

## A New Subfamily of Winter Crane Flies

(Diptera : Trichoceridae)

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The Trichoceridae, or so-called winter crane flies, include five genera with approximately one hundred species, the great majority being in the typical genus *Trichocera*. One of these genera, *Kawasemyia* Alexander, is so different from the others that a new subfamily, the Kawasemyiinae, is here proposed for it.

The four genera retained in the older subfamily Trichocerinae are *Trichocera* Meigen, 1803, which is chiefly holarctic in distribution, with slight extensions southward into the oriental and neotropical regions, and with certain species that have been transported evidently through commerce to certain remote islands in the southern hemisphere. One of these, *T. regelationis* (Linnaeus) was placed in a supposed new genus, *Trichocerodes*, by Brèthes, 1925 from the South Georgia and Falkland islands in the south Atlantic, while another, *T. maculipennis* Meigen, similarly was described in a supposed new genus, *Palaeopetaurista*, by Séguy, 1940, from the Kerguelen islands in the Indian ocean. The second genus is *Diazosma* Bergroth, 1913, with a single species that is widespread throughout the Holarctic region. *Paracladura* Brunetti, 1911, with relatively few species, has a very discontinuous distribution that includes the oriental and eastern palaeartic regions, western North America, southern South America, eastern Australia and New Zealand. The fourth genus, *Nothotrichocera* Alexander, 1926, has a few species in eastern Australia and the subantarctic islands of New Zealand. The outstanding present student of the family is Dr. Christine Dahl, of the Zoological Institute of the University of Lund, Sweden (Dahl, 1966, 1967).

Dr. Masaaki Tokunaga (1935) described as *Alfredia imanishii*, a remarkable subapterous Trichocerid fly from the Japanese Alps. The following year Tokunaga (1936) placed this species in the genus *Trichocera* based on the female sex, the male being unknown to him at that time. The discovery of this sex in 1935 by Mr. Eiji Kawase and its later study by Alexander (1952) showed that in wing venation and structure the fly was entirely different from all other members of the family and a new genus *Kawasemyia* was proposed for it. More recently Dr. Kintaro Baba secured further materials of both sexes and the fly is known satisfactorily (Alexander, 1956: 79-80). The range of

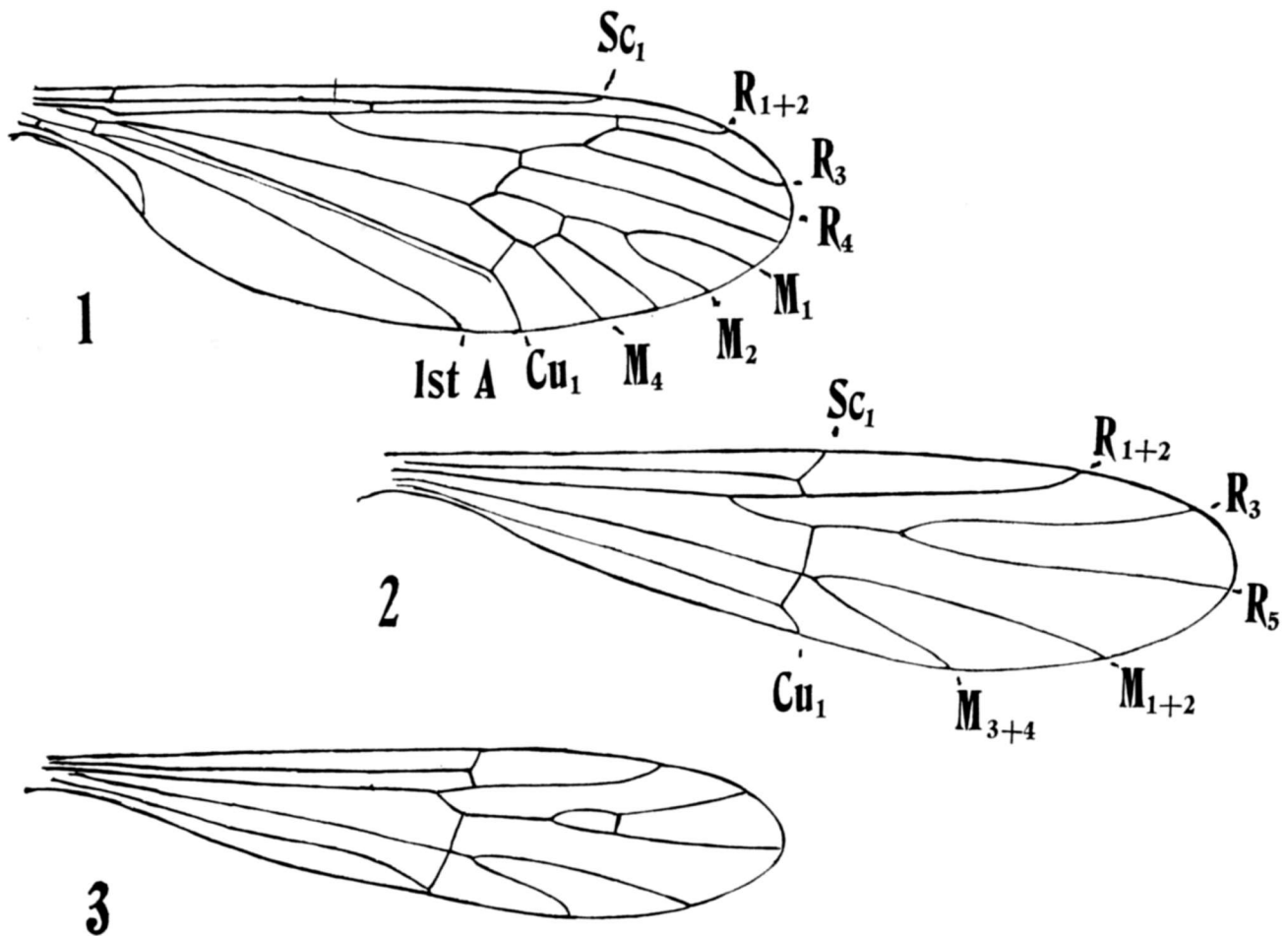


FIG. 1. Venation of *Trichocera hiemalis* (De Geer). FIGS. 2, 3. Venation of *Kawasemyia imanishii* (Tokunga). Venational symbols: *A*, Anal; *Cu*, Cubitus; *M*, Media; *R*, Radius; *Sc*, Subcosta.

*Kawasemyia imanishii* (Tokunaga) in Japan as known to me is restricted to the province of Echigo in Honshu but undoubtedly it will be found to have a wider range. From analogous distribution patterns of certain other Diptera, the genus might conceivably be found to occur in western North America.

As has been emphasized in earlier papers, the general features are much as in *Trichocera*, including the antennae, legs, and genitalia of both sexes. The subapterous condition of the female is unique in the family while the wing structure and venation precludes its inclusion in the Trichocerinae. The venation of *Trichocera* and *Kawasemyia* are shown herewith for comparison.

*Trichocera*, and all other genera in the Trichocerinae (fig. 1) show the venation with twelve veins that attain the margin, with *R* and *M* each with four branches, and with two complete Anal veins. Vein *Sc* is elongate, with  $Sc_2$  far retracted, vein  $R_2$  always preserved, and with the prearcular field short but with all elements of venation preserved and distinct. *Kawasemyia* (figs. 2, 3), the only genus in the Kawasemyinae, has only seven veins attaining the margin, *R* with three branches, *M* with two branches, and without Anal veins. Vein *Sc* is short, with

$Sc_2$  close to the tip of  $Sc_1$ , vein  $R_2$  lacking, and the prearcular field greatly reduced. There evidently is much variation in the venation, as shown, for example, by the figure provided earlier (Alexander, 1952: 15) as contrasted with the two provided at this time. The short series of males available to me appears to indicate that the normal venation is about as in fig. 2. In fig. 3 cell  $R_3$  shows an adventitious vein. Also of note in the wing are the elongate marginal trichia that completely encircle the wing, these being very long and sparse, widely spaced and in a single row, being of approximately equal length on both the costal and posterior margins. In the Trichocerinae the costal trichia are short and very numerous and in several rows, those of the posterior margin longer and more delicate, approaching the condition found in *Kawasemyia* but more numerous and crowded.

Additional important references include: Alexander (1927), Alexander and Alexander (1967), Esaki (1950), and Tokunaga (1938).

#### LITERATURE CITED

- ALEXANDER, C. P. 1927. The Trichoceridae of Australia (Diptera). Proc. Linnean Soc. N. S. W., 51: 299-304, 11 figs.
1952. A new genus of Trichoceridae from Japan (Diptera). Trans. Shikoku Entomol. Soc., 3: 14-16, 1 fig. (*Kawasemyia*).
1956. Undescribed species of Nematocerosus Diptera. Part IV. Bull. Brooklyn Entomol. Soc., 51: 75-81.
- ALEXANDER, C. P. AND M. M. ALEXANDER. 1967. A catalogue of the Diptera of the Americas south of the United States (São Paulo). Fasc. 3. Family Trichoceridae, pp. 1-4.
- DAHL, C. 1966. Notes on the taxonomy and distribution of Swedish Trichoceridae (Dipt., Nemat.). Opuscula Entomol., 31: 93-118, 72 figs.
1967. Notes on the taxonomy and distribution of Arctic and Subarctic Trichoceridae (Dipt. Nemat.) from Canada, Alaska and Greenland. Opuscula Entomol., 32: 49-78, 83 figs.
- ESAKI, T., *et al.* 1950. Iconographia Insectorum Japonicorum, Ed. 2: 1-1738, 4937 figs., 15 col. plates (reference p. 1512, fig. 4337; adult ♀, as *Trichocera*).
- TOKUNAGA, M. 1935. Three new crane-flies from Japan. Annot. Zool. Jap., 15: 194-198, 6 figs., 2 plates (pl. 14, fig. 2, adult ♀, as *Alfredia imanishii*).
1936. Three marine crane-flies from Japan. Annot. Zool. Jap., 15: 460-468, 18 figs.; Appendix, p. 468 (as *Trichocera imanishii*).
1938. New or little-known Trichoceridae from Japan (Diptera). Tenthredo, 2: 137-148, 2 pls., with 31 figs.