

2015

New species and new country records for Vietnamese caddisflies (Insecta: Trichoptera)

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INSECTA MUNDI

A Journal of World Insect Systematics

0438

**New species and new country records
for Vietnamese caddisflies (Insecta: Trichoptera)**

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Date of Issue: August 28, 2015

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Insecta Mundi 0438: 1–19

ZooBank Registered: urn:lsid:zoobank.org:pub:12295AF8-04F4-41D7-B002-B1B87181D48F

Published in 2015 by

Center for Systematic Entomology, Inc.

P. O. Box 141874

Gainesville, FL 32614-1874 USA

<http://centerforsystematicentomology.org/>

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Layout Editor for this article: Brian J. Armitage

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Abstract. Identification of caddisfly specimens (Insecta: Trichoptera) from Vietnam collected by or for the Royal Ontario Museum, the American Museum of Natural History, and the Museum für Naturkunde der Humboldt-Universität zu Berlin revealed nine new species in a variety of families and genera. New species include: Philopotamidae—*Dolophilodes carpenteri* and *Wormaldia montuosa*; Stenopsychidae—*Stenopsyche siniaevi*; Polycentropodidae—*Nyctiophylax hatinh*; Psychomyiidae—*Eoneureclipsis afonini*; Hydropsychidae—*Maesaipsyche lappa*; Glossosomatidae—*Agapetus darlingi* and *Agapetus grimaldi*; and, Molannidae—*Molannodes sapa*. In addition, new records for 11 species and two genera (*Georgium* and *Tagalopsyche*) of caddisflies from Vietnam are herein noted.

Key words. *Agapetus*, *Dolophilodes*, *Eoneureclipsis*, *Maesaipsyche*, *Molannodes*, *Nyctiophylax*, *Stenopsyche*, *Wormaldia*, Southeast Asia

Introduction

Up until the last quarter of the 20th Century, the known caddisfly (Insecta: Trichoptera) fauna of Vietnam was almost exclusively comprised of endemics. Now, work throughout Southeast Asia, especially in Thailand, has revealed that at least some of Vietnam's fauna is found elsewhere, and vice-versa. In this paper we describe nine new species from Vietnam, presumed endemics all. In addition, we report new records for 11 species and two genera originally described from a medley of Southeast Asian countries.

The new species and new country records presented in this paper were based on collections made by personnel of, or individuals associated with, the Royal Ontario Museum (ROM), the American Museum of Natural History (AMNH), and the Museum für Naturkunde der Humboldt-Universität zu Berlin (MNH).

Material and Methods

All material examined was preserved in ethanol. Specimens were cleared in 10% KOH, and subsequently examined under a stereomicroscope. Drawings were first penciled using a drawing tube, and later inked by hand. Type specimens are deposited in the museums indicated for each species, from whence the specimens were borrowed. An asterisk (*) before a species name indicates a new record for Vietnam.

Family Philopotamidae

Genus *Dolophilodes* Ulmer

The genus *Dolophilodes* is represented in the Oriental Region by 51 species (Morse 2015, Oláh 2013). Of these, 3 species (*D. karmos* Oláh 2013, *D. lagarha* Malicky 1995, *D. orias* Oláh 2013) were described

from Vietnam and 5 additional species (*D. adnamat* Malicky and Chantaramongkol 1993, *D. bicolor* Kimmins 1955, *D. burmana* Kimmins 1955, *D. ornatula* Kimmins 1955, *D. torrentis* Kimmins 1955) were recorded for that country. Herein, we describe 1 new species for Vietnam.

***Dolophilodes carpenteri* sp. n.**

Fig. 1

Diagnosis. Tergum X of *Dolophilodes carpenteri* is similar in some respects to those of *D. ovalis* Sun and Malicky (2002) and *D. semicircularis* Sun and Malicky (2002). Tergum X of *D. carpenteri* differs from these species, however, by the presence of an additional pair of thumb-like dorsal lobes, by the shape and size of the preanal appendages, and by the number and configuration of spines in the endotheca.

Description. Length of forewing 6.0 mm. Wings fuscous. Sternal appendage of segment VI with blunt apex, in ventral view.

Male genitalia. Segment IX narrow, upright in lateral view with lateral sides curved anteriorly. Tergum X, in lateral and dorsal views, extends posterad with two narrow, separate, up-turned, finger-like lobes, and with two setose, thumb-like lobes dorsad. Preanal appendages ear-like in dorsal view and sub-triangular in lateral view. Inferior appendages with basal segment parallel-sided, twice length of distal segment; distal segment slightly constricted ventrad beginning at midpoint in lateral view. Phallic apparatus with large, sac-like phallosome, tapering to point posterad; endotheca contained within phallosome, with one large and 2 small eversible spines.

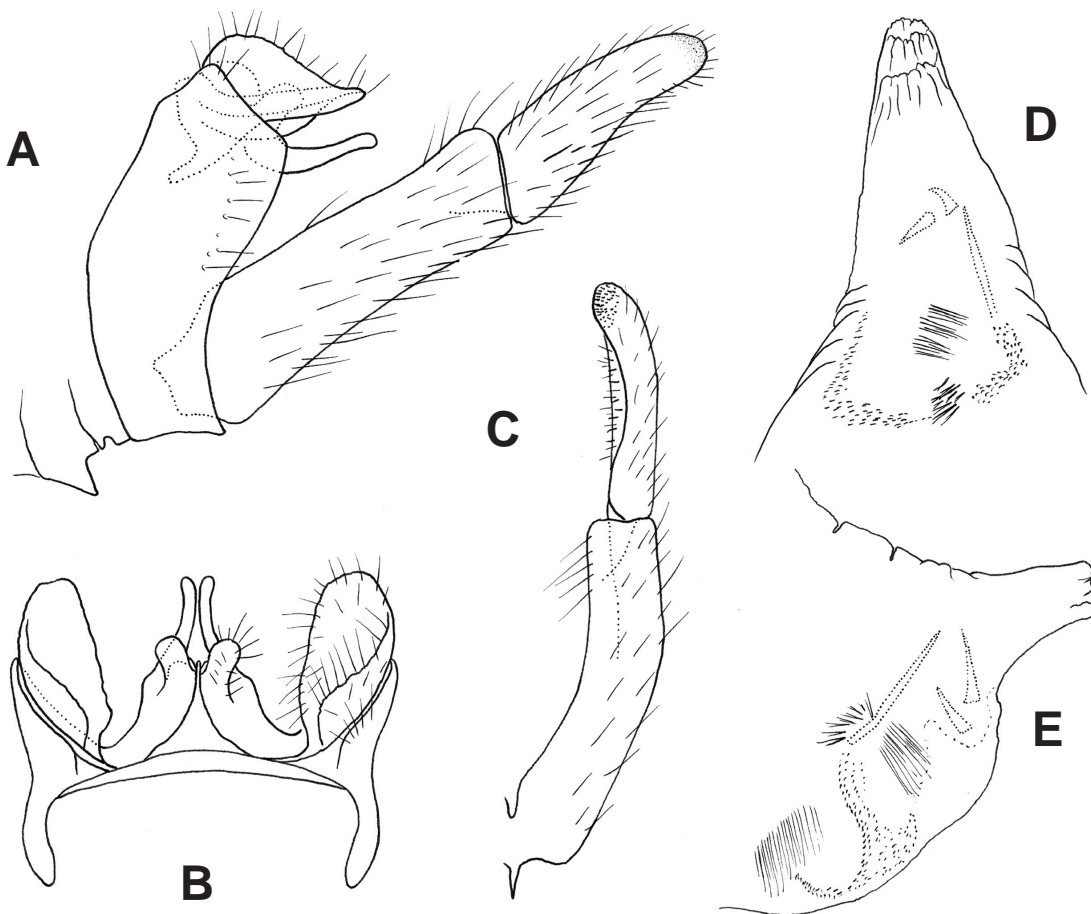


Figure 1. *Dolophilodes carpenteri* sp. n. Male genitalia: A – lateral; B – dorsal; C – right inferior appendage, ventral; apical part of phallic apparatus: D – dorsal; E – lateral.

Material examined. **Holotype** male: **Vietnam**, Ha Tinh Province: Huong Son, 900 m, 18°21'N, 105°15'E, Malaise trap, 20-28 April 1998, J. Carpenter, K. Long, D. Grimaldi, L. Herman, D. Silva (AMNH).

Etymology. This species is named after Dr. James Carpenter, American Museum of Natural History, in recognition of a lifetime of fieldwork and scholarship involving many groups of insects.

Genus *Wormaldia* McLachlan

The genus *Wormaldia* is represented in the Oriental Region by 67 species (Morse 2015). Thirteen species (*W. clavella* Mey 1995, *W. daona* Oláh and Malicky 2010, *W. hephoa* Oláh and Malicky 2010, *W. longicornuta* Mey 1996, *W. meosorum* Mey 1996, *W. muoiba* Malicky 1995, *W. muoibon* Malicky 1995, *W. muoihai* Malicky 1995, *W. muoimot* Malicky 1995, *W. muoinam* Malicky 1995, *W. muoisian* Malicky 1995, *W. sinocornuta* Mey 1996, *W. sonlama* Oláh and Malicky 2010) were described from Vietnam, with 2 additional species (*W. nyctimon* Schmid 1991, *W. relictata* Martynov 1935) recorded for that country. In this paper, we add one new species to the genus.

Wormaldia montuosa sp. n.

Fig. 2

Diagnosis. The male genitalia of *Wormaldia montuosa* n. sp. is similar to those of *W. amalek* Malicky 2009. It differs in the shape of tergum X and the preanal appendages in lateral and dorsal views; in the inferior appendage which have a broader basal segment and a more truncate distal segment; and, in the curved endothecal spines of the phallic apparatus.

Description. Length of forewing 4.5 mm. Color pale yellow.

Male genitalia. Segment IX reduced dorsally to narrow band; in lateral view, ventrally broad, with anteriorly-directed triangular extension, and with posterior margin straight. Segment X fingerlike, directed slightly ventrad in lateral view; triangular in dorsal view tapering posterad. Preanal appendages fingerlike in lateral view, slightly broader apically; slender in dorsal view. Inferior appendages with basal segment subquadrate, half length of distal segment; latter is elongate, slightly tapering to obtuse apex in lateral view; inner, apical portion of distal segment bearing short setae. Phallic apparatus typical for genus, with three curved spines associated with endotheca.

Material examined. **Holotype** male: **Vietnam**, Quang Nam: Ngoc Linh, 1460 m, 15°11.2'N, 108°2.3'E, Malaise trap 4A, 24 March 1999, D. Grimaldi, L. Herman, C. Johnson, K. Long, E. Sterling (AMNH).

Etymology. The specific epithet is Latin and Italian for mountainous, referring to Mt. Ngoc Linh where the species was collected.

Genus *Kisaura* Ross

The genus *Kisaura* is represented in the Oriental Region by 36 species (Morse 2015). This total includes 5 species (*K. cailona* Oláh and Malicky 2010, *K. fansipana* Oláh and Malicky 2010, *K. filiformis* Mey 1996, *K. longaria* Mey 1996, *K. schimplzichte* Malicky 1995) described from Vietnam, and 4 species (*K. euandros* Sun and Malicky 2002, *K. rossi* Kimmins 1955, *K. longispina* Kimmins 1955, *K. sura* Malicky and Chantaramongkol 1993) recorded for this country. Herein, we add one new country record for this genus.

**Kisaura laban* Malicky and Chantaramongkol 2009 (in Malicky 2009)

Material examined. **Vietnam**, Lao Cai Province, Sa Pa, 20 June 1999, 1 male (MNHB).

Distribution. Thailand, Vietnam (Lao Cai).

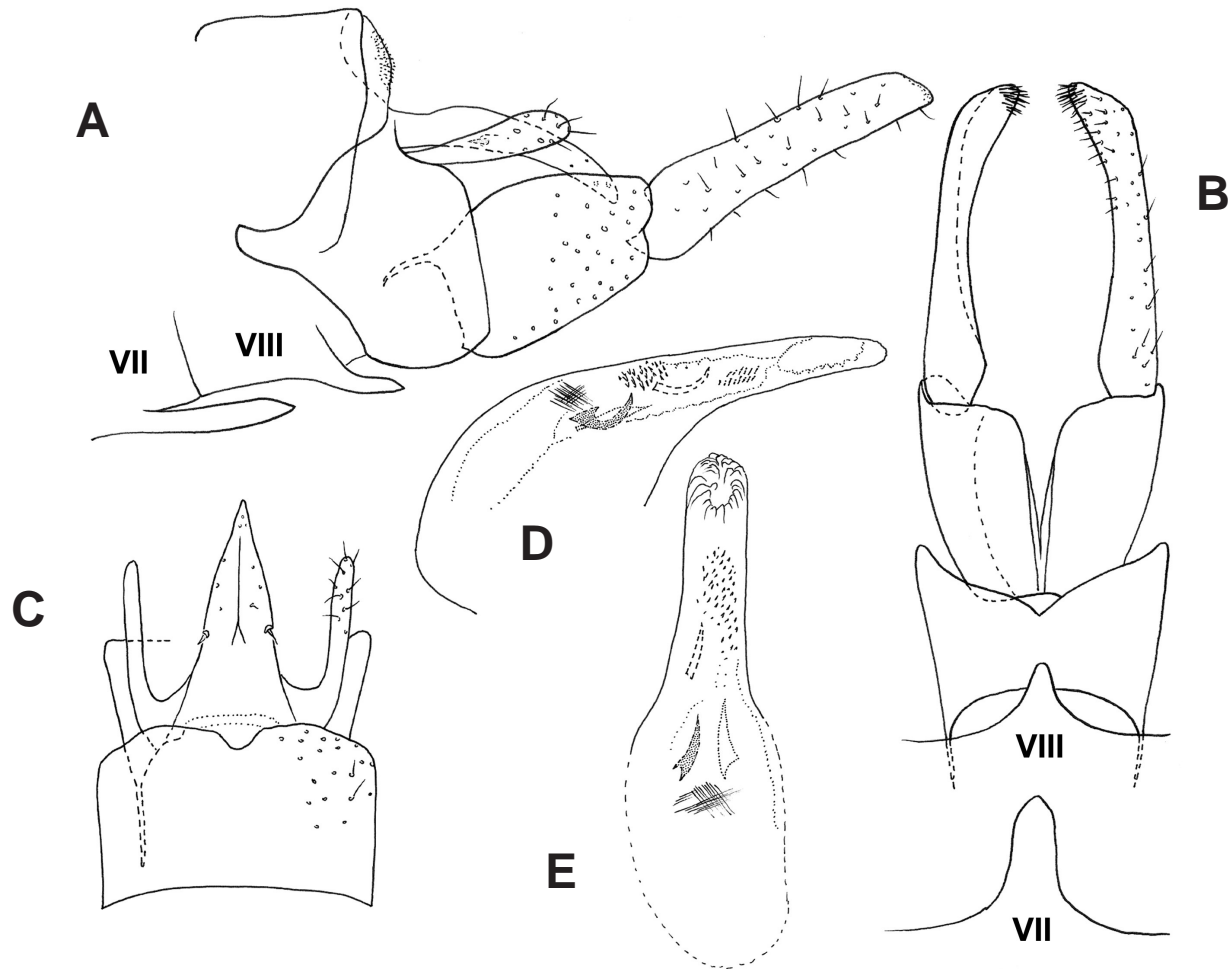


Figure 2. *Wormaldia montuosa* sp. n. Male genitalia and abdominal segments VII and VIII: A - lateral; B - ventral; C - male genitalia, dorsal; phallic apparatus: D - lateral; E - dorsal.

Family Stenopsychidae

Genus *Stenopsyche* McLachlan

The genus *Stenopsyche* is represented in the Oriental Region by 57 species (Morse 2015, Oláh 2013). In Vietnam, there are 12 known species. Vietnam is the type country for 8 of these (*S. babeana* Oláh and Malicky 2010, *S. conthienga* Oláh and Malicky 2010, *S. dakpri* Hoang and Bae 2007, *S. egyenes* Oláh 2013, *S. hamata* Navás 1930, *S. ivalak* Oláh 2013, *S. ulmeri* Navás 1932, *S. uncinata* Navás 1930). An additional three species (*S. coomani* Navás 1932, *S. fissa* Navás 1932, *S. vicina* Navás 1932) were reported by Hoang and Bae (2007) as *nomina dubia*. The remaining 4 species (*S. angustata* Martynov 1930, *S. himalayana* Martynov 1926, *S. laminata* Ulmer 1926, *S. siamensis* Martynov 1931) are country records. Herein, we describe one new species of *Stenopsyche* from Vietnam.

Stenopsyche siniaevei sp. n.

Fig. 3

Diagnosis. This new species is similar in some respects to *S. uncinata* Navás 1930, especially in regard to the structure of tergum X in dorsal view. It differs from that species in that the posterad-directed lobes of tergum X taper to a point, and by the superior arms of the inferior appendages bearing a laterad-directed subapical branch in dorsal view.

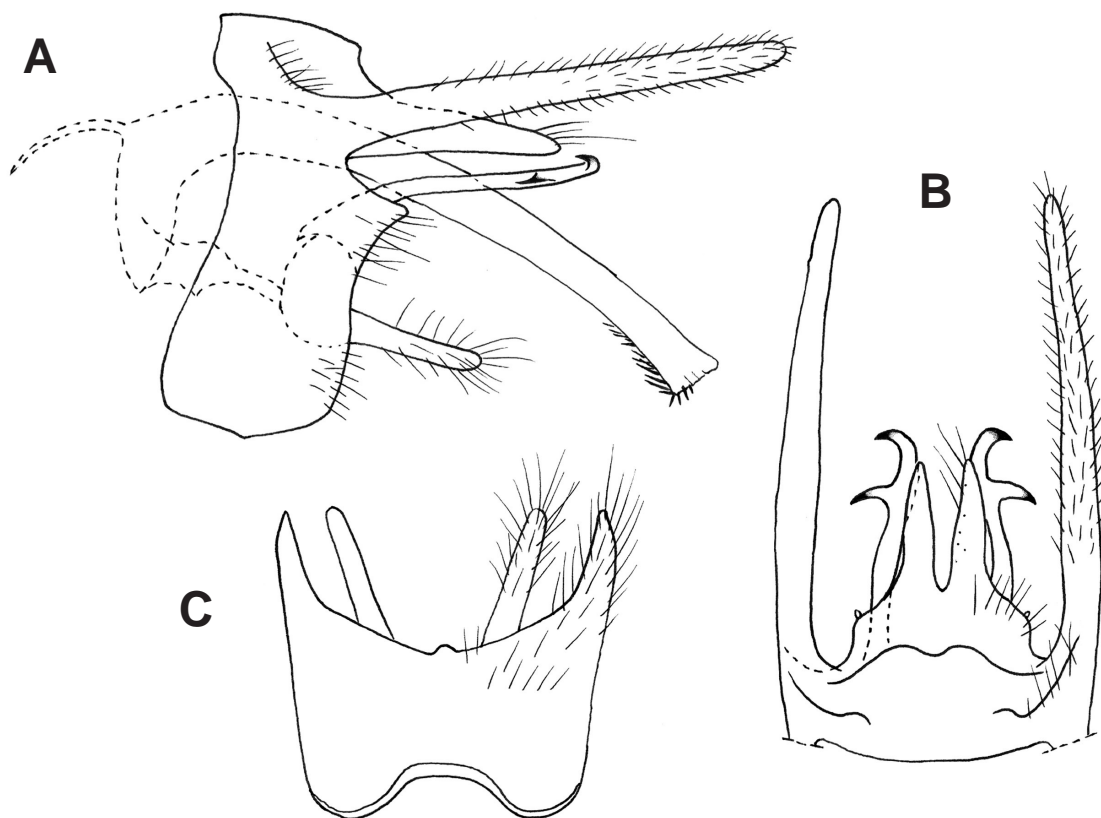


Figure 3. *Stenopsyche siniaeui* sp. n. Male genitalia: A – lateral; B – dorsal; C – ventral.

Description. Length of forewing 19.0-20.1 mm (n=3). Color brown to dark brown.

Male genitalia. Segment IX upright, subrectangular; somewhat narrow in lateral view. Tergum X hoodlike in lateral view; with wide base in dorsal view bearing small papilla at each corner; with two triangular lobes directed posterad separated by deep, triangular gap. Preanal appendages cylindrical and long, about twice as long as tergum X. Inferior appendages cylindrical in lateral and ventral aspects, bearing superior arms hooked laterad apically, and with subapical branch also directed laterad. Phallic apparatus long, cylindrical, curved ventrad in lateral view; truncate.

Material examined. Holotype male: **Vietnam**, Quang Nam Province, Plato Tay Nguyen, Ngoc Linh, 900-1400 m, 15°02'N, 107°59'E, 10-25 August 1996, V.V. Siniaev, E.P. Afonin, leg. A. Schintlmeister (**MNHB**).

Paratypes: 2 males, same data as holotype (**MNHB**); 1 male, Quang Nam Province, Ngoc Linh, 1470 m, 15°0.2'N, 108°2.3'E, 23-27 March 1999, D. Grimaldi, L. Herman, C. Johnson, K. Long, E. Sterling (**AMNH**).

Etymology. This species is named for Victor V. Siniaev in tribute to his efforts to collect this and many other species new to science.

Family Polycentropodidae

Genus *Nyctiophylax* Brauer

The genus *Nyctiophylax* is represented in the Oriental Region by 58 species (Morse 2015). Six species of this genus (*N. argentensis* Malicky 1995, *N. asnat* Malicky 2008, *N. buoc* Oláh and Johanson 2010, *N. cascadiensis* Malicky 1995, *N. mintin* Oláh and Johanson 2010, *N. sagax* Mey 1995) were first

described from Vietnam, and an additional 2 species (*N. hotay* Oláh and Johanson 2010, *N. poias* Malicky 2008) were recorded for that country. Herein, we describe 1 new species and report 3 new country records for Vietnam.

***Nyctiophylax hatinh* sp. n.**

Fig. 4

Diagnosis. This species is most similar to *Nyctiophylax poias* Malicky 2008, but differs in the rounded, even margin of tergum IX in dorsal view, the shape of the inferior appendages in lateral view, and the structure of the phallic apparatus with parameres shorter than the phallus and with internal, sclerotized spines in the endotheca.

Description. Length of forewing 4.5 mm. Color pale yellow.

Male genitalia. Segment IX in two parts, with tergum IX forming a rounded, non-emarginate, hood-like structure over part of genitalia; sternum IX subquadrate in lateral view. Segment X membranous. Preanal appendages subquadrate in lateral view. Intermediate appendages fingerlike, bent ventrad in lateral view. Inferior appendages in lateral view with rounded, dorsal lobe and fingerlike ventral process tapering to rounded apex. Phallic apparatus consists of reduced phallosome, partially sclerotized; and, long tubular endotheca, basally bearing long, needle-like, curved spines; pair of phallosomal sclerites, directed laterad in dorsal view.

Material examined. **Holotype** male: **Vietnam**, Ha Tinh Province, Huong Son, 200 m, 18°21'N, 105°15'E, Malaise trap, April-May 1998, J. Carpenter, K. Long, D. Grimaldi, L. Herman, D. Silva (AMNH).

Etymology. The specific epithet for this species is derived from the Vietnamese province, Ha Tinh, in which it was collected.

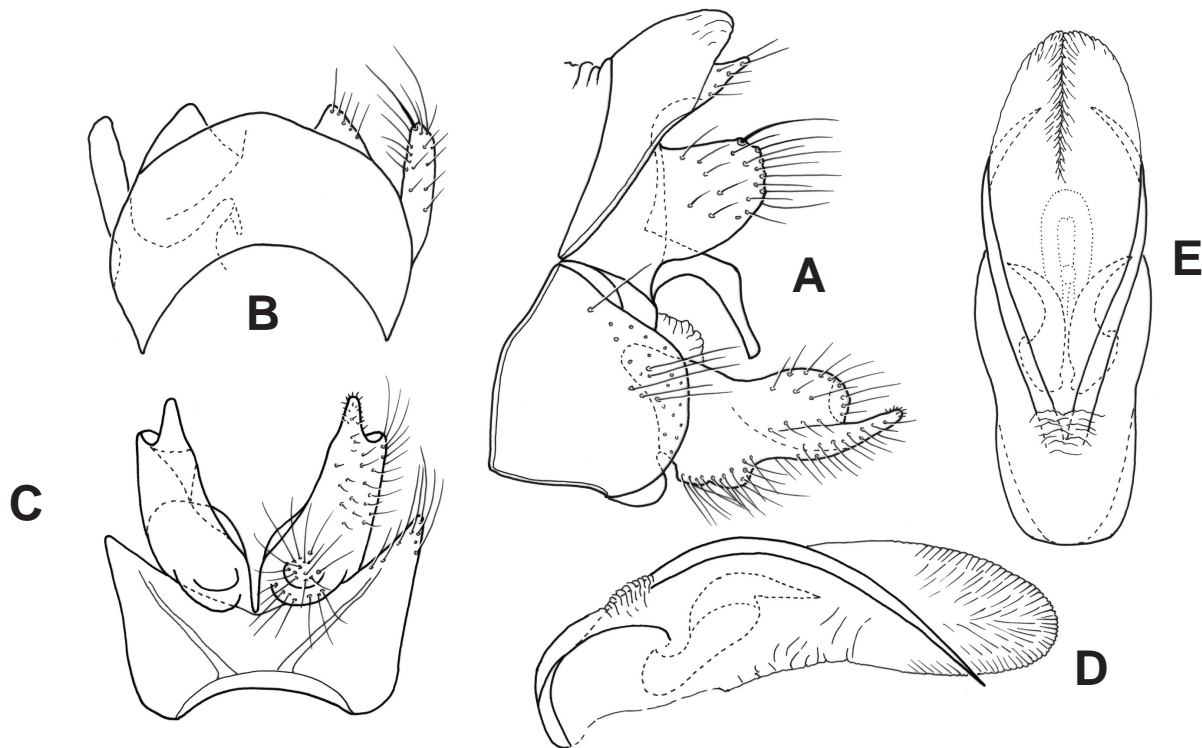


Figure 4. *Nyctiophylax hatinh* sp. n. Male genitalia: A – lateral; B – dorsal; C – ventral; phallic apparatus: D – lateral; E – dorsal.

****Nyctiophylax amaltheia* Malicky and Chantaramongkol 1997**

Material examined. Vietnam, Dac Lac Province, Yok Don NP, edge of Dak Ken River, 8 km SW Ban Don, dipterocarp forest, 12°53'N, 107°48'E, UV light, 15 June 1997, B. Hubley, 1 male (**ROM 974101**).

Distribution. Cambodia, Thailand, Vietnam (Dac Lac).

****Nyctiophylax suthepensis* Malicky and Chantaramongkol 1993**

Material examined. Vietnam, Nghe An Province, ca. 25 km SW of Con Cuong, Khe Moi River Forestry Camp, tributary of Khe Moi River near "Ophiophagus" field, tropical forest edge, 308 m, 18°56'N, 104°49'E, UV light, 6 June 1995, B. Hubley, 1 male (**ROM 956172**).

Distribution. Thailand, Vietnam (Nghe An).

****Nyctiophylax zadok* Malicky and Chantaramongkol 1993**

Material examined. Vietnam, Gia Lai Province, An Khe District, 6 m wide tributary of Azur River, NE of Tram Lap, UV light, 20 June 1996, B. Hubley, D. Currie, 1 male (**ROM 961073**); *ibid.*, Tram Lap, small stream 0.5 km NW of trail from forestry building to Azur River, 900 m, 14°27'N, 108°33'E, UV light, 22 June 1996, D. Currie, J. Swann, 1 male (**ROM 961081**).

Distribution. Cambodia, Thailand, Vietnam (Gia Lai).

Genus *Plectrocnemia* Stephens

The genus *Plectrocnemia* is represented in the Oriental Region by 49 species (Morse 2015). Nine of these species (*P. acanthos* Mey 1996, *P. appensata* Mey 1996, *P. gryphalis* Mey 1996, *P. munitalis* Mey 1996, *P. sinyajevi* Mey 1996, *P. hagar* Malicky 2009, *P. hebu* Malicky 2009, *P. dalat* Oláh and Johanson 2010, *P. thai* Oláh and Johanson 2010) were described from Vietnam. A tenth species, *P. vietnamella* (Malicky 1995), was originally described as *Holocentropus vietnamellus* Malicky 1995. Malicky (2010) lists it as now belonging to the genus *Plectrocnemia*, presumably declared by default in that volume, but we have been unable to find where the new combination was formally declared. This species remains under the genus *Holocentropus* in the World Trichoptera Checklist (Morse 2015). An additional 4 species (*P. forcipata* Schmid 1965, *P. hoenei* Schmid 1965, *P. jonam* Malicky 1993, *P. kamba* Oláh and Johanson 2010) were recorded from Vietnam. Herein, we add one new country record for Vietnam.

****Plectrocnemia luna* Malicky and Changthong 2005
(in Malicky et al. 2005)**

Fig. 5

Material examined. Vietnam, Lao Cai Province, ca. 12 km along road from Sa Pa to Lai Chau, field edge of bamboo forest, 1950 m, 22°20'58.3"N, 103°46'15.7"E, Malaise trap, 1-12 May 1999, B. Hubley, 1 male (**ROM 992002**).

Remarks. The specimen we examined varies from the original illustration (Malicky and Changthong 2005 in Malicky et al. 2005). Hans Malicky (pers. comm.) opined that it was probably *P. luna*. In comparison with *P. luna*, we note that the posterior edge of the preanal appendages is emarginated, and there is a second, ventrad-directed spine in the phallic apparatus. Thus, we present this species as a new country record, note the differences with *P. luna*, and offer our drawings for future consideration.

Distribution. Thailand, Vietnam (Lao Cai).

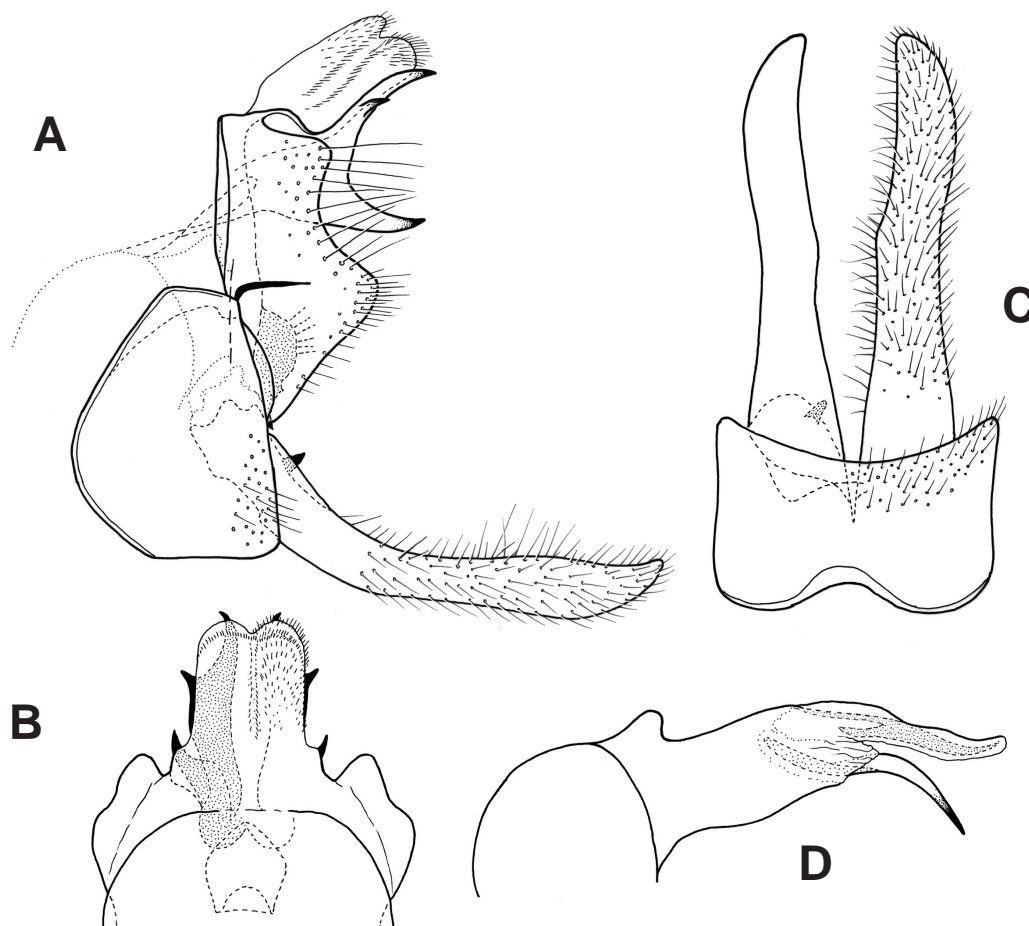


Figure 5. *Plectrocnemia luna* Malicky and Changthong 2005. Male genitalia: A – lateral; B – dorsal; C – ventral; D – phallic apparatus, lateral.

Family Psychomyiidae

Genus *Eoneureclipsis* Kimmins

Eoneureclipsis Kimmins is a small genus which includes 14 species from the Oriental Region (Morse 2015). Two species, *E. quangi* Malicky 1995 and *E. tieni* Malicky 1995, were previously known from Vietnam. Below we describe one new species of this genus from Vietnam.

Eoneureclipsis afonini sp. n.

Fig. 6

Diagnosis. The new species is most similar to *E. varsikiyja* Schmid 1972 from India, especially in the general shape of the inferior appendages. It differs from this species in the intermediate appendages slender and tapering throughout, not subapically swollen; and, by the dorsal edge of phallic apparatus straight, not sinuate, and lacks a dorsal hump.

Description. Length of male forewing 8.9 mm. General color dark brown.

Male genitalia. Tergite IX slender, nearly vertical, bent midlength posterodorsad in lateral view; in dorsal view with triangular notch apically; sternite IX well developed, subrectangular in lateral view. Segment X membranous, adjoining tergite IX. Preanal appendages very long, even in width, slightly

curved, apices truncated. Intermediate appendages long, straight, rod-like. Inferior appendages stout; first article with grouping of stout spines in mesoventral corner; second article elongate, bent mesad apically, inner surface covered with dense stout spines. Phallic apparatus long, arched, anterior and posterior portions wider than mesal portion; aedeagus straight and slender.

Material examined. **Holotype** male: **Vietnam**, Thua Thien-Hue Province, Bach Ma NP, 1200 m, 16°10'N, 107°54'E, 26 July - 6 August 1996, V.V. Siniaev, E.P. Afonin, leg. A. Schintlmeister (**MNHB**).

Etymology. This species is named after E. P. Afonin in tribute to his efforts to collect this and many other species new to science.

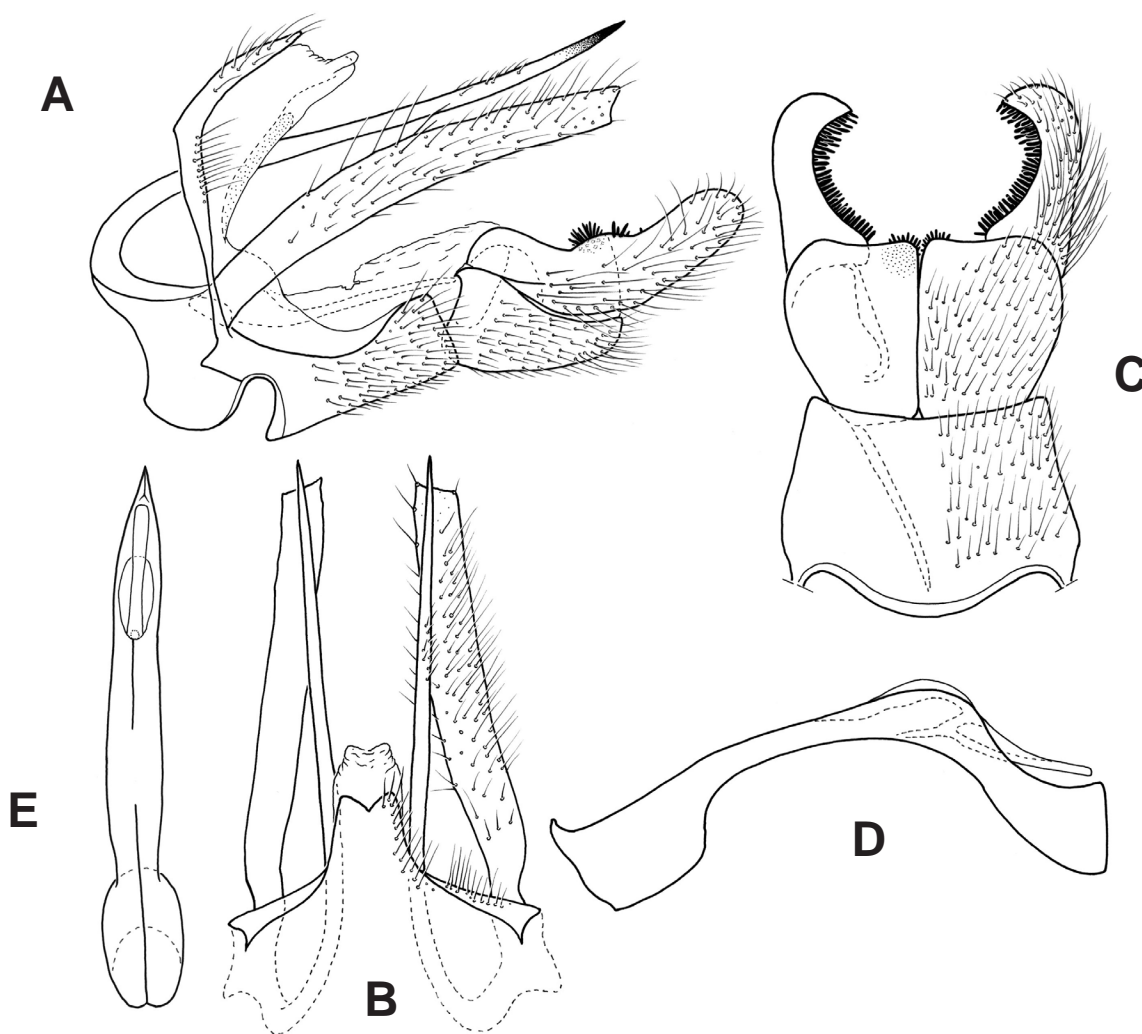


Figure 6. *Eoneureclipsis afonini* sp. n. Male genitalia: A – lateral; B – dorsal; C – ventral; phallic apparatus: D – lateral; E – dorsal.

Genus *Tinodes* Curtis

The genus *Tinodes* is represented in the Oriental Region by 125 species (Morse 2015, Oláh 2013). Of these, 14 are currently known from Vietnam. Vietnam is the type country for 12 species (*T. apteryx* Malicky 1995, *T. bunkos* Oláh 2013, *T. caolana* Johanson and Oláh 2008, *T.*

dactringa Johanson and Oláh 2008, *T. dungdera* Oláh and Malicky 2010, *T. gapbona* Johanson and Oláh 2008, *T. hevit* Malicky 2009, *T. kemnoungea* Johanson and Oláh 2008, *T. meleagris* Malicky 1995, *T. micrapteryx* Malicky 1995, *T. physetes* Malicky 1995, and *T. triomdys* Malicky 1995). In addition, two species (*T. prisatkayukta* Schmid 1972 and *T. cryptophallicata* Li and Morse 1997) were recorded for Vietnam. To this list, we add a new country record, *T. ragu* Malicky and Chantaramongkol 1993.

****Tinodes ragu* Malicky and Chantaramongkol 1993**

Material examined. Vietnam, Ha Tinh Province, Huong Son, 200 m, 18°21'N, 105°15'E, Malaise trap, 13-19 April 1998, J. Carpenter, K. Long, D. Grimaldi, L. Herman, D. Silva, 2 males (AMNH); *ibid.*, 7-20 May 1998, 1 male (AMNH); *ibid.*, 15 May 1998, 2 males (AMNH).

Distribution. Peninsula Malaysia, Thailand, Vietnam (Ha Tinh).

Family Hydropsychidae

Genus *Maesaipsyche* Malicky and Chantaramongkol

The genus *Maesaipsyche* currently contains 4 species (Morse 2015), 2 of which are known from Thailand (*M. prichapanyai* Malicky and Chantaramongkol 1993 and *M. stengeli* Malicky 1997), 1 species from Laos and Vietnam (*M. mekongensis* Mey 2001), and 1 species from China (*M. serrulata* Sun and Yang 2009 in Sun et al. 2009). A new, fifth species, *Maesaipsyche lappa* sp. n., was collected in the Ngoc Linh Mountain in Vietnam. In addition, we examined a specimen of *M. mekongensis* from the Ba Be National Park, which exhibited some variation with the original description.

***Maesaipsyche lappa* sp. n.**

Fig. 7

Diagnosis. Within 4 known species of the genus, the new species is most similar to *M. prichapanyai* in having bilobed membranous segment X and also in the shape of the inferior appendages. The new species differs by having a wide rounded mesoventral lobe on segment IX; a shorter dorsomesal processes of segment IX; inferior appendages more wide dorsoapically; and, by the presence of long and stout mesoventral projections on the phallic apparatus.

Description. Length of forewing 7.5 mm. Color pale.

Male genitalia. Segment IX produced posterolaterally as wide round lobe in lateral view; basoventral lobe, with shallow notch apically, in ventral view; dorsomesal processes wide basally, bent midlength, and then tapering apically to acute apices, as viewed laterally; in dorsal view basal portion in shape of rounded, slightly elongated lobes, covered with spinules; apical portions nearly parallel. Preanal appendages long, slender in lateral view; in dorsal view, each narrow at base, then evenly widened to rounded apex, slightly curved mesad. Segment X membranous, bifid, each lobe finger-like. Inferior appendages long, club-like in lateral view, with round apical notch; ventrally elongate, apical portion curved mesad, subapically notched. Phallic apparatus large, stout; phallotheca wide basally, arched mesally; long mesoventral projection, slightly bent posterad in apical third; endotheca membranous.

Material examined. Holotype male: Vietnam, Quang Nam Province, Ngoc Linh, 830 m, 15°10'N, 108°5'E, Malaise trap, 11-18 March 1999, K. Long and C. Johnson (AMNH).

Etymology. Latin, *lappa* – bur or spike, refers to long mesoventral projection of phallotheca.

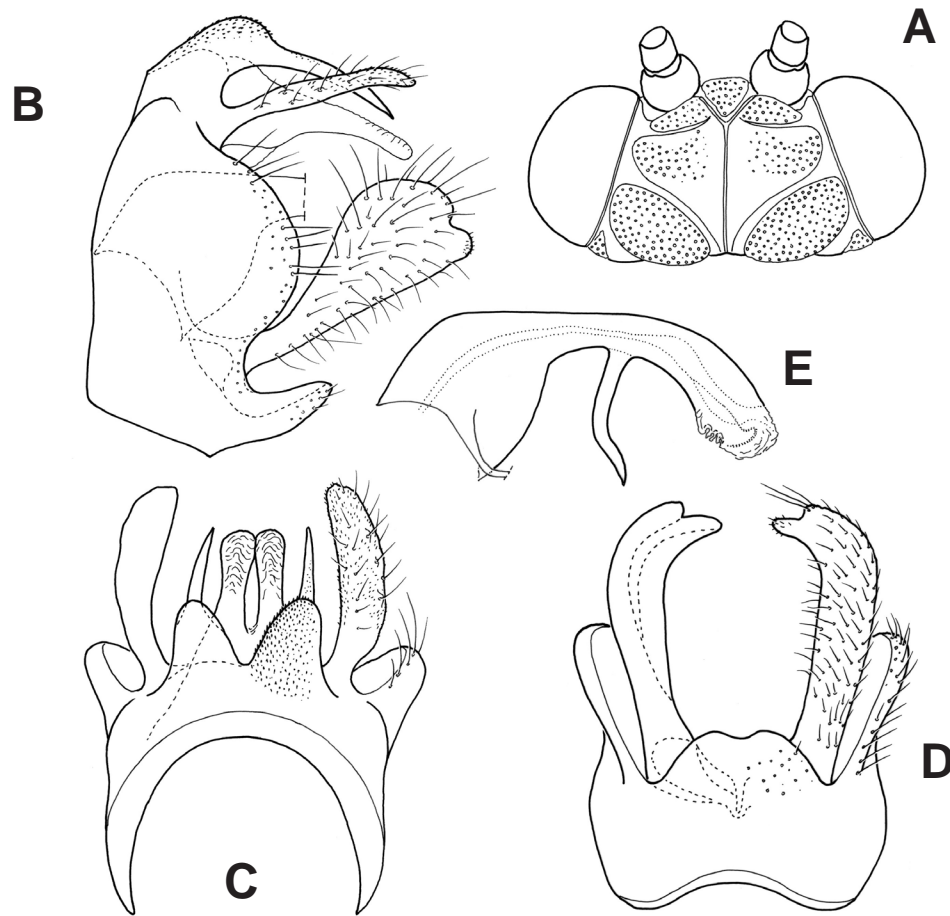


Figure 7. *Maesaipsyche lappa* sp. n. Male: A – head, dorsal; genitalia: B – lateral; C – dorsal; D – ventral; E – phallic apparatus, lateral.

***Maesaipsyche mekongensis* Mey 2001**

Fig. 8

Material examined. Vietnam, Cao Bang Province, Ba Be NP, mouth of inflow at Ba Be Village, 22°25'N, 105°37'E, UV light, 8 May 1997, D. Currie, 1 male (**ROM 972506**).

Remarks. Minor variations observed in our specimen (Fig. 8), compared to original illustrations by Mey (2001), include the shape and orientation of the dorsomesal processes of segment IX in dorsal view, and differences in the shape of the inferior appendages in lateral view.

Distribution. Laos, Vietnam (Cao Bang, Nghe An).

Family Glossosomatidae

Genus *Agapetus* Curtis

The genus *Agapetus* is represented by 81 species in the Oriental Region (Morse 2015, Oláh 2013), with 16 species first described from Vietnam (*A. aranytalan* Oláh 2013, *A. barang* Oláh 1988, *A. caimoc* Oláh 1988, *A. danbang* Oláh 1988, *A. dangorum* Oláh 1988, *A. desom* Oláh 1988, *A. eriopus* Mey 1996, *A. fesus* Oláh 2013, *A. fogus* Oláh 2013, *A. gonophorus* Mey 1996, *A. gotgian* Oláh 1988,

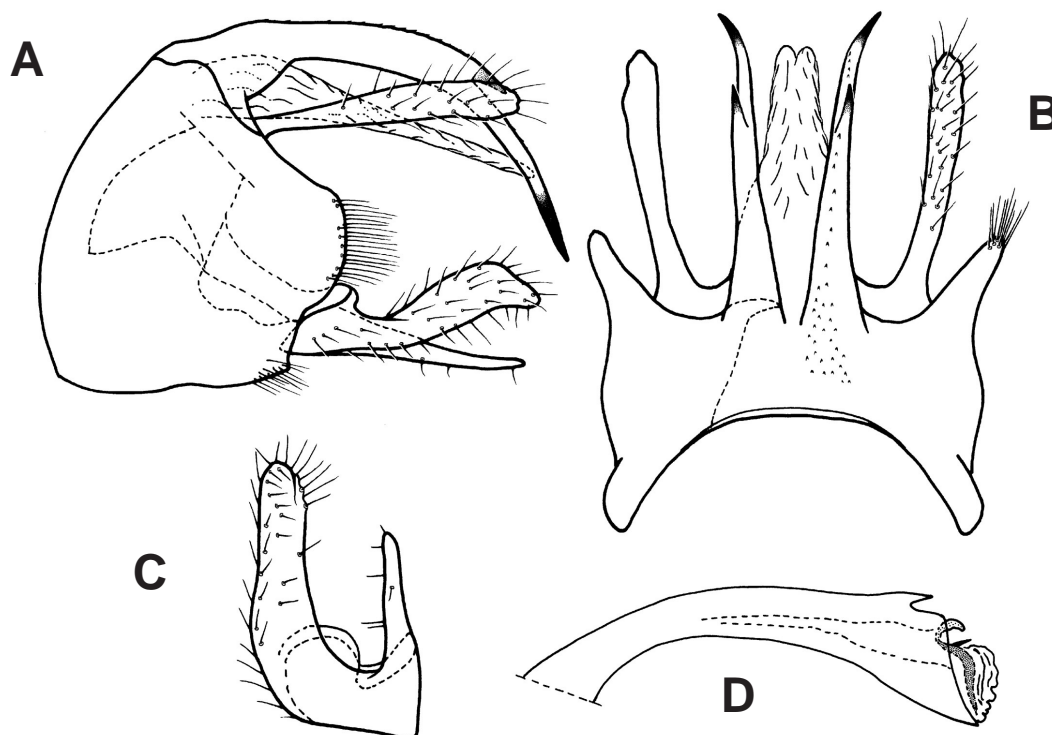


Figure 8. *Maesaipsyche mekongensis* Mey. Male genitalia: A – lateral; B – dorsal; C – left inferior appendage, ventral; D – phallic apparatus, lateral.

A. halong Oláh 1988, *A. kongcanxing* Oláh 1988, *A. otoldal* Oláh 2013, *A. rupestris* Mey 1996, and *A. zniachtl* Malicky 1995). We herein describe two new species and present one new country record for Vietnam.

***Agapetus darlingi* sp. n.**

Fig. 9A-C

Diagnosis. The male genitalia of the new species most closely resemble those of *Agapetus kongcanxing* Oláh 1988 in the possession of curved anterad, asymmetrical ventral branches of segment X, but the longest branch (left) in the new species reaches only basal third of segment X, whereas the longest branch (right) in *A. kongcanxing* extending far beyond and reaches the dorsal part of segment X. In addition, the new species differs: by segment X being longer, extended posterad as far as the inferior appendages; by the inferior appendages bearing several short teeth along the posterior and ventral margins, in ventral view, which are lacking (Fig. 9D) in *A. kongcanxing*; and, by the shape of the inferior appendages in ventral view.

Description. Length of forewing 2.5-3.0 mm (n=3). Color yellowish.

Male genitalia. Segment IX slightly recumbent in lateral view; lateral sides extended anteriorly in middle; subbasal portion extended posterad. Segment X large, nearly triangular in lateral view, extended posteriorly as far as inferior appendages; ventral branches of segment X long, narrow, bent anterad near apex of segment X; right branch short, slender at apical portion; left branch longer, reaching basal third of segment X, widened subapically with angulated apex. Preanal appendages thumb-like in both lateral and ventral views, half as long as segment X. Inferior appendages subquadrate in lateral view, extended posterad as far as segment X; apically with rounded dorsal portion and angulated ventral portion separated by shallow emargination; in ventral view, bearing several short

teeth along the posterior and ventral margins; lightly sclerotized lobe or “swelling” observed on inner surface of each inferior appendage at basal half. Phallic apparatus long, slender, similar to that of *A. kongcanxing*.

Material examined. **Holotype** male: **Vietnam**, Thua Thien-Hue Province, Nam Dong District, Huong Loc commune, ca. 9 km SE Khe Tre, 16°9.403'N, 107°47.782'E, 26 May - 1 June 2002, C. Darling (**ROM 2002508**). **Paratypes**: 4 males, 3 female, same data as holotype; 1 male, Quang Nam Province, Ngoc Linh, 950 m, 15°11.2'N, 108°2.3'E, 16 April 1999, Malaise trap, D. Grimaldi, L. Herman, C. Johnson, K. Long, E. Sterling (**AMNH**).

Etymology. This species is named after Dr. Christopher Darling of the Royal Ontario Museum, Department of Natural History in recognition of his extensive entomological collecting and organizing efforts throughout Southeast Asia.

Remarks. In another collection from a different site, we found a specimen of *A. kongcanxing*, and were able to compare features of both species (Fig. 9D). **Vietnam**: Ha Tinh Province, Huong Son, 200 m, 18°22'N, 106°13'E, 15 May 1998, Malaise trap, K. Long (**AMNH**), 1 male of *Agapetus kongcanxing* Oláh.

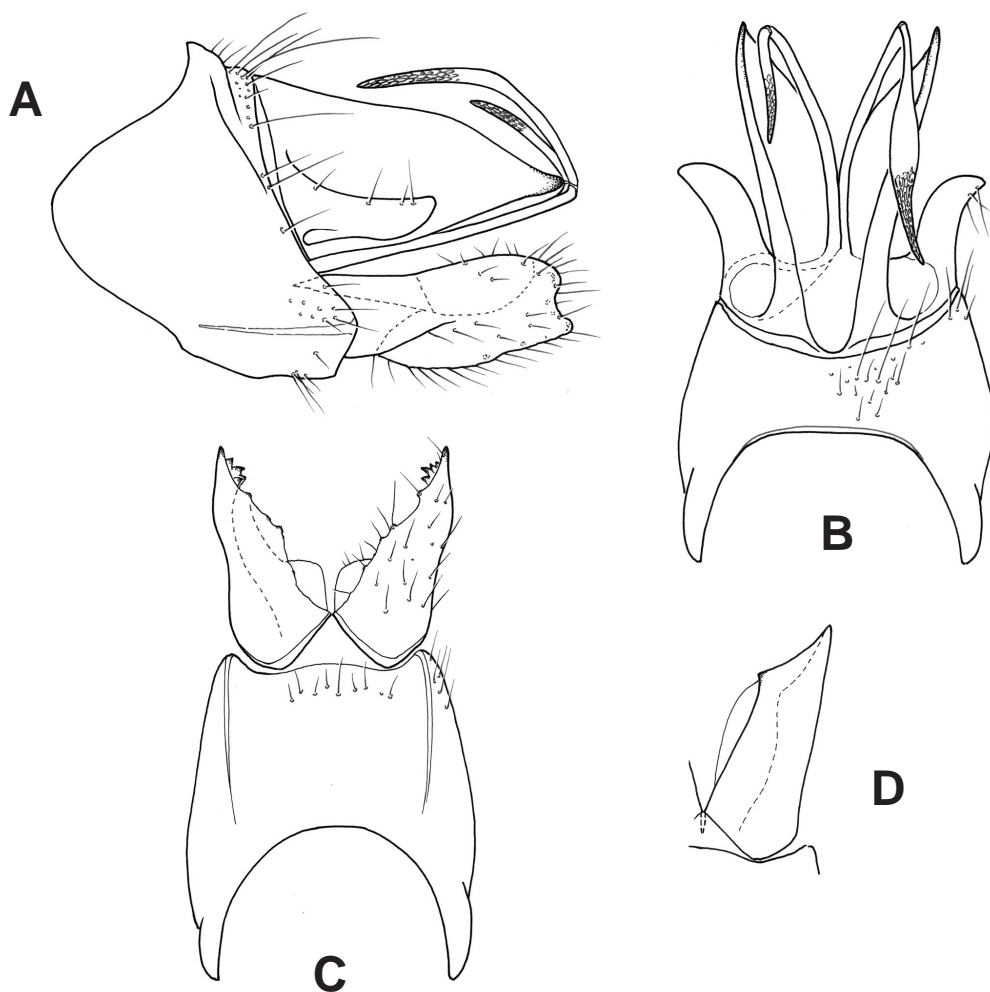


Figure 9. *Agapetus darlingi* sp. n. Male genitalia: A – lateral; B – dorsal; C – ventral. *A. kongcanxing* Oláh. D – right inferior appendage of male genitalia, ventral.

***Agapetus grimaldi* sp. n.**

Fig. 10

Diagnosis. The male genitalia of *Agapetus grimaldi* sp. n. is generally similar to those of *Agapetus vercondarius* Malicky and Chantaramongkol 1992, but differs by segment X having an upturned apex in lateral view, and possessing spiniform processes on the mesoventral margin, and by the shape of the inferior appendage, which has the ventral margin sinusoid.

Description. Length of forewing 2.8-3.2 mm (n=2). Color pale yellow-brown. Sternal appendage of segment VI with blunt apex (Fig. 10E).

Male genitalia. Segment IX vertical in lateral view, lateral sides extended anteriorly and nearly straight posteriorly. Segment X triangular in lateral view, slightly shorter than inferior appendage, apex upturned, and each ventral margin bearing several spiniform processes. Ventral branches of segment X long, narrow, equal in length, bent anterad well beyond apex of segment X, each bearing apical spine. Preanal appendages triangular in lateral view, thumb-like in dorsal view, slightly shorter than half of segment X. Inferior appendages extended posterad beyond segment X, dorsal margin gently curved posterodorsad in lateral view, ventral margin sinusoid, apex rounded, apical portion with longitudinal row of small “teeth” near ventral edge. Phallic apparatus slender, and consists of narrow parameres dorsally and subapically enlarged aedeagus.

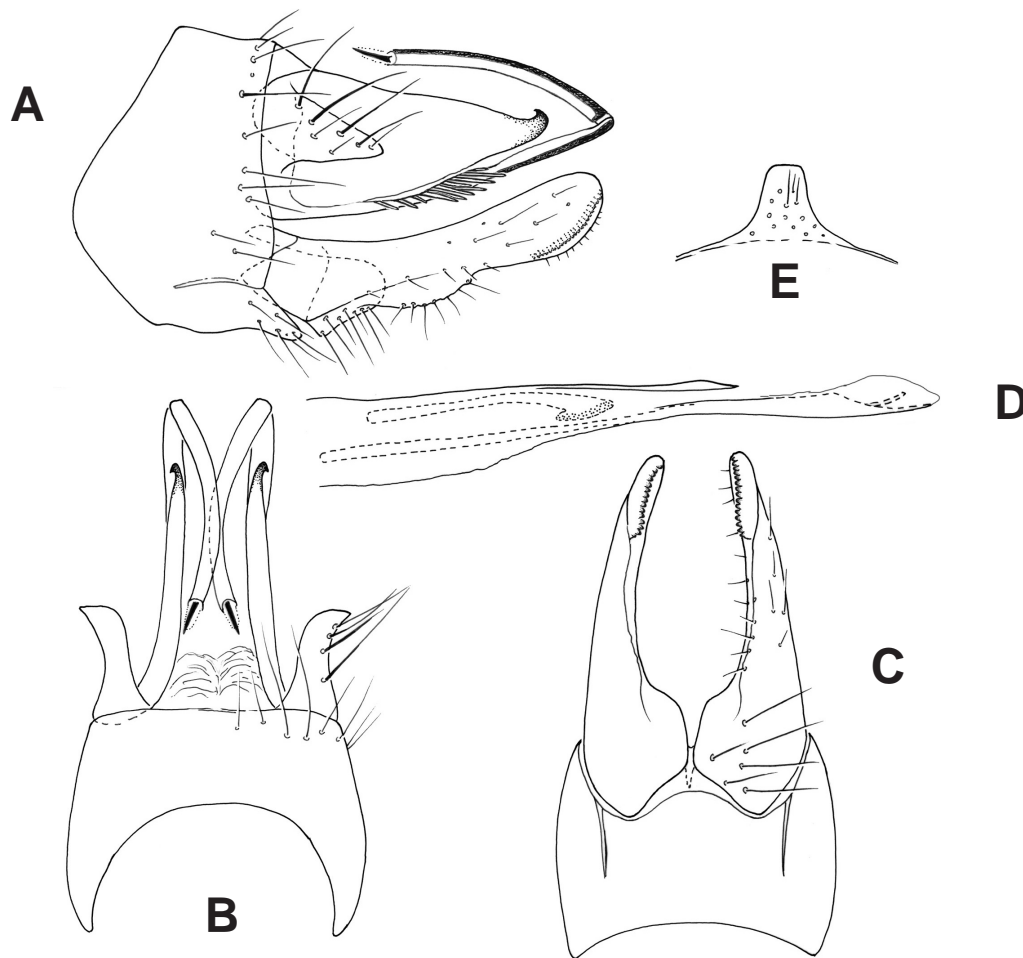


Figure 10. *Agapetus grimaldi* sp. n. Male genitalia: A – lateral; B – dorsal; C – ventral; D – phallic apparatus, lateral. E - sternal appendage of abdominal segment VI, ventral.

Material examined. **Holotype** male: **Vietnam**, Quang Nam Province, Ngoc Linh, 950 m, 15°11.2'N, 108°2.3'E, Malaise trap, 16 April 1999, D. Grimaldi, L. Herman, C. Johnson, K. Long, E. Sterling (AMNH). **Paratype:** 1 male, same data as holotype.

Etymology. This species is named after Dr. David Grimaldi of the American Museum of Natural History in recognition of his organizational and field work in Vietnam.

****Agapetus esinertus* Malicky and Chantaramongkol 1992**

Material examined. **Vietnam**, Cao Bang Province, Ba Be NP, 14-23 May 1995, D. Currie, B. Hubley, J. Swann, 1 male, 1 female (**ROM 956049**).

Distribution. Thailand, Vietnam (Cao Bang).

Genus *Glossosoma* Curtis

The genus *Glossosoma* is represented in the Oriental Region by 61 species (Morse 2015, Oláh 2013). Of these 4 species were described from Vietnam (*G. ali* Mey 1996, *G. furcatum* Navás 1932, *G. rovidul* Oláh 2013, and *G. tuvien* Oláh and Malicky 2010) and 6 additional species were recorded (*G. atestas* Malicky and Chantaramongkol 1992, *G. atitto* Malicky and Chantaramongkol 1992, *G. caudatum* Martynov 1931, *G. jentumar* Malicky and Chantaramongkol 1992, *G. kamarasikam* Schmid 1971, and *G. malayanum* Banks 1934). We herein add one more record for Vietnam.

****Glossosoma elvisso* Malicky and Chantaramongkol 1992**

Material examined. **Vietnam**, Nghe An Province, ca. 25 km SW of Con Cuong, Khe Moi River Forestry Camp, tributary of Khe Moi River, 308 m, 18°56'N, 104°49'E, UV light, 4 June 1995, B. Hubley, J. Swann, 1 male, 1 female (**ROM 956158**); *ibid.*, 6 June 1995, B. Hubley, 8 males, 6 females (**ROM 956172**); *ibid.*, Malaise trap, 25-29 October 1994, D. Currie, 1 male, 1 female (**ROM 946101**); Quang Nam Province, Ngoc Linh, 950 m, 15°10'N, 108°5'E, Malaise trap, 16 April 1999, K. Long, C. Johnson, 1 male, 1 female (AMNH).

Distribution. Thailand, Vietnam (Nghe An, Quang Nam).

Family Calamoceratidae

Genus *Anisocentropus* McLachlan

The genus *Anisocentropus* has 44 described species found in the Oriental Region (Morse 2015), with 4 of these species first described from Vietnam (*A. bungus* Oláh and Johanson 2010, *A. cameloides* Malicky 1995, *A. orion* Mey 1997, *A. thonmihn* Oláh and Johanson 2010). Six additional species (*A. csorbai* Oláh and Johanson 2010, *A. erichthonios* Malicky and Cheunbarn 2001 (in Malicky et al. 2001), *A. janus* Malicky and Chantaramongkol 1994 (in Malicky 1994), *A. kawamurai* (Iwata 1927), *A. maculatus* Ulmer 1926, *A. pandora* Malicky and Chantaramongkol 1994, in Malicky 1994) were recorded from there. Below we present one new country record for this genus in Vietnam.

****Anisocentropus brevipennis* (Ulmer) 1906**

Material examined. **Vietnam**, Kon Tum Province, Mang Canh Village, 2-6 June 2006, V. Zolotuhin, 1 male, 1 female (MNHB).

Distribution. Borneo, Cambodia, Peninsula Malaysia, Indonesia (Sumatra), Thailand, Vietnam (Kon Tum).

Genus *Georgium* Fischer

The genus *Georgium* is known from one species in each of the Oriental (Thailand) and Palaearctic Regions (Japan), plus one species from Baltic amber (Morse 2015). The species, first described from Thailand, is now recorded from Vietnam.

****Georgium kandaules* Malicky and Chantaramongkol 2003**

Material examined. **Vietnam**, Nghe An Province, ca. 25 km SW of Con Cuong, Khe Moi River Forestry Camp, tributary of Khe Moi River, 308 m, 18°56'N, 104°49'E, UV light, 4 June 1995, B. Hubley, J. Swann, 1 male (**ROM 956158**).

Distribution. Thailand, Vietnam (Nghe An).

Family Molannidae**Genus *Molannodes* McLachlan**

The genus *Molannodes* is represented in the Oriental Region by 13 species (Morse 2015). Only one of these species, *M. sani* Malicky 1995, has been described from Vietnam. Below we describe one new species of *Molannodes* from Lao Cai Province, Vietnam.

***Molannodes sapa* sp. n.**

Fig. 11

Diagnosis. This new species is most similar to *Molannodes excavatus* (Wiggins 1968). It differs from that species by the broader excavation on the posterior edge of tergum IX in ventral view; by the rounded (triangular in *M. excavatus*) shape of the dorsomedian plate of tergum X in dorsal view; by the shape of the preanal appendages in dorsal and lateral views; and, by the phallic apparatus having sclerotized, subendothecal hooks which are strongly curved ventrad.

Description. Length of male forewing 6.8 mm (n=2). General color brown to dark brown.

Male genitalia. Segment IX upright, with broad, prominent lateral bulge posterad, narrower dorsally and ventrally. Tergum X with dorsomedian plate broadly rounded in dorsal view; mesal appendage curved ventrad, bearing slender, dorsocaudal process. Preanal appendages subquadrate, mitten-like in lateral and dorsal views. Inferior appendages with dorsal branch fingerlike, curved ventrad in lateral view; ventral branch forming a thick, sclerotized hook in lateral view. Phallic apparatus composed of eversible, membranous endotheca within tubular phallosome; endotheca with bifurcate dorsal, extensile lobes with small spines apically; numerous spines on membranous lobes surrounding ejaculatory duct; phallosomal sclerite present; sclerotized hooks directed ventrad found below endotheca.

Material examined. **Holotype** male: **Vietnam**, Lao Cai Province, ca. 12 km along road from Sa Pa to Lai Chau, near 6 m wide stream, bamboo forest, 1950 m, 22°20'58"N, 103°46'15"E, Malaise trap, 1-12 May 1999, B. Hubley (**ROM 992012**). **Paratype:** 1 male, same data as holotype.

Etymology. The specific epithet for this species was derived from the town, Sa Pa, in the Sa Pa District of Lao Cai Province from which these specimens were collected.

Family Leptoceridae**Genus *Tagalopsyche* Banks**

The genus *Tagalopsyche* has 7 described species from the Oriental Region (Morse 2015), none of which were previously found in Vietnam. Below we present the first record for this genus in Vietnam.

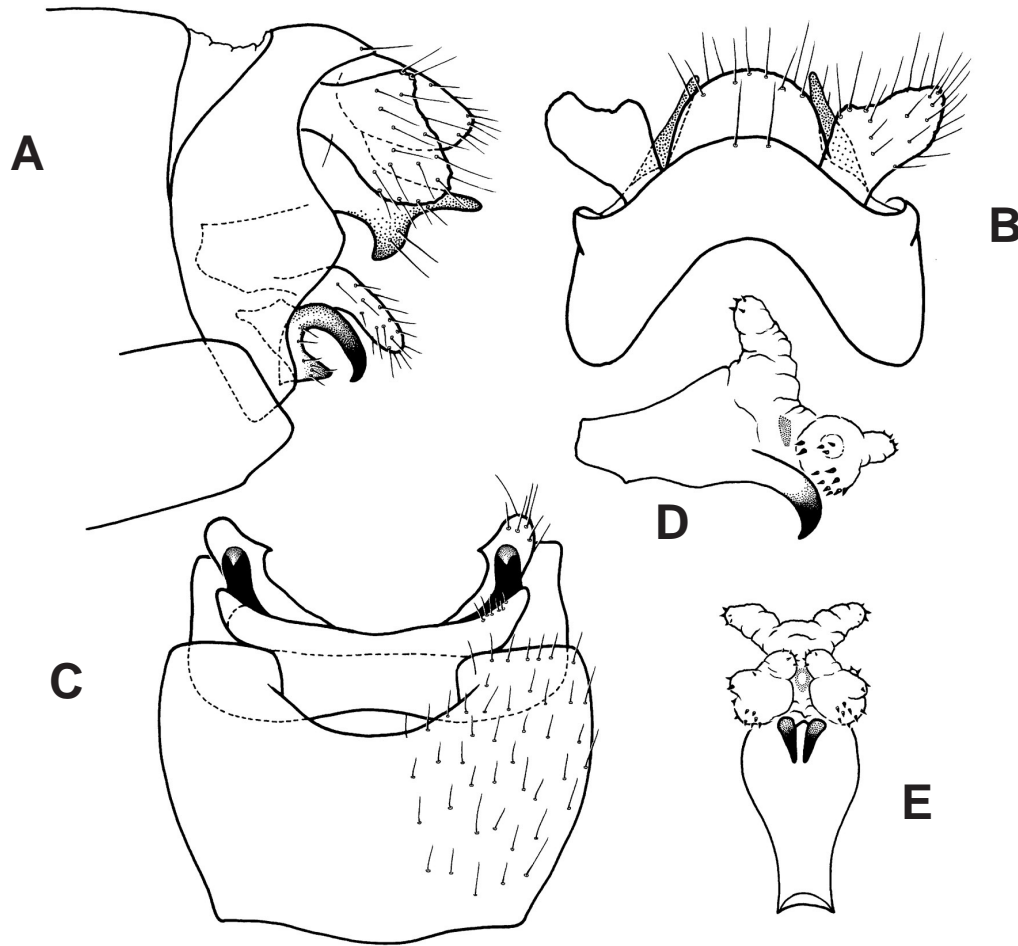


Figure 11. *Molannodes sapa* sp. n. Male genitalia: A – lateral; B – dorsal; C – ventral; phallic apparatus: D – lateral; E – ventral.

****Tagalopsyche brunnea* (Ulmer) 1905**

Material examined. Vietnam, Quang Nam Province, Ngoc Linh, 950 m, 15°10'N, 108°5'E, Malaise trap, 16 April 1999, K. Long, C. Johnson, 1 male (AMNH).

Distribution. Indonesia (Java, Sumatra), Malaysia (Sabah), Thailand, Vietnam (Quang Nam).

Acknowledgments

We are grateful to Dr. Hans Malicky, Lunz am See, Austria, for providing us with early insight into our determinations for several of the species presented herein. This study was, and all future work for years to come will be, facilitated by the efforts of Dr. Malicky over many decades, culminating in his “Atlas of Southeast Asian Trichoptera”, Malicky (2010). We thank Dr. Takao Nozaki of Kanagawa, Japan and Dr. Steven C. Harris of Clarion University, USA for their comments and corrections. We are also grateful to the staffs of the Royal Ontario Museum and the American Museum of Natural History, and to Dr. Wolfram Mey of the Museum für Naturkunde der Humboldt-Universität zu Berlin for making available to us the specimens described and reported in this publication. This Publication is No. 353 of the Department of Natural History, Royal Ontario Museum.

Literature Cited

- Banks, N. 1934.** Supplementary neuropteroid insects from the Malay Peninsula and from Mt. Kinabalu, Borneo. *Journal of the Federated Malay States Museums* 17: 567-579.
- Hoang, D. H., and Y. J. Bae. 2007.** Vietnamese species of *Stenopsyche* McLachlan (Trichoptera: Stenopsychidae). *Zootaxa* 1624: 1-15.
- Iwata, M. 1927.** Trichopterous larvae from Japan (English version). *Annotationes Zoologicae Japonenses* 11: 203-233.
- Johanson, K. A., and J. Oláh. 2008.** Description of seven new *Tinodes* species from Asia (Trichoptera: Psychomyiidae). *Zootaxa* 1854: 1-15.
- Kimmins, D. E. 1955.** Entomological results from the Swedish expedition 1934 to Burma and British India. Trichoptera. (Philopotamidae, genera *Wormaldia* McLachlan, *Doloclanes* Banks and *Dolophilodes* Ulmer). *Arkiv för Zoologi* 9: 67-92.
- Li, Y. J., and J. C. Morse. 1997.** *Tinodes* species (Trichoptera: Psychomyiidae) from The People's Republic of China. *Insecta Mundi* 11: 273-280.
- Malicky, H. 1993.** Neue asiatische Köcherfliegen (Trichoptera: Philopotamidae, Polycentropodidae, Psychomyiidae, Ecnomidae, Hydropsychidae, Leptoceridae). *Linzer Biologische Beiträge* 25: 1099-1136.
- Malicky, H. 1994.** Ein Beitrag zur Kenntnis asiatischer Calamoceratidae (Trichoptera) (Arbeit über thailändische Köcherfliegen Nr. 13). *Zeitschrift der Arbeitsgemeinschaft Österreichischer Entomologen* 46: 62-79.
- Malicky, H. 1995.** Neue Köcherfliegen (Trichoptera, Insecta) aus Vietnam. *Linzer Biologische Beiträge* 27: 851-885.
- Malicky, H. 1997.** Eine neue Arctopsychidae aus Thailand. *Braueria* 24: 17.
- Malicky, H. 2008.** Beschreibungen von neuen Trichopteren aus Asien. *Braueria* 35: 45-57.
- Malicky, H. 2009.** Beiträge Kenntnis asiatischer Trichopteren [Contribution on the knowledge of Asian Trichoptera.]. *Braueria* 36: 11-58.
- Malicky H. 2010.** Atlas of Southeast Asian Trichoptera. Biology Department, Faculty of Science, Chiang Mai University, Chiang Mai, Thailand. 346 p.
- Malicky, H., and P. Chantaramongkol. 1992.** Neue Köcherfliegen (Trichoptera) aus Thailand und angrenzenden Ländern. *Braueria* 19: 13-23.
- Malicky, H., and P. Chantaramongkol. 1993.** Neue Trichopteren aus Thailand. Teil 1: Rhyacophilidae, Hydrobiosidae, Philopotamidae, Polycentropodidae, Ecnomidae, Psychomyiidae, Arctopsychidae, Hydropsychidae (Arbeiten über thailändische Köcherfliegen Nr. 12). *Linzer Biologische Beiträge* 25(1): 433-487.
- Malicky, H., and P. Chantaramongkol. 1997.** Weitere neue Köcherfliegen (Trichoptera) aus Thailand. Arbeit Nr. 20 über thailändische Köcherfliegen. *Linzer Biologische Beiträge* 29: 203-216.
- Malicky, H., and P. Chantaramongkol. 2003.** Vierzehn neue Köcherfliegen aus Thailand (Insecta, Trichoptera). (35. Arbeit über thailändische Köcherfliegen). *Linzer Biologische Beiträge* 35: 915-925.
- Malicky, H., P. Chantaramongkol, N. Changthong, and P. Thamsenanupap. 2005.** Neun neue Köcherfliegen aus Thailand (Trichoptera) (Arbeit Nr. 37 über thailändische Köcherfliegen). *Linzer Biologische Beiträge* 37: 597-604.
- Malicky, H., P. Chantaramongkol, S. Cheunbarn, and N. Saengpradab. 2001.** Einige neue Köcherfliegen (Trichoptera) aus Thailand (Arbeit Nr. 32 ueber thailaendische Köcherfliegen). *Braueria* 28: 11-14.
- Martynov, A. V. 1926.** On the family Stenopsychidae Mart., with a revision of the genus *Stenopsyche* McLachl. (Trichopt.). *Eos-Revista Española de Entomología* 2: 281-308.
- Martynov, A. V. 1930.** On the Trichopterous fauna of China and Eastern Tibet. *Proceedings of the Zoological Society of London* 5: 65-112.
- Martynov, A. V. 1931.** Report on a collection of insects of the Order Trichoptera from Siam and China. *Proceedings of the United States National Museum* 79: 1-20, plates 1-4.
- Martynov, A. V. 1935.** On a collection of Trichoptera from the Indian Museum. Part I. Annulipalpia. *Records of the Indian Museum* 37: 93-209.

- Mey, W. 1995.** Bearbeitung einer kleiner Kollektion von Köcherfliegen aus Vietnam (Trichoptera). Entomologische Zeitschrift 105: 208-218.
- Mey, W. 1996.** Die Köcherfliegenfauna des Fan Si Pan-Massivs in Nord-Vietnam. 1. Beschreibung neuer und endemischer arten aus den Unterordnungen Spicipalpia und Annulipalpia (Trichoptera). Beiträge zur Entomologie 46: 39-65.
- Mey, W. 1997.** Die Köcherfliegenfauna des Fan Si Pan-Massivs in Nord-Vietnam. 2. Beschreibung neuer und endemischer Arten aus der Unterordnung Integripalpia (Insecta: Trichoptera). Entomofauna 18: 197-212.
- Mey, W. 2001.** *Maesaipsyche mekongensis* sp. n.: the third species of the genus from South-East Asia (Trichoptera, Arctopsychidae). Aquatic Insects 23: 161-162.
- Morse, J. C. 2015.** Trichoptera World Checklist. Available from <http://www.clemson.edu/cafls/departments/esps/database/trichopt/index.htm> (accessed 15 June 2015).
- Navás, L. 1930.** Neuroptères et insectes voisins - Chine et pays environnants. Musée Heude, Notes D'Entomologie Chinoise 6 (4): 1-12.
- Navás, L. 1932.** Insecta orientali, X series. Memorie della Pontifica Accademia delle Scienze, Nuovi Lincei, Serie IX 16: 921-949.
- Oláh, J. 1988.** Eight new *Agapetus* from Vietnam (Trichoptera: Glossosomatidae). Folia Entomologica Hungarica 49: 157-166.
- Oláh, J. 2013.** On the Trichoptera of Vietnam, with description of 52 new species. Annales Historico-Naturales Musei Nationalis Hungarici 105: 55-134.
- Oláh, J., and K. A. Johanson. 2010.** Generic review of Polycentropodidae with description of 32 new species and 19 new species records from the Oriental, Australian and Afrotropical Biogeographical Regions. Zootaxa 2435: 1-63.
- Oláh, J., and H. Malicky. 2010.** New species and new species records of Trichoptera from Vietnam. Braueria 37: 13-42.
- Schmid, F. 1965.** Quelques trichoptères asiatiques II. Entomologisk Tidskrift 86: 28-35.
- Schmid, F. 1971.** Quelques nouveaux *Glossosoma* Orientaux (Trichoptera: Glossosomatidae). Naturaliste Canadien 98: 607-631.
- Schmid, F. 1972.** Sur quelques nouvelles psychomiines tropicales (Trichoptera: Psychomyiidae). Naturaliste Canadien 99: 143-172.
- Schmid, F. 1991.** Quelques philopotamides orientaux ou peu connus (Trichoptera, Annulipalpia). Beaufortia 42: 89-107.
- Sun, C., and H. Malicky. 2002.** 22 new species of Philopotamidae (Trichoptera) from China. Linzer Biologische Beiträge 34(1): 521-540.
- Sun, C., L. Yang, and J.C. Morse. 2009.** A new record genus and two new species of Arctopsychinae (Trichoptera: Hydropsychidae) from China. Acta Zootaxonomica Sinica 34(4): 912-916.
- Ulmer, G. 1905.** Trichopteren aus Java. Mitteilungen aus dem Naturhistorischen Museum, Hamburg 22: 89-100.
- Ulmer, G. 1906.** Neuer beitrag zur kenntnis aussereuropäischer Trichopteren. Notes from the Leyden Museum 28: 1-116.
- Ulmer, G. 1926.** Beiträge zur Fauna sinica III. Trichopteren und Ephemeropteren. Archiv für Naturgeschichte, Abteilung A 91: 19-110.
- Wiggins, G. 1968.** Contributions to the systematics of the caddisfly family Molannidae in Asia (Trichoptera). Life Sciences Contributions, Royal Ontario Museum 72: 1-26.

Received July 17, 2015; Accepted August 13, 2015.

Review Editor Andy Rasmussen

