

***ARGIOLESTES INDENTATUS* SPEC. NOV.  
FROM PAPUA NEW GUINEA  
(ZYGOPTERA: MEGAPODAGRIONIDAE)**

G. THEISCHINGER<sup>1</sup> and S.J. RICHARDS<sup>2</sup>

<sup>1</sup> NSW Department of Environment and Conservation, P.O. Box 29, Lidcombe NSW 1825, Australia; — Gunther.Theischinger@environment.nsw.gov.au

<sup>2</sup> Vertebrates Department, South Australian Museum, North Terrace, Adelaide SA 5000, Australia; — richards.steve@saugov.sa.gov.au

*Received March 14, 2006 / Reviewed and Accepted April 10, 2006*

The new sp. is described, diagnostic characters of the adult ♂ are illustrated and the affinities of the sp. are discussed. Holotype ♂: Papua New Guinea, Golf prov., Lakekamu: lowland forest (120 m a.s.l.), 25-XI-1996; deposited in South Australian Museum, Adelaide.

**INTRODUCTION**

Damselflies of the megapodagrionid genus *Argiolestes* are rather large, slender, dark, mostly metallic species often exhibiting blue or orange markings on head, thorax, and possibly abdomen. LIEFTINCK (1956) revised the Papuan and Moluccan species, and TSUDA (2000) listed 29 species from Papua New Guinea. Recent surveys by the junior author in the southern lowlands of Papua New Guinea have revealed a diverse fauna and at least one undescribed *Argiolestes* (RICHARDS et al., 1998). In this paper we describe and illustrate it. This is the fourth in a series of papers that aims to address taxonomic novelties in New Guinean Odonata collected by SJR between 1996 and 2001 (THEISCHINGER & RICHARDS 2005, 2006a, 2006b).

Descriptive terminology largely follows CHAO (1953) and WATSON & O'FARRELL (1991). Coloration is given as detectable from the preserved material. All illustrations were done with the aid of a camera lucida and are not to scale.

If not indicated otherwise the material is deposited in the Collection of the South Australian Museum (SAMA), North Terrace, Adelaide, South Australia.

*ARGIOLESTES INDENTATUS* SP. NOV.

Figures 1-3

**Material.** – Holotype ♂ (SAMA I21727): Papua New Guinea, Gulf province, Lakekamu, lowland forest (120 m asl), 1 km transect S Ivimka Camp (146°29'45"E, 7°44'05"S), 25-XI-1996, S.J. Richards leg.; 1 paratype ♂ (SAMA I21729), Lakekamu, XI-XII-1996, S.J. Richards leg.; 1 paratype ♀ (SAMA I21730), dam R4 transect S Ivimka Camp, 1-XII-1996, S.J. Richards leg.

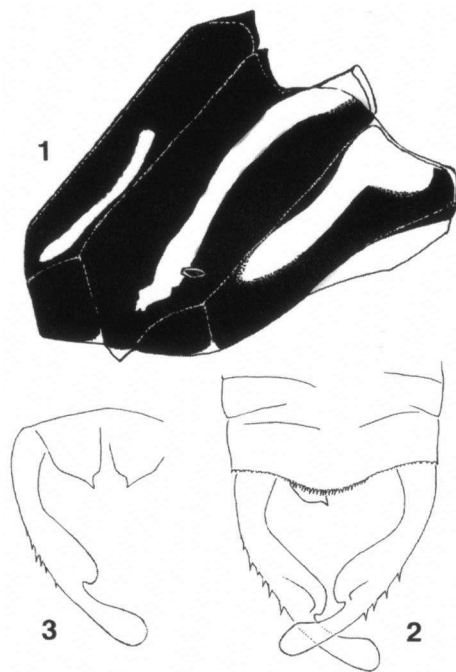
**Etymology.** – The specific name refers to the subapically indented superior anal appendages of the male.

**MALE.** – **Head** largely black, labrum, postclypeus and genae shiny black; mandibles, anteclypeus, patch between epistomal suture and eyes, small patch anterior to median ocellus, W-shaped patch lateral and posterior to lateral ocelli, respectively vertex, and lateral ends of occipital ridge brownish yellow or brown; only anteclypeus clearly and distinctly pale, otherwise pale and dark areas not sharply defined.

**Thorax.** – **Prothorax:** Pronotum largely black with yellow, more or less connected, lateral patches on all lobes and dull yellow median patch between anterior and median lobe; propleura black. Leg with coxa, trochanter, femur and tibia largely black, but inner surface of femur and tibia yellowish white; tip of tibia, tarsus and claws yellowish to reddish brown.

**Synthorax:** Mesopleura and metapleura, including dorsal carina, antealar ridge and sinus, and mesostigmatic lamina shiny black, marked with yellow as follows: a narrow band across more than basal half of mesepisternum very close to mesopleural suture; a long slightly wider stripe covering much of anterior half of metepisternum, and another covering much of anterior half of metepimeron; extreme postero-ventral corner of meso- and metakatepisternum; all of poststernum. Legs much as in prothorax.

**Wings.** – Membrane hyaline. Venation black. Pterostigma of both wings black, longer than wide, overlying less than 2 to 2 cells. Postnodals



Figs 1-3. *Argiolestes indentatus* sp. n., male: (1) synthorax, lateral view; – (2) anal appendages, dorsal view; – (3) same, part ventral view.

20-25/20-23. Up to 3 rows of cells in anal field.

**A b d o m e n.** – Largely black; only sides of terga 1-3 merging into brown, and small ill-defined brown basal patches on terga 3-8 and on intersegmental membrane of preceding segments. Terga 8 and 9 appearing hollowed and weakened along midline. Approximately median half of posterior edge of segment 10 prominent and distinctly serrated. Anal appendages very dark; superiors forcipate, with median flange simple, narrow and set off from long clubbed apex by a distinct notch; inferiors short, stout, laterally widely rounded, medially produced into short, pointed tip.

**M e a s u r e m e n t s** (in mm). – Hindwing 26.7-27.6, abdomen (including appendages) approximately 35.

**FEMALE.** – Only a single subadult specimen is available. Its structure in all not gender specific characters is much as in male. Its colouration is just very pale orange yellow without any pattern indicated and even the legs are completely pale. This can certainly not be characteristic for more adult females.

**M e a s u r e m e n t s.** – Hindwing 27.4 mm.

**HABITAT.** – The type locality is in the Lakekamu Basin, a vast area of pristine lowland rainforest covering about 2500 km<sup>2</sup> on the south side of New Guinea's central cordillera. The forest at Ivimka Research Station where this species was found is criss-crossed by numerous small, shaded but sun-dappled streams. A detailed description of the vegetation, climate, fauna and flora of the type locality can be found in MACK (1998).

## DISCUSSION

*A. indentatus* sp. n. keys out to *A. montivagans* (Förster) in the key given by LIEFTINCK (1956) and may therefore be considered most similar to that species. It certainly belongs to the group of species that have the posterior edge of the male segment 10 dorsally finely denticulate or serrated and the inner face of femora and tibiae bright yellow or orange. They are *A. ochrostomus* Lieftinck, *A. montivagans* and *A. kirbyi* (Förster). The character combination of a metallic green labrum, long narrow bands on the front of the synthorax and subapically indented simple superior anal appendages of the male, however, is diagnostic within the group. *A. ochrostomus* has a yellow labrum, *A. montivagans* lacks antehumeral bands, and both *A. montivagans* and *A. kirbyi* have the median flange of the male superior anal appendages bilobed.

FÖRSTER (1900) based his genus *Wahnesia* on species with curiously modified terminal segments in male. *Wahnesia* is now regarded as a junior synonym of *Argiolestes* Selys. However, as the species with modified terminal segments also share wing characters and male appendages different from the type species of *Argiolestes* Selys (and several apparently closely related species), *Wahnesia* may, after more extensive study, have to be re-established, and *A. indentatus* may have to be included in it.

## ACKNOWLEDGEMENTS

We wish to express our gratitude to: The PNG National Research Institute who assisted with SJR's Research Visa, and the PNG Department of Environment and Conservation for approving export of specimens. Fieldwork in PNG was supported by Conservation International, the Wildlife Conservation Society and the National Geographic Society through a grant to BRUCE BEEHLER. SJR is particularly grateful to GAI KULA, ANDY MACK, GEORDIE TORR, MILLER KAWANAMO, DEBRA WRIGHT and BRUCE BEEHLER for their support. SJR was supported by a grant from Conservation International during preparation of this manuscript. We also thank J. MICHALSKI for making available a draft copy of the text for his unpublished book on the dragonflies of New Guinea.

## REFERENCES

- CHAO, H.F., 1953. The external morphology of the dragonfly *Onychogomphus ardens* Needham. *Smithson. misc. Collns* 122(6): 1-56.
- FORSTER, F., 1900. Odonaten aus Neu-Guinea. *Termesz. Füzetek* 23: 81-108.
- LIEFTINCK, M.A., 1956. Revision of the genus *Argiolestes* Selys (Odonata) in New Guinea and the Moluccas with notes on the larval forms of the family Megapodagrionidae. *Nova Guinea* (N.S.) 7(1): 59-121.
- MACK, A., [Ed.], 1998. *A biological assessment of the Lakekamu Basin, Papua New Guinea*. Rapid Assessment Program Working Paper No. 9. Conservation International, Washington.
- RICHARDS, S.J., M. KAWANAMO & G. TORR, 1998. Odonata (dragonflies and damselflies). In: A. Mack, [Ed.], *A biological assessment of the Lakekamu Basin, Papua New Guinea*. Rapid Assessment Program Working Paper No. 9. Conservation International, Washington.
- THEISCHINGER, G. & S.J. RICHARDS, 2005. Two new species of *Drepanosticta* Laidlaw from Papua New Guinea (Zygoptera: Platystictidae). *Odonatologica* 34(3): 307-312.
- THEISCHINGER, G. & S.J. RICHARDS, 2006a. Two new species of *Nososticta* Hagen in Selys from Papua New Guinea (Zygoptera: Protoneuridae). *Odonatologica* 35(1): 67-71.
- THEISCHINGER, G. & S.J. RICHARDS, 2006b. Two new Zygoptera species from Papua New Guinea (Protoneuridae, Coenagrionidae). *Odonatologica* 35(2): 199-204.
- TSUDA, S., 2000. *A distributional list of the World Odonata 2000*. Tsuda, Osaka.
- WATSON, J.A.L. & F.A. O'FARRELL, 1991. Odonata (dragonflies and damselflies). In: CSIRO, [Ed.], *The insects of Australia*, [2nd edn], Melbourne Univ. Press, Melbourne.