Mattigomphus gen. nov., a new gomphid genus from Indochina region, separated from Anisogomphus (Odonata: Gomphidae)

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Abstract: A new gomphid genus Mattigomphus gen. nov. is described. The new genus consists of two species (M. tamdaoensis (Karube, 2001) distributed in northern Vietnam and M. pinratani (Hämäläinen, 1991) distributed in northern Thailand) first described and so far placed in Anisogomphus Selys, 1858. The genus is characterized mainly by a peculiar male penis (prolonged median segment, reduced posterior lobe and very simple depressed glans) and cerci.

Key words: New genus, Odonata, Anisoptera, Gomphidae, Mattigomphus gen. nov., Indochina.

Introduction

The systematic problem around Merogomphus Martin, 1904 (sensu lato) and Anisogomphus Selys, 1858 and their relationships had been already pointed out by some authorities (Fraser, 1934; 1940; Chao, 1990) but was not studied for a long time. The second author reconsidered this problem to some extent and made it clear that the genus Merogomphus was artificial as comprised unrelated species (Kosterin, 2016). He redefined Merogomphus (sensu stricto) as including: pavici Martin, 1904 (the type species), longistigmus (Fraser, 1922), vandykei Needham, 1930, femoralis Laidlaw, 1931, vespertinus Chao, 1999, and torpens (Needham, 1930). Then he established the genus Euthygomphus Kosterin, 2016 with species having simple cerici, as including E. martini (Fraser, 1922) (the type species), parvus (Krüger, 1899), konxingai (Chao, 1954), chaoi (Liu, 1991), jinggangshanus (Liu, 1991), yunnanensis (Zhou & Wu, 1992) and schorri Kosterin, 2016.

However, a similar problem remained concerning Anisogomphus (sensu lato), which still is heterogeneous as including several species group, e.g. the species group of A. pinratani Hämäläinen, 1991 and A. tamdaoensis Karube, 2001.

The first author noticed heterogeneity of Anisogomphus long time ago, but insufficient specimens for comparison and information of Anisogomphus spp. made the result pending. Presently almost all species group in Anisogomphus s.l. have been determined. Here we establish a new genus for one of the remarkable group presently being included to Anisogomphus.

Mattigomphus gen. nov. (Figs. 1–15)


Etymology. The name Mattigomphus is a word composed of the generic name Gomphus (the type species of Gomphidae) and the given name Matti, as dedicated to Dr. Matti Hämäläinen, a famous Finnish odonatologist mainly studying Caloptera damselfly but also focusing Odonata fauna of Thailand. He first discovered and described the species pinratani belonging to this new genus.


Diagnosis.

Medium to large sized gomphids. General appearance similar to Anisogomphus spp.: last four abdominal segments...
expanded, legs long with well developed spines (Figs. 1, 2, 9). Cerci brown with a pale part, teardrop shaped, with a strong spine at the tip that is about 1/3–1/2 length of their length, with neither a conspicuous ventral protuberance nor a process as seen in *Anisogomphus* (e.g. its type species *A. occipitalis* (Selys, 1854)) and other related genera (*Labrogomphus* Needham, 1931 and *Notogomphus* Selys, 1858), nor a lateral process as seen in *Merogomphus, Anisogomphus* (*A. yanagisawai* Sasamoto, 2015 and *A. neptunus* Karube & Kompier 2016); In lateral view ventral side of cercus almost straight with an outer basoventral prominence or small tubercles at inner ventral edge (Figs. 3, 4, 10, 11). Epiproct arms are generally of the *Anisogomphus*-style, bilobed and widely opened outwards, but very large, strongly diverging and protruding latero-posteriorly, more depressed and with blunt, rounded apices (Figs. 3, 4, 10, 11). Accessory genitalia: anterior hamuli slender with a strong posterior hook at apex; posterior hamuli broad and gently S-shaped with a strong hook anteriorly (Figs. 5, 14). Penis. Vesicle (V1) triangularly protrudes ventrally; stem (V2) long, faintly curving inwards; median segment (V3) prolonged and well developed, its length nearly equal to stem; posterior lobe reduced, forming a simple mid-dorsal ridge; glans (V4) very simple, depressed, in ventral view rectangular without cornua and protrusion; apical part rather expanded laterally, with apex broadly open (Figs. 6, 7, 12, 13). Female without peculiar character differing from other genera.

**Key to the species of Mattigomphus.**

Body large (male: 50.3–52.3 mm including appendages; female 50.1–55.7 mm incl. app.). Male: 10th abdominal segment with a truncated apex. Cerci rather slender and clearly separated from each other at base, with an outer basoventral prominence; epiproct arms broad, with a nearly semicircular apex; apex of 10th abdominal segment truncated. Female: occipital margin smooth, without convex protrusion at middle (Fig. 8)  **tamdaoensis**

Body medium-sized (male: 44–45 mm incl. app.; female 43.5–48 mm incl. app.). Male: 10th abdominal segment with a bilobated apex. Cerci expanded and touching each other at base, without basoventral prominence but with two small ventral tubercles; epiproct arms more slender with a narrower and less blunt apex; apex of 10th abdominal segment bilobed. Female: Occipital margin with a convex protrusion at middle (Fig. 15)  **pinratani**

**Notes.**

The new genus is mainly characterized by a distinctive penile organ with a reduced posterior lobe. Such structure is never seen in any species of *Anisogomphus* (Fig. 16), *Euthygomphus* and *Merogomphus* (Fig. 17). The male cerci are also peculiar. In *Anisogomphus* s. str. they are simple, rod-shaped or conical in dorsal view but with a ventral process or protuberance in lateral view (however, *A. yanagisawai* and *A. neptunus* have a lateral rather than ventral processes on the cercus). The new genus has teardrop-shaped cerci without large ventral structures or with a smooth basoventral prominence but with an apical strong spine.

**Taxonomical history.**

The first described species, *pinratanai*, was placed to *Anisogomphus* (Hämäläinen, 1991) because of its broadly diverging epiproct arms (but in spite of having neither tubercle nor ventral process on the cerci).

The second species, *chaoi*, was placed to *Merogomphus* (Yang & Davies, 1993), perhaps, because of the similarity of the male penis glans to that of *Merogomphus pavici*, which has the glans depressed in lateral view, but actually the structure is different (Fig. 17); the median lobe strongly expanded in apical part, the posterior lobe developed, protruded ventrally; the base of the glans bilobated, not depressed and with a small bill-shaped apical process. Also the female ovipositor of *chaoi* looks similar to *Merogomphus torpens* (Needham, 1930). Later Kosterin (2016), based on the original descriptions, came to the conclusion that *chaoi* is a junior synonym of *pinratani*.

While describing the third species, *tamdaoensis*, Karube (2001) followed the treatment by Yang & Davies (1993), and placed it to *Merogomphus*. Kosterin (2016) transferred *tamdaoensis* to the genus *Anisogomphus*, and pointed out at their peculiarity.

**Grouping of Anisogomphus species.**

Judging by the external morphology (e.g. the male appendages, accessory genitalia, and penile organ), the remaining members of *Anisogomphus* can be separated in several species group, as follows:

*Occipitalis* group: *occipitalis* (Selys, 1854), (type species of *Anisogomphus*), *caudalis* Fraser, 1926.


Species unknown to us: *solitaris* Lieftinck, 1971, *vulvalis* Yousuf & Yunus, 1977

The systematic treatment of these species groups will comprise a future paper.

**References**


**摘要**：苅部治紀・Oleg E. Kosterin：インドシナ地域からのサナエトンボ科の新属（トンボ目：サナエトンボ科）—インドシナ地域からサナエトンボ科の新属 *Mattigomphus* gen. nov. を記載した。*Mattigomphus* 属は、北部ベトナムから記載された *tamdaoensis* (Karube, 2001) と北部タイから記載された *pinratanai* (Hämäläinen, 1991) の 2 種が所属している。これらの種はこれまで *Merogomphus* 属と *Anisogomphus* 属に所属していた（前者はその後 *Anisogomphus* 属に移動）。本新属は、♂の尾部付属器の形状や交尾器の形状によって、他の *Anisogomphus* 属の種とは明確に区別される。
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Fig. 16. *Anisogomphus caudalis*: Male penis in lateral view.

Fig. 17. *Merogomphus pavici*: Male penis in ventral view.