

***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)**

Gunther Theischinger^{a*} and Vincent J. Kalkman^b

^aWater Science, Office of Environment and Heritage, NSW Department of Planning and Environment, PO Box 29, Lidcombe, NSW 1825, Australia; ^bNaturalis Biodiversity Center, PO Box 9517, 2300 RA, Leiden, the Netherlands

(Received 29 August 2014; accepted 7 October 2014)

Nososticta rufipes sp. nov. is described from Misool Island (Indonesia, Papua Barat, Kabupaten Raja Ampat). New records and notes on the species of the genus *Nososticta* on the Bird's Head Peninsula and Raja Ampat Islands are presented. *Nososticta lorentzi* (Lieftinck, 1938) is placed in synonymy with *N. nigripes* (Ris, 1913).

<http://zoobank.org/urn:lsid:zoobank.org:pub:91B33439-9E9F-48C4-A995-CC4A3ED1392D>

Keywords: Odonata; dragonfly; damselfly; Platycnemididae; Indonesia; New Guinea; Raja Ampat; Bird's Head Peninsula

Introduction

The genus *Nososticta* Hagen in Selys, 1860 includes over 60 described species found in Australia (12), New Guinea and adjacent islands (*c.* 40), the Solomon Islands (one), the Moluccas (five), Sulawesi (one) the Lesser Sundas, Java and Sumatra (four). New Guinea clearly exhibits the highest levels of species diversity. A paper with 10 new species and subspecies from areas of New Guinea east of the Bird's Head Peninsula is in preparation (Theischinger & Richards, *n.d.*), and many more novelties undoubtedly await discovery. Eleven species, including the new species described in this article, are known from the Bird's Head Peninsula and the Raja Ampat Islands. All of them are endemic to the region, and most of them have been found on the Raja Ampat Islands, records from the Arfak Mountains being very few, but this area is likely to be home to several undescribed species. The species occurring on New Guinea, Sulawesi and the Moluccas can be identified using Michalski (2012), while Kalkman and Orr (2013) give colour illustrations and a key for all species occurring in the north of New Guinea as defined by Lieftinck (1949). The species of *Nososticta* are all small and slender with a predominantly black body. Most species have bright or pale-coloured markings, often orange or blue, on the face, the thorax and on the tip of the abdomen and the appendages. In addition many species have wings suffused with yellow-orange, while a few Australian species have smoky brown wings or wing patches. However the legs are generally dark and never exhibit striking coloration. In this paper we describe a species which forms an exception to this rule by having striking orange-red legs.

*Corresponding author. Email: gunther.theischinger@environment.nsw.gov.au

Methods

All material listed is lodged in the collection of the Naturalis Biodiversity Center, Leiden, Netherlands (RMNH). The material of the new species and most material on which the new records are based were collected during the Swedish–Netherlands Expedition to New Guinea in 1948–1949, also known as the Bergman Expedition (see Theischinger & Kalkman, [Forthcoming](#)). The description of the male of the new species is based on the holotype only, with description of the female and information on variability provided under a separate heading. Abbreviations used: Fw for forewing, Hw for hindwing, pt for pterostigma, S for segment.

Systematic part

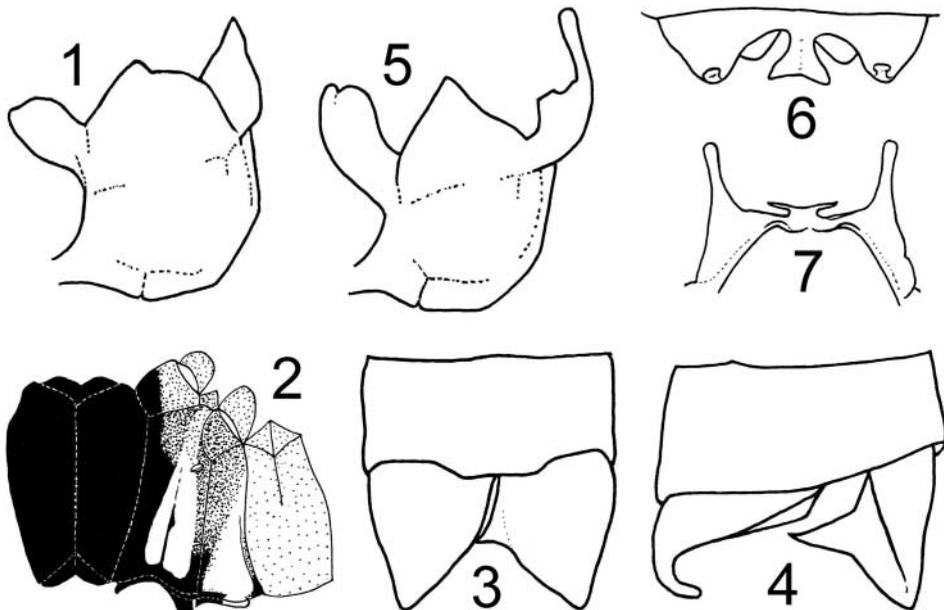
Nososticta rufipes sp. nov. (Figures 1–8)

Etymology

The specific name refers to the orange (Latin *rufus* for red) legs (Latin *pes* for foot) and is a noun in apposition.

Material

Holotype ♂: Indonesia, Papua Barat, Kabupaten Raja Ampat, Misool, Fakal, 0–75 m, 16 September 1948, M.A. Lieftinck, printed text on label: “MISOOL, Id. (W.), 0–75 m, 8.ix – 10.x.1948, M.A. Lieftinck”, written text on envelope: “Fakal C. Misool 16 Sept. 48”. Additional material: Paratypes: 76 ♂, 13 ♀, 8 September–20 October 1948, other data as in holotype; 11 ♂, Indonesia,



Figures 1–7. *Nososticta rufipes* sp. nov. (1–4) Holotype male from Misool Island: (1) prothorax, lateral; (2) synthorax, frontal, lateral and ventral; (3, 4) S10 and anal appendages: (3) dorsal; (4) lateral. (5–7) Paratype female from Misool Island: (5) prothorax, lateral; (6, 7) posterior lobe of pronotum: (6) dorsal; (7) caudal.



Figure 8. *Nososticta rufipes* sp. nov., paratypes from Misool Island: (a) male; (b) female.

Papua Barat, Kabupaten Teluk Bintuni, environments Steenkool (= Bintuni), 28 May–13 June 1957, D. Bergman.

Description of holotype male (Figures 1–4, 8a)

Head. Labium brownish black with base brownish yellow and lobes black; labrum, anteclypeus, genae and base of mandibles shiny black; remainder of face and top of head, including postclypeus, frons, vertex and much of antennae black, only pedicel brown.

Thorax. Pronotum and propleura black; posterior lobe of pronotum nearly upright (Figure 1). Synthorax black dorsally, with vivid blue lateral marking and light yellowish brown ventrolateral areas as shown in Figures 2 and 8a; postcoxae and poststernum cream to pale yellowish brown (Figure 2). Legs almost completely orange-red, only extreme tip of femora and extreme base of tibiae black and much of tarsi and claws and all spines brown to blackish brown (Figure 8a). Wings with membrane hyaline and venation black; pt black, twice as long as wide, overlying slightly more than 1 to 1½ cells; 14/12–13 postnodals; a transverse crossvein descending from distal margin of discoidal cell to wing margin in all wings.

Abdomen. Dorsally largely black, lateroventrally brown with only apical *c.*1/7 of S3–6 markedly darker; the pale areas widest on S2–5 and on S7, absent from S9 and S10; S1 with large blue posterolateral patch; S2 with pale lateral patch connected to pale lateroventral area; a pale basal lateral patch hardly indicated in subsequent segments. Anal appendages short, the superiors pale blue, armed with sharp ventral tooth, the inferiors variably yellowish to blackish brown (Figures 3, 4).

Measurements (mm). Hw 17.8; abdomen + anal appendages 31.1.

Female (Figures 5–7, 8b)

Head. Much as in male except a rather wide, undulate bar across anterior frons from eye to eye and antennal bases bright yellow to light orange.

Thorax. Pronotum with anterior and posterior lobe black, the anterior with white lateral edge; median lobe distinctly conical, blackish brown; posterior lobe including a rather large, upright, subtriangular lobe extended apically into a finger-shaped process on each side, a horizontal fish-tail-shaped median lobe and a small lobe each side in between (Figures 5–7); propleura largely pale blue, along dorsal margin and along part of posterior margin of epimeron brown to black. Synthorax with only median 2/3 of each mesepisternum, parts of the subalar ridge and a line along approximately dorsal half of intersegmental suture black, a stripe covering lateral 1/3 of each mesepisternum and almost all of mesepimeron, a wide stripe along subalar ridge, and a wider stripe covering posterior 1/3 of metepisternum and anterior 1/2 of metepimeron and all of metapostepimeron brownish to greyish and blackish brown; most of metepisternum and posterior approximately 1/2 of metepimeron pale blue with brownish tinge. Legs much as in male but darker sections more expanded and less sharply defined and paler sections less brightly coloured (Figure 8b). Wings much as in male but venation partly merging into brown; 14–15/12–13 postnodals.

Abdomen. Much as in male but sides of S1 brownish tinged with pale blue and S8 and S9 each with rather well-defined pale orange lateroventral patch. Supra-anal plate, inferior anal laminae and valves of ovipositor largely black; terebra brown, surpassing the whitish yellow anal appendages by at least the length of S9; valves bearing approximately 20 sharp teeth along ventral edge.

Measurements (mm). Hw 17.6–20.9; abdomen + ovipositor 30.0–31.6.

Variation

The available male paratypes appear rather uniform. There are only very slight deviations from the holotype in intensity and extent of the different colours. Postnodals 13–16/11–15; Hw 17.6–18.8 mm; abdomen + anal appendages 28.5–31.7 mm.

Differential diagnosis

Both sexes of *Nososticta rufipes* sp. nov. stand apart from all described *Nososticta* species by virtue of their orange-red legs (Figure 8). It is one of the few species in which the male lacks pale marking on the front of the synthorax and face, a combination of characters also found in *N. chalybeostoma* (Lieftinck, 1932) and *N. cyanura* (Lieftinck, 1932). *N. cyanura* has however blue terga on S8–9 (black in *N. rufipes*) and *N. chalybeostoma* has white on the side of the thorax (blue in *N. rufipes*). In addition to the diagnostic orange-red legs the female can easily be recognised by the combination of the following characters: face with bright/pale transverse bar; fish-tail-shaped median lobe of the posterior lobe of pronotum when seen from dorsal; front of synthorax black without pale markings.

Identification of males

The *Nososticta* species treated in this article are divided into three groups based on readily visible characters. The combination of characters given for each species distinguishes them from all other species of *Nososticta* from the Bird's Head Peninsula and the Raja Ampat Islands. The key allows easy identification after which the original description or Michalski (2012) should be consulted to verify the identification.

Dorsum of thorax (mesepisterna) with blue

Nososticta nigrifrons (Ris, 1913) – ♂ Hw 20 mm. Face black without pale transverse bar. Dorsum of S8–10 including appendages blue. Known from Misool Island, Bird's Head Peninsula and southern and northern lowland of New Guinea. *Nososticta lorentzi* (Lieftinck, 1938) is here considered a synonym.

Dorsum of thorax with orange

Nososticta aurantiaca (Lieftinck, 1938) – ♂ Hw 19 mm. Pale markings on dorsum of thorax cover about half its length. Sides of thorax with a broad black band along the metapleural suture. Known from Salawati Island and Bird's Head Peninsula.

Nososticta plagiata (Selys, 1886) – ♂ Hw 17–18 mm. Pale markings on dorsum of thorax cover slightly over half its length. Sides of thorax nearly completely orange and without a broad black band along the metapleural suture. Known from Misool Island and Bird's Head Peninsula as far east as Kaimana.

Nososticta xanthe (Lieftinck, 1938) – ♂ Hw 21 mm. Pale markings on dorsum of thorax cover four-fifth of its length. Sides of thorax nearly completely orange and without a broad black band along the metapleural suture. Known from Salawati Island and Bird's Head Peninsula.

Dorsum of thorax completely dark

Nososticta rufipes sp. nov. – ♂ Hw 17–21 mm. Legs bright orange-red. Face black without pale transverse bar. Dorsum of S8–10 black. Known from Misool Island and Bird's Head Peninsula.

Nososticta atrocyana (Lieftinck, 1960) – ♂ Hw 21–22 mm. Legs dark. Face with pale transverse bar. Dorsum of S8–10 black. Known from Waigeo Island.

Nososticta dorsonigra (Martin, 1902) – ♂ Hw 23 mm. Legs dark. Face with broken pale transverse bar. Dorsum of S8–10 red. Pt swollen and conspicuously reddish brown-coloured. Known from Bird's Head Peninsula.

Nososticta evelynae (Lieftinck, 1960) – ♂ Hw 19 mm. Legs dark. Face with broken pale transverse bar. Dorsum of S8–10 red. Pt dark brown. Known from Waigeo Island.

Nososticta pyroprocta (Lieftinck, 1960) – ♂ Hw 17–18 mm. Legs dark. Face black without pale transverse bar. Dorsum of S8–10 orange-red. Nearest to *N. erythroprocta*, see Lieftinck (1960) for differences. Known from Misool Island and Bird's Head Peninsula (surroundings of Sorong).

Nososticta erythroprocta (Selys, 1886) – ♂ Hw 19 mm. Legs dark. Face black without pale transverse bar. Dorsum of S8–10 red. Nearest to *N. pyroprocta*, see Lieftinck (1960) for differences. Known from Waigeo Island.

Nososticta wallacei (Selys, 1886) – ♂ Hw 17 mm. Legs dark. Face black without pale transverse bar. Dorsum of S8–10 blue, appendages black. Known from Sorong and Japen Island.

Hirtherto unpublished records

All material listed below is from the Indonesian province Papua Barat which includes both the Bird's Head Peninsula and the Raja Ampat Islands. Most of this material was already identified

by M.A. Liefstinck but was not brought on record, although he seems to have used them for his checklist of the Papuan region (Liefstinck, 1949).

- *Nososticta wallacei*: 1 ♂, Sorong, 24–31 October 1948, M.A. Liefstinck.
- *Nososticta xanthe*: 2 ♂, 2 ♀, Misool, Fakal, 0–75 m, 8 September–20 October 1948, leg. M.A. Liefstinck; 12 ♂, 7 ♀, Klamono Oilfields, 18–24 August 1948, leg. M.A. Liefstinck; 3 ♂, 1 ♀, environments Steenkool (= Bintuni), 28 May–13 June 1957, leg. D. Bergman.
- *Nososticta plagiata*: 4 ♂, 2 ♀, Sei Jakali [location could not be found], neck of the Bird's Head Peninsula, 18–19 May 1941, leg. Negumij (Nederlandse Maatschappij voor Nieuw Guinea); over 200 ♂ and ♀, Misool, Fakal, 0–75 m, 8 September–20 October 1948, leg. M.A. Liefstinck; 4 ♂, 2 ♀, Klamono Oilfields, 18–24 August 1948, leg. M.A. Liefstinck; 12 ♂, 12 ♀, Sorong, 28 August–6 September 1948, leg. M.A. Liefstinck; 1 ♂, 2 ♀, Sorong, 8 July–14 August 1948, leg. M.A. Liefstinck; 3 ♂, 3 ♀, Manokwari, plain of Ransiki River, 5–10 m, 1–15 August 1948, leg. A.J. Kostermans; 4 ♂, 2 ♀, Manokwari, plain of the Momi river, 5–10 m, 15–31 August 1948, leg. A.J. Kosterman; 3 ♂, 1 ♀, Ransiki, 6–11 July 1949, leg. S. Bergman; 1 ♂, between Wosi and Sowi, S. of Manokwari, leg. L. Brongersma; 1 ♂, Manokwari, J.C. Bouwens & L.D. Brongersma.
- *Nososticta nigrifrons*: > 80 ♂, > 40 ♀, Misool, 0–75 m, 8 September–20 October 1948; M.A. Liefstinck; 1 ♂, Klamono Oilfields, 18–24 August 1948, leg. M.A. Liefstinck; 2 ♂, Sorong, 28 August–6 September 1948, leg. M.A. Liefstinck; 3 ♂, Sorong, 8 July–14 August 1948, leg. M.A. Liefstinck; 59 ♂, 19 ♀, environments Steenkool (= Bintuni), 28 May–13 June 1957, leg. D. Bergman.

Acknowledgements

Yvonne van Nierop kindly assisted with the work in the Naturalis Biodiversity Centre, Leiden, Netherlands (RMNH).

References

- Kalkman, V. J., & Orr, A. G. (2013). Field guide to the damselflies of New Guinea. *Brachytron*, 16(Suppl.), 3–120.
- Liefstinck, M. A. (1949). The dragonflies (Odonata) of New Guinea and neighbouring islands. Part VII. Results of the Third Archbold expedition 1938–1939 and of the Le Roux expedition 1939 to Netherlands New Guinea (II. Zygoptera). *Nova Guinea (N.S.)*, 5, 1–271.
- Liefstinck, M. A. (1960). Three new species of *Notoneura* Tillyard from western New Guinea (Odonata Protoneuridae). *Nova Guinea (N.S.)*, 10, 117–126.
- Michalski, J. (2012). *A manual for the identification of the dragonflies and damselflies of New Guinea, Maluku, and the Solomon Islands*. Morristown, NJ: Kandanum Books.
- Theischinger, G., & Kalkman, V. J. (Forthcoming). The genus *Teinobasis* on the Bird's Head Peninsula and the Raja Ampat Islands, Indonesia (Odonata: Coenagrionidae). *Odonatologica*, 42(3/4).
- Theischinger, G., & Richards, S. J. (n.d.). New species and keys of *Nososticta* Hagen from the Papuan region (Platycnemididae: Disparoneurinae). Unpublished manuscript.