



<http://dx.doi.org/10.11646/zootaxa.3972.4.12>

<http://zoobank.org/urn:lsid:zoobank.org:pub:B1F30855-260C-463A-8EE4-3E2832AB6F81>

New combinations and changes in the classification of Ceratopogonidae (Diptera, biting midges)

ART BORKENT

Research Associate, Royal British Columbia Museum, American Museum of Natural History and Instituto Nacional de Biodiversidad, 691-8th Ave. SE, Salmon Arm, British Columbia, V1E 2C2, Canada. E-mail: artborkent@telus.net

This short article contains some necessary taxonomic changes prior to the publication of a chapter on the Ceratopogonidae by the author for the upcoming Manual of Afrotropical Diptera and spearheaded by Ashley Kirk-Spriggs. Some additional placements of three genera to a recently redefined tribe are also included.

Borkent (2014) redefined the genus *Schizonyxhelea* Clastrier to be more inclusive and incorporated a number of taxa previously placed in *Stilobezzia* Kieffer. This genus had been previously restricted to two Neotropical species (Wirth & Grogan 1988). Clastrier (1991) revised the world species he considered to be related to *Stilobezzia insolita* Das Gupta & Wirth and these are here all considered to be members of *Schizonyxhelea* on the basis of a transverse sclerite in their male genitalia and/or the single, distinctive, basally bent spermatheca of the female. One of these, *Schizonyxhelea diminuta* (Lane & Forattini) from Panama was previously assigned to *Schizonyxhelea* by Borkent (2014).

The new combinations are as follows:

Schizonyxhelea afra (Clastrier, 1991: 298) (*Stilobezzia*). Guinea. **New combination.**

Schizonyxhelea afrotropica (Clastrier, 1991: 302) (*Stilobezzia*). Guinea. **New combination.**

Schizonyxhelea corneti (Clastrier, 1991: 303) (*Stilobezzia*). Burkina Faso. **New combination.**

Schizonyxhelea amazonica (Clastrier, 1991: 306) (*Stilobezzia*). French Guiana. **New combination.**

Schizonyxhelea gallica (Clastrier, 1991: 305) (*Stilobezzia*). France. **New combination.**

Schizonyxhelea insolita (Das Gupta & Wirth, 1968: 49) (*Stilobezzia*). Malaysia. **New combination.**

There is some uncertainty regarding the male genitalia of *Schizonyxhelea amazonica*, which appears to be lacking both an aedeagus and the transverse sclerite (Clastrier 1991). A transverse sclerite is also missing in the reduced male genitalia of *S. forattinii* (see discussion by Borkent 2014) and perhaps this is a homologous loss. There is also the possibility that the specimen was damaged (reexamination would be of value). The female of this species has the characteristic, basally bent spermatheca. *Schizonyxhelea* is now newly recorded in the Afrotropical Region with three species present. Clastrier (1991) provided a key to these three Afrotropical species (along with four other extraterritorial species).

Borkent (2014) proposed the new genus *Anebomyia* Borkent, including some species previously placed in *Mallochohelea*. The following four species are transferred from *Mallochohelea* to *Anebomyia* as new combinations. All have femoral spines and lack the setal tufts on female sternite 8 characteristic of the genus. All but *A. aukurabis* are also known as males and these have the characteristic separate parameres.

Anebomyia aukurabis (de Meillon & Wirth, 1983: 371) (*Mallochohelea*). South Africa. **New combination.**

Anebomyia hamata (de Meillon & Wirth, 1987: 60) (*Mallochohelea*). Madagascar. **New combination.**

Anebomyia hansfordi (de Meillon & Wirth, 1983: 372) (*Mallochohelea*). South Africa. **New combination.**

Anebomyia unca (de Meillon & Wirth, 1987: 61) (*Mallochohelea*). Kenya. **New combination.**

Borkent (2014) divided the genera previously placed in Sphaeromiini into three tribes: Hebetulini, Johannsenomyiini and Sphaeromiini sensu stricto. Three genera, of uncertain position were left in Sphaeromiini sensu lato. They are now assigned as follows. However, each of these warrants further study and I did not examine any firsthand.

Alloimyia Yu & Liu. This monotypic genus, known only from a single female from China, is placed in Sphaeromiini sensu stricto on the basis that it has an inner claw tooth (Yu *et al.* 2005) and that it does not have setal tufts on female sternite 8 (Y.-X. Yu, pers. comm.).

Chelohelea Giles & Wirth. This genus is a Sphaeromiini sensu stricto considering that it has an inner claw tooth and no setal tufts on female sternite 8 (Giles & Wirth 1985). Only a single female from Malaysia is known of this monotypic genus. Giles & Wirth (1985) considered the genus to be closely related to *Lanehelea* Wirth & Blanton, another member of Sphaeromiini sensu stricto (Borkent, 2014).

Wannohelea Yu. This genus is also monotypic and known from a single female from China (Yu *et al.* 2005). The absence of outer claw teeth and lack of setal tufts on sternite 8 indicates that the genus is a member of Sphaeromiini sensu stricto.

Acknowledgments

I express my thanks to Patrycja Dominiak, William L. Grogan, Gustavo R. Spinelli and Ryszard Szadziewski for critical reviews of this paper.

References

- Borkent, A. (2014) The pupae of the Biting Midges of the World (Diptera: Ceratopogonidae), with a generic key and analysis of the phylogenetic relationships between genera. *Zootaxa*, 3879 (1), 1–327.
<http://dx.doi.org/10.11646/zootaxa.3879.1.1>
- Clastrier, J. (1991) Description de cinq nouveaux *Stilobezzia* apparentés à *S. insolita* Das Gupta & Wirth, originaires des régions afrotropicale, paléarctique et néotropicale (Dipt. Ceratopogonidae). *Bulletin de la Société Entomologique de France*, 95, 297–310. [1990]
- Das Gupta, S.K. & Wirth, W.W. (1968) Revision of the Oriental species *Stilobezzia* Kieffer (Diptera, Ceratopogonidae). *United States National Museum Bulletin*, 283, 1–149.
<http://dx.doi.org/10.5479/si.03629236.283.1>
- De Meillon, B. & Wirth, W.W. (1983) Sub-Saharan Ceratopogonidae (Diptera) IX. New species and records from southern Africa. *Annals of the Natal Museum*, 25, 347–381.
- De Meillon, B. & Wirth, W.W. (1987) Sub-Saharan Ceratopogonidae (Diptera) XII. New species and records, mainly from South Africa. *Journal of the Entomological Society of Southern Africa*, 50, 35–74.
- Giles, F.E. & Wirth, W.W. (1985) A new genus and species of biting midges (Diptera: Ceratopogonidae) and a new species of *Culicoides* from Malaysia. *International Journal of Entomology*, 27, 364–368.
- Wirth, W.W. & Grogan, W.L. (1988) The predaceous midges of the world (Diptera: Ceratopogonidae; Tribe Ceratopogonini). *Flora and Fauna Handbook*, 4, i–xv + 1–160. [E.J. Brill, New York]
- Yu, Y.-X., Liu, J.-H., Liu, G.-P., Liu, Z.-J., Hao, B.-S., Yan, G. & Zhao, T.-S. (2005) *Ceratopogonidae of China, Insecta, Diptera. Vol. 1–2*. Military Medical Science Press, Beijing, 1699 pp. [in Chinese]