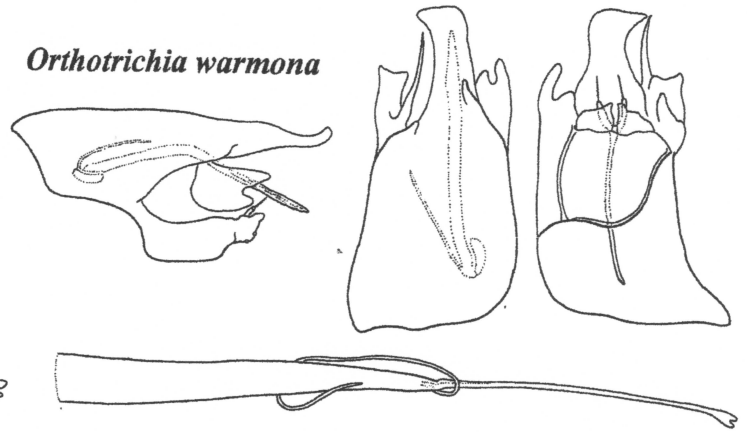
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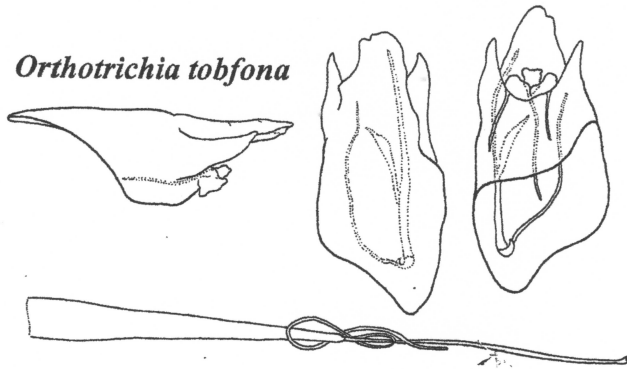
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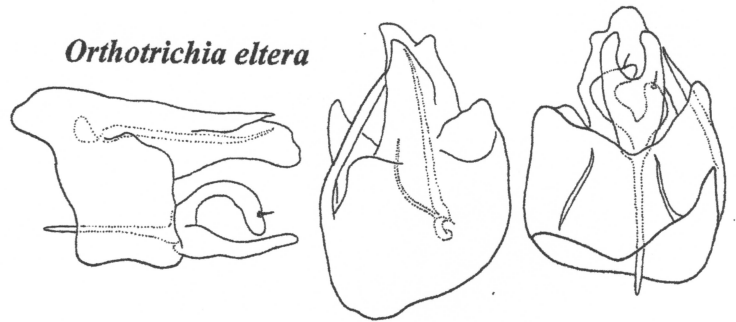
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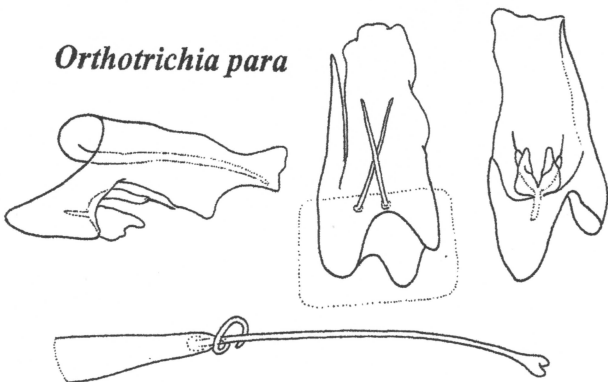
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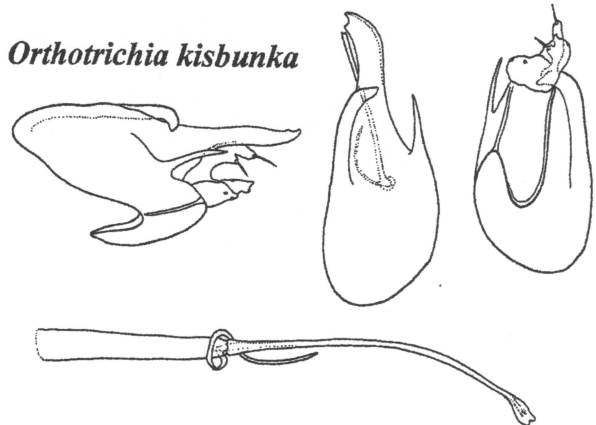
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Orthotrichia para



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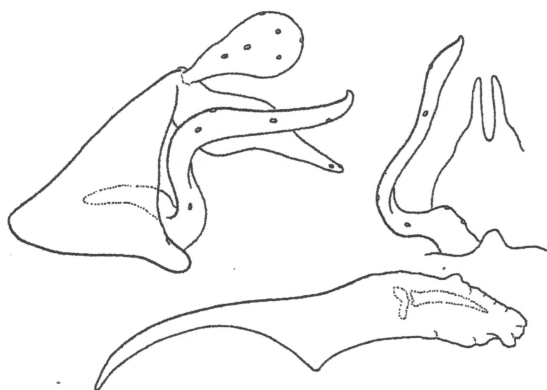
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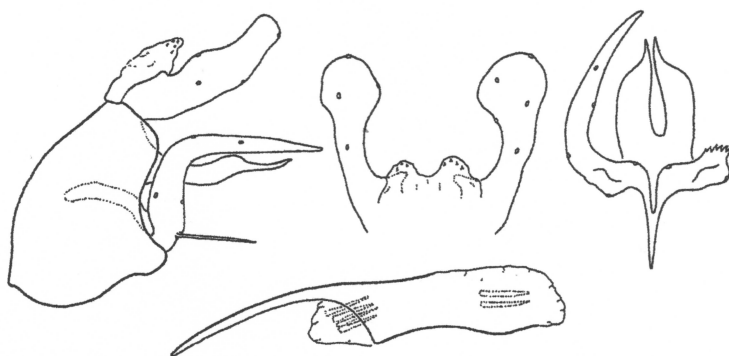
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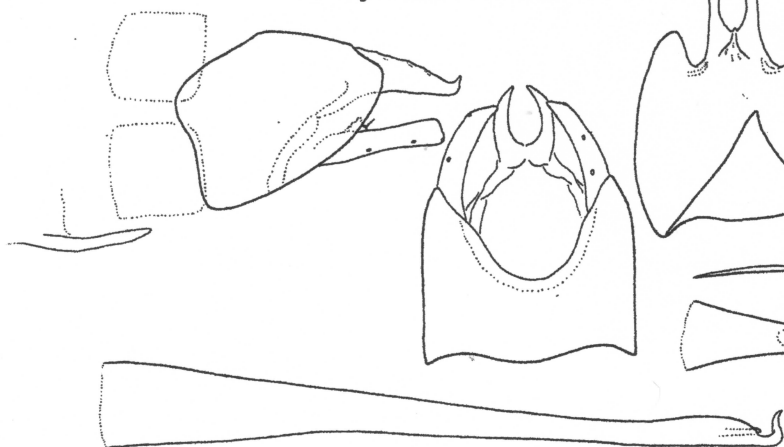
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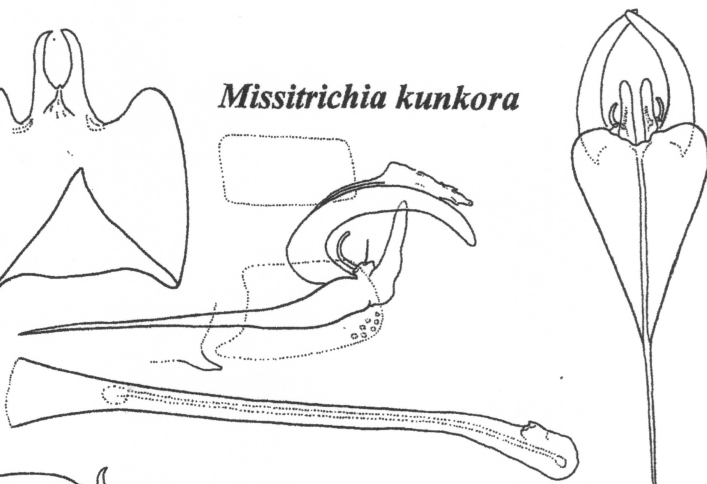
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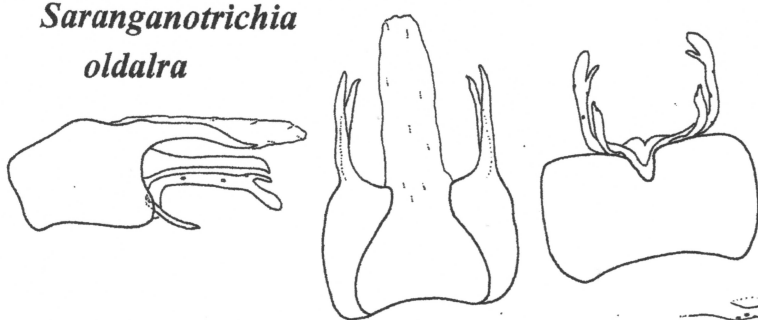
Hellyethira sarina



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Stactobia zarva

