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| Stapfia | 55 | 623-627 | 11. September 1998 |
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## A new species of *Griseargiolestes* THEISCHINGER from Australia (Odonata: Zygoptera: Megapodagrionidae)

Günther THEISCHINGER

**Abstract:** *Griseargiolestes bucki* sp. n. is described from New South Wales, Australia, and compared with all its congeners.

**Key words:** *Griseargiolestes*, new species, Australia.

### Introduction

A recently conducted collecting trip to Barrington Tops in north-eastern New South Wales (participants: L. Müller, Dr. F. and Dr. E. Speta, G. Theischinger) to find additional material of an undescribed *Eusynthemis* species failed. During the search for *Eusynthemis*, however, 3 individuals of an enigmatic species of *Griseargiolestes* THEISCHINGER were collected in a sphagnum bog near Dilgry River at about 1200 m above sea level. On the way back to Sydney numerous adults of a strange *Griseargiolestes* were collected in Chichester State Forest in seepage situations along Jerusalem Creek between 300 and 500 m above sea level. Strangely, both populations were found to belong to the same undescribed species of which no material was available in relevant institutional collections. On two more trips to Chichester State Forest more material, including last instar exuviae, was obtained between 300 and 900 m above sea level.

Below, the above species is described as new and compared with all its congeners.

The terminology used in the description follows CHAO (1953) and WATSON & O'FARRELL (1991). The material referred to is held in the Australian National Insect Collection, Canberra (ANIC) and in the collection of the author (GT). In the list of material, E indicates last instar exuviae.

### *Griseargiolestes bucki* spec. nov. (Figs 1- 8, 14, 17)

**Types** - Holotype ♂: New South Wales, Chichester State Forest, seepage situations along Jerusalem Ck, 300-500 m, Dec. 1997, G. Theischinger and L. Müller (ANIC); 27 paratypes (21 ♂♂, 2 ♀♀, 4E), same data as holotype (GT); 38 paratypes (33 ♂♂, 5 ♀♀), New South Wales, Chichester State Forest, 300-900 m, Dec. 1997 and Jan. 1998, G. Theischinger and L. Müller (GT); 3 paratypes (2 ♂♂, 1 ♀), New South Wales, Barrington Tops, sphagnum bog near Dilgry River, 1200 m, Dec. 1997, G. Theischinger and L. Müller (GT).

**Name:** Dedication to Dr. K. Buck of Wilster, Germany, prolific photographer of Australian dragonflies.

**Male** (Figs 1- 8, 14, 17)

**Dimensions:** Forewing 24.0-27.5 mm; hindwing 23.5-27.0 mm; abdomen 30.0-33.2 mm.

**Head:** Labium greyish yellow, palps slightly darker; genae ventral to antennal insertion, and base of mandibles dull yellow, apical portion of mandibles brownish black; labrum metallic black; anteclypeus blackish grey; dorsal portion of genae, vertex, occiput, postocular lobes and

postgenae black; postclypeus black, only basal corners dull yellow; frons black, apparently with some pruinescence, a faint indication of a small elongate brown mark each side of vertex, between the lateral ocellus and the antenna; antennae black, only a yellowish ring around apex of scape.

**Prothorax** (Fig. 1): Pronotum with anterior lobe yellow, median lobe black with large irregular yellow patch each side, and posterior lobe laterally yellow, medially black, sometimes with narrow yellow rim; episternum and epimeron black; coxa yellow, trochanter yellow and black; femur black, with inner surface greyish yellow; tibia, tarsus and claws black.

**Synthorax** (Fig. 1): Mesostigmatic lamina, spiracular dorsum, collar, dorsal carina, antealar ridge and sinus black with bluish green metallic reflection, only a small yellow area lateral to mesothoracic spiracle, mesanepisternum, mesepimeron and metanepisternum black with narrow pale orange humeral stripe extending along mesopleural suture from collar to about 3/4 way in both mesanepisternum and mesepimeron, a subtriangular yellow patch covering part of dorsal half of mesepimeron and metanepisternum, and an elongate yellow mark ventral to and posterodorsal to metathoracic spiracle; mesokatepimeron black with yellow posteroventral corner, metakatepimeron similar but only pale to dark brown instead of black, and yellow more extensive; metepimeron yellow with black patch covering anterodorsal third adjacent to the black portion of metanepisternum and continuing as a narrow black dorsal rim; subalar ridges largely black; coxae dark yellow, trochanters yellow with little black; femora black with inner face yellowish grey; tibiae, tarsi and claws black; postcoxae and poststernum yellow; terga black and yellow.

**Wings**: Veins brownish black; membrane hyaline; humeral plate of forewing largely black, of hindwing largely yellow; 16-20/15-18 postnodals; pterostigma black, usually overlying 2 cells, 1.1-1.5 mm long in both wings; 6-10/5-8 crossveins between subnodus and origin of R<sub>3</sub>; generally 2 postdiscoidal cells; anal field generally with single row of cells.

**Abdomen**: Tergum 1 metallic black dorsally, yellow laterally; tergum 2 metallic black with yellow patch along lateral margin; terga 3-6 metallic black, each with small almond-shaped yellow anterolateral mark each side; terga 7-9 black; segment 10 metallic black; sternum 1 brown; secondary genitalia and sterna 3-9 largely black. Glans penis (Figs 2-4) very small, apically with narrow U-shaped notch between wide flat lobes. Anal appendages (Fig. 5): Superior appendages forcipate, slightly angulated at about half length and dorsally slightly widened and spinulate just before that; inferior appendages short with apex widened into kind of a rather flat disc.

## Female

**Dimensions**: Forewing 24.3-27.0 mm; hindwing 23.8-26.5 mm; abdomen 25.6-27.8 mm.

**Head and thorax**: Much as in male.

**Wings**: Much as in male; postnodals 14-18/13-16; other crossveins also slightly fewer than in male.

**Abdomen**: Much as in male; sternum 2 and ovipositor black.

## Larva (Figs 6, 7)

Total length 14.0-16.0 mm.

A typical *Griseargiolestes* larva as presented by THEISCHINGER (1998). Gills very short and wide, with terminal styli not detected (probably broken off).

## Discussion

The known localities of *Griseargiolestes bucki* spec. nov. show a wide range in altitude and other habitat conditions (seepage along Jerusalem Ck, 300-500 m; sphagnum bog near Dilgry R., 1200 m). This is, however, not surprising since *G. griseus* (HAGEN in SELYS) is also found from sea-level (seepage along the shore-line) up to 1000 m (montane swamps). Hitherto, two groups of species were included in *Griseargiolestes*: such with simple anal appendages of the male and with distinctive pruinescence [*G. albescens* (TILLYARD), *G. eboracus* (TILLYARD), *G. griseus* (HAGEN in SELYS), *G. intermedius* (TILLYARD)] and such with more elaborate anal appendages of the male and without marked pruinescence [*G. fontanus* (TILLYARD), *G. metallicus* (SJÖSTEDT)]. The male of *G. bucki* spec. nov. has elaborate superior appendages as have the species of the second group, and simple inferior appendages as have the species of the first group, and the species is apparently not strongly pruinescent. A prominent feature of the new species is the extremely small apex of the glans penis which is unique for both groups of species.

It appears that *G. bucki* spec. nov. does not occur south of the Hunter River. At Barrington Tops it was found to coexist in the same habitat with *G. eboracus* (TILLYARD).

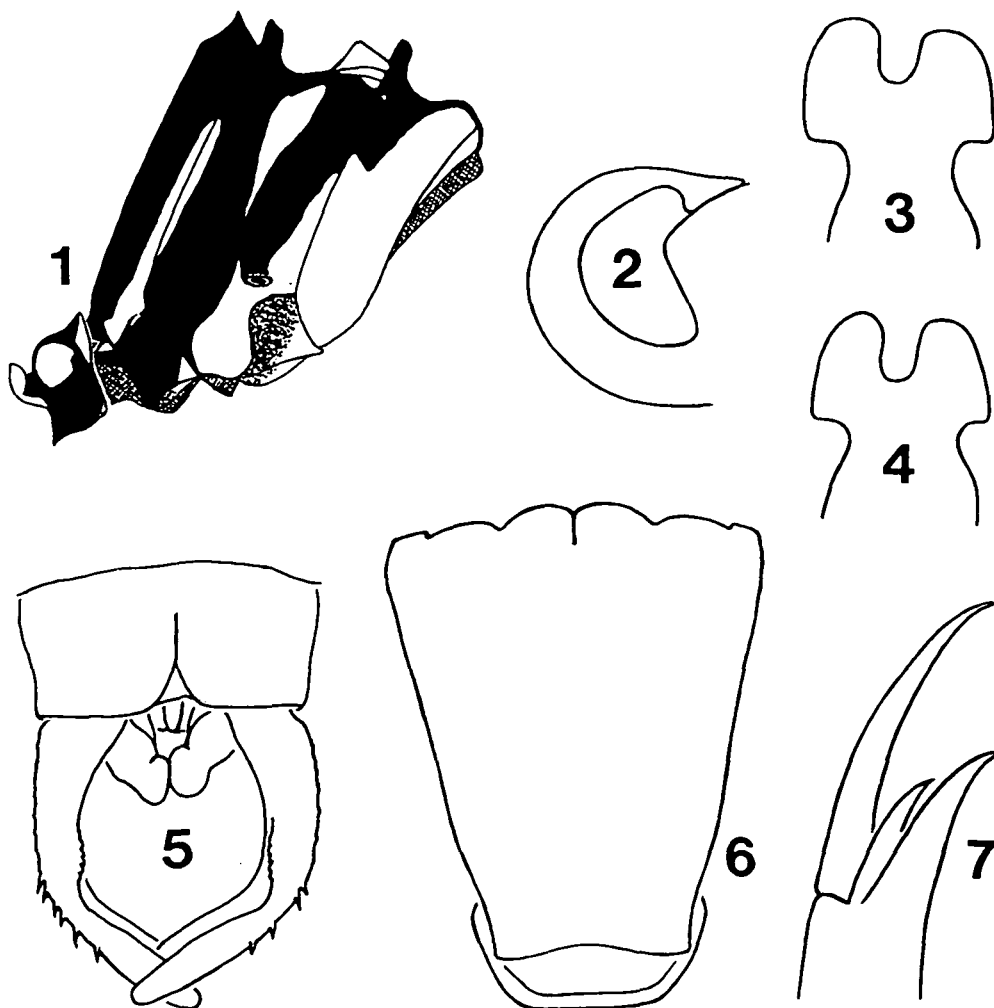
## Acknowledgements

I wish to thank Mr L. Müller of Berowra for his dedicated efforts in collecting the species described above and for helpful discussions of the species of *Griseargiolestes*.

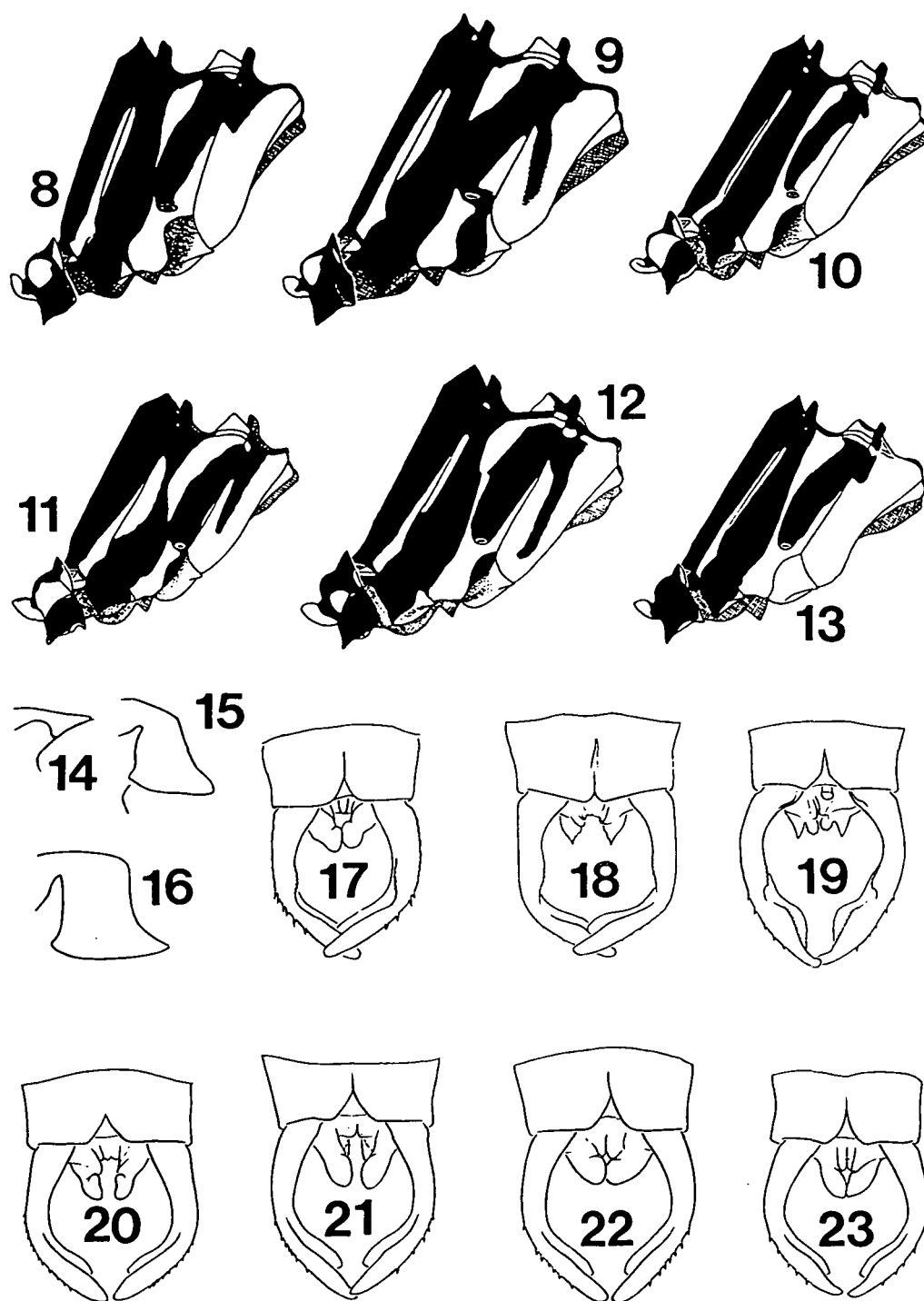
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Adress of the author:                   Günther THEISCHINGER  
  2A Hammersley Rd, Grays Point,  
  N.S.W. 2232  
  Australia



**Figs 1-7: *Griseargiolestes bucki* sp. n.: 1-5 - male: 1 - thorax, lateral aspect; 2 - glans penis, lateral aspect; 3, 4 - tip of glans penis, ventral aspect: 3 - from Jerusalem Ck; 4 - from Barrington Tops; 5 - anal appendages, dorsal aspect; 6, 7 - final instar exuviae: 6 - labium, ventral aspect; 7 - labial palp, ventral aspect.**



Figs 8-23: *Griseargiolestes* species, male: 8-13 - thorax, lateral aspect; 14-16 - apex of glans penis, lateral spect; 17-23 - anal appendages, dorsal aspect; 8, 14, 17 - *G. bucki* sp. n.; 9, 15, 18 - *G. fontanus* (TILLYARD); 10, 16, 19 - *G. metallicus* (SJOSTEDT); 11, 21 - *G. griseus* (HAGEN in SELYS); 12, 22 - *G. eboracus* (TILLYARD); 13, 23 - *G. albescens* (TILLYARD); 20 - *G. intermedius* (TILLYARD).

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Zeitschrift/Journal: [Stapfia](#)

Jahr/Year: 1998

Band/Volume: [0055](#)

Autor(en)/Author(s): Theischinger Günther

Artikel/Article: [A new species of Griseargiolestes Theischinger from Australia \(Odonata: Zygoptera: Megapodagrionidae\) 623-627](#)