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# World reclassification of the *Gonatocerus* group of genera (Hymenoptera: Mymaridae)

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## Abstract

The 400+ nominal species of the worldwide genus *Gonatocerus* Nees are reclassified into 14 genera that are placed in Gonatocerini, which is defined by three putative autapomorphies. A key to the 13 extant genera of Gonatocerini is given, based on females. Five previously described genus-group taxa are recognized: *Cosmocomoidea* Howard **stat**. **rev**. (= *ater* group, of authors), *Gahanopsis* Ogloblin **stat**. **rev**. (= *deficiens* group, of authors), *Gastrogonatocerus* Ogloblin **stat**. **n.** (= *membraciphagus* group, of authors), *Gonatocerus* (= *sulphuripes* group, of authors), and *Lymaenon* Walker **stat**. **rev**. (= *litoralis* group, of authors). One new fossil genus, *Archigonatocerus* Huber **gen**. **n**., with two fossil species, *A*. *balticus* Huber **sp. n**., and *A*. *longivena* Huber **sp**. **n**. and one fossil species in *Gonatocerus*, *G. janzeni* Huber **sp**. **n**., are described, all from Baltic amber from the Eocene epoch. Eight new extant genera and 16 new extant species are described and their species keyed: *Cosmocomopsis* Huber **gen**. **n**., with *C. flopsis* Huber **sp**. **n**. and *C. mopsis* Huber **sp**. **n**.; *Heptagonatocerus* Huber **gen**. **n**., with *H*. *madagascarensis* Huber **sp**. **n**., *H*. *magnificus* Huber **sp**. **n**., *H*. *parvus* Huber **sp**. **n**., and *H*. *pulchellus* Huber **sp**. **n**.; *Krateriske* Huber **gen**. **n**., with *K*. *ecuadorensis* Huber **sp**. **n**., *K*. *guianensis* Huber **sp**. **n**., and *K*. *peruensis* Huber **sp**. **n**.; *Octomicromeris* Huber **gen**. **n**., with *O*. *compacta* Huber **sp**. **n**. and *O*. *brevis* Huber **sp**. **n**.; *Progonatocerus* Huber **gen**. **n**., with *P. albiclava* Huber **sp**. **n**. and *P. brunneiclava* Huber **sp**. **n**; *Tanyxiphium* Huber **gen**. **n**., with *T. breviovipositor* Huber **sp**. **n**., *T. longissimum* Huber **sp**. **n**., and *T. seychellense* Huber **sp**. **n**. *Yoshimotoana* Huber **gen**. **n**. (= *masneri* group, of authors) with one included species and *Zeyanus* Huber, **gen**. **n**. (= *asulcifrons* group, of authors) with 9 included species. Keys to the species of seven genera: *Archigonatocerus*, *Cosmocomopsis*, *Heptagonatocerus*, *Krateriske*, *Octomicromeris*, *Progonatocerus*, and *Tanyxiphium* are provided. Information for each nominal species catalogued includes the original reference, kind, sex and depository of primary type, and subsequent references that include relevant previous generic combinations, if applicable. The type locality is given, based on original descriptions or, where necessary, subsequent publications that provide clarification on the collection locality. Two new synonyms are proposed: *Gonatocerus similis* Gupta & Poorani, 2008, **syn**. **n**. under *G. bialbifuniculatus* Subba Rao, 1989; and *Gonatocerus hispaniolus* Triapitsyn & Huber, 2010, **syn**. **n**. under *G. masneri* Yoshimoto, 1990. Among the species, 245 new combinations are proposed: 82 in *Cosmocomoidea*, 1 in *Cosmocomopsis*, 4 in *Gahanopsis*, 8 in *Gastrogonatocerus*, 3 in *Gonatocerus*, 135 in *Lymaenon*, 2 in *Tanyxiphium*, 1 in *Yoshimotoana*, and 9 in *Zeyanus*. Revived combinations are proposed for Twelve species: 1 in *Cosmocomoidea*, 1 in *Gahanopsis*, 2 in *Gonatocerus*, and 8 in *Lymaenon*. The 410 nominal species group names are catalogued under their currently accepted genus and also listed alphabetically in an appendix. A tentative generic phylogeny is proposed.

**Key words:** Gonatocerini, world key, new genera, species catalogue

## Introduction

*Gonatocerus* Nees is the most speciose genus of Mymaridae, with 410 nominal species (Lin *et al*. 2007; Triapitsyn *et al*. 2010; Triapitsyn 2013a, 2013b; Noyes 2013) including those described in the present paper. Speciose genera such as *Gonatocerus* may be treated in different ways by different authors. Ogloblin (1935, 1946, 1959b) and Debauche (1948, 1949) had recognized that *Gonatocerus* (often called *Lymaenon* Walker) was a heterogeneous assemblage of species and proposed subgenera or species groups, respectively. Annecke & Doutt (1961) treated the genus as having two subgenera. For about 25 years beginning in 1986, the Ogloblin subgenera were treated as informal species groups (Matthews 1986; Huber 1988; Yoshimoto 1990; Zeya & Hayat 1995; Lin *et al*. 2007). Triapitsyn *et al*. (2010) redefined *Gonatocerus*, recognized subgenera again, and reclassified the Neotropical species into them. However, Zeya & Khan (2012) and Manickavasagam & Rameshkumar (2013b) continued to use a species-group classification. Triapitsyn (2013a, 2013b) treated the Palaearctic and Nearctic fauna and again used subgenera. All these studies were geographically limited to varying degrees. In particular, the diverse southeastern Asia and Afrotropical (including Madagascar) faunas were not covered.

Based on a worldwide study of thousands of specimens of *Gonatocerus* undertaken intermittently over the past three decades I found that the genus is better subdivided into several related genera clearly united by one venational feature, mentioned previously by Triapitsyn *et al*. (2010). The existing subgenera are removed from synonymy under *Gonatocerus* and given generic status here, and I propose new genera for several distinct groups of species that cannot satisfactorily be placed into the previously described taxa. The resulting classification does greater justice to the morphological and biogeographical diversity found among the 400+ nominal species and better illustrates convergences/parallelisms among the genera in which they are classified, while showing that the underlying generic features remain invariant on a world basis. Differences in biology, where known, may also be better reflected. All described species of *Gonatocerus sensu lato* are reclassified into the genera characterized below. These are placed in a tribe defined by three putative autapomorphies.