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STUDIES ON THE GENUS RHYACOPHILA (TRICHOPTERA) IN CHINA (I)

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Abstract. Thirteen new species of the genus Rhyacophila are described and figured: R.wuyiensis, R.schismatica, R.quadrifida, R.dactyloidis, R.hippocrepica, R.contorta, R.rima, R.longistyla, R.bicostata, R.macrorrhiza, R.tetracantha, R.tetraphylla, R.ternifolia. - R.coreana Tsuda, R.scissoides Kimmins, R.lata Martynov, R.mjohjansanica Botosaneanu, R.retracta Martynov and R.procliva Kimmins are reported to be new to Chinese fauna.

A review of the genus Rhyacophila in China was carried out in the last three years. The known Chinese Rhyacophila comprise 95 species; 63 have been recorded previously, 6 are found in China for the first time and 26 are new to science. This paper includes 13 new and 6 newly recorded species. We will present other new species in a separate paper. Type specimens of the new species are kept in the Insect Copllection of the Department of Plant Protection, Nanjing Agricultural University. The terminology for genitalia structure used in this paper follows that of Schmid (1970).

Type specimen localities: (1) An-hui province, Jin-xian county, Song-cun, Ding-xi river, 33 km E. of Jin-xian, 8 June, 1990, 120 m elev., Coll. Morse & Sun & Yang. (2) Fu-jian province, Chong-an city, 29 km N. of Chong-an, 408 km marker, 29 May 1990, Morse & Yang. (3) Fu-jian province, Jian-yang county, Ma-sha town Wu-fu streem, 36 km W. of Ma-sha, 1 June 1990, 620 m elev., Coll. Morse & Sun. (4) Fu-jian province, Shao-wu city, Nan-bian-qiao-cun, Jiao streem, 40 km S.W. of Shao-wu, 2 June 1990, 420 m elev., Coll. Morse & Yang & Sun. (5) Fu-jian province, Wu-yi Mt., Miao-wan-cun, Jian streem, 30 May 1990, 840 m elev., Coll. Sun & Pan. (6) Hei-long-jiang province, Shang-zhi city , Mao-er-shan town, A-shi river, 300 m elev., July 13, 1993, Coll. Li & Sun. (7) Hei-long-jiang province, Shang-zhi city, Wei-he town, 1 km W. of Yu-ling Tree Farm, Dalinggou River, Trib. of Chonghe River, 160 m elev., 15-16 July 1993, Coll. Li & Sun. (8) Hei-long-jiang province, Tie-li city, Lang-xiang, Ba-lan-he farm, Aug. 5, 1993, Coll. Sun. (9) Hei-long-jiang province, Tie-li city, Lang-xiang, Xing-lin bridge, 200 m elev., Aug. 4, 1993, Coll. Sun. (10) Hei-long-jiang province, Yi-chun city, Wu-ying, Tang-wang river, 250 m elev., Aug. 2, 1993, Coll. Sun. (11) Hei-long-jiang, Yi-chun city, Wu-yi-ling, Yong-sheng, Wu-yun river, 160 m elev., 31 July 1993, Coll. Sun. (12) Hei-long-jiang province, Yi-chun city, Wu-yi-ling, Yong-sheng, Xi-mi-gan river, 160 m elev., 30 July 1993, Coll. Sun. (13)Ji-lin province, An-tu county, Chang-bai Mt., Er-dao-bai-he town, 720 m elev., June 30, 1987, Coll. Xue. (14) Ji-lin province, An-tu county, Chang-bai Mt., Er-dao-bai-he river, 1700 m elev., Aug. 10, 1993, Coll. Sun. (15) Ji-lin province, An-tu county, Chang-bai Mt., Er-dao-bai-he town, Er-dao-bai-he river, 640 m elev., Aug. 9, 1993, Coll. Sun. (16) Jiang-xi province, 1 km N. of Tong-mu-guan of Fujian & Jiang-xi, 31 May 1990, 1150 m elev., Coll. Yang & Sun. (17) Jiang-xi province, Gui-xi county, xi-qi-he, 59 km E. of Gui-xi, 5 June 1990, 210 m elev., Coll. Yang. (18)Jiang-xi province, Wu-yuan county, Qin-hua-he, 37 km of N. Wu-yuan, 25 May 1990, 250 m elev., Coll. Morse & Yang & Sun. (19) Jiang-xi province, Wu-yuan county, Ju-jing-cun, Yuan-tou streem, 70 km N. W. of Wu-yuan, 26 May 1990, Coll. Morse & Yang & Sun. (20) Shaanxi, Hua-shan Mt., Wu-li-guan, 8 June 1992, 695 m elev., Coll. Sun. (21) Si-chuan province, Du-jiang-yan city, 6 km W. of Guan-xian, Bai-sha river, 780 m elev., 19 June, 1990, Coll. Yang & Chen. (22) Si-chuan province, Nan-ping county, Jiu-zhai-gou, Zheng-zhu-tan, 26 June, 1990, 2440 m elev., Coll. Yang & Li. (23)Si-chuan province, Ping-wu county, 19 km E. of Ping-wu, trib. of Fu-jiang river, 27 June 1990, 1090 m elev., Coll. Morse. (24)Si-chuan province, Ping-wu county, 17 km E. of Ping-wu, trib. of Fu-jiang river, 27 June 1990, 1050 m elev., Coll. Yang & Li. (25)Si-chuan province, Qing-cheng Mt., 32 km S. W. of Cuan county, Wei-jiang river, 930 m elev., 20 June 1990, Coll. Morse & Yang & Li & Chen. (26)Si-chuan province, Song-pan county, Huang-long, Fu river, 24 June 1990, 3150 m elev., Coll. Morse & Yang & Li & Chen. (27)Si-chuan province, Wen-chuan county, Wo-long town, Jiao-mu-shan-cun, Pi-tiao river, 21 June 1990, 1850 m elev., Coll. Yang & Li. (28)Si-chuan province, Wen-chuan county, Wo-long town, Jiao-mu-shan-cun, Pi-tiao river, 3 km from Jiao-mu-shan-cun, 21 June 1990, 1900 m elev., Coll. Chen. (29)Si-chuan province, Wen-chuan county, 13 km S. of Wen-chuan, Ban-jiao-gou (trib. of Ming river), 22 June 1990, m elev., Coll. Morse & Yang & Li & Chen. (30)Yun-nan province, He-kou county, 5 km N. of Xiao-nan streem, 20 July, 1990, Coll. Ke. (31)Yun-nan province, Ma-li-po county, Nan-wen-he-xiang, Lao-jun-shan Forest, 13 July 1990, 1350 m elev., Coll. Li & Ke. (32) Yun-nan province, Ping-bian county, Di-shui-ceng-xiang, Kun-he-cun, Kun riverf, 19 July 1990, 1450 m elev., Coll. Li. (33)Yun-nan province, Wen-shan county, 5 km N. of Wen-shan city, San-jiao-tang, 9 July 1990, 1300 m elev., Coll. Li & Ke.

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Abbreviations in the figures:
a.b.= apical band; aed.= aedeagus; a.s.= anal sclerite; d.p.= dorsal process of phallic apparatus; h.p.= horizontal part of segment 10; par.= paramere; ten.= tenon; t.s.= tergal strap; v.l.= ventral lobe of aedeagus; v.p.= vertical part of segment 10; L=lateral view; D= dorsal view; C= caudal view; V= ventral view; PA= phallic apparatus; IA= inferior appendage; PR= preanal appendages; PC= preanal appendage-apicodorsal lobe complex; AV= apical band, tergal strap and anal sclerites, ventral view.

Rhyacophila wuyiensis sp.n. (fig.1)
Male body length 7,5 mm, forewing length 8,5 mm. Body brown; basal segments of the antennae pale, others brown; thorax brown above and yellowish laterally; legs yellowish. Male genitalia: Segment 9 rectangular in lateral view, without apicodorsal lobe. Vertical part of segment 10 with a long acute process on each lateral margin and with distal part bilobed. Anal sclerites paired, rounded and separated from each other. Apical band with two short arms. Phallic dorsal process blunt; ventral lobe of aedeagus broad, divided into a pair of acute lateral processes and a global median apex. Parameres clavate in lateral view, about 2,5 times as long as wide in dorsal view. First segment of inferior appendages rectangular and second segment composed of two identical lobes. - Holotype: 1♂, loc.5. Paratypes: 5♂, same data as holotype; 2♂, loc.2; 17♂, loc.16; 1♂, loc.3. Types all found in SE China. - Diagnosis:This species obviously belongs to scissa group (philopotamoides branch: Schmid 1970) and is similar to R.scissoides, but differs from the latter by (1) vertical part of segment 10 bilobed at the distal end in caudal view; (2) second segment of inferior appendages composed of two identical lobes, rather that the upper lobe much smaller than the lower lobe as in R.scissoides; (3) sclerotized distal parts of parameres shorter and broader than the latter.

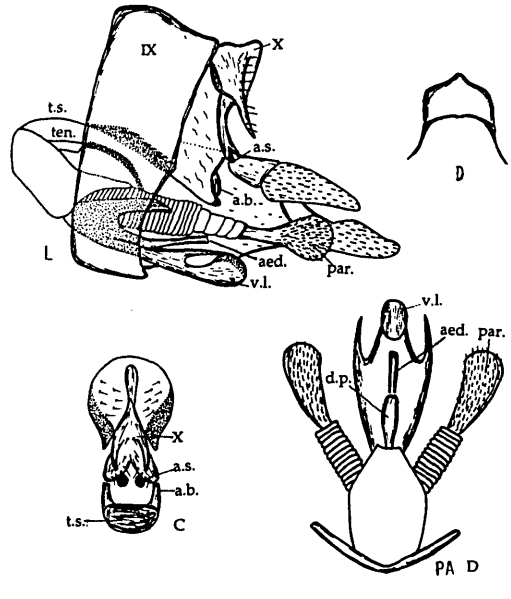

Fig. 1 Male genitalia of Rhyacophila wuyiensis sp. n.

Rhyacophila schismatica sp.n. (fig.2)
Male body length 5,5 mm, forewing length 6,5 mm. Body brown; thorax brown, legs yellowish, spurs blackish brown; abdomen blackish brown above and yellowish beneath. Male genitalia: Segment 9 narrow rectangular. Segment 10 quadrate, slightly excised on each side in dorsal view. Anal sclerites with a short root, paired, touched each other in caudal view. Phallic apparatus similar to R.scissoides. First segment of inferior appendages

trapezoid, second composed of two lobes, the upper lobe with a triangular process on the base of the lower margin. - Holotype: 1♂, loc.19. Paratype: 1♂, loc.18. Types all found in SE China. - Diagnosis: This species is similar to R.scissoides, from which it is distinguished by (1) anal sclerites close to eachother and (2) upper lobe of the second segment of inferior appendage with a basoventral triangular process.

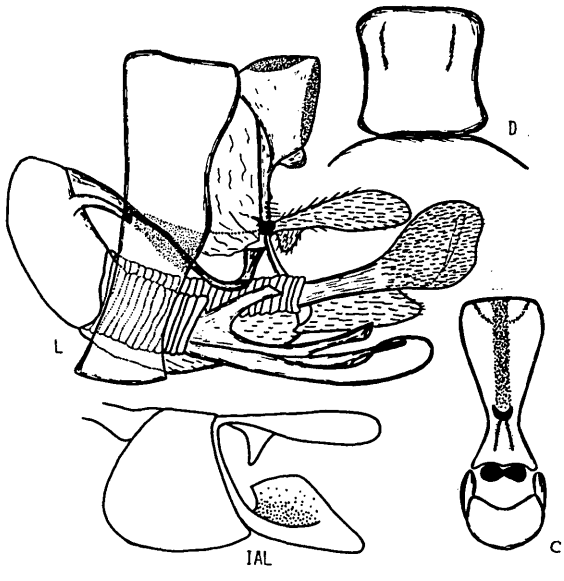

Fig. 2 Male genitalia of Rhyacophila schismatica sp. n.

Rhyacophila quadrifida sp.n. (fig.3)
Male body length 8 mm, forewing length 10 mm. Body brown; head and thorax blackish brown; antennae with basal 2/3 blackish brown and distal 1/3 pale, palpi yellowish; legs yellowish; abdomen black above and yellowish beneath. Male genitalia: Posterior margins of segment 9 excised in ventral two-third portion. Horizontal part of segment 10 tridentate posteriorly with middle process much shorter than two lateral ones. Anal sclerites composed of 4 elliptical pieces, apical band composed of 2 lateral arms and 1 middle lingua. Tergal strap strongly thickened near base. Phallobase semi-spherical, aedeagus curved down in distal half, with a membranous dorsal lobe at the base. Apical half of ventral lobe deeply excised, distal part of parameres triangular in lateral view, with long bristles. Second segment of inferior appendages a broad lobe, slightly excised at dorso-distal end. - Holotype: 1♂, loc.20. Paratypes: 1♂, same data as holotype; 11♂, loc.29. Types located in NW and SE China. - Diagnosis: This species obviously belongs to the obscura group (Schmid 1970), and is somewhat similar to R.bidens Kimmins but is distinguished from the latter by: (1) segment 10 tridentate when viewed dorsally, (2) distal half of aedeagus curved downward other than straight as in the latter.

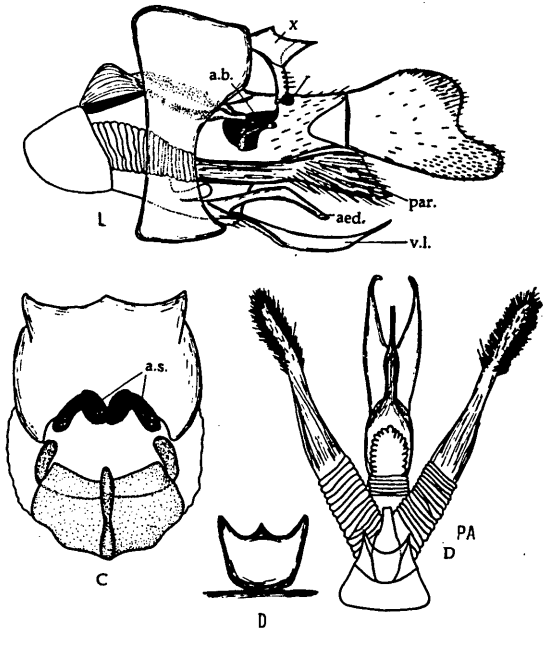

Fig. 3 Male genitalia of Rhyacophila quadrifida sp. n.

Rhyacophila dactyloidis sp.n. (fig.4)
Male body length 8,5 mm, forewing length 10 mm. Body brown; antennae and palpi yellowish; forewing brown. Male genitalia: Posterior margins of segment 9 excised in ventral half, its sternum twice as long as dorsum. Vertical part of segment 10 excised distally in dorsal view and concave on the outer margins when viewed laterally. Anal sclerites in reverse "U" shape in ventral view. Apical band similar to R.naga. Tergal strap strongly sclerotized, abruptly curved downward at base. Phallobase short, sub-cylindrical; aedeagus very thin; ventral lobe about 3 times as long as aedeagus with each apex enlarged, slightly dentate along its inner margins; paramere club-like, one-half as long as ventral lobe of aedeagus, its distal half densely covered with fine short hairs. Second segment of inferior appendages twice as long as the first one, with finger-like processes at the upper margin of distal end. - Holotype: 1♂, loc.22. Type found in SW China. - Diagnosis: This species belongs to the annulicornis group (philopotamoides branch), but it is distinguished from the other members of this group by (1) second segment of inferior appendages twice as long as first than equal to or shorter than the first, and (2) anal sclerites in reverse "U" shape.

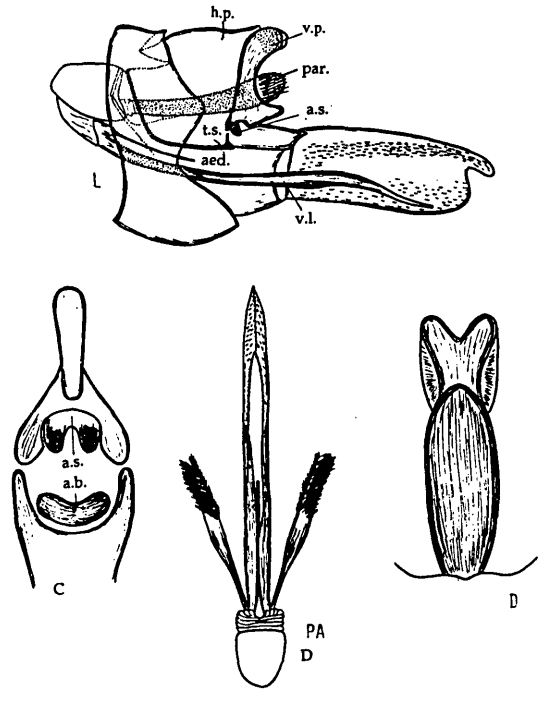

Fig. 4 Male genitalia of Rhyacophila dactyloidis sp. n.

Rhyacophila hippocrepica sp.n. (fig.5)
Male body length 6,5 mm, forewing length 7,0 mm. Body brown; antennae yellowish at the base then gradually darkened toward the end to blackish brown; first three segments of maxillary palpi yellowish, rest part blackish brown; thorax and legs brown; forewing scattered with darkened spots; abdomen black above and yellowish beneath. Male genitalia: Segment 9 rectangular with anterior

margins excised in lower one-third portion in lateral view. Pre-anal appendages compressed. Tergal strap membranous. Phallobase cylindrical; aedeagus bilobed distally in lateral view with lower lobe extending beyond dorsal one and compressed in lateral view; paramere with a tooth at 1/3 distance to the end. Second segment of inferior appendage with distal half portion gradually tapering to a narrow apex. - Holotype: 1♂, loc.30. Paratypes: 2♂, same data as holotype. Types located in SW China. - Diagnosis: This species is similar to R.curvata Morton and R.malayana Banks (curvata group: Schmid 1970), from which it is distinguished by a paramere with a ventral tooth near apex.

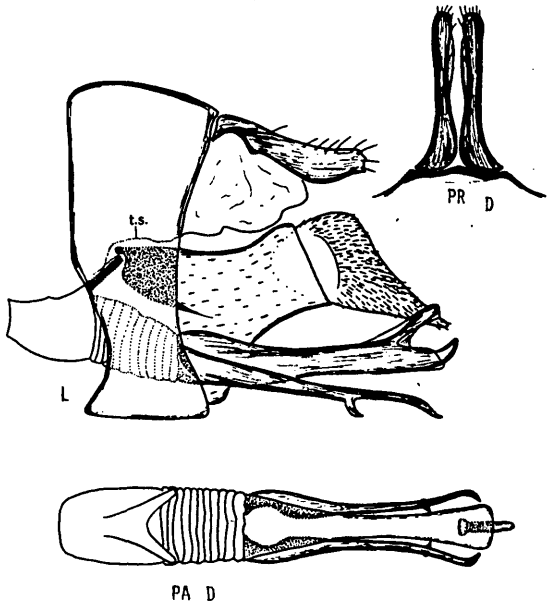

Fig. 5 Male genitalia of Rhyacophila hippocrepica sp. n.

Rhyacophila contorta sp.n. (fig.6)
Male body length 8 mm, forewing length 9,5 mm. Body brown, palpi yellowish, thorax and legs yellowish, spurs black, forewing brown, scattered with many pale spots. Male genitalia: Posterior margins of segment 9 excised in ventral two-third portions in lateral view. Complex of pre-anal appendages and apicodorsal lobe large, excised at the distal end in dorsal view. Tergal strap membranous. Phallobase sub-cylindrical. Dorsal process of phallic apparatus narrower at base, distal half broad lobe-like, with a triangular excision at its apex. Distal half of aedeagus abruptly narrowed in slender tube. Paramere saw-like, its distal half with many teeth. First segment of inferior appendages rectangular, second with a pointed projection at the lower end. - Holotype: 1♂, loc.27. Paratype: 1♂, same data as holotype. Types located in SW China. - This species belongs to mishmica group (Schmid 1970), and is somewhat similar to R.dirangpa Schmid, but is distinguished from the latter by (1) phallic dorsal process is not as thick as, and not excised as deep as in the latter; (2) parameres with teeth instead of with hairs as in R.dirangpa.

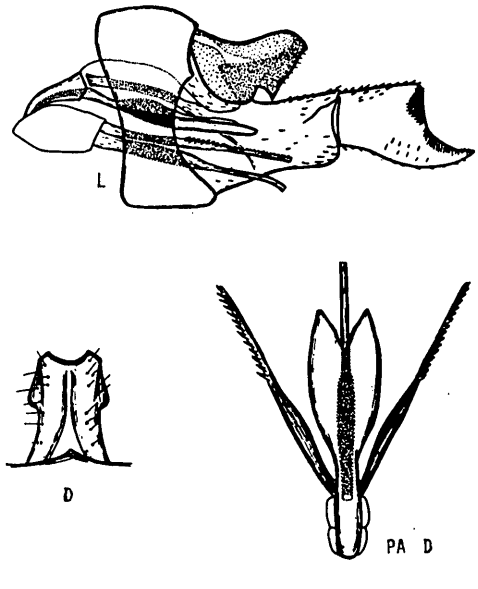

Fig. 6 Male genitalia Rhyacophila contorta sp. n.

Rhyacophila rima sp.n. (fig.7)
Male body length 8 mm, forewing length 9 mm. Body black; antennae and palpi brown; legs yellowish, spurs black; wings brown; abdomen yellowish, genital segment black. Male genitalia: Distal margin of the segment 9 projected backward at the middle in lateral view. Preanal appendages - apicodorsal lobe complex large, horizontal. Anal sclerites broad lobe-like extending far beyond the end of the complex in lateral view, with a deep mesal cleft in ventral view. Apical band arched backward, with a tooth near the end. Distal end of tergal strap expanded at apex with a shallow excision. Aedeagus abruptly narrowed in distal half, paramere spine-like. First segment of the inferior appendages large, almost as long as the complex; second one-half as long as the first one, with distal end deeply excised. - Holotype: 1♂, loc.16. Paratype: 1♂, same data as holotype. Types located in SE China. - Diagnosis: This species is similar to R.kawamurae Tsuda (nigrocephala group), from which it is distinguished by (1) apical band with a tooth at the base; (2) anal sclerites excised deeply at its distal end; and (3) first segment of inferior appendages twice as long as the second.

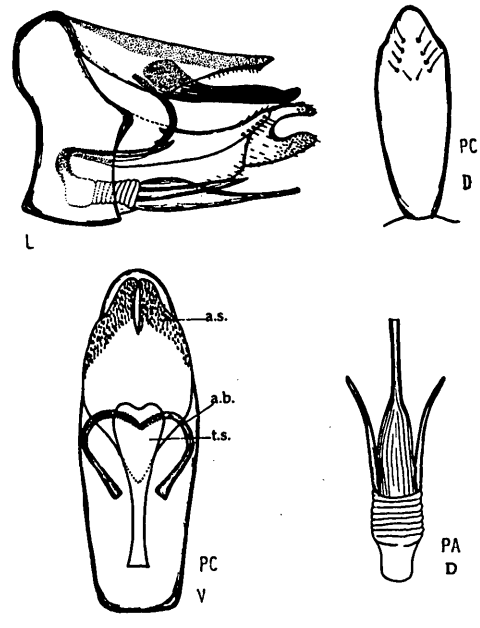

Fig. 7 Male genitalia Rhyacophila rima sp. n.

Rhyacophila longistyla sp.n. (fig.8)
Male body length 6 mm, forewing length 6,5 mm. Body yellowish; forewing pale to yellowish, with irregular spots; legs yellowish, spurs black; abdomen brown above and yellowish beneath. Male genitalia: Sternum of segment 9 only one-fourth as long as its dorsum, apicodorsal lobe excised deeply at the apex. Segment 10 small rounded lobe with a short apico-mesad excision. Anal sclerites elliptic in lateral view. Phallic dorsal process membranous, aedeagus curved slightly upward, parameres twice as long as aedeagus and crossing

eachother under it, each with distal dilated portion bearing many short hairs on the upper margins and strong spines along the lower margins. First segment of inferior appendages rectangular, second very narrow at base, bifid apically, one-half as long as first one. - Holotype: 1♂, loc.1. Paratypes: 1♂, same data as holotype; 3♂, loc.18. Types found in E China. - Diagnosis: This species is similar to R.sherchokpa Schmid (angulata group), from which it is distinguished by: (1) distal half of paramere with a cluster of short hairs on the upper margin and with spines on the lower margin; (2) second segment of inferior appendages half as long as the first rather than very small as in the latter.

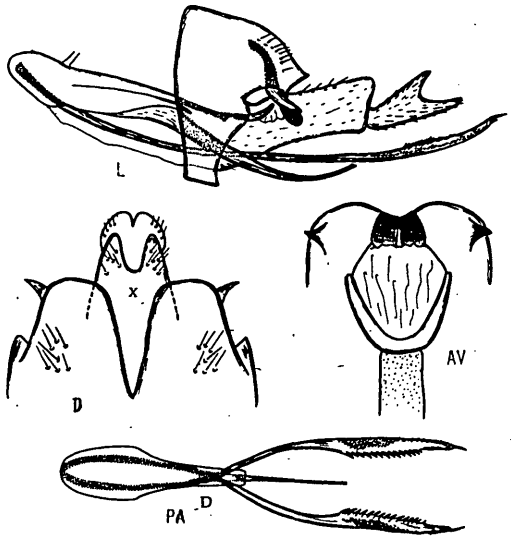

Fig. 8 Male genitalia of Rhyacophila longistyla sp. n.

Rhyacophila bicostata sp.n. (fig.9)
Male body length 5,2 mm, forewing length 6,5 mm. Body brown; legs yellowish, spurs black; forewing yellowish, with brown spots; abdomen scattered with black spots above and yellowish beneath, genital segment black. Male genitalia: Segment 9 very short ventrally, apicodorsal lobe large, divided into two long lobes and the inner face of each lobe with a longitudinal rib-like process fringed with many long spines. Segment 10 hides beneath the rib-like processes, excised distally in dorsal view. Phallic dorsal process membranous, aedeagus slightly sinuate in lateral view, paramere long, 1,5 times as long as aedeagus, distal portion slightly widened, with apex abruptly pointed. Inferior appendages very elongated, with basal 1/3 of the first segment about twice as thick as distal part, second small, 1/3 times as long as the first, with narrow apex. - Holotype: 1♂, loc.25. Paratypes: 7♂, same data as holotype; 6♂, loc.23; 3♂, loc.24; 1♂, loc.21. Types located in SW China. - Diagnosis: This species belongs to the angulata group, but stands apart from other species by (1) the apicodorsal lobe of segment 9 divided into 2 pieces, each with a longitudinal rib-like processes on its inner face; (2) paramere 1,5 times as long as aedeagus.

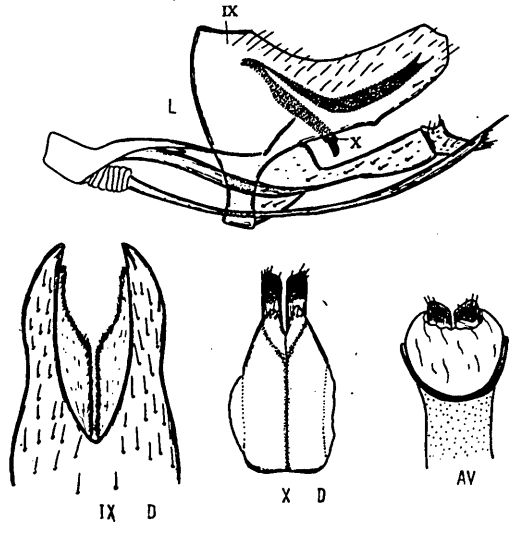

Fig. 9 Male genitalia of Rhyacophila bicostata sp. n.

Rhyacophila macrorrhiza sp.n. (fig.10)
Male body length 9 mm, forewing length 13 mm. Body black; antennae yellowish basally and brown distally, palpi brown; forewing brown, scattered with pale spots; fore- and mid-legs brown, but distal end of the tibias black, hind leg yellowish. Male genitalia: Two sides of apicodorsal lobe of segment 9 parallel to each other and excised distally in dorsal view. Segment 10 large, oblique, sub-trapezoid in lateral view. Anal sclerites paired and footprint-shaped in caudal view. Apical band triangular in lateral view. Aedeagus straight, at least 3 times as long as the dorsal process; paramere equal to aedeagus in length, with the distal end curved upward in lateral view. First segment of inferior appendages long, second with ventral end produced in a long process, 1,3 times as long as its main body. - Holotype: 1♂, loc.26. Paratypes: 11♂, same data as holotype. Types located in SW China. - Diagnosis: This species stands apart from R.poba Schmid (naviculata group) in (1) tenth segment oblique, sub-trapezoid when viewed laterally; (2) apical band triangular in lateral view; (3) aedeagus at least 3 times as long as dorsal process, rather than at most 2,5 times as in R.poba.

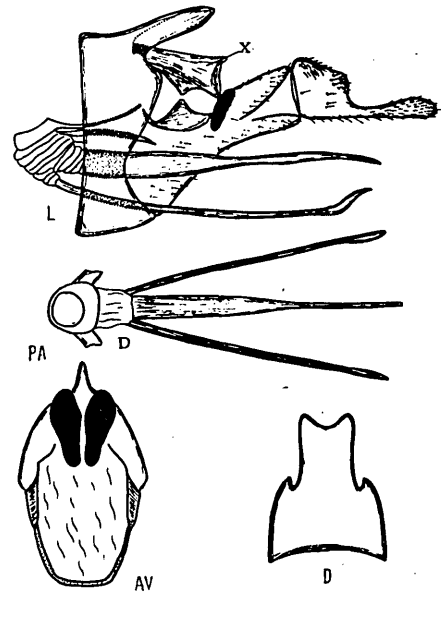

Fig. 10 Male genitalia of Rhyacophila macrorrhiza sp. n.

Rhyacophila tetracantha sp.n. (fig.11)
Male body length 9 mm, forewing length 10 mm. Body brown; forewing pale yellowish, scattered with brown spots; abdomen brown above and pale beneath. Male genitalia: Apicodorsal lobe of segment 9 elongate, 4-furcated at the distal end in dorsal view. Segment 10 oblique, with a ventral process subapically in lateral view. Anal sclerites large, sub-triangular in lateral view, long elliptical in ventral view. Apical band small, elliptic in lateral view. Phallic dorsal process

slender, aedeagus slightly longer than paramere. First segment of inferior appendages very large, rectangular, about 3 times as long as and at least 2 times as wide as the second. - Holotype: 1♂, loc.27. Paratypes: 3♂, same data as holotype. Types located in SW China. - Diagnosis: This species is similar to R.cruciata Forsslund (naviculata group), from which it is distinguished by: (1) apicodorsal lobe of segment 9 4-branched distally other than cruciate as in R.cruciata; (2) phallic dorsal process straight, not sinuate as in the latter when viewed laterally; (3) segment 10 with a ventral process near apex when viewed laterally.

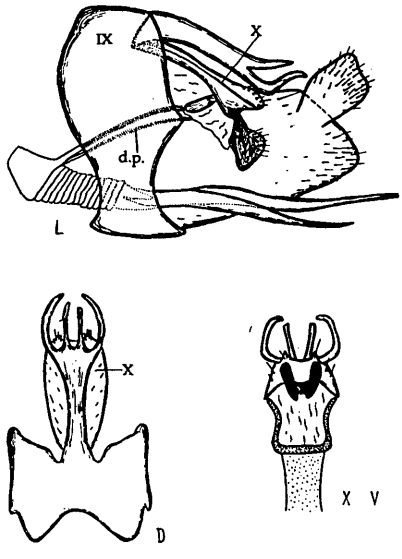

Fig. 11 Male genitalia of Rhyacophila tetracantha sp. n.

Rhyacophila tetraphylla sp.n. (fig.12)
Male body length 5,5 mm, forewing length 6 mm. Body brown; antennae pale-yellowish, palpi pale; thorax yellowish, meso- and metanotum brown; legs yellowish, spurs blackish brown; forewing scattered with irregular brown spots; abdomen brown above and yellowish beneath. Male genitalia: Dorsal half of segment 9 strongly projecting backward in two long processes, each with a subapical tooth dorsally and a triangular lobe ventrally; apicodorsal lobe curved downward with apex deeply excised. Segment 10 large,

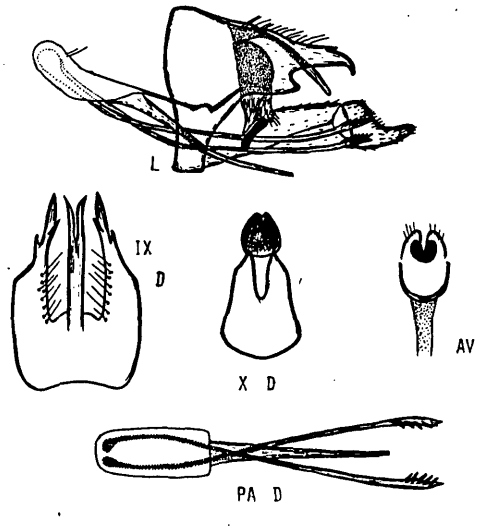

Fig. 12 Male genitalia Rhyacophila tetraphylla sp. n.

vertical, also excised distally. Anal sclerites elongate elliptical in lateral view, without root. Aedeagus evenly tapering to the end, parameres slender, crossing eachother under the base of the aedeagus and with spines at the dilated end. First segment of inferior appendages rectangular, at least 2,5 times as long as the second; the second excised apicodorsally. - Holotype: 1♂, loc.5. Paratypes: 4♂, same data as holotype; 2♂, loc.3; 2♂, loc.2; 3♂, loc.4; 3♂, loc.17; 2♂, loc.1. Types located in E and SW China. - Diagnosis: This species belongs to the naviculata branch, but differs from other species in dorsum 9 with 2 long lateral projections on either side of the apicodorsal lobe.

Rhyacophila ternifolia sp.n. (fig.13)
Male body length 6 mm, forewing length 9 mm. Body black; antennae pale, palpi black; legs and wings brown; abdomen brown above and pale beneath. Male genitalia: Segment 9 rectangular in lateral view. Horizontal part of segment 10 rounded, excised distally in dorsal view. Anal sclerites paired, with a long root. Apical band tridentate distally in caudal view. Tergal strap long, recurved at the base. Phallobase cylindrical, phallic dorsal process composed of 2 long processes, the ventral lobe broad and bilobed at apex, aedeagus fused with ventral lobe in the basal two-third portion, paramere dilated, with acute apex curved inward. First segment of inferior appendage with a transverse ridge at the middle of the inner face, the second about half as long as the first, slightly excised apically. - Holotype: 1♂, loc.27. Paratypes: 1♂, loc.28; 4♂, loc.22. Types located in SW China. - Diagnosis: This species is similar to R.wangpo Schmid, but differs from it by (1) dorsal process of phallus divided into 2 slender branches; (2) the ventral lobe of aedeagus simple without lateral arm.

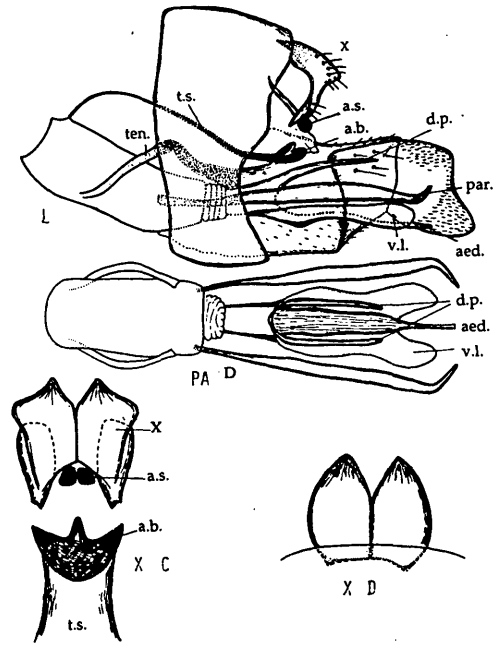

Fig. 13 Male genitalia of Rhyacophila ternifola sp. n.

Rhyacophila lata Martynov (new record): Loc.6, 4♂; loc.7, 50♂; loc.12, 10♂; loc.11, 35♂; loc.10, 2♂; loc.9, 50♂; loc.8, 25♂. All found in NW China.

Rhyacophila mjohjangsanica Botosaneanu (new record): Loc.7, 27♂; loc.9, 1♂; loc.14, 4♂. All found in NW China.

Rhyacophila retracta Martynov (new record): Loc.10, 13♂; loc.14, 23♂; loc.13, 6♂; loc.15, 1♂; loc.9, 31♂; loc.8, 7♂; loc.7, 143♂. All found in NW China.

Rhyacophila procliva Kimmins (new record): Loc.34, 5♂; loc.32, 1♂. All found in SW China.

Rhyacophila coreana Tsuda (new record): Loc.7, 22♂; loc.12, 7♂; loc.11, 5♂. All found in NW China.

Rhyacophila scissoides Kimmins. (new record): Loc.32, 6♂. All found in SW China.

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LIST OF RESEARCH WORKERS ON TRICHOPTERA

Prof.Pauli BAGGE; Institute of Bio- and Environmental Sciences, Jyväskylä University, P.O.Box 35, SF - 40351 JYVÄSKYLÄ, Finland. - Research subject: Feeding types, dispersal, emergence. Area: Finland. Other interests: Macroinvertebrate communities, pollution problems.

Prof.John E.BRITTAIN; Freshwater Ecology & Inland Fisheries Laboratory, Zoological Museum, University of Oslo, Sarsgatan 1, N - 0562 OSLO, Norway. - Research subject: Ecology of N European and Australian Trichoptera in lakes and rivers. Other interests: Ephemeroptera, Plecoptera, Freshwater Ecology, River regulation, Radioecology.

Walter REISINGER, Weißenberg 20, A - 4053 HAID, Austria. - Research subject: Emergence behaviour of aquatic insects: time of emergence, releasing factors, emergence mode, oviposition. Area: Central Europe. - Information wanted: Any information on emergence and oviposition.

Lujza UJVAROSI, Department of Zoology, Babes - Bolyai University, Str.Clinicilor 5-7, RO - 3400 CLUJ - NAPOCA, Romania. - Present interest: Evolution, Systematics and Biogeography of the Carpathian Trichoptera, identification of Romanian Trichoptera. Trichoptera as water quality indicators. - Information wanted: Papers on evolution, systematics and biogeography of European Trichoptera.

Neal VOELZ, Ph.D., Assistant Professor; Dept.of Biological Sciences, St.Cloud State University, ST.CLOUD, MN 56301, USA. - Research subject: Microdistributions and feeding habits of filter-feeding caddisflies.

XUE Yingen, Teacher, Dept.of Plant Protection, Henan Agricultural University, ZHENGZHOU, Henan 450002, P.R.China. - Research subject: Hydroptilidae of China. Other interests: Insect resistance to pesticides.

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REQUEST FOR MATURE AFROTROPICAL TRICHOPTERA LARVAE

We are preparing a book on the mature larvae of the genera of the Afrotropical Trichoptera. We have material of most of the known described genera. In some instances we have, however, had to use species from Europe where we could either not get larvae or where larvae of the particular Afrotropical species are still unknown. We would of course prefer to have larvae of the actual Afrotropical species. The genera we do not have representative species for include:

Dipseudopsidae; *Eodipseudopsis*, *Limnoecetis*, *Hyalopsyche*, Polycentropodidae; *Nyctiophylax*, (not *Paranyctiophylax* sensu Neboiss of which we have larvae and good drawings), *Cyrnodes*, *Pahamunaya*, Psychomyiidae; *Paduniella*, *Lype*, Leptoceridae; *Ptochoecetis*, *Hemileptocerus*, *Ceraclea (Athripsodina)*, *Tagalopsyche*, *Axiocerina*, Sericostomatidae; *Aselas*, *Cheimacheramus*, Limnephilidae; *Mesophylax*, Lepidostomatidae; *Crunoeciella*, Hydroptilidae; *Microptila*, *Orphnitrichia*, *Scelotrichia* = *Madioxyethira*, *Dhatrichia*, Atriplectididae; *Hughscottiella*, *Leptodermatopteryx*, Hydropsychidae; *Hydromanicus*, Philopotamidae; *Paulianodes*, *Wormaldia*, and ? Helicopsychidae; *Sexelpsyche*

We would appreciate either on loan or where possible a donation of larvae for preparing drawings for the book. Any ecological, biological or behavioural observations would also be most welcome. Please send material to:

Dr F C de Moor, or Dr K M F Scott
Albany Museum
Somerset Street
Grahamstown 6140, South Africa

FAX: 0461-22398
e-mail: amfd@warthog.ru.ac.za

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JAPANESE CADDISFLIES WANTED

Having a poor collection of caddisflies from Japan, I would like to have a representative cross-section of the fauna of this country, e.g. 100 or 200 species representing all families and genera, 3-5 specimens of each (males and females), well labelled and identified, preferably in alcohol; and some representative larvae. I offer in exchange the same quantity of similar material from Europe and/or southeastern Asia.

Hans Malicky (address on cover inside)