

Short Communication

Two more Odonata species recorded for Cambodia

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A checklist of Odonata species recorded in Cambodia was published in the December 2012 issue of the *Cambodian Journal of Natural History* (Kosterin *et al.*, 2012a), but was estimated to comprise only about a half of the country's actual species. The paper included dragonfly and damselfly species registered in the Cardamom Mountains foothills—specifically in Tatai Commune—by the resident second author over a number of years. Since that publication, the second author has recorded two more species of Odonata that are new records for Cambodia. They are published herein, along with additional new data from the same area.

Gerard Chartier has compiled photographic records of Odonata using a Canon EOS 500D camera with 18–55 mm and 55–250 mm lenses during his regular excursions in Tatai Commune, Koh Kong Province, within the area encompassed by the following points: Rainbow Lodge on the Stoeng Kep River (“Left Tatai River”), 1.6 km north of Phum Doung Bridge in Tatai Village (11.580°N, 103.127°E), the “lake area” of the Stoeng Sala Munthun River (“Right Tatai River”), 3.9 km north-northwest of Phum Doung Bridge (11.599–11.601°N, 103.120–121°E), and the Tatai Waterfall at the same river, 4 km northwest of Phum Doung Bridge (11.586°N, 103.097°E). This area is covered by evergreen forest and bamboo thickets over a low ridge. For more details of the area see Kosterin *et al.* (2012a). Two odonate individuals were found dead in a house at Rainbow Lodge and preserved dry in a paper envelope.

Heliaeschna simplicia (Karsch, 1891)

A male was found dead inside a house at Rainbow Lodge (11.580°N, 103.127°E) on 12 March 2013 (Fig. 1), seemingly after being attracted by light.

There used to be taxonomical and nomenclatural confusion around this species, but this was resolved by Lieftinck (1940). The identification of our male was unmistakable because of the shape of its cerci (Fig. 2), which are unique for *H. simplicia* (Karsch, 1891) (see also Fig. 161 for “*H. Weelei*” in Martin, 1909; Figs 22–23 for “*H. Weelei*” in Ris, 1927; and plate 14h in Orr, 2003). Other characters matched as well.

Until now, *H. simplicia* was known only from Borneo, Sumatra (Lieftinck, 1940; 1954), the Philippines (Hämäläinen & Müller, 1997; Tsuda, 2000) and Peninsular Malaysia (Orr, 2008). Ours is the first published record of this species in Indochina and in continental (not peninsular or insular) Asia.

Epophthalmia vittigera (Rambur, 1842) *ssp. bellicosa* Lieftinck, 1948.

A female was photographed by Gerard Chartier at Rainbow Lodge (11.580°N, 103.127°E) on 14 June 2013 (Fig. 3a) and a male on 18 June 2013 (Fig. 3b). Another female (Fig. 4) was found dead inside a house at Rainbow Lodge on 23 June 2013. More males were observed at the same place every day until at least 30 June 2013.

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Identification of this species was reliably based on the extensive dark patches at the wing bases in both sexes, the strong subapical inward angulation of the male cerci and the epiproct of the same length, and vertex tubercles without yellow markings (Fraser, 1936; Lieftinck, 1948).



Fig. 1 *Heliaeschna simplicia* (Karsch, 1891), a male found dead in Rainbow Lodge, Tatai Commune, Koh Kong Province, 12 March 2013 (© G. Chartier).



Fig. 2 *Heliaeschna simplicia* (Karsch, 1891), anal appendages of the same male (© O. Kosterin).

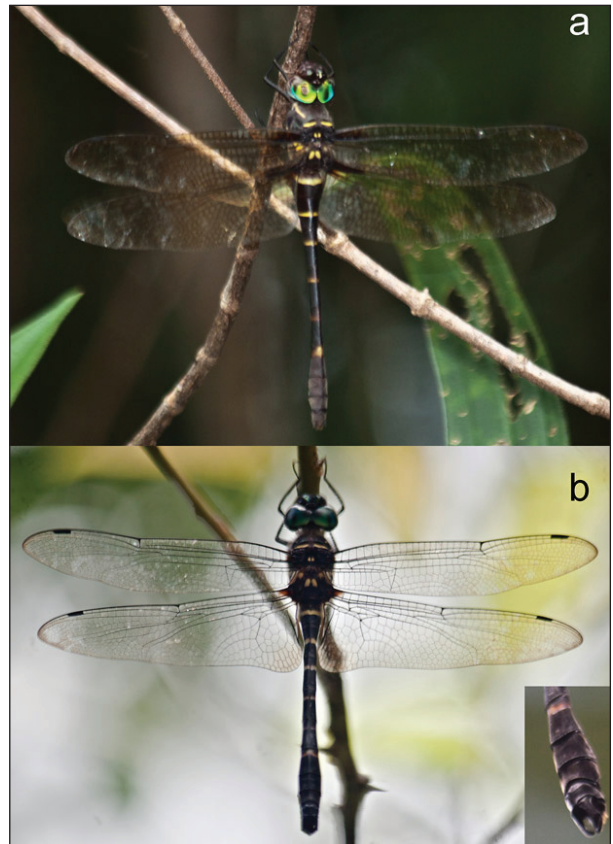


Fig. 3 *Epophthalmia vittigera bellicosa* Lieftinck, 1948, a female (a) and male (b) photographed at Rainbow Lodge, Tatai Commune, Koh Kong Province on 14 and 18 June 2013 respectively (© G. Chartier).



Fig. 4 *Epophthalmia vittigera bellicosa* Lieftinck, 1948, details of a female found at Rainbow Lodge, Tatai Commune, Koh Kong Province, 23 June 2013 (© G. Chartier).

As to the subspecific diagnostic characters, the basal brown patches extended to antenodal 5 and 6 on the forewing and hindwing, respectively, in the female, and were vestigial on the forewing and extended to antenodal 1 in the male, which were within the range of variation indicated for the subspecies *bellicosa* Lieftinck, 1948 by Fraser (1936) and Lieftinck (1948). This subspecies is known to range across India, Myanmar, Thailand, Laos and Vietnam (Tsuda, 2000). The yellow rings on abdominal segments 2–7 were not as broad as indicated in the original description (Lieftinck, 1948) and interrupted in segments 2–6, but were within the variation indicated by Fraser (1936); their fore margins being indistinct. In the female specimen, the postclypeus missed the yellow transversal stripe mentioned by Fraser (1936) and Lieftinck (1948) and was “uniformly brownish” as characterised by Asahina (1987). Generally, the male and two females gave the impression of being aged and darkened.

Epophthalmia vittigera bellicosa was expected to occur in Cambodia, having been found in Chayaphum and Saraburi Provinces of Central Thailand (Hämäläinen & Pinratana, 1999).

Macromia chaiyaphumensis Hämäläinen 1985.

Two males photographed on 11 October 2011 and 19 September 2012 in the study area were not immediately identified to species, being referred to as “*Macromia* sp.” and illustrated by Kosterin *et al.* (2012a) in Fig. 12 (showing the male from 19 September 2012 but erroneously captioned “April 2012”). They showed a yellow mark between the vertex pyramidal processes. Of the known Thai and Indochinese species, this trait is found only in *M. chaiyaphumensis*. The original description, based on a single male, states: “Posterior-medial slopes of pyramidal processes in frons yellow” (Hämäläinen 1985: 105), although its author did not indicate this character as diagnostic. Photographs of a male and female identified as *M. chaiyaphumensis* were uploaded by Reinthong Ruanrong to www.asia-dragonfly.net on 18 September 2013 (use the ‘Global query’ to find these records of this species). Ruanrong’s male and female were photographed on 24 May 2013 and 20 April 2013, respectively, at the Borwee Waterfall, Sounphung, Ratchaburi Province, Thailand. They showed the aforementioned yellow mark in the frontal crevice very clearly and were obviously conspicuous.

Our males from Cambodia corresponded to the male photographed by R. Ruanrong in most details, but with the following differences: yellow ring at abdominal segment 2 interrupted at auricles, antero-

lateral yellow spots on S3 large (vs very small in the Ratchaburi male), dorsal and lateral yellow marks on abdominal segment 8 separated, yellow lateral spots and lateroventral dots on abdominal segment 9 absent, one less antenodal on each wing (12 on forewing and nine on hindwing vs 13 on forewing and 10 on hindwing in the Ratchaburi male). The pinkish-grey eyes and brownish-black thoracic ground colour in the Tatai males may be ascribed to their subteneral condition.

The males from the Tatai Commune and Ratchaburi Province show some common differences from the original description of *M. chaiyaphumensis* (Hämäläinen 1985: 105), as follows:

- Abdominal segment 3 with lateroventral spots (small in the Ratchaburi male and large in the Tatai males), not mentioned in the original description;
- Yellow marking on segments 3–7 seems to be larger (not depicted in *loc. cit.*), spots on segment 6 not “very small” but occupy half of segment height, mark on segment 7, however, occupies apical one-fifth rather than one-third of its segment;
- Fewer antenodals on forewing (vs 14 on forewing and nine on hindwing in the holotype);
- Two crossveins in hindwing hypertrigones (vs three in the holotype).

In spite of these not-so-large differences, which may be a matter of geographical variation, we provisionally identified the Tatai males as *M. chaiyaphumensis*. A female of this species was earlier reported from Ratanakiri Province, Cambodia, by Kosterin (2014).

Macromia ?cincta (Rambur, 1842)

A female was photographed on 1 July 2013. Its external characters correspond to *M. cincta*, a male of which was collected by the first author on 23 May 2013, also in Koh Kong Province. The latter record of this species, which was rather unexpected in Cambodia, was published by Kosterin (2014) without supporting arguments. These will be specially presented elsewhere in a paper devoted to Cambodian *Macromia*.

The following three species, already known from Cambodia, were added to the already quite long list of 72 species recorded in the study area by Kosterin *et al.* (2012a):

Camacinia gigantea (Brauer, 1867). A female photographed on 29 June 2013 at Rainbow Lodge.

Brachydiplax farinosa Krüger, 1902. A male photographed on 12 June 2013 at a pond on the western bank of the Stoeng Kep River (11.582°N, 103.130°E).

Brachythemis contaminata (Fabricius, 1793). A male photographed at the same place and date as above.

The following recent findings of rare species in the study area, although already recorded in Cambodia by Kosterin *et al.* (2012a), are also worth mentioning:

Heliaeschna crassa Krüger, 1899. A male was photographed near Rainbow Lodge on 4 March 2013. This species was previously reported from the same area from a photograph of a female (Day, 2011).

Heliaeschna uninervulata Martin, 1909. A female was found alive inside a house at Rainbow Lodge and released on 2 May 2013.

Burmagomphus asahinai Kosterin, Makbun & Dawwrueng, 2012. A teneral female of this recently described species was found and photographed on 15 July 2013 at Tatai Waterfall (11.586°N, 103.097°E). Together with the data from Kosterin *et al.* (2012b), these records suggest a prolonged emergence period for imagines of this species from at least late March to mid-July.

Amphithemis curvistyla Selys, 1891. An immature male was photographed at Rainbow Lodge on 1 October 2013. Earlier, a female of this very rare species was reported from the same site (Kosterin *et al.*, 2012a).

The new records of two species for Cambodia published herein and the recent paper by Kosterin (2014), added to the checklist published by Kosterin *et al.* (2012b), has raised the number of named Odonata species known to occur in Cambodia to 154.

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