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Anigosomphus yanagisawai sp. nov., a new gomphid dragonfly from northern Thailand (Odonata: Anisoptera: Gomphidae)

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Abstract

A new species of *Anisogomphus* Selys, *A. yanagisawai* **sp. nov**. (holotype male and paratype specimens) from N. Thailand (Doi Inthanon, ca. 1,400 m a.s.l., Ban Luang, Chiang Mai Prov.), is described and illustrated. This species can apparently be distinguished from the other species of this genus by the morphology of the anal appendages, especially the straight cerci closely disposed to each other and bearing a very strong outer branch.

Key words: Odonata, *Anisogomphus*, Thailand, new species

Introduction

The Asiatic genus *Anisogomphus* Selys, 1858, includes species distributed mainly in the eastern Palaearctic and northern Indo-Malaysia. It is especially diversified in the Himalayan and southern China regions (Fraser, 1934; Zhao [= Chao], 1990). In Thailand, only one species, *A. pinratani* Hämäläinen, 1991, has been described from the north (Doi Inthanon, Chiang Mai Prov.), which is likely to be the southernmost limit of this genus.

Recently, another species of *Anigosomphus* was obtained during an expedition in N. Thailand by an enthusiastic entomologist, Mr. Takashi Yanagisawa. Before, only females of this species had been collected by some odonatologists (Hämäläinen & Pinratana, 1998; N. Makbun, *personal communication*), so its real identity remained unresolved. Thanks to Mr. Yanagisawa, male specimens are now available, thus enabling the description of the new species in this paper.

Description

***Anisogomphus yanagisawai* sp. nov.**
Figures 1–12

Material examined. Holotype: ♂ (Fig. 1) (NSMT-I-Od-15803), Doi Inthanon (18°54' N, 98°52' E, ca. 1,400 m a.s.l.), Ban Luang, Chiang Mai Prov., Thailand, Takashi Yanagisawa leg., 6. VI. 2013. **Paratype**: 1 ♀, 2. VI. 2012; 4 ♀, 3. VI. 2012; 3 ♀, 4. VI. 2012; 2 ♀ 2. VI. 2013; 1 ♂, 6. VI. 2013, 1 ♂ 1 ♀ (Fig. 2) (NSMT-I-Od-15804), 8. VI. 2013. All collecting localities are the same as that of holotype. The holotype and one female paratype will be deposited in the National Museum of Nature and Science, Tokyo. The other specimens are preserved in Mr. Yanagisawa's and author's private collections.

Holotype Male: Head (Fig. 3) black with yellow markings with brownish setae. Labium black in median lobe and pale yellow in lateral lobes; mandible black; labrum with a pair of transverse ellipsoid yellow spots; genae yellow except for black on upper margin; anteclypeus with yellow in upper margin and median part; postclypeus with a pair of small triangular spots laterally; frons medially with a slight depression and with a broad yellow band on dorso-anterior surface; eyes moss-green in life; vertex and antennae black; occiput slightly depressed in middle, yellow with posterolateral edge black.

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Measurements (mm). Holotype male: total length (TL) 56.5; abdomen (including anal appendages) (Abd) 42.3; hind wing (HW) 35. Paratype males: TL 53.5–57.5; Abd 38.5–39.5; Hw 32.5–33.0. Paratype females: TL 48.5–54; Abd 35.5–40; Hw 32–33.5.

Etymology. The species name, a noun in the genitive case, is dedicated to Mr. Takashi Yanagisawa, who discovered the holotype male and paratype specimens.

Diagnosis. The characteristic morphology of the cerci (Figs. 5, 6) is the most obvious difference from the other species of this genus. The cerci are straight and disposed closely to each other along their inner margin; the outer branch is thick and pointed apically, arising from the middle of the cercus and projected in a horizontal plane posterio-obliquely.

Among the other species, of which the male is known, none has such characteristics. The anal appendages of *Anisogomphus forresti* (Morton, 1928) from Yunnan have a similar morphology, but the outer branch is small and arises more distally on the cercus. In *A. jinggangshanus* Liu, 1991, from Jiangxi, P. R. China, *A. wuzhishanus* Chao, 1982, from Hainan and *A. vulvaris* Yousuf & Yunus, 1977, from Pakistan, only the female has been described (Liu, 1991; Zhao [= Chao], 1990; Yousuf & Yunus, 1977). The female of *A. yanagisawai* sp. nov. is differentiated from these species by the thoracic maculation and morphology of the valvula vulvae. In addition, Wilson (2005) recorded a female specimen of an unnamed *Anisogomphus* from Guangxi, China, which has similarities in thoracic maculation and shape of valvula vulvae to those in *A. yanagisawai* sp. nov., but differences in the yellow stripe on labrum, i.e. continuous in the former but separated in the latter. The true identity of the former will be revealed by the discovery of its male.

Habitat. According to Mr Yanagisawa, these specimens were collected on paved roads (Fig. 11) beside a running stream (Fig. 12). The males were found to settle on leaves of roadside trees. By contrast, females were seen to fly swiftly over the road. One oviposited in a small stagnant part of the stream (Fig. 12), tapping the tip of her abdomen on the water repeatedly, flying in a circle. In the end, she flew off and did not perch nearby. They appeared from 09:00 to 14:00 hours only in sunny conditions. Unfortunately, mating behaviour was not observed. At the same time and location, *Anotogaster gregoryi* Fraser, 1924, and *Macromia moorei* Selys, 1874, were also observed.

Distribution. Chiang Mai Province, northern Thailand.

Comments. The species of this genus are mostly characterized by the morphology of the male cercus. This new species also shows distinct features of the cercus, as noted in the diagnosis. Among congeners, the closely disposed straight cerci are also found in *A. forresti* and Himalayan *A. occipitalis* (Selys, 1854), so this may indicate that they share a phylogenetic affinity, though the structure of the branch of the cercus is unique in each species.
This new species is the second member of the genus *Anisogomphus* from Thailand, following *A. pinratani*, and both are the southernmost known members of this genus. This being the case, Doi Inthanon can be regarded as a region of special interest as the southernmost outpost of an East Asian fauna.

Curiously, earlier some researchers had obtained only female specimens, and also in this time, females were observed much more frequently than males. The activity patterns of the male may be investigated by future field work.

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References

Fraser, F.C. (1934) *The Fauna of British-India including Ceylon and Burma, Odonata. Vol. II*. Taylor and Francis Ltd., London, 442 pp.

Hämäläinen, M. (1991) *Anisogomphus pinratani* n. sp. aus Nord-Thailand (Odonata: Gomphidae). *Entomologische Zeitschrift*, 101 (22), 413–432.

Hämäläinen, M. & Pinratana, B.A. (1999)*Atlas of the Dragonflies of Thailand Distribution Maps by Provinces.* Chok Chai

Creation Printing Group, Bangkok, 176 pp.
Liu, Z.-Y. (1991) Description of two new species of the genus *Anisogomphus* from China (Odonata: Gomphidae). *Contributions from Shanghai Institute of Entomology*, 10, 131–134.
Morton, K.J. (1928) Notes on the Odonata of Yunnan, with descriptions of new species. *Transactions of the Royal Entomological Society of London*, 76, 109–119.
http://dx.doi.org/10.1111/j.1365-2311.1928.tb01194.x
Wilson, K.D.P. (2005) Odonata of Guangxi Zhuang Autonomous Region, China, part II: Anisoptera. *International Journal of Odonatology*, 8, 107–168.
http://dx.doi.org/10.1080/13887890.2005.9748247
Yousuf, M. & Yunus, M. (1977) Genera of subfamily Gomphinae (Gomphidae) with descriptions of three new species (Anisoptera: Odonata) from Pakistan. *Pakistan Journal of Scientific Research*, 29, 59–62.
Zhao (= Chao), X.-F. (1990) *The Gomphid Dragonflies of China (Odonata: Gomphidae)*. The Science and Technology Publishing House, Fuzhou, Fujian, 486 pp.