

# A new species, *Pseudagrion yalomi*, of the *Pseudagrion* red-group from New Britain, Papua New Guinea (Zygoptera: Coenagrionidae)

Isabella Hunter<sup>a\*</sup>, Laura N. Sutherland<sup>a</sup>, Alexandra Bushnell<sup>a</sup>, Yve Scribner<sup>a</sup>,  
Seth M. Bybee<sup>a</sup> & Vincent J. Kalkman<sup>b</sup>

<sup>a</sup> Department of Biology, Brigham Young University, 4102 LSB, Provo, UT 84602, USA

<sup>b</sup> Naturalis Biodiversity Center, PO Box 9517, 2300 RA Leiden, the Netherlands

\*Corresponding author: Email: [ihunter6@student.byu.edu](mailto:ihunter6@student.byu.edu)

**Abstract.** A new species of *Pseudagrion* red-group, *Pseudagrion yalomi* sp. n., is described from northeastern New Britain, Papua New Guinea. Characters of the male holotype (Papua New Guinea, Bismarck Archipelago, northeastern New Britain Island, Yalom 1000 m, 9.v.1962, Noona Dan Exp. 61–62) are described, and affinities of the new species are discussed. Variations in paratypes and comparisons to other species within the Eastern red-group are specified. The distribution of all 15 members of the *Pseudagrion* red-group occurring east of Lydekker's line is shown on a map.

**Keywords.** Odonata, damselfly, taxonomy, zoogeography

<http://www.zoobank.org/urn:lsid:zoobank.org:pub:EE9A6D3B-BCC3-4B52-B4E0-163FE2F793D5>

## Research Article

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### Data Availability Statement:

All relevant data are within the paper.

## Introduction

*Pseudagrion* Selys, 1876 is a large damselfly genus with approximately 150 species (Paulson et al., 2025) distributed throughout the Afrotropical, Indomalayan, and Australasian regions. Based on molecular reconstructions with limited taxon sampling (i.e., Dijkstra et al., 2007; Walia & Dhillon, 2024) and unpublished data with a wider taxon sampling (i.e., COI data of Naturalis Biodiversity Center, Naturalis and anchored hybrid enrichment data of GEODE) *Pseudagrion* is composed of five or six clades, which could form the basis of hypotheses for new genera (Seehausen et al., 2025). One of the clades, the *Pseudagrion* red-group, is aptly named for the reddish color of parts of the head, thorax and abdomen in most of its species. The 31 species of this group are distributed from mainland Asia and the Philippines through the Indonesian Archipelago to Australia, New Guinea, and the Solomons. Preliminary molecular data suggests that the *Pseudagrion* red-group consists of two clades that correspond with a geographical separation east and west of Lydekker's line (Seehausen et al., 2025). Lydekker's line, proposed in 1896, delineates a boundary which follows the western edge of the Sahul continental shelf, separating the Australasian region and Wallacea. The 17 species occurring west of Lydekker's line have been recently revised (Seehausen et al., 2025). East of Lydekker's line, 14 species have been described (Table 1). Most of the species described prior to 1990 were described by Maurits A. Lieftinck and are well illustrated. No less than nine of the 14 species have been described since 1990. All of these descriptions are well illustrated, making identification of the species relatively straightforward. No up to date overview of this group is available, however Michalski (2012) provides a key to the species of *Pseudagrion* occurring in the Moluccas, New Guinea, and the Solomons which includes five species of the eastern *Pseudagrion* red-group known

**Table 1.** Species of the *Pseudagrion* red-group distributed east of Lydekker's line.

Species	Distribution
<i>P. bougainville</i> Theischinger, Richards & Polhemus, 2026	Papua New Guinea: Bougainville Island
<i>P. brevicornis</i> Theischinger, Polhemus & Richards, 2026	Solomon Islands: Choiseul Island
<i>P. civicum</i> Lieftinck, 1932	Indonesia: New Guinea, Japen, Biak-Supiori; Papua New Guinea: mainland
<i>P. farinicolle</i> Lieftinck, 1932	Indonesia: New Guinea, Biak-Supiori; Papua New Guinea: mainland
<i>P. fumipennis</i> Polhemus, Michalski & Richards, 2008	Papua New Guinea: mainland; Papua New Guinea: mainland
<i>P. ignifer</i> Tillyard, 1906	Australia
<i>P. incisurum</i> Lieftinck, 1949	Solomon Islands: Guadalcanal and Malaita islands
<i>P. jedda</i> Watson & Theischinger, 1991	Australia
<i>P. lorenzi</i> Gassmann, 2011	Papua New Guinea: New Britain
<i>P. lucifer</i> Theischinger, 1997	Australia
<i>P. parafarinicolle</i> Theischinger, Richards & Toko, 2018	Papua New Guinea: mainland
<i>P. silaceum</i> Lieftinck, 1932	Indonesia: New Guinea; Papua New Guinea: mainland
<i>P. simillimum</i> Theischinger, Polhemus & Richards, 2026	Solomon Islands: Kolombangara, New Georgia, Rendova and Vella Lavella
<i>P. woodlarkensis</i> Gassmann & Richards, 2016	Papua New Guinea: Woodlark Island
<i>P. yalomi</i> sp. n.	Papua New Guinea: New Britain

at the time; Kalkman & Orr (2013) provide information on the identification of four of the five species known from mainland New Guinea (*Pseudagrion parafarinicolle* Theischinger, Richards & Toko, 2018 not included); Theischinger et al. (2021) allows for the identification of the three species occurring in Australia. The recent publication by Theischinger et al. (2026) provides information on the identification of the four species occurring in the Solomon Archipelago and New Britain.

While sorting material at the collection of Naturalis Biodiversity Center, a box of pinned specimens collected during the Danish Noona Dan Expedition (1961–1962) (Petersen, 1966) to the Philippines and New Guinea was discovered. Among this material were seven males of a species of the *Pseudagrion* red-group collected on the islands of New Britain. The study of these specimens proved them to belong to an undescribed species, which we describe hereinafter. The characteristics are illustrated, and the distribution of the eastern representatives of the *Pseudagrion* red-group is shown on a map.

## Methods

The specimens examined were in the collection of the RMNH – Naturalis Biodiversity Center, Leiden, The Netherlands, on loan from the ZMUC – Zoological Museum, University of Copenhagen, Denmark. Measurements are given in millimeters (mm). Pictures of the specimens were taken using Z-stack imaging from a ZEISS SteREO Discovery.V20 modular stereo microscope.

## Description of new species

### *Pseudagrion yalomi* sp. n.

#### Etymology

The specific name *yalomi* refers to the small northeastern New Britain village of Yalom, where the holotype and most other specimens were collected. The suffix “-i” is added in accordance with Latin suffixes to portray being “of” Yalom, and to be used as a noun in the genitive case.

#### Material examined

Holotype ♂: Papua New Guinea, Bismarck Archipelago, New Britain Island, Yalom, 1000 m, 9.v.1962 Noona Dan Exp. 61–62. To be deposited in the ZMUC – Zoological Museum, University of Copenhagen, Denmark.

#### Paratypes

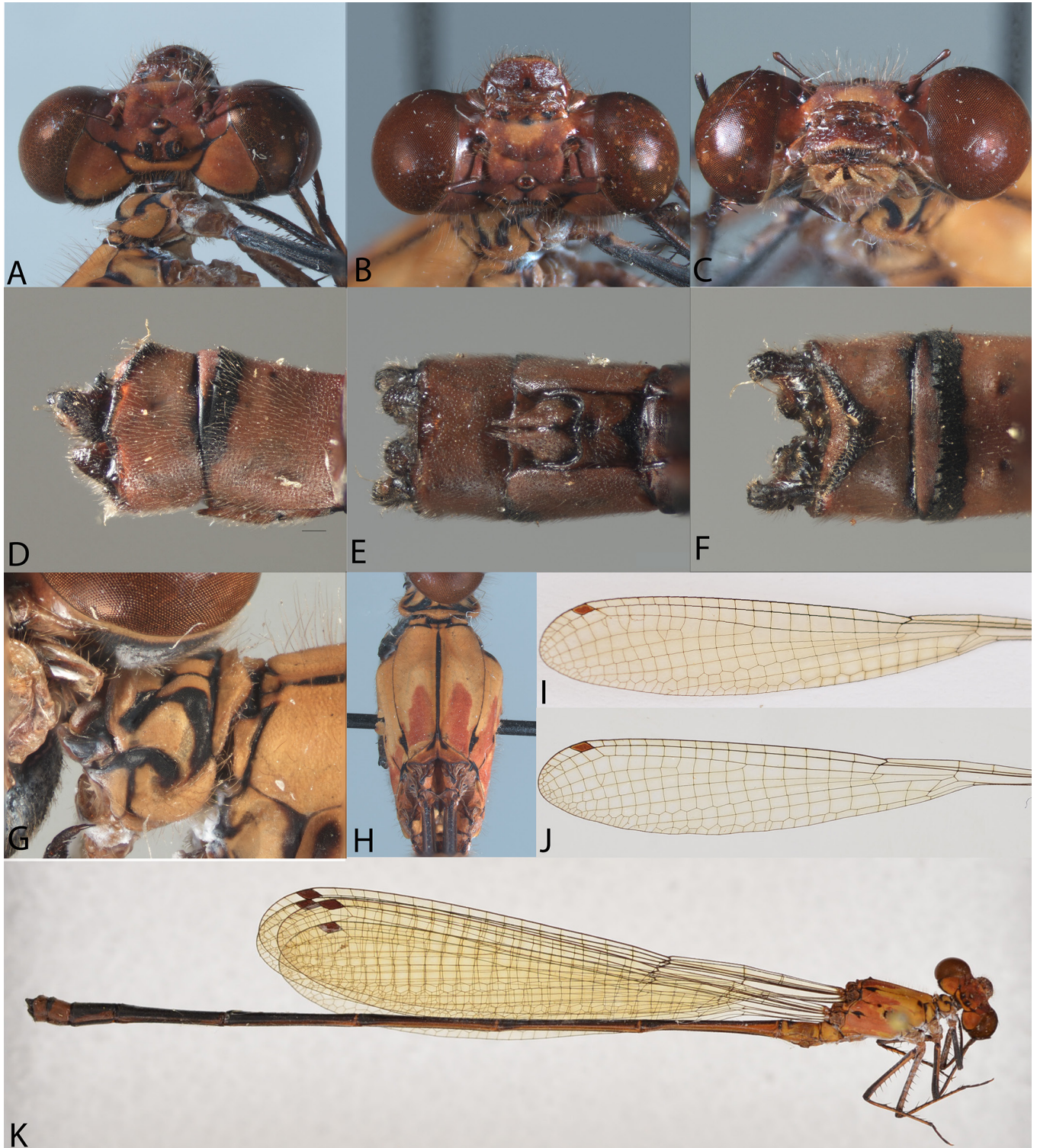
5 ♂ (RMNH.INS.1724210, RMNH.INS.1724212, RMNH.INS.1724213, RMNH.INS.1724214, RMNH.INS.1724215): Papua New Guinea, Bismarck Archipelago, New Britain Island, Yalom, 1000 m, 9–16.v.1962, Noona Dan Exp. 61–62.

1 ♂ (RMNH.INS.1724211): Papua New Guinea, Bismarck Archipelago, New Britain Island, Komgi, 1000 m, 14.v.1962, Noona Dan Exp. 61–62.

**Description of male holotype**

Head. (Figure 1A–C). Labium and mandibles whitish-ochre; genae, labrum, anteclypeus, antefrons, and postfrons dark orange-red; labrum with thin yellowish-ochre line running along the anterior edge; labium and clypeus textured (leathery); postclypeus dark orange-red with three black patch-like markings originating at posterior edge and center marking subtriangular;

ocelli dark red; lateral ocelli with a thick black band running along the inner edge, the posterior edge, and half of the outer posterior edge; median ocellus with black thick band on posterior edge; thin black band surrounding postocular bar; the orange postocular spots are large and cover most of the dorsum of the head; antennae segments 1 and 2 dark orange with the remaining segments orange-brown, head covered with long setae.



**Figure 1.** Images of the holotype of *Pseudagrion yalomi*: (A–C) head; terminal appendages: (D) lateral, (E) ventral, (F) dorsal; (G) prothorax; (H) pterothorax; (I) forewing; (J) hindwing; (K) habitus lateral.

Prothorax. Flat, large orange lateral lobes; dorsum of central lobe with a pair of c-shaped orange spots surrounded by black and separated from each other by a thin middorsal black line, and on both sides flanked by a larger sickle shaped orange spot. Posterior lobe orange, slightly erect with posterior edge curved medially.

Pterothorax. (Figure 1G, H). Orange with fine black markings as follows: thin middorsal stripe; humeral stripe thin with posterior end expanded into a black mark; subtriangular black spot on anterior edge of mesepimeron; metastigma black; very thin black interpleural stripe extending halfway to metathoracic spiracle with a point-like spot anteriorly. A reddish discoloration is present in the holotype.

Wings. (Figure 1I, J). FW 16 postnodal cross veins; HW15 postnodal cross veins; pterostigma dark red-brown, as long as the cell below it; wing hyaline tinted brown.

Abdomen. (Figure 1K). S1 light orange; S2 light orange with dorsal black triangle covering the posterior third of the segment; S3–7 dorsally black, laterally orange-red with the black increasing in width towards S8; S8 dorsally black and laterally orange-brown; S9 largely dark orange-red posterior edge black, S10 dark orange-red with posterior border black. Femur of the first pair of legs black, that of the second and third pair orange with a black stripe on the outer side, broadest near the knees (femoro-tibial joint). Tibiae orange with a black line along the setae; spines black and slightly longer than the distances separating them.

Terminal appendages. (Figure 1D, F): Cerci and paraprocts dark brownish. Cerci shorter than segment 10; in

lateral view cerci triangular with, on the interior close to the base, bearing a large dorsally projected tooth. Dorsally the cerci are widely separated with the large dorsally projected tooth at the base of the cerci being situated much closer to each other; the tip of the cerci bears a small inwards project tooth. Paraprocts slightly over half the length of the cerci; in lateral view shaped as a broadly rounded triangle.

Total measurements. Total length with appendages 50 mm; abdomen without appendages 42 mm; HW 29 mm; FW 30 mm, Pt of FW 0.9 mm along costa that of the HW 0.9 mm along the costa.

#### **Variation in male paratypes**

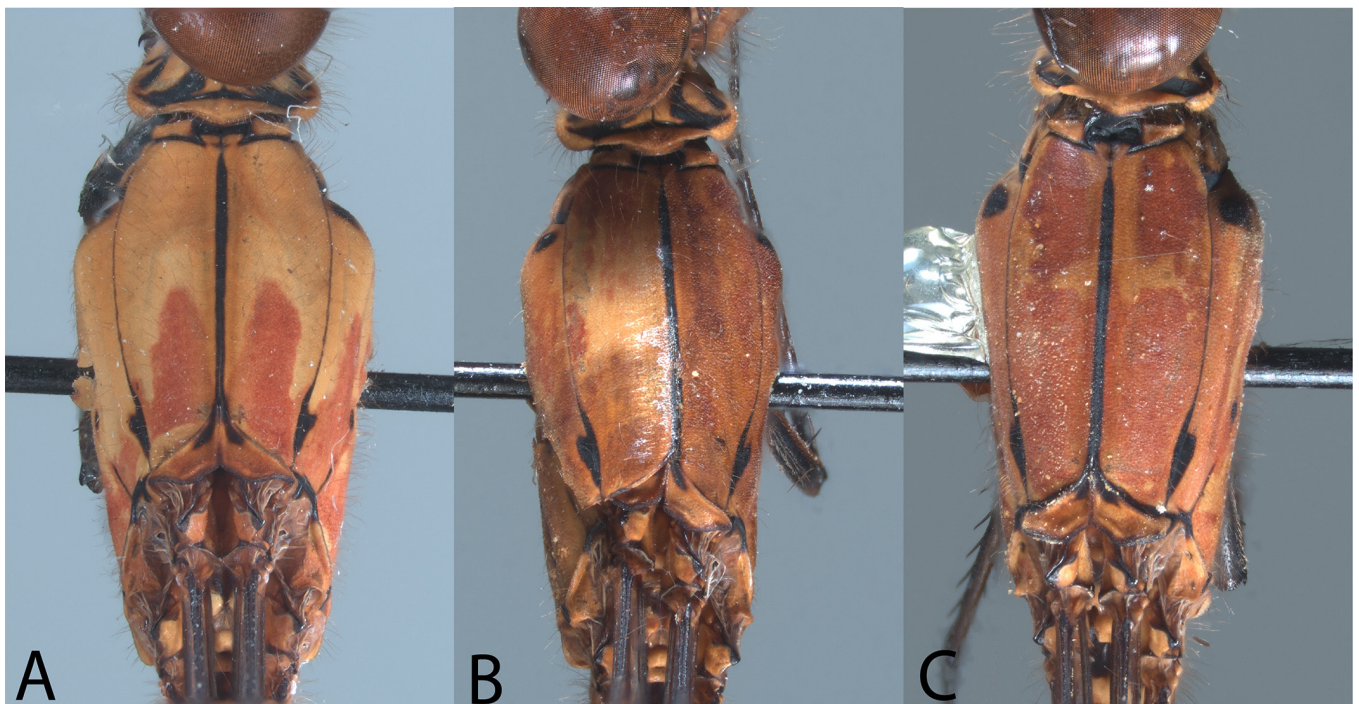
The orange on the pterothorax of the holotype is not uniform and the orange shows spots of intensity. The configuration of these spots varies between the holotype and the paratypes and these patterns seem to be caused by museum preservation and time (Figure 2). The same variation in intensity of the orange color is found in the postocular spots. The pterostigma in some paratypes is a slightly lighter shade of red-brown. Ax in FW 16 to 17, Ax in HW 14 to 16. Length of HW ranges from 27 to 28 mm.

#### **Description of female**

Female unknown

#### **Diagnosis**

The general coloration and pattern strongly resembles that of several other species belonging to the *Pseudagrion* red-group. The species is however, larger (abdo-



**Figure 2.** Color variation due to museum preservation on pterothorax: (A) holotype, (B–C) paratypes.

men over 40 mm), while less than 40 mm in any other species of this group occurring in New Guinea or nearby islands according to their original description, has cerci that in lateral view are shorter than segment 10 and bear a large basal and dorsally directed tooth, which is visible in lateral view.

The species is most likely to be confused with *Pseudagrion silaceum* Lieftinck, 1932, which is, however, smaller, has in dorsal view diverging cerci (subparallel in *P. yalomi*), and has the basal tooth of the cerci angled ventrally (angled dorsally in *P. yalomi*). The only other species bearing a large dorsally directed spine is *Pseudagrion woodlarkensis* Gassmann & Richards, 2016, however in this species the spine is not placed basally and the tip of the spine reaches about as far apically as the main branch of the cerci. Furthermore, the shape of both the cerci and the dorsally directed spine are clearly different from that of *P. yalomi*, with the cerci themselves being slightly longer than segment 10.

The only species of the *Pseudagrion* red-group with which it is currently known to overlap in range is *Pseud-*

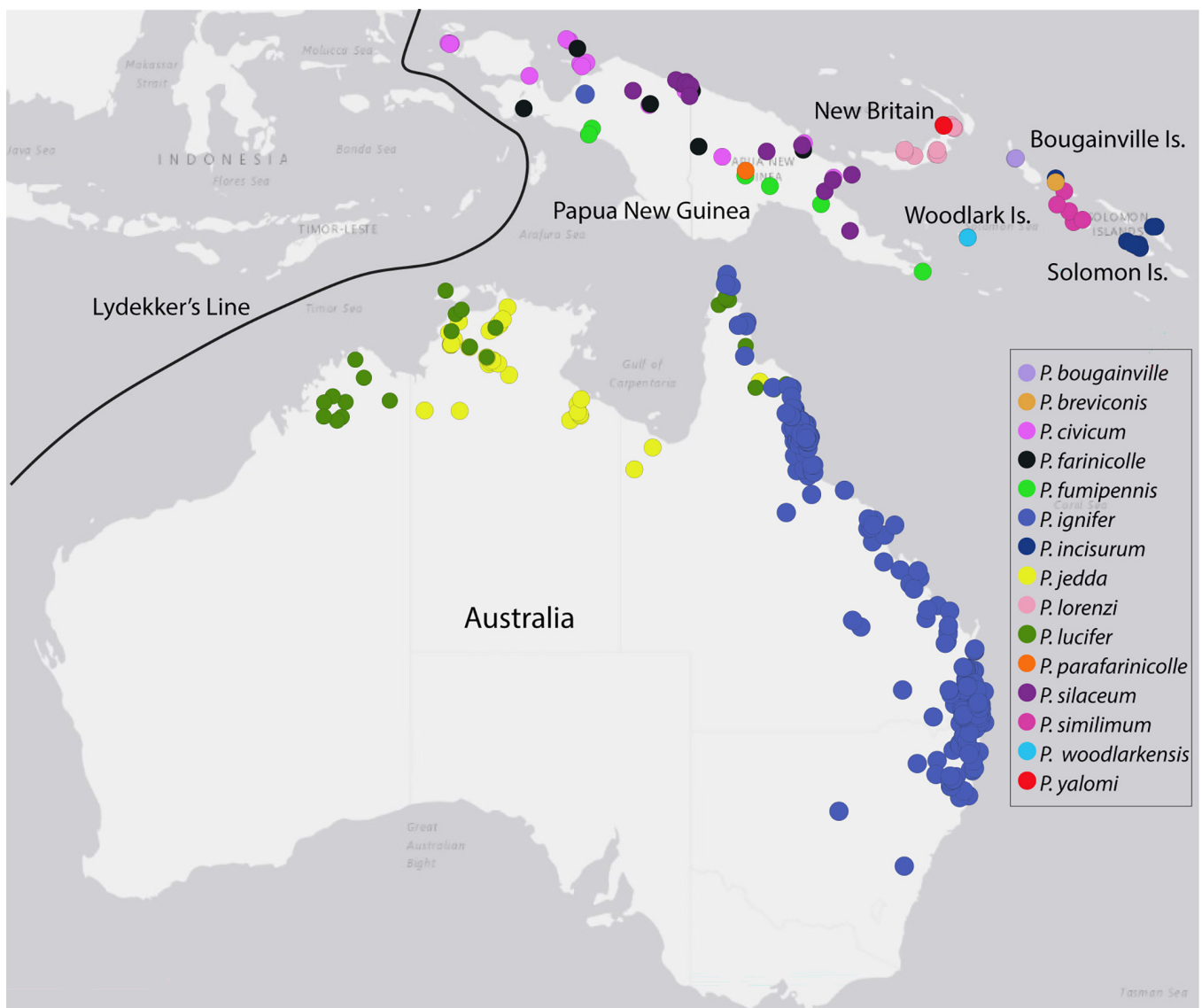
*agrion lorenzi* Gassmann, 2011, which is smaller and when the cerci are in lateral view more rounded and less triangular and which lacks the large dorsally directed basal tooth (Gassmann, 2011).

**Habitat**

No specifics on the habitat are available, but in Peterson (1966), the general collecting locality at the village of Yalom (1000 m a.s.l.) was described as including forest and small streams, while that at Komgi was given as primary forest. This suggests that the species is found in running water. Both localities were at an elevation of 1000 m a.s.l.

**Discussion**

With the description of *P. yalomi*, there are now 15 species known from the *Pseudagrion* red-group east of Lydekker’s line. Three are restricted to Australia, four are endemic to the Solomon Islands archipelago, two



**Figure 3.** Distribution of the species of the *Pseudagrion* red-group east of Lydekker’s line.

are apparently endemic to New Britain, and the remaining six are found on New Guinea and the adjacent islands (Figure 3). Males of the new species are distinguished by a prominent dorsally directed tooth located on the inner margin of the cercus. A similar tooth, of different shape, is also present in *Pseudagrion ustum* Selys, 1876, from Sulawesi and *Pseudagrion acutidens* Seehausen, Kalkman & Bedjanič, 2025 from the Moluccas but, is unique for the species east of Lydekker's Line. Data thus far suggests that the two species endemic to New Britain occur at different altitudes, with *P. yalomi* found at higher altitudes while *P. lorentzi* occurs only at lower altitudes. It seems likely that further fieldwork on islands such as New Ireland, Manus Island, or Tagula will lead to additional species being discovered.

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