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The *Stenopsyche simplex* Species Group from China with descriptions of three new species (Trichoptera: Stenopsychidae)

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Abstract

The Chinese *Stenopsyche simplex* Group is revised for the first time since Weaver's (1987) revision. The group includes 14 described species and 3 new species. Two diagnostic subgroups were recognized by Schmid (1959). The first subgroup of Chinese species includes *S. anaximander* Malicky 2011, *S. brevata* Tian & Zheng 1989, *S. chinensis* Hwang 1957, *S. dentata* Navás 1930, *S. splendida* Martynov 1935, *S. dubia* Schmid 1965, *S. rotundata* Schmid 1965, *S. simplex* Schmid 1959, and *S. tienmushanensis* Hwang 1957; of these, *S. dentata* is assigned to this first subgroup for the first time. The second diagnostic subgroup includes *S. denticulata* Ulmer 1926, *S. longispina* Ulmer 1926, *S. stoetzneri* Döhler 1929, *S. uniformis* Schmid 1965 and *S. formosana* Kobayashi, 1987. The species newly described here include *Stenopsyche ning-shanensis* sp. nov., from Shaan-xi Province, belonging to the first subgroup, and *Stenopsyche acanthoclada* sp. nov. and *Stenopsyche jinxiuensis* sp. nov., both from Guang-xi Province and belonging to the second subgroup. Distribution maps of the two diagnostic subgroups of Chinese species and illustrations of male genitalia of the three new species are provided along with collection data for additional specimens for the previously described species.

Key words: diagnostic subgroup, Shaan-xi Province, Guang-xi Province, male genitalia, Oriental Region, East Palearctic Region

Introduction

Stenopsychidae is a family composed of relatively few species (98 species, Morse personal communication) but with the largest body sizes of the suborder Annulipalpia (Holzenthal *et al.* 2007). It is composed of 3 genera (Morse 1997, 2013; Holzenthal *et al.* 2007): *Stenopsyche* McLachlan 1866 (type species *Stenopsyche griseipennis* McLachlan 1866), *Pseudostenopsyche* Döhler 1915 (type species *Pseudostenopsyche sugens* Döhler 1915), and *Stenopsychodes* Ulmer 1916 (type species *Stenopsychodes mjoebergi* Ulmer 1916). *Stenopsyche* is the largest genus, including 91 species, distributed mainly in the Oriental (65 species) and East Palearctic (12 species) Biogeographic Regions (with 12 of these occurring in both regions), but with 1 Afrotropical species and 1 fossil species, and it is the only genus of Stenopsychidae occurring in China (Tian *et al.* 1996; Yang *et al.* 2005; Morse personal communication).

Based on the structure of male genitalia, Schmid (1969) revised the genus *Stenopsyche* and distributed 50 of the then-known species into 6 species groups, not including 1 fossil species and 11 species *incertae sedis*. Weaver (1987) re-described diagnostic characters for each of Schmid's groups and added *S. appendiculata* Hwang 1963 to the *S. apiguna* Group; *S. yunnanensis* Hwang 1963, *S. lanceolata* Hwang 1963 to the *S. marmorata* Group; *S. kodaikanalensis* Swegman & Coffman 1980 to the *S. simplex* group; and *S. paranavasi* Hwang & Tian 1982 to the *S. pubescens* Group. Since then 23 species of the genus were added from China (Kobayashi 1987; Tian & Li 1991; Malicky 2008, 2011, 2012; Xu *et al.* 2013), Laos (Malicky 2008, 2009), Vietnam (Hoang & Bae 2007; Oláh & Malicky, 2010), Korea (Kumanski 1992), and Russia (Nozaki *et al.* 2008). *Stenopsyche yunnanensis* and *S. paranavasi* were synonymized with *S. lanceolata* and *S. ghaikamaidanwalla*, respectively (Tian *et al.* 1996). Thus, the present number of extant *Stenopsyche* species is 90.

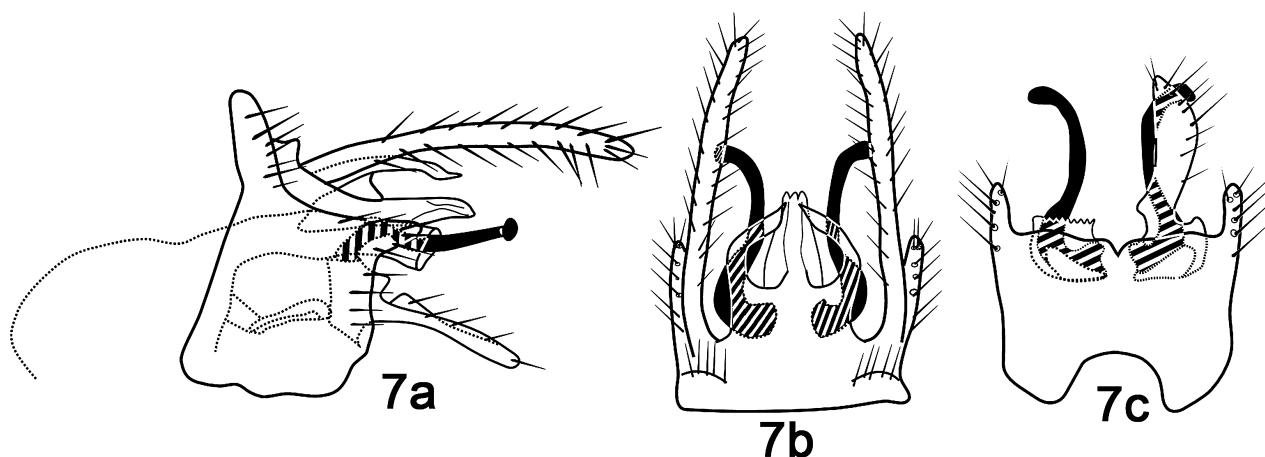


FIGURE 7. *Stenopsyche stoetzneri* Döhler, male genitalia: 7a, left lateral; 7b, segments IX and X, dorsal; 7c, segment IX and inferior appendages, ventral.

Stenopsyche uniformis Schmid 1965

Stenopsyche uniformis Schmid, 1965: 132; type locality: China (Fu-jian).

Distribution. China (Fu-jian).

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References cited

- Döhler, W. (1915) Die aussereuropäischen Trichopteren der Leipziger Universitäts- Sammlung. *Deutsche Entomologische Zeitschrift*, 1915 (4), 399–402.
<http://dx.doi.org/10.1002/mmnd.48019150404>
- Döhler, W. (1929) Die aussereuropäischen Trichopteren des Museums für Tierkunde zu Dresden, Erster Teil. *Zeitschrift für Wissenschaftliche Insekten-biologie*, 24, 83–89.
- Hoang, D.H. & Bae, Y.J. (2007) Vietnamese species of *Stenopsyche* McLachlan (Trichoptera: Stenopsychidae). *Zootaxa*, 1624, 1–15.
- Holzenthal, R.W., Blahnik, R.J., Prather, A.L. & Kjer, K.M. (2007) Order Trichoptera Kirby, 1813 (Insecta), Caddisflies. *Zootaxa*, 639–698.
- Hua, L. (2002) *List of Chinese Insects. Vol. II*. Zhongshan (Sun Yat-sen) University Press, Guangzhou, 612 pp.
- Hwang, C.L. (1957) Descriptions of Chinese caddisflies (Trichoptera). *Acta Entomologica Sinica*, 7 (4), 373–404.
- Hwang, C.L. (1963) A review of the Chinese Stenopsychidae (Trichoptera). *Acta Entomologica Sinica*, 12 (4), 476–489.
- Kobayashi, M. (1987) Systematic study of the caddisflies from Taiwan, with descriptions of eleven new species (Trichoptera: Insecta). *Bulletin of The Kanagawa Prefectural Museum of Natural Science*, 17, 37–48.
- Kumanski, K. (1992) Studies on Trichoptera of Korea (North) III. Superfamily Hydropsychoidea. *Insecta Koreana*, 9, 52–77.
- Malicky, H. (2008) New Trichoptera from Asia. *Braueria*, 35, 45–57.

- Malicky, H. (2009) Beiträge zur Kenntnis asiatischer Trichopteren. *Braueria*, 36, 11–58.
- Malicky, H. (2010) *Atlas of Southeast Asian Trichoptera*. Biology Department, Faculty of Science, Chiang Mai University, Chiang Mai, Thailand, xxx + 346 pp.
- Malicky, H. (2011) Neue Trichopteren aus Europa und Asien. *Braueria*, 38, 23–43.
- Malicky, H. (2012) Neue asiatische Köcherfliegen aus neuen Ausbeuten (Insecta, Trichoptera). *Linzer Biologische Beiträge*, 44, 1263–1310.
- McLachlan, R. (1866) *Descriptions of new or little-known genera and species of exotic Trichoptera; with observations on certain species described by Mr. F. Walker*, Transactions of the Entomological Society of London, 5(3), 247–278.
- Morse, J.C. (1997) Checklist of World Trichoptera. In: Holzenthal, R.W. & Flint, O.S. Jr. (Eds.), *Proceedings of the 8th International Symposium on Trichoptera*. Ohio Biological Survey, Columbus, Ohio, pp. 339–342.
- Morse, J.C. (2013) *Trichoptera World Checklist*. Available from: <http://entweb.clemson.edu/database/trichopt/index.htm> (accessed 20 June 2013)
- Navás, L. (1930) Névroptères et insectes voisins. Chine et pays environnants. Première [I] série. *Notes d'entomologie Chinoise*, 1, 1–12.
- Navás, L. (1932) Insecta orientalia X series. *Memorie dell'Accademia Pontifica dei Nuovi Lincei*, 2, 921–949.
- Nozaki, T., Arefina, T.I. & Yoshio, H. (2008) The genus *Stenopsyche* McLachlan (Trichoptera: Stenopsychidae) in Sakhalin, with description of a new species. In: Wang, X.H. (Ed.), *Contemporary Aquatic Entomological Study in East Asia-Proceedings of the 3rd International Symposium on Aquatic Entomology in East Asia (AESEA)*. Nankai University Press, Tianjin, pp. 101–110.
- Oláh, J. & Malicky, H. (2010) New Trichoptera from Vietnam. *Braueria*, 37, 24–25.
- Schmid, F. (1959) Quelques Trichopterères de Chine. *Mitteilungen aus dem Zoologischen Museum in Berlin*, 35, 317–345.
- Schmid, F. (1965) Quelques trichoptères de Chine II. *Bonner Zoologische Beiträge*, 16, 127–154.
- Schmid, F. (1969) La famille des sténopsychides (Trichoptera). *The Canadian Entomologist*, 101, 188–222.
<http://dx.doi.org/10.4039/ent101187-2>
- Tian, L.X. (1985) Two new species of genus *Stenopsyche* McLachlan from Xizang Plateau. *Journal of Nanjing Agricultural University*, 1, 23–25.
- Tian, L.X. (1988) A review of the Chinese genus *Stenopsyche* McLachlan (Trichoptera: Stenopsychidae). *Acta Entomologica Sinica*, 31, 194–202.
- Tian, L.X. & Li, Y.W. (1991) Notes on two new species of *Stenopsyche* (Trichoptera) from Hubei Province. *Journal of Nanjing Agricultural University*, 14, 42–44.
- Tian, L.X., Yang, L.F. & Li, Y.W. (1996) *Economic Insect Fauna of China Fasc. 49 Trichoptera (I): Hydroptilidae, Stenopsyche, Hydropsychidae, Leptoceridae*. Editorial Committee of Fauna Sinica, Science Press, Beijing, x + 195 pp., 2 pls.
- Tian, L.X. & Zheng, J.Z. (1989) Description of two new species of the genus *Stenopsyche* McLachlan from China (Trichoptera). *Journal of Nanjing Agricultural University*, 12, 50–52.
- Ulmer, G. (1916) Results of Dr. E. Mjöberg's Swedish Scientific Expeditions to Australia 1910-1913. 10. Trichoptera. *Arkiv för Zoologi*, 10, 1–23.
- Ulmer, G. (1926) Beiträge zur Fauna Sinica III. Trichoptera und Ephemeropteren. *Archiv für Naturgeschichte Abteilung A*, 91, 19–110.
- Weaver, J.S. III. (1987) New species of *Stenopsyche* from the northeastern orient (Trichoptera: Stenopsychidae). *Aquatic Insects*, 9, 161–168.
<http://dx.doi.org/10.1080/01650428709361290>
- Xu, J.H., Sun, C.H. & Wang, B.X. (2013) Four new species of the genus *Stenopsyche* (Trichoptera, Stenopsychidae) from China. *Acta Entomologica Sinica*, 38, 566–572.
- Yang, L.F., Sun, C.H., Wang, B.X. & Morse, J.C. (2005) Present status of Chinese Trichoptera, with an annotated checklist. In: Tanida, K. & Rossiter, A. (Eds.), *Proceedings of the 11th International Symposium on Trichoptera*. Tokai University Press, Kanagawa, pp. 441–465.
- Zhang, R.Z. (1999) *Zoogeography of China*. Science Press, Beijing, China, 502 pp.