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On the synonymy of *Agrionoptera bartola* Needham & Gyger, 1937, with *Agrionoptera sexlineata* Selys, 1879

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Abstract. *Agrionoptera bartola* was described by Needham & Gyger 1937 based on a female from an unknown locality without a holotype being designated. Since its description no further information has become available. A comparison of the original description with specimens of *A. sexlineata* failed to produce meaningful characters, apart from a size difference, separating the two. *Agrionoptera bartola* is therefore considered a junior synonym of *A. sexlineata.*

Further key words. Dragonfly, Anisoptera, Philippines, Southeast Asia

Introduction

Agrionoptera bartola was described by Needham & Gyger (1937) in the first part of The Odonata of the Philippines. Only the female was described and, although not explicitly stated, probably only one female was available. The description does not designate a holotype and does not provide information on the origin of the species or the place where it was collected. As it was included in the The Odonata of the Philippines it was always assumed to be from the Philippines and therefore included in the checklist of the Philippines (Hämäläinen & Müller 1997). Ramos & Gapud (2007) published a record of a single male from Mount Makiling in Luzon. However, the images of the specimen and the wings they provide show that this is not *A. bartola* as three characters Needham & Gyger (1937) use to distinguish between *A. bartola* and *Agrionoptera quatuornotata* Brauer, 1867 (= *Agrionoptera insignis* [Rambur, 1842]) match the latter. No new information has become available since the original description of *A. bartola,* which places the species as near allied to *A.sexlineata* Selys, 1879, without giving convincing characters to separate these two. In this paper the original description is compared with the other species of *Agrionoptera* in order to test if the species is valid or should better be considered a synonym.

Original description

The original description of *A. bartola* includes illustrations of the wings and of the vulvar scale. It also contains a key based on wing characters separating the species from *Agrionoptera quatuornotata* Brauer, 1867 (= *Agrionoptera insignis* [Rambur, 1842]). The general description fits that of an *Agrionoptera*, especially the pale face with the metallic top of the frons and the numerous Ax (15) with the last one being complete, ruling out most other regional libellulid genera. The figure of the wings

also shows the base of the hind wing being slender and the pterostigma being large and bulky as is the case in *Agrionoptera*.

The genus *Agrionoptera* Brauer, 1864, contains *A. sexlineata* Selys, 1879, *A. longitudinalis* Selys, 1878, and *A. insignis*, the latter consisting of a large number of closely related taxa, including *A. cardinalis* Lieftinck, 1962, *A. cynthiae* Lieftinck, 1942, and *A. similis* Selys, 1879, which are either regarded as synonyms, subspecies or in some cases valid species. *Agrionoptera longitudinalis* is not found west of the Moluccas and has a black thorax with a well-defined broad longitudinal yellow stripe on the side in both sexes, which clearly sets it apart from *A. bartola*. The characters given by Needham & Gyger (1937) in their key between *A. insignis* and *A. bartola* rule out their conspecificity, as the drawing of the wings of *A. bartola* clearly shows two bridge cross-veins (one in *A. insignis*); the radial planate with several double cells (only a single row in *A. insignis*) and the hind wing triangle being close to the arculus (clearly more distal in *A. insignis*). In these latter three wing characters *A. bartola* does match with *A. sexlineata*. Needham & Gyger (1937) also deemed *A. bartola* to be most closely related to *A. sexlineata* and for that reason provide four characters which according to them separate *A. bartola* from *A. sexlineata*:

1. being distinctly larger
2. having a yellow instead of an olivaceous face
3. having the humeral yellow stripe abbreviated and not entire
4. having the fifth abdominal segment wholly black.

The length of *A. bartola* is given as 45 mm (total length), 28 mm (abdomen), and 41 mm (hind wing). Some of the larger females of *A. sexlineata* in the collection of Naturalis Biodiversity Center (RMNH) have a hind wing length of 39 mm with one reaching 40 mm, only slightly smaller than mentioned for *A. bartola*.

The face of *A. sexlineata* is yellow with a green tinge and, especially in voucher specimens, this can easily be described as olivaceous. It is likely that Needham & Gyger (1937) did not have material of *A. sexlineata* at hand and worked from written descriptions available at the time. This proposed difference with *A. bartola* is likely based on individual variation between specimens and/or differences in interpretation of colour by different authors.

Needham & Gyger (1937) seemingly thought that the humeral stripe in *A. sexlineata* is complete but in fact their description of it in *A. bartola* is exactly like that found in *A. sexlineata*: »an irregular humeral stripe, angulated at the lower end of the humeral suture, extending down to the middle coxa, and upward halfway to the wing above it; widely separated from it two small isolated spots, one on either side of the upper end of the humeral suture«.

The last character (S5 wholly black), seems also a feeble character to distinguish it from *A. sexlineata* as the females of this species have the abdomen largely black with the red often restricted to S8. S5 often does have two narrow and short mid-dorsal

yellow lines (Fig. 1) but these are absent in some specimens rendering the whole segment black. None of the characters clearly separate *A. bartola* from *A. sexlineata* while the description of the humeral stripe and of the pattern on the sides of the thorax very convincingly fits with *A. sexlineata*. The illustration of the vulvar scale in Needham & Gyger (1937) also matches that of *A. sexlineata*.

Conclusion

With the exception of the size difference, there are no meaningful characters distinguishing *A. bartola* from *A. sexlineata*. It is therefore concluded that the former is best regarded as a junior synonym of the latter.

Agrionoptera bartola Needham & Gyger 1937
= *Agrionoptera sexlineata* Selys, 1879 **syn. nov.**

Agrionoptera sexlineata occurs in Borneo, Sumatra (also Lingga Islands and Belitung and satellites), Singapore and Peninsular Malaysia, and is not known from the

Fig. 1. Female *Agrionoptera sexlineata*, Similajau, Sarawak (04.ii.2008). Photo: Graham Reels

Philippines. The origin of the specimen now regarded to be a female *A. sexlineata* is unknown and it is not unlikely that the specimen did not originate from the Philippines at all. A similar case of a species described by Needham & Gyger (1939) as originating from the Philippines is *Moroagrion danielli* which turned out to be the European *Pyrrhosoma nymphula* (Sulzer, 1776) (Dijkstra & Kalkman 2013). The synonymy of *A. bartola* with *A. sexlineata* can therefore not be regarded as proof that *A. sexlineata* occurs in the Philippines.

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