

## Odonata from Batanta (Indonesia, West Papua) with description of one new species

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**Abstract.** Fifty-eight taxa of Odonata are herewith reported from Batanta Island (including Arefi and Birie Islands). One new species is described: *Argiolestes varga* sp. nov. The following ten species are new to the Raja Ampat Islands: *Papuagrion magnanimum* (Selys, 1876), *Gynacantha rosenbergi* Kaup, 1867, *Palaeosynthemis* cf. *cervula* (Liefstinck, 1938), *Diplacina smaragdina* Selys, 1878, *Nannophlebia amphicyllis* Liefstinck, 1933, *Pantala flavescens* (Fabricius, 1798), *Rhodothemis nigripes* Lohmann, 1984, *Rhyothemis regia* (Brauer, 1867), *Tramea transmarina propinqua* Liefstinck, 1942, *Zyxomma multinervorum* Carpenter, 1897, and fifteen are new to Batanta: *Selysioneura cornelia* Liefstinck, 1953, *P. magnanimum*, *Agyrtacantha dirupta* (Karsch, 1889), *Anax maclachlani* Förster, 1898, *G. rosenbergi*, *P. cf. cervula*, *D. smaragdina*, *N. amphicyllis*, *Nesoxenia mysis* (Selys, 1878), *P. flavescens*, *R. nigripes*, *R. regia*, *Tetrathemis irregularis* Brauer, 1868, *T. transmarina propinqua*, *Z. multinervorum*, *Metagrion postnodale* (Selys, 1878) and *Selysioneura* cf. *cervicornu* Förster, 1900 are deleted from the faunal lists of Odonata of Raja Ampat and Batanta Islands. The total number of species recorded for Batanta Island is 62.

**Keywords.** Batanta Island, Odonata, dragonflies, damselflies, new species, faunistics, distribution.

### INTRODUCTION

The present paper provides a check-list and additional information on the Odonata fauna of Batanta Island, including Arefi and Birie Islands (Indonesia, West Papua) (Kovács *et al.* 2015a, b, 2016) on the basis of collecting trips carried out between 2017–2020.

### MATERIAL AND METHODS

The material was collected during fieldworks between 17.02.2017 and 23.02.2020. For collecting methods of larvae, exuviae and adults see Kovács *et al.* (2015b). All material is preserved in 70% ethanol and deposited in the Mátra Museum of the Hungarian Natural History Museum, Gyön

gyös. Data of observed but not captured individuals of easily recognisable species are also presented. The larvae and exuviae are still unidentified, except for *Drepanosticta batanta*, *Rhinocypha tinctoria* cf. *sagitta*, *Nososticta aurantiaca*, *Agriocnemis femina*, *Ceriagrion aeruginosum*, *Pseudagrion civicum*, *Anax maclachlani*, *Camacinia gigantea*, *Tramea transmarina propinqua*.

Abbreviations: HR = Róbert Horváth, JP = Péter Juhász, KE = Előd Kondorosy, KT = Tibor Kovács, SK = Kristian Sauyai, SR = Ronnius Sauyai; PPER = Papua Paradise Eco Resort; MM = Mátra Museum of the Hungarian Natural History Museum (Gyöngyös), ODO = Odonata, Digital Picture Gallery of the MM Insect Collection.

## RESULTS

## ZYGOPTERA

## Platystictidae Kennedy, 1920

*Drepanosticta auriculata* (Selys, 1878) – Kovács *et al.* 2015b, 2016. – **Batanta Island**, right side stream of Forum River, S00°52'09.6", E130°27'42.3", 22.02.2017, 1 male, KT-JP (2017-10). – Right side stream of Kaliselatan River, S00°53'55.6", E130°35'43.0", 28.02.2017, 1 male, KT-HR-JP-SK (2017-15.b). – Right side stream of right side of Waibin River, between S00°50'04.6", E130°45'28.8" and S00°50'12.8", E130°45'41.1", 17.02.2019, 2 males, KT-HR-JP-KE (2019-18). – Right side stream of Warai Stream, between S00°51'02.4", E130°35'17.1" and S00°51'02.8", E130°35'17.6", 23.02.2019, 1 male, KT-HR-JP-KE (2019-21.a). – Valley of Forum River, S00°52'26.5", E130°27'45.4", 22.02.2017, 1 male, KT-HR-JP (2017-10.a). – Valley of Warai Stream, between S00°50'25.19", E130°34'59.19" and S00°50'59.3", E130°35'18.0", 22.02.2019, 3 males, 2 females, KT-HR-JP-KE (2019-21). – Valley of Warai Stream, S00°50'59.3", E130°35'18.0", 27.02.2018, 3 males, 1 female, KT-HR-JP (2018-16); valley of Warai Stream, between S00°50'25.19", E130°34'59.19" and S00°50'59.3", E130°35'18.0", 24.02.2017, 2 males, 1 female, KT-HR-JP (2017-12).

*Drepanosticta batanta* Kovács & Theischinger, 2015 – Kovács *et al.* 2015b, 2016. – **Batanta Island**, valley of Kalijakut River, between S00°54'20.59", E130°38'31.7" and S00°52'49.10", E130°38'4.9", 14.02.2019, 2 males, KT-HR-JP-KE (2019-14); 19.02.2020, 1 male, 3 females, KT-HR-JP-SK-SR (2020-11; Fig. 1 = ODO-1). – Valley of Tanjung Lampu River, between S00°54'18.6", E130°36'48.6", and S00°53'43.0", E130°36'38.5", 12.02.2019, 2 females, KT-HR-JP-KE (2019-12); 18.02.2020, 6 males, 2 females, KT-HR-JP-SK-SR (2020-10); valley of Tanjung Lampu River, between S00°54'24.03", E130°36'47.64" and S00°53'43.0", E130°36'38.5", 21.02.2018, 1 male, KT-

HR-JP-SK-SR (2018-12). – Valley of Warai Stream, S00°50'59.3", E130°35'18.0", 27.02.2018, 2 males, 1 female, KT-HR-JP (2018-16); valley of Warai Stream, between S00°50'25.19", E130°34'59.19" and S00°50'59.3", E130°35'18.0", 24.02.2017, 2 males, KT-HR-JP (2017-12); 22.02.2019, 1 exuvium and 1 emerged female, 2 males, 1 female, KT-HR-JP-KE (2019-21); 22.02.2020, 1 male, KT-HR-JP (2020-12). – Valley of Warmon Stream, between the lower and upper waterfall, S00°50'04.50", E130°42'54.01" and S00°50'23.25", E130°42'35.18", 20.02.2017, 1 male, KT-HR-JP (2017-6); 09.02.2019, 4 males, KT-HR-JP-KE (2019-9); 15.02.2020, 3 males, 1 female, KT-HR-JP (2020-8).

## Calopterygidae Selys, 1850

*Neurobasis australis* Selys, 1897 – Kovács *et al.* 2015b.

## Chlorocyphidae Cowley, 1937

*Rhinocypha tinctoria* cf. *sagitta* Lieftinck, 1938 – Kovács *et al.* 2015b, 2016. – **Batanta Island**, left side stream of Wailebet Stream, S00°53'27.7", E130°39'11.3", 01.03.2017, 1 male, KT-HR-JP-SK-SR (2017-17.b). – Right side stream of Forum River, between S00°52'22.7", E130°27'45.1" and S00°52'09.6", E130°27'42.3", 22.02.2017, 1 male, KT-HR-JP (2017-10.c). – Valley of „Wilson” Stream, S00°49'22.7", E130°48'22.0", 19.02.2017, 2 males, KT-HR-JP (2017-5). – Valley of Kalijakut River, between S00°54'20.59", E130°38'31.7" and S00°52'49.10", E130°38'4.9", 19.02.2020, 1 exuvium, 2 females, KT-HR-JP-SK-SR (2020-11). – Valley of Kaliselatan River, S00°53'42.0", E130°35'49.1", 27.02.2017, 1 female, KT-HR-JP-SK (2017-15.a). – Valley of Ron River, S00°49'36.5", E130°49'26.3", 19.02.2017, 1 male, 1 female, KT-HR-JP (2017-4). – Valley of Tanjung Lampu River, between S00°54'24.03", E130°36'47.64" and S00°53'43.0", E130°36'38.5", 21.02.2018, 1 male, KT-HR-JP-SK-SR (2018-12); valley of Tanjung Lampu River, between S00°54'18.6", E130°36'48.6", and S00°53'43.0",



**Figure 1.** *Drepanosticta batanta* in the valley of Kalijakut River (photo by T. Kovács).

E130°36'38.5", 12.02.2019, 1 male, 1 female, KT-HR-JP-KE (2019-12); 18.02.2020, 1 larva, 1 male, KT-HR-JP-SK-SR (2020-10). – Valley of Waibin River, between S00°49'20.8", E130°45'56.9" and S00°49'50.9", E130°45'47.7", 18.02.2018, 1 male, 1 female, KT-HR-JP (2018-7); 03.03.2017, 1 male, KT-HR-JP (2017-20); valley of Waibin River, between S00°49'20.8", E130°45'56.9" and S00°50'01.9", E130°45'24.8", 10.02.2020, 1 male, KT-HR-JP (2020-3). – Valley of Wailebet Stream, between S00°53'37.74", E130°39'16.32" and S00°53'21.9", E130°39'06.5", 19.02.2018, 1 male, KT-HR-JP-SK-SR (2018-8); 11.02.2019, 1 male, KT-HR-JP-KE (2019-11); valley of Wailebet Stream, between S00°53'37.74", E130°39'16.32" and S00°53'07.1", E130°38'59.5", 17.02.2020, 1 male, KT-HR-JP-SK-SR (2020-9.b). – Valley of Warai Stream, S00°50'59.3", E130°35'18.0", 27.02.2018, 2 males, KT-HR-JP (2018-16); valley of Warai Stream, between S00°50'25.19", E130°34'59.19" and S00°50'59.3", E130°35'18.0", 24.02.2017, 1 male, KT-HR-JP (2017-12); 22.02.2019, 1 female, KT-HR-JP-KE (2019-21). – Valley of Waridor River, between S00°50'30.34", E130°31'28.71" and S00°51'22.60", E130°31'14.52", 14.

02.2020, 1 male, KT-HR-JP (2020-7); 23.02.2020, 1 male, KT-HR-JP (2020-13). – Valley of Warmon Stream, between the lower and upper waterfall, S00°50'04.50", E130°42'54.01" and S00°50'23.25", E130°42'35.18", 20.02.2017, 1 male, KT-HR-JP (2017-6); 24.02.2018, 1 male, 1 female, KT-HR-JP (2018-14); 09.02.2019, 1 male, KT-HR-JP-KE (2019-9); 12.02.2020, 2 males, 1 female, KT-HR-JP (2020-5).

### **Argiolestidae Fraser, 1957**

#### ***Argiolestes* Selys, 1862**

Kalkman & Theischinger (2013) recognised 11 species of the genus *Argiolestes*. Two species were added by Kalniņš (2014, 2017). Interestingly, the first described dragonfly species from New Guinea was *Argiolestes australis* (Guérin-Meneville, 1832) (as *Agrion*) from Waigeo Island (Hämäläinen & Orr 2016). This species can be found at several locations on Batanta (Kovács *et al.* 2016), and in three of its habitats, sympatrically with the *Argiolestes* species described as new as follows.

*Argiolestes australis* (Guérin-Meneville, 1832) – Kovács et al. 2016. – **Batanta Island**, right side stream of Forum River, between S00°52'22.7", E130°27'45.1" and S00°52'09.6", E130°27'42.3", 22.02.2017, 1 male, KT-HR-JP (2017-10.c). – Right side stream of right side of Waibin River, between S00°50'04.6", E130°45'28.8" and S00°50'12.8", E130°45'41.1", 17.02.2019, 1 male, KT-HR-JP-KE (2019-18). – Right side stream of Waibin River, S00°49'47.31", E130°45'47.62", 02.03.2018, 1 female, KT-HR (2018-19). – Right side stream of Warai Stream, between S00°51'02.4", E130°35'17.1" and S00°51'02.8", E130°35'17.6", 23.02.2019, 1 male, KT-HR-JP-KE (2019-21.a). – Valley of Kalijakut River, between S00°54'20.59", E130°38'31.7" and S00°52'49.10", E130°38'4.9", 19.02.2020, 1 female, KT-HR-JP-SK-SR (2020-11). – Valley of Tanjung Lampu River, between S00°54'18.6", E130°36'48.6", and S00°53'43.0", E130°36'38.5", 12.02.2019, 2 males, KT-HR-JP-KE (2019-12). – Valley of Tanjung Lampu River, between S00°54'24.03", E130°36'47.64" and S00°53'43.0", E130°36'38.5", 21.02.2018, 1 male, KT-HR-JP-SK-SR (2018-12). – Valley of Warai Stream, S00°50'59.3", E130°35'18.0", 27.02.2018, 5 males, 1 female, KT-HR-JP (2018-16). – Valley of Warai Stream, between S00°50'25.19", E130°34'59.19" and S00°50'59.3", E130°35'18.0", 22.02.2019, 7 males, 1 female, KT-HR-JP-KE (2019-21). – Valley of Warai Stream, between S00°50'51.0", E130°35'14.0" and S00°51'11.6", E130°35'20.0", 09.02.2016, 1 female, KT-HR-JP (2016-2.a).

*Argiolestes varga* Kovács & Theischinger sp. nov.

(Figures 2–5)

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*Type material* – *Holotype*: **Indonesia**, West Papua, Batanta Island, right side stream of Kalijakut River, S00°52'49.10", E130°38'4.9", 237 m a.s.l., 19.02.2020, 1 male, KT-HR-JP-SK-SR (MM-ODOTYP-11, 2020-11). *Paratypes*: same data as holotype, 1 male (MM-ODOTYP-12, 2020-11); **Indonesia**, West Papua, Batanta Island, right side stream of Tanjung Lampu River,

S00°53'43.0", E130°36'38.5", 180 m a.s.l., 21.02.2018, 1 male, KT-HR-JP-SK-SR (MM-ODOTYP-13, 2018-12); Batanta Island, right side stream of Warai Stream, S00°51'02.8", E130°35'17.6", 250 m a.s.l., 23.02.2019, 1 male, KT-HR-JP-KE (MM-ODOTYP-14, 2019-21.a); 22.02.2020, 1 female + 40 mature eggs, KT-HR-JP (MM-ODOTYP-15, 2020-12.b).

*Diagnosis*. The identification key to the males of *Argiolestes* by Kalkman et al. (2010) can also be used rather successfully for identification of the here described species however, the presence of the exterior submedian spine on the outer side of the superior appendages in *A. macrostylis* Ris, 1913 (Ris 1913, Lieftinck 1935, 1956) was not mentioned in this key.

*Argiolestes varga* sp. nov. can be distinguished from *A. australis* (Guérin-Meneville, 1832), *A. celebensis* Kalkman, 2007, *A. pallidistylus* Selys, 1878, *A. spungisi* Kalniņš, 2017 and *A. tuberculiferus* Michalski & Opiel, 2010 by the greater length of the inferior anal appendages (longer than half the length of the superior anal appendages as opposed to shorter than half the length).

The new species differs from *A. alfurus* Lieftinck, 1956, *A. amphistylus* Lieftinck, 1949, *A. foja* Kalkman, Richards & Polhemus, 2010, *A. obiensis* Lieftinck, 1956, *A. roon* Kalkman, Richards & Polhemus, 2010 and *A. zane* Kalniņš, 2014 by the presence, as opposed to absence, of a pair of large, well-defined, marks on the front of synthorax.

When compared to the species with long inferior appendages and pale marks, such as *A. muller* Kalkman, Richards & Polhemus, 2010 and *A. macrostylis* Ris, 1913, *A. varga* sp. nov. differs from *A. muller* by the lack, as opposed to the presence, of an interiorly directed, prominent, blunt protrusion of the basal flange of the superior appendages (Fig. 4a, b), and from *A. macrostylis* (with a single exterior submedian spine on the outer side of the superior appendages) by having more (4–12) spines on the outer side of the superior appendages (Fig. 4a, b, d).

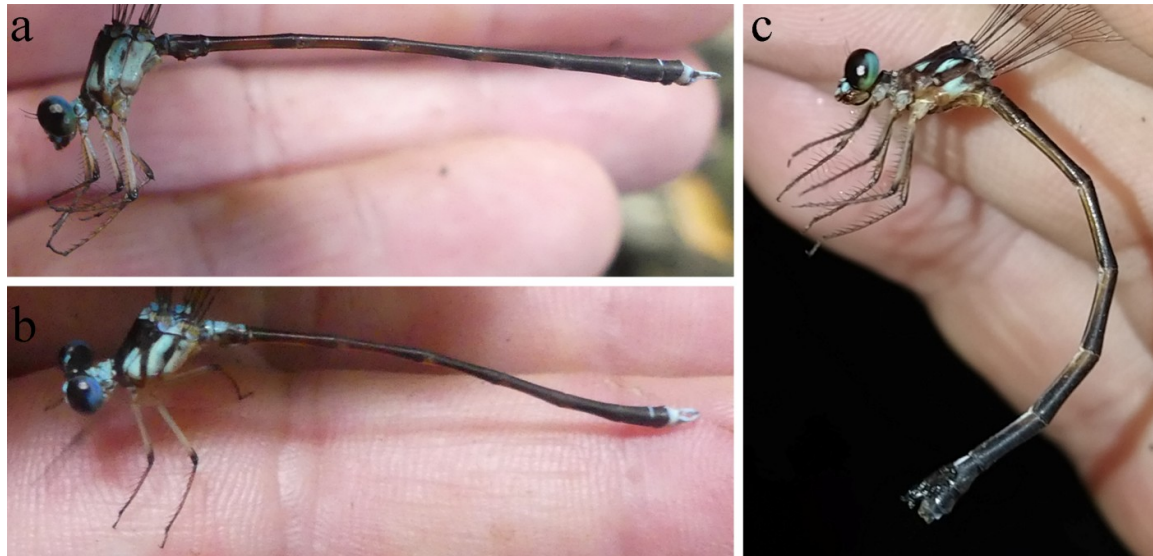
In female of *A. varga* sp. nov., in contrast to the females of the *Argiolestes* species known to Kalkman et al. (2010), abdominal segment 10 is black with a tiny, indistinct, paler dorsal patch in the middle, and the cerci are completely black.

**Description. Male** (Figs. 2a, b, 3a, c, d, 4a–d). **Head** (Fig. 3a). Largely black; antennae black; from lateral ocelli to genae, next to the eyes with a light blue stripe; genae, mandible, labrum and

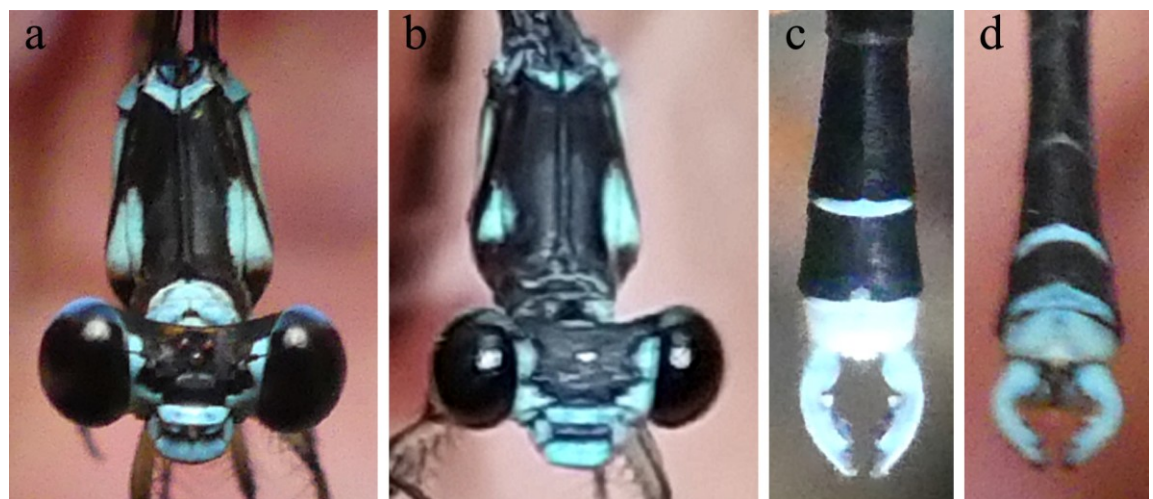
clypeus light blue; labium yellowish; rear half of the eye light blue.

**Prothorax.** Pronotum largely light blue (Fig. 3a). Coxa and trochanter ivory white with dark brown pattern; femur ivory white, the distal portion dark brown; tibia and tarsus dark brown; several long hairs on the lower two edges of femur and tibia, short hairs on the two edges of tarsus.

**Synthorax.** Pleura black with two (Fig. 2a) or three (Fig. 2b) light blue patches: one well-defined,



**Figure 2.** *Argiolestes varga* sp. nov.: a = male lateral view (side stream of Tanjung Lampu), b = male dorsolateral view (side stream of Warai Stream), c = female lateral view (mirrored horizontally) (side stream of Warai) (photos by T. Kovács).



**Figure 3.** *Argiolestes varga* sp. nov. front of head and synthorax: a = male (side stream of Tanjung Lampu), b = female (side stream of Warai); end of abdomen of male: c = dorsal view (side stream of Warai), d = caudo-dorsal view (side stream of Tanjung Lampu) (photos by T. Kovács).

triangular in the outer third of anterior surface of mesepisternum and the inner third of anterior surface of mesepimeron; the other from the posterior edge of mesepimeron entirely through both metepisternum and metepimeron, or this large blue spot on the border of metepisternum and metepimeron divided by a black band into two. Poststernum largely bluish-ivory white. Coxae, trochanters and remainders of legs much as in prothorax. Wing venation black, membrane hyaline with slight smoky brown lustre; 21–24 postnodals in Fw, 19–23 in Hw; pterostigma dark brown, up to 1.6 mm long.

**Abdomen.** Dark brown to black, dorsally with light blue pattern on segments 1–2, 8–9 and segment 10. On segments 1–9 with tiny, backwards facing, dark spines and lighter hairs, on segment 10 with long, yellow hairs. The two apical lobes of the genital ligula at least four times as long as wide. Superior appendages light blue (Figs 2ab, 3cd); inferiors ivory white, longer than half the length of superiors (Fig. 4b, c). Basal flange of superior appendages with row of 7–11 blunt denticles; lower apical flange dark with a large, white patch in the middle, arising from half

length of the appendage, with a basal and a middle convex curve and ending in an apical point connected to the bulb-like apex of the appendage with a deep incision (Fig 4a, b). Upper apical flange in the apical third of superior appendages, short and strongly curved with row of 11–13, blunt denticles. Superior appendages with 4–14 spines on the distal, external edge, terminating in a bulb-like part indented in the middle inner curve (Fig. 4d). Inferior appendages rather slim, widening at about  $\frac{3}{4}$  length into subtriangular apex (Fig. 4b).

**Measurements.** Forewing 25.0–26.9 mm, hindwing 24.6–26.6 mm; abdomen (including appendages) 30.3–33.5 mm.

**Female** (Figs. 2c, 3b, 5a). **Head.** Much as in male (Fig. 3b).

**Prothorax.** Much as in male, but pronotum largely black with light blue pattern (Fig. 3b).

**Synthorax.** Pleura black with three light blue patches (Fig. 2c): one well-defined, triangular in the outer third of anterior surface of mesepisternum and the inner third of anterior surface of mesepimeron (similar to male); the other on the



**Figure 4.** End of abdomen of *Argiolestes varga* sp. nov. holotype: a = dorsal view, b = ventral view, c = lateral view (photos by B. Magyar, T. Kovács), d = dorso-lateral view (photos and draw by T. Kovács). (The colour has changed in alcohol.)

outer edge of mesepimeron and the third on the middle third of the metepimeron. Poststernum largely ivory white. Legs much as in male. Wing venation black, membrane hyaline with slightly smoky brown lustre; 22–23 postnodals in Fw, 20–22 in Hw; pterostigma dark brown, up to 1.6 mm long.

**Abdomen.** Dark brown to black, the front and bottom of the segments lighter (Fig. 2c), at segment 8 light blue; segment 10 black, dorsally with tiny, indistinct, pale patch in the middle. Cerci black; valves largely black, approximately two-thirds as long as segments 8+9, and with more than 35 teeth along the ventral edge (Fig. 5a).

**Measurements.** Forewing 25.9 mm, hindwing 25.8 mm; abdomen 29.7 mm.

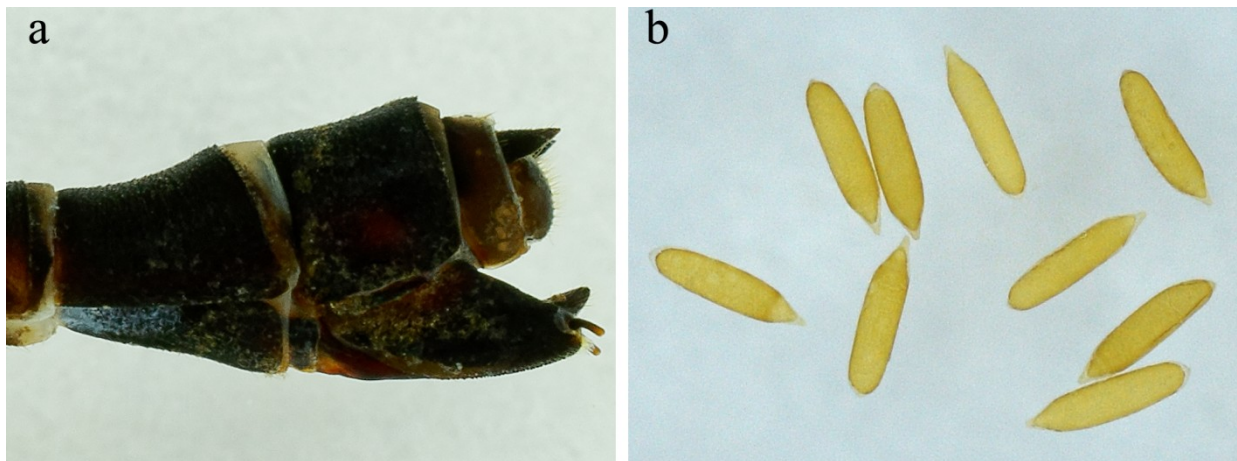
**Egg** (Fig. 5b). Cylindrical, with one end rounded and the other acuminate, slightly widening towards the acuminate end; length 0.88–0.92 mm, width 0.18–0.22 mm.

**Larva.** Unknown.

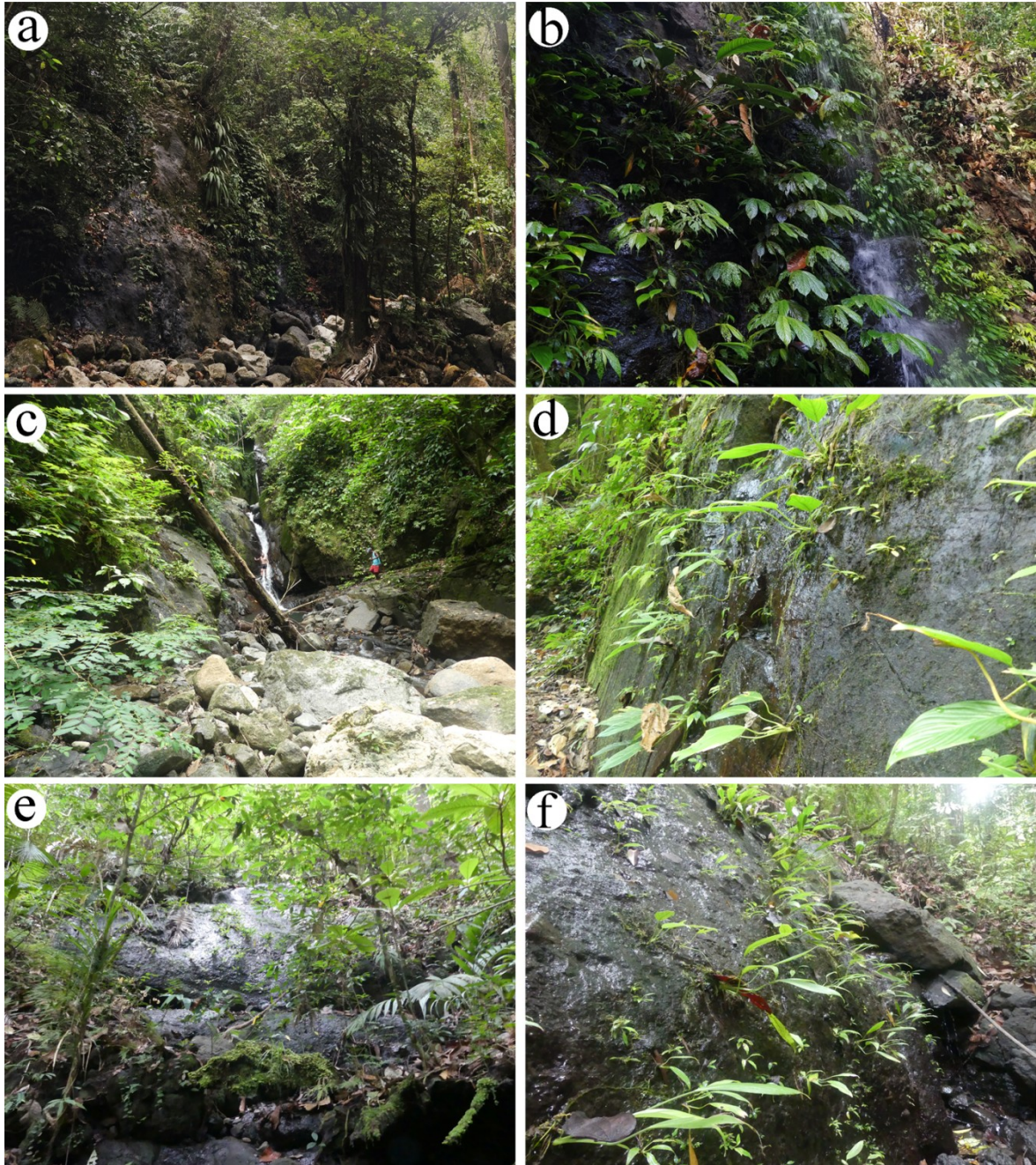
**Habitat.** *Argiolestes varga* sp. nov. was collected in tropical rainforest, between 180 and 250

m above sea level, in small tributaries of the upper course of larger watercourses (Fig. 6a, c, e). The microhabitats were located in the precipitous part of the few meters wide streams with rocky bed, where the water flowed down almost vertically and some plants were found (Fig. 6b, d, f). The adults were observed only in these shady places perching on plants, only few individuals at one and the same time. In all three locations, the species was found together with *Argiolestes australis* and *Metagrion* sp. At the side streams of Kalijakut and Tanjung Lampu Rivers several microhabitats are adjacent to each other, while at the side stream of Warai Stream, there is only one microhabitat, where two additional shade-loving species were found: *Drepanosticta auriculata* and *Idiocnemis strumidens*.

**Etymology.** The species is dedicated to two friends of the first author: András Varga (malacologist) his colleague, and Zoltán Varga (lepidopterologist) his teacher. They have been very supportive for more than three decades. Their surname is used as a noun in apposition to the generic name.



**Figure 5.** *Argiolestes varga* sp. nov. female: a = end of abdomen lateral view (photo by B. Magyar, T. Kovács), b = eggs (photo by T. Kovács).



**Figure 6.** Habitat (a, c, e) and microhabitat (b, d, f) of *Argiolestes varga* sp. nov. a-b = right side stream of Kalijakut River - locus typicus, c-d = right side stream of Tanjung Lampu River, e-f = right side stream of Warai Stream (photos by T. Kovács).

*Metagrion* sp. – Kovács et al. 2015b, 2016 as *Metagrion postnodale* (Selys, 1878). – **Batanta Island**, right side stream of right side of Waibin River, between S00°50'04.6", E130°45'28.8" and S00°50'12.8", E130°45'41.1", 17.02.2019, 1 male, KT-HR-JP-KE (2019-18). – Right side stream of

Waibin River, S00°49'47.31", E130° 45'47.62", 02.03.2018, 2 males, KT-HR (2018-19). – Right side stream of Warai Stream, between S00°51'02.4", E130°35'17.1" and S00°51'02.8", E130°35'17.6", 23.02.2019, 1 male, KT-HR-JP-KE (2019-21.a). – Valley of Forum River,



S00°52'26.5", E130°27'45.4", 22.02.2017, 1 male, KT-HR-JP (2017-10.a). – Valley of Kalijakut River, between S00°54'20.59", E130°38'31.7" and S00°52'49.10", E130°38'4.9", 14.02.2019, 1 male, 1 female, KT-HR-JP-KE (2019-14); 19.02.2020, 1 male, KT-HR-JP-SK-SR (2020-11). – Valley of Kaliselatan River, S00°53'42.0", E130°35'49.1", 27.02.2017, 1 male, KT-HR-JP-SK (2017-15.a). – Valley of Tanjung Lampu River, between S00°54'18.6", E130°36'48.6", and S00°53'43.0", E130°36'38.5", 12.02.2019, 2 males, KT-HR-JP-KE (2019-12); 18.02.2020, 3 males, 2 females, KT-HR-JP-SK-SR (2020-10); S00°54'24.03", E130°36'47.64" and S00°53'43.0", E130°36'38.5", 21.02.2018, 1 male, KT-HR-JP-SK-SR (2018-12). – Valley of Waibin River, between S00°49'20.8", E130°45'56.9" and S00°49'50.9", E130°45'47.7", 18.02.2018, 2 males, KT-HR-JP (2018-7). – Valley of Wailebet Stream, S00°53'08.4", E130°39'00.1", 01.03.2017, 1 male, KT-HR-JP-SK-SR (2017-17.a). – Valley of Wailebet Stream, between S00°53'37.74", E130°39'16.32" and S00°53'21.9", E130°39'06.5", 19.02.2018, 2 males, 1 female, KT-HR-JP-SK-SR (2018-8); 11.02.2019, 1 male, KT-HR-JP-KE (2019-11); S00°53'37.74", E130°39'16.32" and S00°53'07.1", E130°38'59.5", 17.02.2020, 1 male, KT-HR-JP-SK-SR (2020-9.b). – Valley of Warai Stream, S00°50'59.3", E130°35'18.0", 27.02.2018, 1 male, KT-HR-JP (2018-16). – Valley of Warai Stream, between S00°50'25.19", E130°34'59.19" and S00°50'59.3", E130°35'18.0", 24.02.2017, 2 males, KT-HR-JP (2017-12); 22.02.2019, 5 males, 2 females, KT-HR-JP-KE (2019-21); 22.02.2020, 3 males, KT-HR-JP(2020-12). – Valley of Warmon Stream, between the lower and upper waterfall, S00°50'04.50", E130°42'54.01" and S00°50'23.25", E130°42'35.18", 20.02.2017, 1 male, 1 female, KT-HR-JP (2017-6); 24.02.2018, 1 male, KT-HR-JP (2018-14); 09.02.2019, 2 males, 2 females, KT-HR-JP-KE (2019-9); 12.02.2020, 1 male, KT-HR-JP (2020-5); 15.02.2020, 1 male, KT-HR-JP (2020-8). – Wailebet, Stream, S00°52'47.10", E130°40'08.57", 20.02.2018, 1 male, KT-HR-JP-SK-SR (2018-10).

*Remark.* More study is needed for the delimitation of this taxon.

### Isostictidae Fraser, 1955

*Selysioneura cornelia* Lieftinck, 1953 – Kovács et al. 2015b as *Selysioneura* cf. *cervicornu* Förster, 1900. – **Batanta Island**, right side stream of Forum River, S00°52'22.7", E130°27'45.1", 19.02.2016, 1 male, KT-HR-JP (2016-10.b); right side stream of Forum River, between S00°52'22.7", E130°27'45.1" and S00°52'09.6", E130°27'42.3", 22.02.2017, 1 male, KT-JP (2017-10.c). – Right side stream of right side of Waibin River, between S00°50'04.6", E130°45'28.8" and S00°50'12.8", E130°45'41.1", 17.02.2019, 1 female, KT-HR-JP-KE (2019-18). – Valley of „Wilson” Stream, S00°49'22.7", E130°48'22.0", 19.02.2017, 1 female, KT-HR-JP (2017-5). – Valley of Kalijakut River, between S00°54'20.59", E130°38'31.7" and S00°52'49.10", E130°38'4.9", 14.02.2019, 1 male and 1 female in copula, KT-HR-JP-KE (2019-14). – Valley of Tanjung Lampu River, between S00°54'18.6", E130°36'48.6", and S00°53'43.0", E130°36'38.5", 12.02.2019, 1 male, KT-HR-JP-KE (2019-12). – Valley of Warai Stream, S00°50'59.3", E130°35'18.0", 27.02.2018, 2 males, 1 female, KT-HR-JP (2018-16); valley of Warai Stream, between S00°50'51.0", E130°35'14.0" and S00°51'11.6", E130°35'20.0", 09.02.2016, 1 male, KT-JP-HR (2016-2.a). – Valley of Warmon Stream, between the lower and upper waterfall, S00°50'04.50", E130°42'54.01" and S00°50'23.25", E130°42'35.18", 20.02.2017, 1 female, KT-HR-JP (2017-6). – Valley of Warmon Stream, between the lower and upper waterfall, S00°50'04.50", E130°42'54.01" and S00°50'23.25", E130°42'35.18", 09.02.2019, 2 males, 1 female, KT-HR-JP-KE (2019-9). – Valley of Warmon Stream, between the lower and upper waterfall, S00°50'04.50", E130°42'54.01" and S00°50'23.25", E130°42'35.18", 15.02.2020, 3 males, KT-HR-JP (2020-8). – Welebed, stream, S00°52'47.10", E130°40'08.57", 20.02.2018, 2 females, KT-HR-JP-SK-SR (2018-10).

**Platycnemididae Yacobson & Bianchi,  
1905**

**Disparoneurinae Fraser, 1957**

*Nososticta aurantiaca* (Lieftinck, 1938) – Kovács et al. 2015b, 2016, Theischinger & Richards 2015. – **Batanta Island**, 600 m E of Waibin River Valley, stream, S00°49'46.0", E130°46'09.4", 16.02.2018, 1 male, KT-HR-JP (2018-4). – Between Valleys of Tanjung Lampu River and Kalijakut River, S00°54'38.06", E130°36'50.17" and S00°54'20.59", E130°38'31.70", 13.02.2019, 1 female, KE (2019-13). – Right side stream of right side of Waibin River, between S00°50'04.6", E130°45'28.8" and S00°50'12.8", E130°45'41.1", 17.02.2019, 2 males, 1 female, KT-HR-JP-KE (2019-18). – Valley of „Marko” Stream, S00°47'47.4", E130°49'07.3", 19.02.2017, 2 males, KT-HR-JP (2017-3). – Valley of „Wilson” Stream, S00°49'22.7", E130°48'22.0", 19.02.2017, 2 males, 1 female, KT-HR-JP (2017-5). – Valley of Forum River, S00°52'26.5", E130°27'45.4", 22.02.2017, 1 male, KT-HR-JP (2017-10.a). – Valley of Kalijakut River, between S00°54'20.59", E130°38'31.7" and S00°52'49.10", E130°38'4.9", 14.02.2019, 1 male, KT-HR-JP-KE (2019-14); 19.02.2020, 1 male, KT-HR-JP-SK-SR (2020-11). – Valley of Kalisamsem River, S00°53'46.07", E130°33'17.18", 28.02.2017, 2 males, KT-HR-JP-SK-SR (2017-16). – Valley of Kaliselatan River, S00°53'42.0", E130°35'49.1", 27.02.2017, 1 male, 1 female, KT-HR-JP-SK (2017-15.a). – Valley of Tanjung Lampu River, S00°54'24.03", E130°36'47.64", 27.02.2017, 1 male, KT-HR-JP-SK (2017-14); valley of Tanjung Lampu River, between S00°54'24.03", E130°36'47.64" and S00°53'43.0", E130°36'38.5", 21.02.2018, 1 male, KT-HR-JP-SK-SR (2018-12); valley of Tanjung Lampu River, between S00°54'18.6", E130°36'48.6", and S00°53'43.0", E130°36'38.5", 12.02.2019, 2 males, 1 female, KT-HR-JP-KE (2019-12). – Valley of Waibin River, S00°49'59.2", E130°45'27.1", 17.02.2019, 1 exuvium and 1 emerged female, KT-HR-JP-KE (2019-18.c); valley of Waibin River, between S00°49'20.8", E130°45'56.9" and S00°49'50.9",

E130°45'47.7", 03.03.2017, 1 male, KT-HR-JP (2017-20); 18.02.2018, 2 males, 1 female, KT-HR-JP (2018-7); valley of Waibin River, between S00°49'20.8", E130°45'56.9" and S00°50'01.9", E130°45'24.8", 10.02.2020, 1 male, 1 female, KT-HR-JP (2020-3). – Valley of Wailebet Stream, S00°53'08.4", E130°39'00.1", 01.03.2017, 1 male, KT-HR-JP-SK-SR (2017-17.a); valley of Wailebet Stream, between S00°53'37.74", E130°39'16.32" and S00°53'21.9", E130°39'06.5", 19.02.2018, 1 male, 1 female, KT-HR-JP-SK-SR (2018-8); 11.02.2019, 1 female, KT-HR-JP-KE (2019-11); valley of Wailebet Stream, between S00°53'37.74", E130°39'16.32" and S00°53'07.1", E130°38'59.5", 17.02.2020, 3 males, 1 female, KT-HR-JP-SK-SR (2020-9.b). – Valley of Warai Stream, S00°50'59.3", E130°35'18.0", 27.02.2018, 1 male, KT-HR-JP (2018-16); valley of Warai Stream, between S00°50'25.19", E130°34'59.19" and S00°50'59.3", E130°35'18.0", 24.02.2017, 4 males, 1 female, KT-HR-JP (2017-12); 22.02.2019, 1 male, 1 female, KT-HR-JP-KE (2019-21); 22.02.2020, 1 male, 1 female, KT-HR-JP (2020-12). – Valley of Waridor River, between S00°50'30.34", E130°31'28.71" and S00°51'22.60", E130°31'14.52", 14.02.2020, 1 male, KT-HR-JP (2020-7). – Valley of Warmon Stream, between the lower and upper waterfall, S00°50'04.50", E130°42'54.01" and S00°50'23.25", E130°42'35.18", 20.02.2017, 3 males, 1 female, KT-HR-JP (2017-6); 24.02.2018, 1 male, KT-HR-JP (2018-14); 09.02.2019, 1 male, KT-HR-JP-KE (2019-9); 12.02.2020, 1 male, KT-HR-JP (2020-5).

*Nososticta dora* Kovács & Theischinger, 2016 – Kovács et al. 2016. – **Batanta Island**, right side stream of right side of Waibin River, between S00°50'04.6", E130°45'28.8" and S00°50'12.8", E130°45'41.1", 17.02.2019, 2 males, 1 female, KT-HR-JP-KE (2019-18); 10.02.2020, 1 male, 1 female, KT-HR-JP (2020-3.b). – Valley of Warmon Stream, between the lower and upper waterfall, S00°50'04.50", E130°42'54.01" and S00°50'23.25", E130°42'35.18", 20.02.2017, 1 male, KT-HR-JP (2017-6); 24.02.2018, 2 males, 2 females, KT-HR-JP (2018-14); 30.06.2018, 1 female, Réka Vadnay-Horváth-HR (A2018-1);

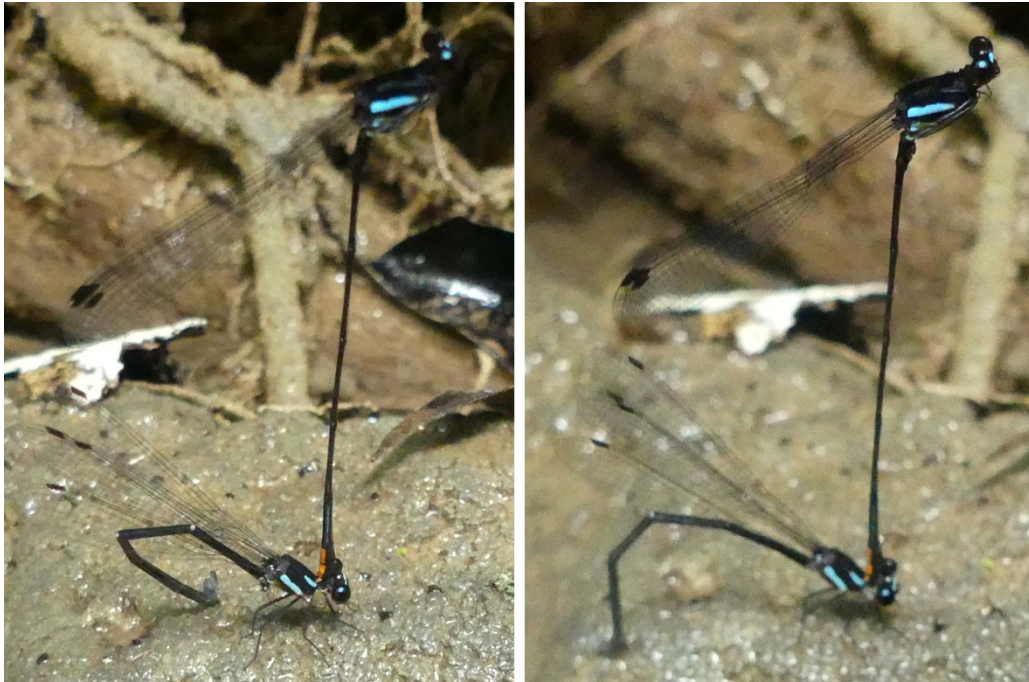


Figure 7. *Nososticta dora* in the valley of Warmon Stream from different perspective (photos by T. Kovács).

09.02.2019, 3 males, 1 female, KT-HR-JP-KE (2019-9); 12.02.2020, 3 males, 1 female, KT-HR-JP (2020-5; Fig. 7 = ODO-2, ODO-3).

**Idiocnemidinae Dijkstra, Kalkman, Dow, Stokvis & van Tol, 2014**

*Idiocnemis bidentata* Selys, 1878 – Gassmann 2000, Kovács et al. 2015b, 2016. – **Batanta Island**, 600 m E of Waibin River Valley, Stream, S00°49'46.0", E130°46'09.4", 16.02.2018, 1 male, KT-HR-JP (2018-4). – Left side stream of Wailebet Stream, S00°53'27.7", E130°39'11.3", 01.03.2017, 4 males, 4 females, KT-HR-JP-SK-SR (2017-17.b). – Right side stream of Kaliselatan River, S00°53'55.6", E130°35'43.0", 28.02.2017, 3 males, KT-HR-JP-SK (2017-15.b). – Right side stream of right side of Waibin River, between S00°50'04.6", E130°45'28.8" and S00°50'12.8", E130°45'41.1", 17.02.2019, 1 male, 1 female, KT-HR-JP-KE (2019-18). – Valley of „Marko” Stream, S00°47'47.4", E130°49'07.3", 19.02.2017, 2 males, KT-HR-JP (2017-3). – Valley of „Wilson” Stream, S00°49'22.7", 39'16.32" and S00°53'21.9", E130°39'06.5", 19.02.2018, 3 males, 2 females, KT-HR-JP-SK-

E130°48'22.0", 19.02.2017, 1 female, KT-HR-JP (2017-5). – Valley of Kalijakut River, between S00°54'20.59", E130°38'31.7" and S00°52'49.10", E130°38'4.9", 14.02.2019, 1 female, KT-HR-JP-KE (2019-14); 19.02.2020, 1 female, KT-HR-JP-SK-SR (2020-11). – Valley of Kalisamssem River, S00°53'46.07", E130°33'17.18", 28.02.2017, 1 male, KT-HR-JP-SK-SR (2017-16). – Valley of Kaliselatan River, S00°53'42.0", E130°35'49.1", 27.02.2017, 2 males, KT-HR-JP-SK (2017-15.a). – Valley of Ron River, S00°49'36.5", E130°49'26.3", 19.02.2017, 3 males, KT-HR-JP (2017-4). – Valley of Tanjung Lampu River, between S00°54'24.03", E130°36'47.64" and S00°53'43.0", E130°36'38.5", 21.02.2018, 1 male, 1 female, KT-HR-JP-SK-SR (2018-12); valley of Tanjung Lampu River, between S00°54'18.6", E130°36'48.6" and S00°53'43.0", E130°36'38.5", 18.02.2020, 1 male, KT-HR-JP-SK-SR (2020-10). – Valley of Waibin River, between S00°49'20.8", E130°45'56.9" and S00°49'50.9", E130°45'47.7", 18.02.2018, 2 males, 2 females, KT-HR-JP (2018-7). – Valley of Wailebet Stream, between S00°53'37.74", E130°SR (2018-8); 11.02.2019, 1 male, 1 female, KT-HR-JP-KE (2019-11); valley of Wailebet Stream,

between S00°53'37.74", E130° 39'16.32" and S00°53'07.1", E130°38'59.5", 17.02.2020, 2 males, 1 female, KT-HR-JP-SK-SR (2020-9.b). – Valley of Warai Stream, S00° 50'59.3", E130° 35'18.0", 27.02.2018, 2 males, KT-HR-JP (2018-16); valley of Warai Stream, between S00° 50'25.19", E130°34'59.19" and S00°50'59.3", E130°35'18.0", 24.02.2017, 3 males, KT-HR-JP (2017-12); 22.02.2019, 4 males, 1 female, KT-HR-JP-KE (2019-21); 22. 02.2020, 5 males, 1 female, KT-HR-JP (2020-12). – Valley of Warmon Stream, between the lower and upper waterfall, S00°50'04.50", E130°42'54.01" and S00°50'23.25", E130°42'35.18", 20.02.2017, 2 males, KT-HR-JP (2017-6); 24.02. 2018, 1 male, KT-HR-JP (2018-14); 04.03.2018, 2 males, 4 females, KT-HR (2018-21); 12.02.2020, 2 males, KT-HR-JP (2020-5). – Wailebet, stream, S00°52'47.10", E130°40'08.57", 20.02.2018, 1 female, KT-HR-JP-SK-SR (2018-10).

*Idiocnemis inornata* Selys, 1878 – Kovács et al. 2015b, 2016. – **Batanta Island**, valley of Wailebet Stream, S00°53'08.4", E130°39'00.1", 01.03.2017, 1 male, KT-HR-JP-SK-SR (2017-17.a).

*Idiocnemis strumidens* Lieftinck, 1958 – Kovács et al. 2016. – **Batanta Island**, right side stream of Forum River, S00°52'09.6", E130° 27'42.3", 22.02.2017, 2 males, 1 female, KT-JP (2017-10). – Right side stream of Kaliselatan River, S00°53'55.6", E130°35'43.0", 28.02.2017, 11 males, 1 female, KT-HR-JP-SK (2017-15.b). – Right side stream of right side of Waibin River, between S00°50'04.6", E130°45'28.8" and S00° 50'12.8", E130°45'41.1", 17.02.2019, 5 males, KT-HR-JP-KE (2019-18). – Right side stream of Waibin River, S00°49'47.31", E130°45'47.62", 02.03.2018, 1 male, KT-HR (2018-19). – Right side stream of Warai Stream, between S00° 51'02.4", E130°35'17.1" and S00°51'02.8", E130°35'17.6", 23.02.2019, 2 males, 2 females, KT-HR-JP-KE (2019-21.a). – Valley of Tanjung Lampu River, between S00°54'24.03", E130°36' 47.64" and S00°53'43.0", E130°36'38.5", 21.02. 2018, 2 males, KT-HR-JP-SK-SR (2018-12). – Valley of Waibin River, between S00° 49'20.8",

E130°45'56.9" and S00°49'50.9", E130°45' 47.7", 18.02.2018, 1 male, KT-HR-JP (2018-7). – Valley of Wailebet Stream, between S00°53' 37.74", E130°39'16.32" and S00°53' 21.9", E130°39'06.5", 19.02.2018, 1 male, KT-HR-JP-SK-SR (2018-8). – Valley of Warai Stream, S00° 50'59.3", E130°35'18.0", 27.02. 2018, 2 males, KT-HR-JP (2018-16); valley of Warai Stream, between S00°50'25.19", E130°34' 59.19" and S00°50'59.3", E130°35'18.0", 24.02. 2017, 2 males, KT-HR-JP (2017-12); 22.02.2019, 4 males, 1 female, KT-HR-JP-KE (2019-21); 22.02. 2020, 4 males, KT-HR-JP (2020-12). – Wailebet, stream, S00°52'47.10", E130°40' 08.57", 20. 02.2018, 3 males, 1 female, KT-HR-JP-SK-SR (2018-10).

*Palaiargia charmosyna* Lieftinck, 1932 – Kovács et al. 2016. – **Batanta Island**, valley of Tanjung Lampu River, between S00°54'18.6", E130°36'48.6", and S00°53'43.0", E130°36' 38.5", 12.02.2019, 1 male, KT-HR-JP-KE (2019-12). – Valley of Warmon Stream, between the lower and upper waterfall, S00°50'04.50", E130°42'54.01" and S00°50'23.25", E130°42' 35.18", 09.02.2019, 1 male, KT-HR-JP-KE (2019-9).

*Palaiargia susannae* Kovács & Theischinger, 2015 – Kovács et al. 2015b. – **Batanta Island**, valley of Warai Stream, between S00°50'25.19", E130°34'59.19" and S00°50'59.3", E130°35' 18.0", 22.02.2020, 1 male, KT-HR-JP (2020-12).

### Coenagrionidae Kirby, 1890

*Agriocnemis femina* (Brauer, 1869) – Kovács et al. 2015b, 2016. – **Arefi Island**, Arefi, Mandur, S00°47'17.7", E130°42'20.0", 05.03.2017, 1 male and 1 female in copula, KT (2017-24); 20.02. 2017, 8 males, 3 females, KT-HR-JP (2017-7); 21.02.2017, 2 females, KT (2017-9); 03.03.2018, 1 male, KT (2018-20); 10.02.2019, 2 males, 2 females, KT-HR-JP-KE (2019-10); 21.02.2019, 1 male, 2 females, KT-JP (2019-20); 11.02.2020, 1 male, KT-JP (2020-4). – **Batanta Island**, Minlii lake, S00°47'51.62", E130°29'46.51", 06.03. 2017, 1 male, KT-HR-JP (2017-26). – Valley of

Tanjung Lampu River, S00°54'18.6", E130°36'48.6", 12.02.2019, 1 male, KT-HR-JP-KE (2019-12.b). – Valley of Waridor River, between S00°50'30.34", E130°31'28.71" and S00°51'22.60", E130°31'14.52", 14.02.2020, 1 male, KT-HR-JP (2020-7). – Wailebet, small stream, S00°54'00.56", E130°39'30.28", 11.02.2019, 2 males, 2 females, KT-HR-JP-KE (2019-11.b); 17.02.2020, 1 male, KT-HR-JP-SK-SR (2020-9). – **Birie Island**, Papua Paradise Eco Resort, marsh, S00°46'14", E130°44'51", 17.02.2017, 4 males, 2 females, KT-HR-JP (2017-2); 02.03.2017, 1 exuvium and 1 emerged male, KT (2017-19); 03.03.2017, 1 larva, 5 males, 6 females, KT (2017-22); 16.02.2018, 2 males, 2 females, KT (2018-5); 28.02.2018, 1 female, KT (2018-17); 16.02.2019, 1 male, KT (2019-15).

*Argiocnemis rubescens* Selys, 1877 – Kovács et al. 2016. – **Batanta Island**, between valleys of Tanjung Lampu River and Kalijakut River, S00°54'38.06", E130°36'50.17" and S00°54'20.59", E130°38'31.70", 13.02.2019, 1 male, 1 female, KE (2019-13). – Valley of Kalijakut River, between S00°54'20.59", E130°38'31.7" and S00°52'49.10", E130°38'4.9", 14.02.2019, 3 males, 4 females, KT-HR-JP-KE (2019-14). – Valley of Tanjung Lampu River, S00°54'18.6", E130°36'48.6", 12.02.2019, 1 female, KT-HR-JP-KE (2019-12.b).

*Ceriagrion aeruginosum* Brauer, 1869 – Kovács et al. 2015b. – **Arefi Island**, Arefi, Mandur, S00°47'17.7", E130°42'20.0", 21.02.2019, 1 male, observed, KT-JP. – **Birie Island**, Papua Paradise Eco Resort, marsh, S00°46'14", E130°44'51", 17.02.2017, 1 male, KT-HR-JP (2017-2); 03.03.2017, 2 males, KT (2017-22); 16.02.2018, 2 males, KT (2018-5); 23.02.2018, 2 larvae, 2 males, 2 females, KT (2018-13); 16.02.2019, 1 male, 1 female, KT (2019-15).

*Ischnura senegalensis* (Rambur, 1842) – Kovács et al. 2015b. – **Arefi Island**, Arefi, Mandur, S00°47'17.7", E130°42'20.0", 20.02.2017, 2 females, KT-HR-JP (2017-7); 21.02.2017, 3 males, KT (2017-9); 05.03.2017, 2 males, 3 females, KT (2017-24).

*Papuagrion magnanimum* (Selys, 1876) – **Batanta Island**, valley of Waibin River, stagnant waters, S00°49'20.8", E130°45'56.9", 03.03.2017, 1 female, KT-HR-JP (2017-20.b). – Valley of Wailebet Stream, S00°53'37.74", E130°39'16.32", 19.02.2018, 1 male, KT-HR-JP-SK-SR (2018-8.b).

*Pseudagrion civicum* Lieftinck, 1932 – Kovács et al. 2015b, 2016. – **Batanta Island**, valley of Ron River, S00°49'36.5", E130°49'26.3", 19.02.2017, 5 males, KT-HR-JP (2017-4). – Valley of Waibin River, S00°49'59.2", E130°45'27.1", 17.02.2019, 1 male, KT-HR-JP-KE (2019-18.c); valley of Waibin River, between S00°49'20.8", E130°45'56.9" and S00°50'01.9", E130°45'24.8", 10.02.2020, 3 males, KT-HR-JP (2020-3). – Valley of Waridor River, between S00°50'30.34", E130°31'28.71" and S00°51'22.60", E130°31'14.52", 14.02.2020, 1 exuvium and 1 emerged female, 5 males, 3 females, KT-HR-JP (2020-7); 23.02.2020, 2 males, 2 females, KT-HR-JP (2020-13).

*Pseudagrion starreanum* Lieftinck, 1949 – Kovács et al. 2015b, 2016. – **Arefi Island**, Arefi, Mandur, S00°47'17.7", E130°42'20.0", 21.02.2017, 1 male, KT (2017-9); 05.03.2017, 1 male, KT (2017-24). – **Batanta Island**, Minlii lake, S00°47'51.62", E130°29'46.51", 06.03.2017, 2 males, 1 female, KT-HR-JP (2017-26); 17.02.2018, 3 males, KT-HR-JP (2018-6); 17.02.2019, 2 males, 1 female, KT-HR-JP-KE (2019-16). – Valley of Waridor River, between S00°50'30.34", E130°31'28.71" and S00°51'22.60", E130°31'14.52", 23.02.2020, 1 male, KT-HR-JP (2020-13).

*Teinobasis rufithorax* (Selys, 1877) – Kovács et al. 2015b, 2016. – **Arefi Island**, Arefi, Mandur, S00°47'17.7", E130°42'20.0", 21.02.2017, 1 male, KT (2017-9); 10.02.2019, 1 male, KT-HR-JP-KE (2019-10); 21.02.2019, 1 male, KT-JP (2019-20) – **Batanta Island**, Minlii lake, S00°47'51.62", E130°29'46.51", 23.02.2017, 1 male, 1 female, KT-HR-JP (2017-11); 06.03.2017, 1 male, KT-HR-JP (2017-26); 17.02.2018, 1 male, KT-HR-JP (2018-6). – Valley of Kalijakut River, between S00°54'20.59", E130°38'

31.7" and S00°52'49.10", E130°38'4.9", 14.02.2019, 1 male, 1 female, KT-HR-JP-KE (2019-14). – Valley of Tanjung Lampu River, S00°54'18.6", E130°36'48.6", 12.02.2019, 1 male, KT-HR-JP-KE (2019-12.b); 19.02.2020, 1 female, KT-HR-JP-SK-SR (2020-10.b). – **Birie Island**, Papua Paradise Eco Resort, marsh, S00°46'14", E130°44'51", 17.02.2017, 3 males, 1 female, KT-HR-JP (2017-2); 16.02.2018, 1 male, 1 female, KT (2018-5); 16.02.2019, 1 male, KT (2019-15).

*Teinobasis superba* (Hagen in Selys, 1877) – Kovács *et al.* 2016. – **Batanta Island**, right side stream of Kaliselatan River, S00°53'55.6", E130°35'43.0", 28.02.2017, 1 male, 1 female, KT-HR-JP-SK (2017-15.b). – Right side stream of right side of Waibin River, between S00°50'04.6", E130°45'28.8" and S00°50'12.8", E130°45'41.1", 17.02.2019, 1 male, KT-HR-JP-KE (2019-18). – Right side stream of right side of Waibin River, between S00°50'04.6", E130°45'28.8" and S00°50'12.8", E130°45'41.1", 10.02.2020, 1 male, KT-HR-JP (2020-3.b). – Right side stream of Waibin River, S00°49'47.31", E130°45'47.62", 02.03.2018, 1 male, KT-HR (2018-19). – Valley of „Marko” Stream, S00°47'47.4", E130°49'07.3", 19.02.2017, 1 male, KT-HR-JP (2017-3). – Valley of Ron River, S00°49'36.5", E130°49'26.3", 19.02.2017, 1 male, KT-HR-JP (2017-4). – Valley of Tanjung Lampu River, between S00°54'18.6", E130°36'48.6" and S00°53'43.0", E130°36'38.5", 18.02.2020, 1 male, KT-HR-JP-SK-SR (2020-10). – Valley of Wailebet Stream, between S00°53'37.74", E130°39'16.32" and S00°53'21.9", E130°39'06.5", 19.02.2018, 1 male, KT-HR-JP-SK-SR (2018-8). – Valley of Warai Stream, S00°50'59.3", E130°35'18.0", 27.02.2018, 3 males, 1 female, KT-HR-JP (2018-16); valley of Warai Stream, between S00°50'25.19", E130°34'59.19" and S00°50'59.3", E130°35'18.0", 22.02.2019, 1 male, 1 female, KT-HR-JP-KE (2019-21); 22.02.2020, 3 males, 1 female, KT-HR-JP (2020-12). – Valley of Warmon Stream, between the lower and upper waterfall, S00°50'04.50", E130°42'54.01" and S00°50'23.25", E130°42'35.18", 09.02.2019, 1 male, KT-HR-JP-KE (2019-9).

*Xiphiagrion cyanomelas* Selys, 1876 – Kovács *et al.* 2015b. – **Arefi Island**, Arefi, Mandur, S00°47'17.7", E130°42'20.0", 05.03.2017, 2 males, 1 female, KT (2017-24); 21.02.2017, 3 males, 2 females, KT (2017-9); 10.02.2019, 1 male, KT-HR-JP-KE (2019-10); 21.02.2019, 1 male, KT-JP (2019-20); 11.02.2020, 2 males, KT-JP (2020-4). – **Batanta Island**, Wailebet, small stream, S00°54'00.56", E130°39'30.28", 17.02.2020, 1 male, KT-HR-JP-SK-SR (2020-9). – **Birie Island**, Papua Paradise Eco Resort, marsh, S00°46'14", E130°44'51", 17.02.2017, 1 male, KT-HR-JP (2017-2).

## ANISOPTERA

### Aeshnidae Leach, 1815

*Agyrtacantha dirupta* (Karsch, 1889) – Kovács *et al.* 2015b one exuvium (2014-3) as *Gynacantha mocsaryi* Förster, 1898. – **Batanta Island**, valley of Forum River, S00°52'26.5", E130°27'45.4", 23.02.2017, before sunrise in the bird catching nets, 1 male, KT-HR-JP (2017-10.d). – **Birie Island**, Papua Paradise Eco Resort, marsh, S00°46'14", E130°44'51", 28.02.2018, 1 female, KT (2018-17).

*Anax maclachlani* Förster, 1898 – **Birie Island**, Papua Paradise Eco Resort, marsh, S00°46'14", E130°44'51", 17.02.2017, 3 exuviae, KT-HR-JP (2017-2); 23.02.2018, 1 male, KT (2018-13); S00°46'14.9", E130°44'46.6", 05.03.2017, 1 male, KT-JP (2017-25).

*Gynacantha mocsaryi* Förster, 1898 – Kovács *et al.* 2015b, 2016. – **Batanta Island**, valley of Waibin River, S00°50'01.9", E130°45'24.8", 01.03.2018, at dusk, 1 female, KT-HR (2018-18). – **Birie Island**, Papua Paradise Eco Resort, S00°46'16.12", E130°44'44.85", 17.07.2019, 1 female, Gergő Vadnay-Horváth (A2020-1).

*Gynacantha rosenbergi* Kaup, 1867 – Kovács *et al.* 2015b one larva, four exuviae (2014-21, 2015-8, 2015-15a) and two females as *Gyna*

*cantha mocsaryi* Förster, 1898. – **Birie Island**, Papua Paradise Eco Resort, marsh, S00°46'14", E130°44'51", 21.02.2017, before sunrise, 1 male, KT (2017-8); marsh, S00°46'14.9", E130°44'46.6", 02.03.2017, at dusk, 1 male, 1 female, KT-JP (2017-19.b); marsh, S00°46'12.55", E130°44'54.05", 08.02.2020, 1 female, KT-HR-JP (2020-1).

### Synthemistidae Tillyard, 1911

*Palaeosynthemis* cf. *cervula* (Lieftinck, 1938) – **Batanta Island**, valley of Waibin River, S00°49'57.4", E130°45'27.2", 25.02.2019, 9:00, 1 male, KT-HR-JP-KE (2019-23).

### Macromiidae Needham, 1903

*Macromia euphrosyne* Lieftinck, 1952 – Kovács et al. 2015b. – **Batanta Island**, valley of Warai Stream, S00°50'59.3", E130°35'18.0", 27.02.2018, 1 female, KT-HR-JP (2018-16); valley of Warai Stream, between S00°50'25.19", E130°34'59.19" and S00°50'59.3", E130°35'18.0", 22.02.2019, 1 female, KT-HR-JP-KE (2019-21).

### Libellulidae Leach, 1815

*Agrionoptera insignis* (Rambur, 1842) – Kovács et al. 2015b. – **Arefi Island**, Arefi, Mandur, S00°47'17.7", E130°42'20.0", 05.03.2017, 1 male, KT (2017-24); 03.03.2018, 1 male, KT (2018-20); 10.02.2019, 1 male, KT-HR-JP-KE (2019-10). – **Batanta Island**, Minlii lake, S00°47'51.62", E130°29'46.51", 06.03.2017, 1 male, KT-HR-JP (2017-26). – **Birie Island**, Papua Paradise Eco Resort, marsh, S00°46'14", E130°44'51", 02.03.2017, 1 male, KT (2017-19); 28.02.2018, 1 male, KT (2018-17).

*Agrionoptera longitudinalis* Selys, 1878 – Kovács et al. 2015b, 2016. – **Arefi Island**, Arefi, Mandur, E, water hole, S00°47'39.7", E130°42'28.4", 03.03.2018, 1 male, KT (2018-20.b). – **Batanta Island**, valley of Forum River, S00°52'41.6", E130°27'30.5", 22.02.2017, 1 male, KT-HR-JP (2017-10.b). – Valley of Kaliselatan

River, S00°53'42.0", E130°35'49.1", 27.02.2017, 1 male, KT-HR-JP-SK (2017-15.a). – Valley of Ron River, stagnant waters, S00°49'30.53", E130°49'13.99", 19.02.2017, 1 male, KT-HR-JP (2017-4.b). – Valley of Tanjung Lampu River, S00°54'24.03", E130°36'47.64", 27.02.2017, 1 male, KT-HR-JP-SK (2017-14). – Valley of Wailebet Stream, „dendrotelma", S00°53'22.00", E130°39'7.35", 19.02.2018, 1 male, KT-HR-JP-SK-SR (2018-8.c). – Valley of Warai Stream, S00°50'59.3", E130°35'18.0", 27.02.2018, 1 male, KT-HR-JP (2018-16). – Valley of Waridor River, stagnant waters, between S00°50'30.34", E130°31'28.71" and S00°51'22.60", E130°31'14.52", 23.02.2020, 2 males, KT-HR-JP (2020-13.b). – **Birie Island**, Papua Paradise Eco Resort, marsh, water hole, S00°46'16.4", E130°44'50.4", 18.02.2017, 1 male, KT-HR-JP (2017-2.b); 16.02.2019, 1 male, KT (2019-15.b).

*Brachydiplax duivenbodei* (Brauer, 1866) – Kovács et al. 2015b, 2016. – **Arefi Island**, Arefi, Mandur, S00°47'17.7", E130°42'20.0", 10.02.2019, 1 male, KT-HR-JP-KE (2019-10). – **Batanta Island**, Minlii lake, S00°47'51.62", E130°29'46.51", 17.02.2018, 1 male, KT-HR-JP (2018-6). – **Birie Island**, Papua Paradise Eco Resort, marsh, S00°46'14", E130°44'51", 17.02.2017, 1 male, KT-HR-JP (2017-2); 23.02.2018, 1 male, observed, KT.

*Camacinia gigantea* (Brauer, 1867) – Kovács et al. 2015b. – **Arefi Island**, Arefi, Mandur, S00°47'17.7", E130°42'20.0", 05.03.2017, 1 male, KT (2017-24). – **Birie Island**, Papua Paradise Eco Resort, marsh, S00°46'14", E130°44'51", 17.02.2017, 2 exuviae, 1 male, KT-HR-JP (2017-2); 04.03.2017, 1 male, KT (2017-23); 05.03.2018, 1 male, KT (2018-22.a); 16.02.2019, 1 male, KT (2019-15).

*Diplacina* cf. *ismene* Lieftinck, 1933 – Kovács et al. 2016.

*Diplacina olahi* Theischinger & Kovács, 2015 – Kovács et al. 2015b.

*Diplacina smaragdina* Selys, 1878 – Kovács et al. 2016 as *Diplacina olahi* Theischinger &

Kovács, 2015. – **Batanta Island**, right side of Waibin River, between S00°50'01.9", E130°45'24.8" and S00°50'04.6", E130°45'28.8", 17.02.2019, 1 male, KT-HR-JP-KE (2019-18.b). – Valley of Kalijakut River, between S00°54'20.59", E130°38'31.7" and S00°52'49.10", E130°38'4.9", 19.02.2020, 2 males, KT-HR-JP-SK-SR (2020-11). – Valley of Tanjung Lampu River, between S00°54'24.03", E130°36'47.64" and S00°53'43.0", E130°36'38.5", 21.02.2018, 1 male, 1 female, KT-HR-JP-SK-SR (2018-12); valley of Tanjung Lampu River, between S00°54'18.6", E130°36'48.6", and S00°53'43.0", E130°36'38.5", 12.02.2019, 1 male, KT-HR-JP-KE (2019-12); 18.02.2020, 1 female, KT-HR-JP-SK-SR (2020-10). – Valley of Wailebet Stream, S00°53'08.4", E130°39'00.1", 01.03.2017, 1 male, KT-HR-JP-SK-SR (2017-17.a). – Valley of Warai Stream, between S00°50'25.19", E130°34'59.19" and S00°50'59.3", E130°35'18.0", 24.02.2017, 2 males, KT-HR-JP (2017-12); 22.02.2019, 1 female, KT-HR-JP-KE (2019-21); 22.02.2020, 2 males, KT-HR-JP (2020-12); valley of Warai Stream, S00°50'59.3", E130°35'18.0", 27.02.2018, 1 male, KT-HR-JP (2018-16). – Valley of Warmon Stream, between the lower and upper waterfall, S00°50'04.50", E130°42'54.01" and S00°50'23.25", E130°42'35.18", 20.02.2017, 3 males, 1 female, KT-HR-JP (2017-6); 09.02.2019, 1 male, 1 female, KT-HR-JP-KE (2019-9); 12.02.2020, 2 males, KT-HR-JP (2020-5). – Wailebet, Stream, S00°52'47.10", E130°40'08.57", 20.02.2018, 3 males, KT-HR-JP-SK-SR (2018-10).

*Diplacodes trivialis* (Rambur, 1842) – Kovács et al. 2015b, 2016. – **Arefi Island**, Arefi, Mandur, S00°47'17.7", E130°42'20.0", 21.02.2017, 2 males, 1 female, KT (2017-9); 05.03.2017, 1 male, KT (2017-24); 03.03.2018, 1 male, KT (2018-20); 10.02.2019, 1 male, KT-HR-JP-KE (2019-10); 21.02.2019, 1 male, KT-JP (2019-20); 11.02.2020, 2 males, KT-JP (2020-4). – **Batanta Island**, valley of Tanjung Lampu River, S00°54'38.06", E130°36'50.17" and S00°54'24.03", E130°36'47.64", 21.02.2018, 1 female, KT-HR-JP-SK-SR (2018-12.c). – Wailebet, S00°54'02.43", E130°39'35.36", 21.02.2018, 1 male, KT-

HR-JP-SK-SR (2018-12.b). – Wailebet, small stream, S00°54'00.56", E130°39'30.28", 17.02.2020, 1 male, KT-HR-JP-SK-SR (2020-9). – Yensawai, stagnant waters, S00°48'21.32", E130°40'43.23", 12.02.2020, 1 male, KT-HR-JP (2020-5.b). – **Birie Island**, Papua Paradise Eco Resort, marsh, S00°46'14.9", E130°44'46.6", 04.03.2017, 1 female, KT (2017-23.b).

*Huonia epinephela* Förster, 1903 – Kovács et al. 2015b, 2016. – **Batanta Island**, valley of Warmon Stream, between the lower and upper waterfall, S00°50'04.50", E130°42'54.01" and S00°50'23.25", E130°42'35.18", 20.02.2017, 2 males, 1 female, KT-HR-JP (2017-6); 24.02.2018, 1 male, KT-HR-JP (2018-14); 09.02.2019, 1 female, KT-HR-JP-KE (2019-9). – Valley of Warai Stream, between S00°50'25.19", E130°34'59.19" and S00°50'59.3", E130°35'18.0", 22.02.2020, 2 males, 1 female, KT-HR-JP (2020-12).

*Huonia thais* Lieftinck, 1953 – Kovács et al. 2015b. – **Batanta Island**, right side of Waibin River, between S00°50'01.9", E130°45'24.8" and S00°50'04.6", E130°45'28.8", 17.02.2019, 1 male, KT-HR-JP-KE (2019-18.b). – Valley of Forum River, S00°52'26.5", E130°27'45.4", 22.02.2017, 2 males, KT-HR-JP (2017-10.a). – Valley of Kalijakut River, between S00°54'20.59", E130°38'31.7" and S00°52'49.10", E130°38'4.9", 19.02.2020, 2 males, KT-HR-JP-SK-SR (2020-11). – Valley of Ron River, S00°49'36.5", E130°49'26.3", 19.02.2017, 1 male, KT-HR-JP (2017-4). – Valley of Waibin River, between S00°49'20.8", E130°45'56.9" and S00°49'50.9", E130°45'47.7", 03.03.2017, 1 male, KT-HR-JP (2017-20). – Valley of Warai Stream, between S00°50'25.19", E130°34'59.19" and S00°50'59.3", E130°35'18.0", 22.02.2020, 1 male, KT-HR-JP (2020-12). – Valley of Waridor River, between S00°50'30.34", E130°31'28.71" and S00°51'22.60", E130°31'14.52", 23.02.2020, 1 male, 1 female, KT-HR-JP (2020-13). – Valley of Warmon Stream, between the lower and upper waterfall, S00°50'04.50", E130°42'54.01" and S00°50'23.25", E130°42'35.18", 12.02.2020, 1 male, KT-HR-JP (2020-5).



*Hydrobasileus vittatus* Kirby, 1889 – Kovács *et al.* 2015b. – **Arefi Island**, Arefi, Mandur, S00°47'17.7", E130°42'20.0", 10.02.2019, 1 female, KT-HR-JP-KE (2019-10); 21.02.2019, 1 female, observed, KT-JP.

*Nannophlebia amnosia* Lieftinck, 1955 – Kovács *et al.* 2015b. – **Batanta Island**, valley of Waridor River, between S00°50'30.34", E130°31'28.71" and S00°51'22.60", E130°31'14.52", 14.02.2020, 1 female, KT-HR-JP (2020-7). – Valley of Warmon Stream, between the lower and upper waterfall, S00°50'04.50", E130°42'54.01" and S00°50'23.25", E130°42'35.18", 20.02.2017, 1 female, KT-HR-JP (2017-6).

*Nannophlebia amphicyllis* Lieftinck, 1933 – Kovács *et al.* 2016 as *Nannophlebia amnosia* Lieftinck, 1955. – **Batanta Island**, valley of Kalijakut River, between S00°54'20.59", E130°38'31.7" and S00°52'49.10", E130°38'4.9", 14.02.2019, 1 female, KT-HR-JP-KE (2019-14). – Valley of Warai Stream, between S00°50'25.19", E130°34'59.19" and S00°50'59.3", E130°35'18.0", 24.02.2017, 1 female, KT-HR-JP (2017-12); 22.02.2020, 3 females, KT-HR-JP (2020-12).

*Nannophya* cf. *pygmaea* Rambur, 1842 – Kovács *et al.* 2016. – **Batanta Island**, Minlii lake, S00°47'51.62", E130°29'46.51", 17.02.2018, 1 male, KT-HR-JP (2018-6); 17.02.2019, 1 male, KT-HR-JP-KE (2019-16). – Valley of Waridor River, stagnant waters, between S00°50'30.34", E130°31'28.71" and S00°51'22.60", E130°31'14.52", 23.02.2020, 1 male, KT-HR-JP (2020-13.b). – Wailebet, small stream, S00°54'00.56", E130°39'30.28", 11.02.2019, 3 males, KT-HR-JP-KE (2019-11.b); 17.02.2020, 2 males, KT-HR-JP-SK-SR (2020-9).

*Nesoxenia mysis* (Selys, 1878) – **Batanta Island**, Minlii lake, S00°47'51.62", E130°29'46.51", 17.02.2019, 1 female, KT-HR-JP-KE (2019-16). – Valley of Waibin River, between S00°49'20.8", E130°45'56.9" and S00°49'50.9", E130°45'47.7", 18.02.2018, 1 female, KT-HR-JP (2018-7).

*Neurothemis ramburii* (Kaup, 1866) – Kovács *et al.* 2015b, 2016. – **Batanta Island**, valley of Wailebet Stream, between S00°53'37.74", E130°39'16.32" and S00°53'07.1", E130°38'59.5", 17.02.2020, 1 female, KT-HR-JP-SK-SR (2020-9.b). – Valley of Waridor River, stagnant waters, between S00°50'30.34", E130°31'28.71" and S00°51'22.60", E130°31'14.52", 23.02.2020, 3 males, KT-HR-JP (2020-13.b). – Wailebet, S00°53'58.83", E130°39'30.95", 01.03.2017, 1 male, observed, KT-HR-JP-SK-SR.

*Neurothemis stigmatizans* (Fabricius, 1775) – Kovács *et al.* 2015b, 2016. – **Arefi Island**, Arefi, Mandur, S00°47'17.7", E130°42'20.0", 21.02.2017, 1 male, KT (2017-9); 05.03.2017, 1 male, KT (2017-24); 10.02.2019, 1 female, KT-HR-JP-KE (2019-10). – **Batanta Island**, valley of Ron River, stagnant waters, S00°49'30.53", E130°49'13.99", 19.02.2017, 1 female, KT-HR-JP (2017-4.b). – Valley of Tanjung Lampu River, S00°54'24.03", E130°36'47.64", 27.02.2017, 1 female, KT-HR-JP-SK (2017-14); between S00°54'38.06", E130°36'50.17" and S00°54'24.03", E130°36'47.64", 21.02.2018, 1 male, KT-HR-JP-SK-SR (2018-12.c). – Wailebet, small stream, S00°54'00.56", E130°39'30.28", 17.02.2020, 2 males, KT-HR-JP-SK-SR (2020-9). – Yensawai, stagnant waters, S00°48'21.32", E130°40'43.23", 12.02.2020, 1 male, observed, KT-HR-JP – **Birie Island**, Papua Paradise Eco Resort, marsh, S00°46'14", E130°44'51", 23.02.2018, 1 male, KT (2018-13).

*Orthetrum serapia* Watson, 1984 – Kovács *et al.* 2015b. – **Arefi Island**, Arefi, Mandur, S00°47'17.7", E130°42'20.0", 21.02.2017, 1 male, KT (2017-9); 03.03.2018, 1 male and 1 female in copula, observed, KT (ODO-4); 21.02.2019, 1 male, observed, KT-JP (ODO-5); 11.02.2020, 1 male, KT-JP (2020-4). – **Batanta Island**, Minlii lake, S00°47'51.62", E130°29'46.51", 17.02.2019, 1 male, observed, KT-HR-JP-KE (ODO-6). – Valley of Tanjung Lampu River, S00°54'38.06", E130°36'50.17" and S00°54'24.03", E130°36'47.64", 21.02.2018, 1 male, KT-HR-JP-SK-SR (2018-12.c). – Wailebet, S00°54'02.43",

E130°39'35.36", 27.02.2017, 1 male, KT-HR-JP-SK (2017-14.b); Wailebet, S00°53'58.83", E130°39'30.95", 01.03.2017, 1 female, KT-HR-JP-SK-SR (2017-18). – Wailebet, small stream, S00°54'00.56", E130°39'30.28", 17.02.2020, 1 male, KT-HR-JP-SK-SR (2020-9).

***Orthetrum villosovittatum*** (Brauer, 1868) – Kovács et al. 2015b. – **Arefi Island**, Arefi, Mandur, S00°47'17.7", E130°42'20.0", 21.02.2019, 1 male, observed, KT-JP (ODO-7). – **Batanta Island**, between valleys of Tanjung Lampu River and Kalijakut River, S00°54'38.06", E130°36'50.17" and S00°54'20.59", E130°38'31.70", 13.02.2019, 1 male, KE (2019-13). – Valley of Forum River, S00°52'26.5", E130°27'45.4", 22.02.2017, 1 male, KT-HR-JP (2017-10.a). – Valley of Kalisamsem River, S00°53'46.07", E130°33'17.18", 28.02.2017, 2 males, KT-HR-JP-SK-SR (2017-16). – Valley of Ron River, stagnant waters, S00°49'30.53", E130°49'13.99", 19.02.2017, 1 male, KT-HR-JP (2017-4.b). – Valley of Wailebet Stream, „dendrotelma”, S00°53'22.00", E130°39'7.35", 19.02.2018, 1 male and 1 female in copula, observed, KT-HR-JP-SK-SR (ODO-8). – Valley of Waridor River, between S00°50'30.34", E130°31'28.71" and S00°51'22.60", E130°31'14.52", 14.02.2020, 2 males, KT-HR-JP (MM-2020-7). – Wailebet, small stream, S00°54'00.56", E130°39'30.28", 17.02.2020, 1 male, KT-HR-JP-SK-SR (2020-9).

***Pantala flavescens*** (Fabricius, 1798) – **Arefi Island**, Arefi, Mandur, S00°47'17.7", E130°42'20.0", 11.02.2020, 2 males, KT-JP (2020-4). – **Batanta Island**, Wailebet, small stream, S00°54'00.56", E130°39'30.28", 17.02.2020, 1 male, observed, KT-HR-JP-SK-SR. – Yensawai, stagnant waters, S00°48'21.32", E130°40'43.23", 12.02.2020, 1 male, KT-HR-JP (2020-5.b).

***Protorthemis coronata*** (Kaup, 1866) – Kovács et al. 2015b. – **Batanta Island**, between valleys of Tanjung Lampu River and Kalijakut River, S00°54'38.06", E130°36'50.17" and S00°54'20.59", E130°38'31.70", 13.02.2019, 1 male, KE (2019-13). – Valley of Forum River, S00°52'26.5", E130°27'45.4", 23.02.2017, 1 male, 1

female, KT-HR-JP (2017-10.d). – Valley of Waibin River, between S00°49'20.8", E130°45'56.9" and S00°49'50.9", E130°45'47.7", 18.02.2018, 1 male, KT-HR-JP (2018-7). – Valley of Wailebet Stream, „dendrotelma”, S00°53'22.00", E130°39'7.35", 19.02.2018, 1 male, KT-HR-JP-SK-SR (2018-8.c); valley of Wailebet Stream, between S00°53'37.74", E130°39'16.32" and S00°53'21.9", E130°39'06.5", 11.02.2019, 1 male, KT-HR-JP-KE (2019-11). – Valley of Warai Stream, S00°50'59.3", E130°35'18.0", 27.02.2018, 1 male, observed, KT-HR-JP. – Wailebet, S00°53'58.83", E130°39'30.95", 01.03.2017, 1 male, KT-HR-JP-SK-SR (2017-18).

***Raphismia bispina*** (Hagen, 1867) – Kovács et al. 2015b, 2016. – **Arefi Island**, Arefi, Mandur, S00°47'17.7", E130°42'20.0", 20.02.2017, 1 male, KT-HR-JP (2017-7); 21.02.2017, 1 female, KT (2017-9); 03.03.2018, 1 male, observed, KT; 21.02.2019, 1 female, KT-JP (2019-20). – **Batanta Island**, Minlii lake, S00°47'51.62", E130°29'46.51", 23.02.2017, 1 male, KT-HR-JP (2017-11); 06.03.2017, 2 males, KT-HR-JP (2017-26); 17.02.2019, 1 male, KT-HR-JP-KE (2019-16). – Valley of Ron River, stagnant waters, S00°49'30.53", E130°49'13.99", 19.02.2017, 1 male, KT-HR-JP (2017-4.b). – Valley of Waibin River, between S00°49'20.8", E130°45'56.9" and S00°50'01.9", E130°45'24.8", 10.02.2020, 1 male, KT-HR-JP (2020-3); valley of Waibin River, stagnant waters, S00°49'20.8", E130°45'56.9", 05.03.2017, 1 male, KT-HR-JP (2017-24.b). – Wailebet, Tanjung Karan, marsh, S00°53'54.6", E130°40'18.1", 20.02.2018, 1 female, KT-HR-JP-SK-SR (2018-11). – **Birie Island**, Papua Paradise Eco Resort, marsh, S00°46'14", E130°44'51", 23.02.2018, 1 male, KT (2018-13).

***Rhodothemis nigripes*** Lohmann, 1984 – **Arefi Island**, Arefi, Mandur, S00°47'17.7", E130°42'20.0", 05.03.2017, 1 male, KT (2017-24); 10.02.2019, 1 male, KT-HR-JP-KE (2019-10); 21.02.2019, 1 male, observed KT-JP (ODO-9). – **Birie Island**, Papua Paradise Eco Resort, marsh, S00°46'14", E130°44'51", 17.02.2017, 2 males, 1 female, KT-HR-JP (2017-2); 26.02.2017, 1 male, KT (2017-13); 23.02.2018, 1 male, KT (2018-13); 05.03.2018, 1 male, KT (2018-22.a).

*Rhyothemis phyllis* (Sulzer, 1776) – Kovács et al. 2015b, 2016. – **Arefi Island**, Arefi, Mandur, S00°47'17.7", E130°42'20.0", 21.02.2017, 2 males, 1 female, KT (2017-9); 05.03.2017, 1 male, KT (2017-24); 03.03.2018, 1 male, observed, KT; 10.02.2019, 1 male, KT-HR-JP-KE (2019-10). – **Batanta Island**, Minlii lake, S00°47'51.62", E130°29'46.51", 06.03.2017, 1 female, KT-HR-JP (2017-26); 17.02.2018, 1 male, KT-HR-JP (2018-6); 09.02.2020, 1 male, KT-HR-JP (2020-2). – Wailebet, small stream, S00°54'00.56", E130°39'30.28", 17.02.2020, 1 male, KT-HR-JP-SK-SR (2020-9). – **Birie Island**, Papua Paradise Eco Resort, marsh, S00°46'14", E130°44'51", 04.03.2017, 1 male, KT (2017-23); 23.02.2018, 1 male, KT (2018-13).

*Rhyothemis regia* (Brauer, 1867) – **Batanta Island**, Minlii lake, S00°47'51.62", E130°29'46.51", 23.02.2017, 2 males, 1 female, KT-HR-JP (2017-11); 06.03.2017, 2 males, KT-HR-JP (2017-26); 17.02.2018, 4 males, 1 female, KT-HR-JP (2018-6); 17.02.2019, 5 males, 2 females, KT-HR-JP-KE (2019-16); 09.02.2020, 2 males, KT-HR-JP (2020-2).

*Rhyothemis resplendens* Selys, 1878 – Kovács et al. 2016. – **Arefi Island**, Arefi, Mandur, S00°47'17.7", E130°42'20.0", 21.02.2017, 1 male, observed, KT; 21.02.2019, 1 male, observed KT-JP (ODO-10).

*Rhyothemis rita* Kovács & Theischinger, 2016 – Kovács et al. 2016.

*Tetrathemis irregularis* Brauer, 1868 – **Batanta Island**, valley of Waibin River, between S00°49'20.8", E130°45'56.9" and S00°50'01.9", E130°45'24.8", 10.02.2020, 1 male, KT-HR-JP (2020-3). – **Birie Island**, Papua Paradise Eco Resort, marsh, water hole, S00°46'16.4", E130°44'50.4", 18.02.2017, 1 male, KT-HR-JP (2017-2.b).

*Tramea eurybia* Selys, 1878 – Kovács et al. 2015b. – **Arefi Island**, Arefi, Mandur, S00°47'17.7", E130°42'20.0", 03.03.2018, 2 males, KT (2018-20); 21.02.2019, 1 male, KT-JP (2019-20).

*Tramea transmarina propinqua* Lieftinck, 1942 – **Arefi Island**, Arefi, Mandur, S00°47'17.7", E130°42'20.0", 20.02.2017, 1 male, KT-HR-JP (2017-7); 21.02.2017, 2 males, KT (2017-9); 05.03.2017, 1 male, KT (2017-24); 03.03.2018, 1 male, KT (2018-20); 21.02.2019, 1 male, observed KT-JP (ODO-11). – **Batanta Island**, Papua Paradise Eco Resort, marsh, S00°46'14", E130°44'51", 17.02.2017, 1 exuvium, KT-HR-JP (2017-2); 26.02.2017, 1 male, KT (2017-13); 04.03.2017, 1 male, 1 female, KT (2017-23).

*Zyxomma multinervorum* Carpenter, 1897 – **Batanta Island**, Dugong Homestay, marsh, S00°48'22.95", E130°38'55.71", 17.02.2019, 1 male, KT-HR-JP-KE (2019-17). – Valley of Wailebet Stream, „dendrotelma”, S00°53'22.00", E130°39'7.35", 19.02.2018, 1 male, 1 female, KT-HR-JP-SK-SR (2018-8.c). – **Birie Island**, Papua Paradise Eco Resort, marsh, S00°46'14.9", E130°44'46.6", 03.03.2017, at dusk, 4 males, 1 female, KT-JP (2017-22.b).

## DISCUSSION

Fifty-eight (24 Zygoptera and 34 Anisoptera) taxa of Odonata are reported here from Batanta Island (including Arefi and Birie Islands). One new species is described: *Argiolestes varga* sp. nov. The following ten species are new to the Raja Ampat Islands: *Papuagrion magnanimum* Selys, 1876, *Gynacantha rosenbergi* Kaup, 1867, *Palaeosynthemis* cf. *cervula* (Lieftinck, 1938), *Diplacina smaragdina* Selys, 1878, *Nannophlebia amphicyllis* Lieftinck, 1933, *Pantala flavescens* (Fabricius, 1798), *Rhodothemis nigripes* Lohmann, 1984, *Rhyothemis regia* (Brauer, 1867), *Tramea transmarina propinqua* Lieftinck, 1942, *Zyxomma multinervorum* Carpenter, 1897, and fifteen are new to Batanta: *Selysioneura cornelia* Lieftinck, 1953, *P. magnanimum*, *Agyrtacantha dirupta* (Karsch, 1889), *Anax maclachlani* Förster, 1898, *G. rosenbergi*, *P.* cf. *cervula*, *D. smaragdina*, *N. amphicyllis*, *Nesoxenia mysis* (Selys, 1878), *P. flavescens*, *R. nigripes*, *R. regia*, *Tetrathemis irregularis* Brauer, 1868, *T. transmarina propinqua*, *Z. multinervorum* (Kalkman &

Orr 2013, Kovács et al. 2015b, 2016, Orr & Kalkman 2015, Theischinger & Kalkman 2014a,b, Theischinger & Richards 2015).

*Metagrion postnodale* (Selys, 1878) and *Selysioneura* cf. *cervicornu* Förster, 1900 are deleted from the fauna lists of Odonata of Raja Ampat and Batanta Island (misidentification). The number of species known to occur on Batanta Island is 62.

Six new species have been described from this island so far: *Drepanosticta batanta* Kovács & Theischinger, 2015, *Palaiargia susannae* Kovács & Theischinger, 2015, *Diplacina olahi* Theischinger & Kovács, 2015 (Holotype: male; unique), *Nososticta dora* Kovács & Theischinger, 2016, *Rhyothemis rita* Kovács & Theischinger, 2016 (Holotype: female; unique), *Argiolestes varga* sp. nov. Kovács & Theischinger. The taxonomic status of *Metagrion* sp. has not yet been clarified.

Additionally, in the collected material there are an undescribed *Selysioneura* species and the undescribed female and larva of *D. batanta*; two subadult *Palaiargia* males and subadult and adult *Teinobasis* females cannot be identified. The collected specimens of *Idiocnemis bidentata* also differ from the typical specimens (Gassmann 2000), and on *Palaeosynthemis* cf. *cervula* further study is required. From the known 62 species occurring on Batanta Island larvae and/or exuviae of 12 species were published and further more than 10 species await publication. Probably, the number of species will be found to be higher, if we can collect on 400 m a.s.l. However, due to the difficulty of the terrain this has not yet happened.

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## REFERENCES

- GASSMANN, D. (2000): Revision of the Papuan *Idiocnemis bidentata*-group (Odonata: Platynemididae). *Zoologische Mededelingen, Leiden*, 74(23): 375–402.
- HÄMÄLÄINEN, M. & ORR, A.G. (2016): Wilhelm Stüber (1877–1942) collector extraordinaire of New Guinean dragonflies, discoverer of the fabulous Sepik blue orchid, tragic victim of war. *Agrion*, 20(2): 68–88.
- KALKMAN, V.J. & ORR, A.G. (2013): Field Guide to the Damselflies of New Guinea. *Brachytron 16 Supplement*: 3–119.
- KALKMAN, V.J. & THEISCHINGER, G. (2013): Generic revision of Argiolestidae (Odonata), with four new genera. *International Journal of Odonatology*, 16(1): 1–52. doi: [10.1080/13887890.2012.749450](https://doi.org/10.1080/13887890.2012.749450)
- KALKMAN, V.J., RICHARDS, S.J. & POLHEMUS, D.A. (2010): Three new species of *Argiolestes*, with a key to the males of *Argiolestes* s. str. (Odonata: Megapodagrionidae). *International Journal of Odonatology*, 13(1): 75–88. doi: [10.1080/13887890.2010.9748361](https://doi.org/10.1080/13887890.2010.9748361)
- KALNIŅŠ, M. (2014): *Argiolestes zane* sp. nov. from New Guinea (Odonata: Argiolestidae). In: TELNOV, D. (Ed.) *Biodiversity, biogeography and nature conservation in Wallacea and New Guinea, II*. The Entomological Society of Latvia, Rīga, p. 221–224, pls. 31–34.
- KALNIŅŠ, M. (2017): *Argiolestes spungisi* sp. nov. (Odonata: Argiolestidae) from New Guinea. In: TELNOV, D., BARCLAY, M.V.L. & PAUWELS, O.S.G. (Eds.) *Biodiversity, biogeography and nature conservation in Wallacea and New Guinea, III*. The Entomological Society of Latvia, Rīga, p. 357–362, pls. 52–55.
- KOVÁCS, T., HORVÁTH, R. & JUHÁSZ, P. (2015a): Szi-takötők és tegzesek (Insecta: Odonata, Trichoptera) kutatása Batanta szigeten (Indonézia, Nyugat-Pápua). Study of dragonflies and caddisflies (Insecta:

- Odonata, Trichoptera) on Batanta Island (Indonesia, West Papua). *Annales Musei historico-naturalis hungarici*, 107: 269–288.
- KOVÁCS, T., THEISCHINGER, G. & DANYIK, T. (2016): Odonata from Batanta (Indonesia, West Papua) with description of two new species. *Folia historico-naturalia Musei Matraensis*, 40: 27–37.
- KOVÁCS, T., THEISCHINGER, G., JUHÁSZ, P. & DANYIK, T. (2015b): Odonata from Batanta (Indonesia, West Papua) with description of three new species. *Folia historico-naturalia Musei Matraensis*, 39: 17–29.
- LIEFTINCK, M.A. (1935): The dragonflies (Odonata) of New Guinea and neighbouring islands. Part III. Descriptions of new and little known species of the families Megapodagrionidae, Agrionidae and Libellulidae (Genera *Podopteryx*, *Argioestes*, *Papagrion*, *Teinobasis*, *Huonia*, *Synthemis*, and *Procordulia*). *Nova Guinea*, 17: 203–300.
- LIEFTINCK, M.A. (1956): Revision of the genus *Argioestes* Selys (Odonata) in New Guinea and the Moluccas, with notes on the larval forms of the family Megapodagrionidae. *Nova Guinea (N.S.)*, 7: 59–121.
- ORR, A.G. & KALKMAN, V.J. (2015): Field Guide to the Dragonflies of New Guinea. *Brachytron 17 Supplement*: 3–155.
- RIS, F. (1913): Die Odonata von Dr. H. A. Lorentz' Expedition nach Südwest-Neu-Guinea 1909 und einige Odonata von Waigöu. *Nova Guinea*, 9(3): 471–512.
- THEISCHINGER, G. & RICHARDS, S.J. (2015): The genus *Nososticta* Hagen (Odonata: Platycnemididae) from the Papuan region with descriptions of ten new species group taxa. *Odonatologica*, 44(1/2): 153–224.
- THEISCHINGER G. & KALKMAN V.J. (2014a): *Nososticta rufipes* sp. nov. from Misool, with notes on the other *Nososticta* species on the Bird's Head Peninsula and the Raja Ampat, Indonesia (Zygoptera: Platycnemididae). *International Journal of Odonatology*, 17 (4): 217–222.  
doi: [10.1080/13887890.2014.975762](https://doi.org/10.1080/13887890.2014.975762)
- THEISCHINGER G. & KALKMAN V.J. (2014b): The genus *Teinobasis* on the Bird's Head Peninsula and the Raja Ampat Islands, Indonesia (Odonata: Coenagrionidae). *Odonatologica*, 43(3/4): 143–168.