

Diaphlebia richteri Bota-Sierra, 2015 is a junior synonym of *Zonophora nobilis* Belle, 1983 (Gomphidae: Odonata)

Cornelio A. Bota-Sierra ^{a*} & Kenneth J. Tennessen^b

^aGrupo de Entomología Universidad de Antioquia (GEUA), Universidad de Antioquia, Medellín 50010, Colombia

^bResearch Associate, Florida State Collection of Arthropods, Gainesville, FL, USA

*Correspondence author. Email: cornelio.bota@udea.edu.co

Abstract. *Diaphlebia richteri* is shown to be a junior synonym of *Zonophora nobilis*. The confusion started by a generic misplacement due to the failure to observe the subalar carina spine which is present in *Zonophora* but not in *Diaphlebia*. Therefore, *Z. nobilis* is officially recorded for the first time in Colombia; we present a distribution map with the known localities for this rare Amazon species. Also, we made a comparison between our female specimens and the original description of the female from Cerro de la Neblina (Venezuela), including the first photographs of diagnostic characters of a female specimen.

Key words. Amazon, Colombia, female description, taxonomy

Research Article

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All relevant data are within the paper.

Resumen. Se demuestra que el nombre *Diaphlebia richteri* es un sinónimo menor de *Zonophora nobilis*. La confusión comenzó por una mala ubicación genérica debido a la falta de observación de la espina carina subalar que está presente en *Zonophora* pero no en *Diaphlebia*. Por lo tanto, *Z. nobilis* se registra oficialmente por primera vez en Colombia, presentamos un mapa de distribución con las localidades conocidas para esta rara especie amazónica. Además, realizamos una comparación entre nuestros ejemplares hembra y la descripción original de la hembra del Cerro de la Neblina (Venezuela), incluyendo las primeras imágenes de los caracteres diagnósticos de un ejemplar hembra.

Palabras clave. Amazonia, Colombia, descripción de la hembra, taxonomía

Introduction

Diaphlebia richteri Bota-Sierra, 2015 was described based on a single male collected by John Lynch in the Colombian Amazon, department of Guainia, 20 March 1998 (Bota-Sierra et al., 2015). While working on the genus *Diaphlebia*, KJT studied the description and figures of *D. richteri* and noticed that the anal appendages resembled those of the genus *Zonophora* more than *Diaphlebia*. Especially noticeable was the shape of the epiproct, longer than in the two previously known *Diaphlebia* species and more widely divaricate as seen in both dorsal and ventral view. Also, there was a small medial angulation on the cerci, at midlength, which is lacking in *Diaphlebia* but present in *Zonophora* (see Garrison et al., 2006). The critical character to check next was the subalar carina of the hind wing to see if there was a projecting spine, which is characteristic of *Zonophora*; however, the photograph included in the original description was too dark to discern the exact nature of the carina.

Meanwhile, new gomphid specimens from Colombia (provided by Yiselle Cano to CB-S, collected close to the type locality for *D. richteri* in Guainia department) keyed perfectly to *Zonophora nobilis* Belle, 1983 by CB-S, but at the same time

resembled the type specimen described as *Diaphlebia richteri*. Together with KJT's observations on the original description, we decided a review of the holotype was necessary.

New Synonymy

New photographs taken of the thorax of the type specimen of *D. richteri* (deposition Instituto de Ciencias Na-

turales, Universidad Nacional de Colombia, Bogotá, Colombia [ICNMHN]) showed that there was a sharp spine on the subalar carina, a character that separates *Zonophora* from *Diaphlebia*, also all the other characteristics matched *Z. nobilis*. Therefore, we have concluded that *D. richteri* is a junior synonym of *Z. nobilis*. The presence of the spine was not detected by CB-S in the initial examination of the specimen and led him to erroneously describe it as a new species (compare Figs 1a and b).



Figure 1. a – Original photograph of the type specimen of *Diaphlebia richteri* in which the subalar spine was not distinct (from Bota-Sierra et al., 2015); b – additional photograph of the thorax of the type specimen of *D. richteri* (junior synonym of *Zonophora nobilis*) showing the subalar spine circled in blue. Photo b by Camilo Flórez-V.

Discussion and new data on *Zonophora nobilis*

Material examined

2♀ & 1♂. All specimens are deposited at Colección Entomológica Universidad de los Andes (ANDES-E): Colombia, Guainia, Inirida: 1♂ Casco Urbano, 3.86700° N, 67.92300° W, 99 m a.s.l., 22 July 2017, A. Aristizabal leg (ANDES-E 23260). 1♀, Caño Terpel, 3.87700° N, 67.92600° W, 101 m a.s.l. 20 July 2017, A. Aristizabal leg (ANDES-E 23268). 1♀, Caño Motobomba, 3.875619° N, 67.928074° W, 91 m a.s.l., 3 January 2018, P. Sarmiento leg (ANDES-E 23245).

Zonophora nobilis was described based on a single male from the Brazilian Amazon, in Taracuá, on the Vaupes river (Belle, 1983). De Marmels (1989) reported it during the expedition to El Cerro de la Neblina in the Venezuelan Amazon and described the female of the species for the first time. Since De Marmels' report, no records of the species were known until it was found (but initially misidentified as explained above) in the Colombian Amazon. We present the first official record of the species for Colombia and an updated distribution map (Fig. 2). Also, we present the first photographs of diagnostic characteristics of the female (Fig. 3).

We compared the original description of the *Z. nobilis* females by De Marmels (1989) with the Colombian specimens. The only difference in color pattern occurs on the occipital plate which is completely black in the Venezuelan specimens but in the Colombian specimens the middle portion is yellow and the sides are black (Fig. 3b). The drawing by De Marmels (1989) of the vulvar lamina is in posteroventral view, showing its external border as slightly convex, and it is described as short and rounded, with the incision closed. Here we show the ventral view of the vulvar lamina; in this view the external border is not rounded but slightly bilobate with two small processes on the tip (Fig. 3f). Also, we found some variation in wing venation and size: The pterostigmas surmount four and a half to five and half cells; forewings antenodal veins 18–23, postnodal veins 11–16; Hindwings antenodal veins 12–16, postnodal 10–15; the second reinforced antenodal is the 6, 7 or 8 in fore wings and the 6 or 7 in hindwings; the triangles are two celled in all wings.

Measurements. Total length (excluding anal appendages) 49–53 mm; abdomen (excl. app.) 36–39 mm; anal appendages 2–2.2 mm; Forewings 34–36 mm, hindwings 33–35 mm; pterostigma 4–5 mm.

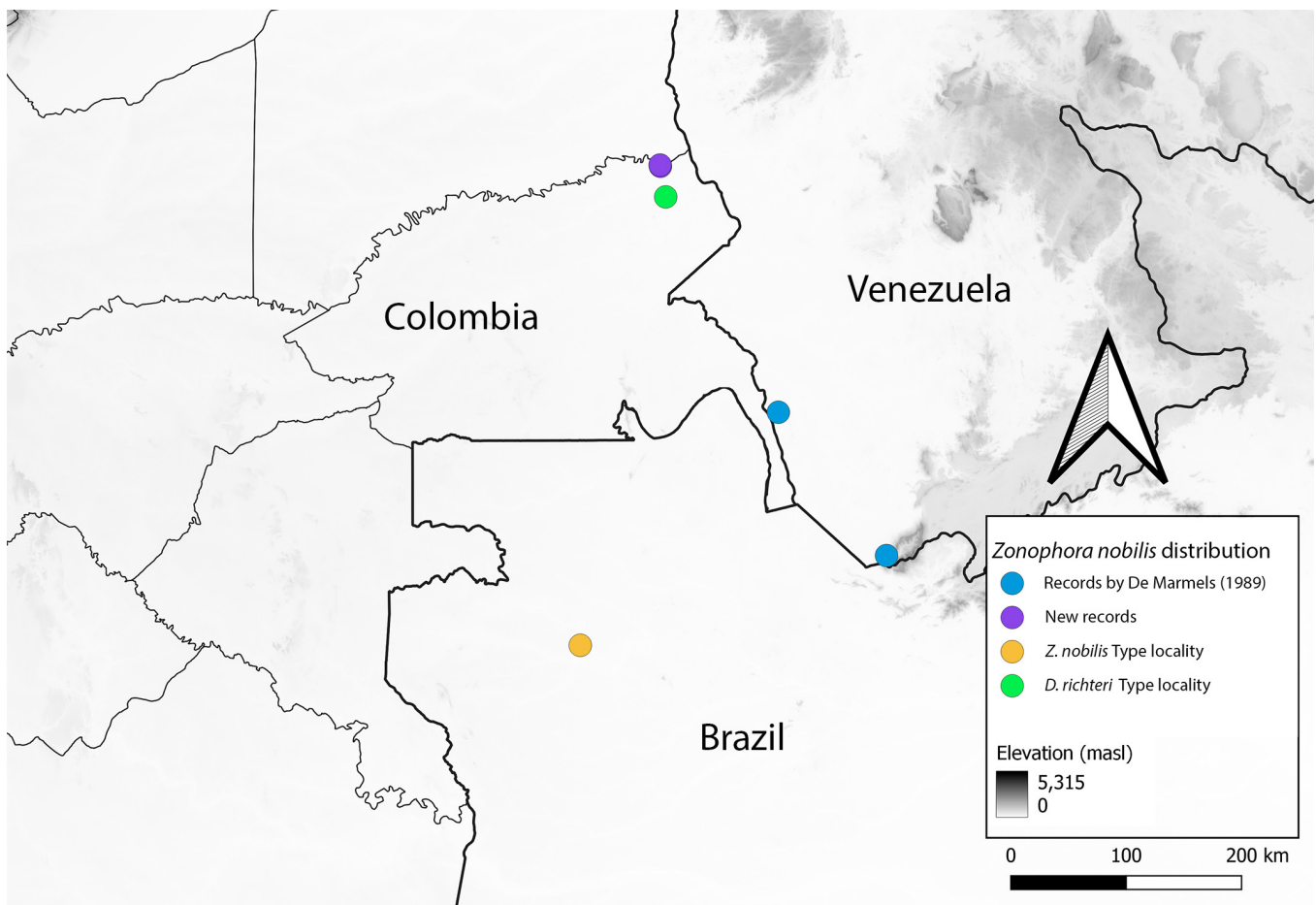


Figure 2. Map of northern South America showing known localities for *Zonophora nobilis*. Note that the green circle also represents *Z. nobilis*, of which *D. richteri* is a synonym.

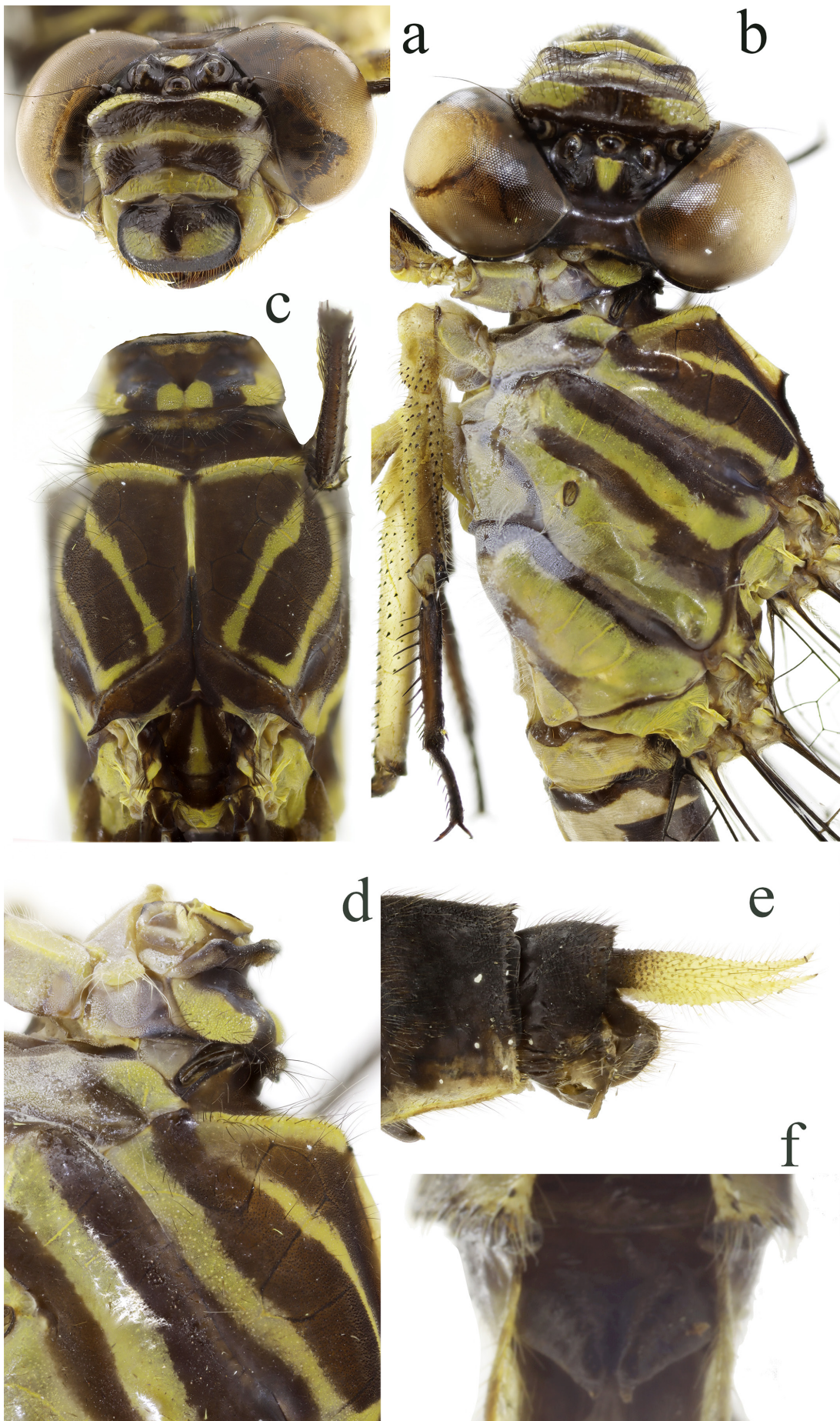


Figure 3. Photographs of female *Zonophora nobilis*: a – Head (frontal view); b – head and thorax (dorsal and lateral view respectively); c – thorax (dorsal view); d – prothorax (lateral view); e – S9–10 and caudal appendages (lateral view); f – lamina vulvar (ventral view).

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