



New *Dicranoptycha* Osten Sacken, 1859 Crane flies (Diptera: Limoniidae) of North and South Korea

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Abstract

Two new species of *Dicranoptycha* Osten Sacken, 1859, crane flies (Diptera, Limoniidae) from the Korean peninsula are described, illustrated and compared with already known and related species. An identification key and check-list of all Korean *Dicranoptycha* is presented.

Key words: *Dicranoptycha buksubaeksaniana*, *Dicranoptycha gyebangsaniana*, North Korea, South Korea, new species

Introduction

The investigation of Limoniinae crane flies on the Korean Peninsula was first undertaken in 1934 by American entomologist C. P. Alexander (1934), when he described three species of *Limonia*. These species now are placed in other genera (*Dicranomyia kongosana*, *Dicranomyia tabashii* and *Libnotes basistrigata*). Specimens were collected by the Japanese entomologists, J. Machida at “Kongo San” Mountain, now located in North Korea; and I. Tabashi at “Suigen”, now located in South Korea. The most regionally comprehensive collecting in the northern part of Peninsula was done by A. M. Yankovsky in 1937–1940. All his specimens were sent to prof. C. P. Alexander, and now are preserved at the Smithsonian Institution, U.S.A. (USNM). Many of these specimens were identified and described by C. P. Alexander. From that material, he described two species of *Dicranoptycha* Osten Sacken, 1859 (*D. diacantha* and *D. prolongata*). Later *D. prolongata* was also discovered in the northern part of South Korea (Podenas & Byun 2014). Despite intense collecting efforts in many different parts of South Korea between 2012–2014 by the authors of this paper, no specimens of *Dicranoptycha* species were found further south than the original type location. A large part of A. M. Yankovsky’s collection (mostly collected in 1940) was left in envelopes and unstudied. Following the Korean War in 1954, the military entomologist, Dr. G. W. Byers collected additional crane flies in the northern part of South Korea. These specimens are preserved at the collection of Kansas University, U. S. A. (KU) and at Michigan University, U. S. A. In 2008, South Korean entomologists collected crane flies in the northern part of South Korea. Their specimens are now housed at the National Institute of Biological Resources at Incheon, South Korea (NIBR).

Among all of the above mentioned specimens, two unknown species of *Dicranoptycha* were discovered.

In late summer of 2014, a collecting trip was arranged to South Korea with the aim of rechecking original localities. Despite the nearly 200 *Dicranoptycha* crane flies collected during this period, only two male specimens belonging to the new species were found. All remaining specimens proved to be *D. prolongata*.

The genus *Dicranoptycha* includes 85 species distributed worldwide except Australia (Oosterbroek 2014). The largest diversity of species is observed in the Afrotropics with 31 species, and within the Nearctic region, with 23 species. Thirteen species are known from the Eastern Palearctic region and seven species from the Western Palearctic region. Only one species has a transpalearctic distribution. There are six species with Oriental

References

- Alexander, C.P. (1924) New or little-known crane flies from northern Japan (Tipulidae, Diptera). *Philippine Journal of Science*, 24, 531–611.
- Alexander, C.P. (1934) New or little-known Tipulidae from eastern Asia (Diptera). XXI. *Philippine Journal of Science*, 55, 19–60.
- Alexander, C.P. (1935) New or little-known Tipulidae from eastern Asia (Diptera). XXIV. *Philippine Journal of Science*, 56, 525–562.
- Alexander, C.P. (1938) New or little-known Tipulidae from eastern Asia (Diptera). XL. *Philippine Journal of Science*, 67, 129–166.
- Evenhuis, N.L. (2014) Family Limoniidae. In: Catalog of the fossil flies of the world (Insecta: Diptera) website. Version 16 Feb 2014. Available from: [http://hbs.bishopmuseum.org/fossilcat/\[filename\].html](http://hbs.bishopmuseum.org/fossilcat/[filename].html). (accessed 12 December 2014)
- Ishida, H. (1959) The catalogue of the Japanese Tipulidae, with the keys to the genera and subgenera, 4. Limoniinae, Tribe Peditiini. *Science Report of the Hyogo University of Agriculture, Serie Natural Sciences*, 3 (2), 37–42.
- Lackschewitz, P. & Pagast, F. (1942) 16. Limoniidae. In: Lindner, E. (Ed.), *Die Fliegen der palaearktischen Region*, 3 (5), Lief. 145, 33–64.
- McAlpine, J.F. (1981) Morphology and terminology adults. In: McAlpine, J.F. (Coordinators), *Manual of Nearctic Diptera. Research Branch, Agriculture Canada, Monograph*, 27 (1), pp. 9–63.
- Meigen, J.W. (1818) *Systematische Beschreibung der bekannten europäischen zweiflügeligen Insekten*. Aachen, 333 pp.
- Oosterbroek, P. (2014) Catalogue of the Craneflies of the World (CCW). Online version at <http://nlbif.eti.uva.nl/ccw/index.php> (accessed 12 December 2014)
- Oosterbroek, P. & Theowald, Br. (1991) Phylogeny of the Tipuloidea based on characters of larvae and pupae (Diptera, Nematocera) with an index to the literature except Tipulidae. *Tijdschrift voor Entomologie*, 134, 211–267.
- Osten Sacken, C.R. (1859) New genera and species of North American Tipulidae with short palpi, with an attempt at a new classification of the tribe. *Proceedings of the Academy of Natural Sciences of Philadelphia*, 197–254.
- Petersen, M.J., Bertone, M.A., Wiegmann, B.M. & Courtney, G.W. (2010) Phylogenetic synthesis of morphological and molecular data reveals new insights into the higher-level classification of Tipuloidea (Diptera). *Systematic Entomology*, 35, 526–545.
<http://dx.doi.org/10.1111/j.1365-3113.2010.00524.x>
- Podenas, S. & Byun, H.-W. (2014) New Limoniinae crane flies (Diptera: Limoniidae) of Korea. *Journal of Species Research*, 3 (2), 167–182.
<http://dx.doi.org/10.12651/JSR.2014.3.2.167>
- Podenas, S. & Gelhaus, J. (2007) *Identification keys for Limoniinae (Diptera, Limoniidae) of Mongolia and adjacent territories*. Vilnius, 85 pp.
- Savchenko, E.N. (1982) Komari-limonijidi [Limoniid-flies], (subfamily Eriopterinae). *Fauna Ukrainy*, 14 (3), 1–335. [in Ukrainian]
- Savchenko, E.N. (1983) *Limoniidae of South Primorye*. Kiev, 156 pp. [in Russian]
- Savchenko, E.N. (1989) *Limoniid crane flies of the USSR fauna*. Kiev, 378 pp. [in Russian]
- Savchenko, E.N. & Krivolutskaya, G.O. (1976) *Limoniidae of the south Kuril Islands and south Sakhalin*. Kiev, 160 pp. [in Russian]
- Starý, J. (1972) European species of the genus *Dicranoptycha* Osten Sacken (Diptera, Tipulidae). *Acta Entomologica Bohemoslovaca*, 69, 401–416.
- Starý, J. (1992) Phylogeny and classification of Tipulomorpha, with special emphasis on the family Limoniidae. *Acta Zoologica Cracoviensia*, 35, 11–36.
- Young, C.W. (1987) A revision of the crane fly genus *Dicranoptycha* in North America. *Kansas University Science Bulletin*, 53, 215–274.