



Article

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Morphotaxonomic revision of *Simulium* (*Gomphostilbia*) (Diptera: Simuliidae) in the Oriental Region

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Abstract

Simulium (*Gomphostilbia*) Enderlein, the third largest (206 named species included) in the genus *Simulium* Latreille s. l., is one of the two most abundant and diverse subgenera in the Oriental Region. To provide a classification scheme to facilitate morphological identification of the species within this subgenus, its diagnostic characters are redefined, and nine known species-groups within it are reviewed. Based on putative lineages explored by using certain adult morphological characters, seven more species-groups are proposed: *asakoeae*, *darjeelingense*, *epistum*, *gombakense*, *heldsbachense*, *hemicyclium* and *palauense* species-groups, while the *trirugosum* species-group is merged in the *varicornis* species-group. Subgroups are also introduced to represent apparently different lineages within certain species-groups based on certain pupal morphological characters: two in the *banauense* species-group, seven in the *batoense* species-group redefined, four in the *ceylonicum* species-group redefined, four in the *epistum* species-group, two in the *hemicyclium* species-group, two in the *sherwoodi* species-group and four in the *varicornis* species-group redefined. A new checklist of species of the subgenus *Gomphostilbia*, and a key to all 15 species-groups within it are provided. The eastward expansion of the geographical distribution of the subgenus *Gomphostilbia* is inferred on the basis of the more frequent occurrence of apomorphic characters of certain adult and pupal morphological features in insular species-groups than in continental species-groups. A preliminary attempt using a cladistic analysis of morphological characters shows that among 10 subgenera examined, *Gomphostilbia* has a sister-taxon relationship with the Australasian subgenus *Morops* Enderlein, and this clade, together with the Central-Western Pacific subgenus *Inseliellum* Rubtsov, is positioned closest to the most derived clade formed by *Daviesellum* Takaoka & Adler and *Simulium* Latreille s. str.

Key words: black fly, Simuliidae, *Gomphostilbia*, taxonomy, classification, Oriental Region