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## A new species of *Eusynthemis* FÖRSTER from Australia (Odonata: Synthemistidae)

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**Abstract:** *Eusynthemis ursula* sp. n. (♂ holotype: Chichester State Forest, springs of Telegraphy River, New South Wales, Australia) is described, illustrated and compared with the other Australian species of *Eusynthemis* FÖRSTER.

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

### Introduction

During recent work on the collection of papered dragonflies left to the ANIC (Australian National Insect Collection) by the Department of Zoology of the University of New England, a single male of an undescribed species of *Eusynthemis* FÖRSTER was discovered. Surprisingly search in other relevant collections yielded only one more specimen of this species. Three collecting trips were done in order to get additional material. Whereas the first trip to Barrington Tops was not successful, 4 males were obtained during a second trip to Chichester State Forest. All efforts proved unavailing again on the third trip (to Chichester State Forest). The species is described as new below.

### *Eusynthemis ursula* spec. nov. (Figs 1-6)

Primary type: Holotype ♂: New South Wales, Chichester State Forest, springs of Telegraphy River, 900 m, Dec. 1997, G. Theischinger and L. Müller (ANIC); 3♂♂ paratypes, same data as holotype (GT); 1♂ paratype, New South Wales, Barrington Tops, Big Hole, 27.11.1979, G. Theischinger and L. Müller (GT); 1♂ paratype, New South Wales, Barrington Tops, Dilgry River, 10.12.1979, P. Brookhouse (ANIC).

Name: after my granddaughter Ursula.

Male (Figs 1-6)

**Dimensions:** Hindwing 28.1-28.9 mm; abdomen (including anal appendages) 29.9-32.7 mm.

**Head** (Figs 1, 2): Labium largely brownish yellow, lateral half of lobes blackish brown; mandibles greyish brown to black; labrum black with dark yellow mediobasal spot; anteclypeus pale yellow; postclypeus black with ill-defined irregular greyish brown mark on each side; frons black with two large yellow marks, taking upper 4/5 of anterior portion and anterior half of posterior portion and separated very widely along midline; vertex and antennae black; occiput black above, yellow behind; postgenae black with lateral yellow mark.

**Prothorax:** Pronotum largely blackish brown with only anterior rim of anterior lobe yellow; coxa, trochanter and much of basal portion of femur yellow; rest of femur, tibia and tarsus black; claws dark brown; tibial keel brownish grey, approximately 50% of tibial length.

**Synthorax:** Spiracular dorsum, mesostigmatic lamina and collar black; dorsal carina yellow; antealar ridge and antealar sinus black; front of synthorax brownish black to black; mesepimeron and metepisternum broadly black along surrounding sutures and ridges and around metathoracic spiracle, large enclosed area yellow; mesokatepisternum black; metepimeron largely yellow, broadly black along metapleural suture and along dorsal ridge; metakatepisternum black with yellow ventral margin; subalar ridge black; metapostepimeron greyish yellow; poststernum greyish brown; midline of mesoscutum, all of mesonotum, mesopostnotum and metascutum yellow, other tergal areas brownish black; mesocoxa greyish yellow, metacoxa greyish brown; postcoxae dull yellow; trochanters largely black; tibiae and tarsi black; claws brown to black; tibial keels ca 50 % of mesotibia, ca 70 % of metatibia.

**Wings:** Membrane hyaline, wing bases strongly suffused with black; venation black except for yellow median ray of costa; axillary and humeral plates black; intermediary pieces vivid yellow; antenodals 12-14/8-10; postnodals 9-11/10-12; generally Ax1, Ax3 and Ax5 of forewing and every second antenodal of hindwing distinctly thickened, other antenodals of first and second series often irregular, particularly in forewing; pterostigma 2.0-2.4 mm long, black, overlying 2-3 crossveins; sectors of arculus with long stalk; triangles and subtriangle free, supertriangles crossed by 1 vein; discoidal field of forewing starting 1 cell wide for 5-7 rows, broadening to 12-14 cells at wing margin; discoidal field of hindwing 1 cell wide for 3-5 rows, broadening to 9-13 cells at wing margin; 3-5 bridge crossveins; 2 crossveins in basal space; 3-5 crossveins in cubito-anal space; anal loop of 7-9 cells, 3-4 cells wide and 2 cells deep; anal triangle 2-celled, anal angle almost rounded; membranules whitish grey.

**Abdomen** (Figs 3-6): Segments 1 and 2 subcylindrical, slightly enlarged; segments 3-5 cylindrical; from base of segment 6 to end of 7 widening slightly, from 8 to apex subcylindrical again. Terga 1-9 black, marked as follows: 1, middorsal mark and lateral patch along ventral margin; 2, two large almond-shaped patches along supplementary transverse carina, broad patch along anterior third of lateral margin; 3, two subcircular marks at supplementary transverse carina and narrow line along basal 1/6 of lateral margin; 4-7, two subcircular marks along supplementary transverse carina; 8, two almond-shaped marks along supplementary transverse carina and broad patch along much of lateral margin; 9, indication of two minute subbasal spots and broad patch along much of lateral margin; segment 10 black; sterna greyish brown to black. Anal appendages black; superiors converging only near base, otherwise almost straight (dorsal aspect), slightly arched dorso-ventrally, not tapered, sausage-shaped, basally hardly strengthened, with very small laterally pointing tooth at 1/3 length; inferior appendage arched, truncate, with two subequal dorsal teeth on each side of apex.

Female unknown.

Larva unknown.

### Affinities and diagnosis

At the present the genus *Eusynthemis* is known to include the following species: *E. aurolineata* (TILLYARD 1913), *E. barbarae* (MOULDS 1985), *E. brevistyla* (SELYS 1871), *E. deniseae* THEISCHINGER 1977, *E. frontalis* LIEFTINCK 1949, *E. guttata* (SELYS 1871), *E. nigra* (TILLYARD 1906), *E. tenera* THEISCHINGER 1996, *E. tilyardi* THEISCHINGER 1996, and *E. virgula* (SELYS 1874). Of these the males of *E. frontalis* and *E. tenera* are still unknown. From the remaining species (Figs 7-14), the male of *E. ursula* (Figs 1-6) stands out by the extremely wide black midline of the anterior frons (Figs 1, 2), the yellow metascutum, the lack of yellow anterodorsal spots on abdominal segment 3 (Fig. 3), the apically strongly differentiated genital hamules (Fig. 4) and the basally hardly strengthened and hardly armed, almost straight sausage-shaped superior anal appendages (Figs 5, 6). From this it appears that *E. ursula* is not closely related to any one of the other species. It does not belong to the *E. guttata* group *sensu* THEISCHINGER (1996) and does not appear particularly close to any other species. To judge from the described characters it could be the sister-group of all other species of *Eusynthemis*.

Of interest is the type locality of *E. ursula* spec. nov. It is a very dark and narrow gully right at springs of Telegraphy River (900 m) in dense *Nothofagus* forest with *Dicksonia* along the hardly detectable water course.

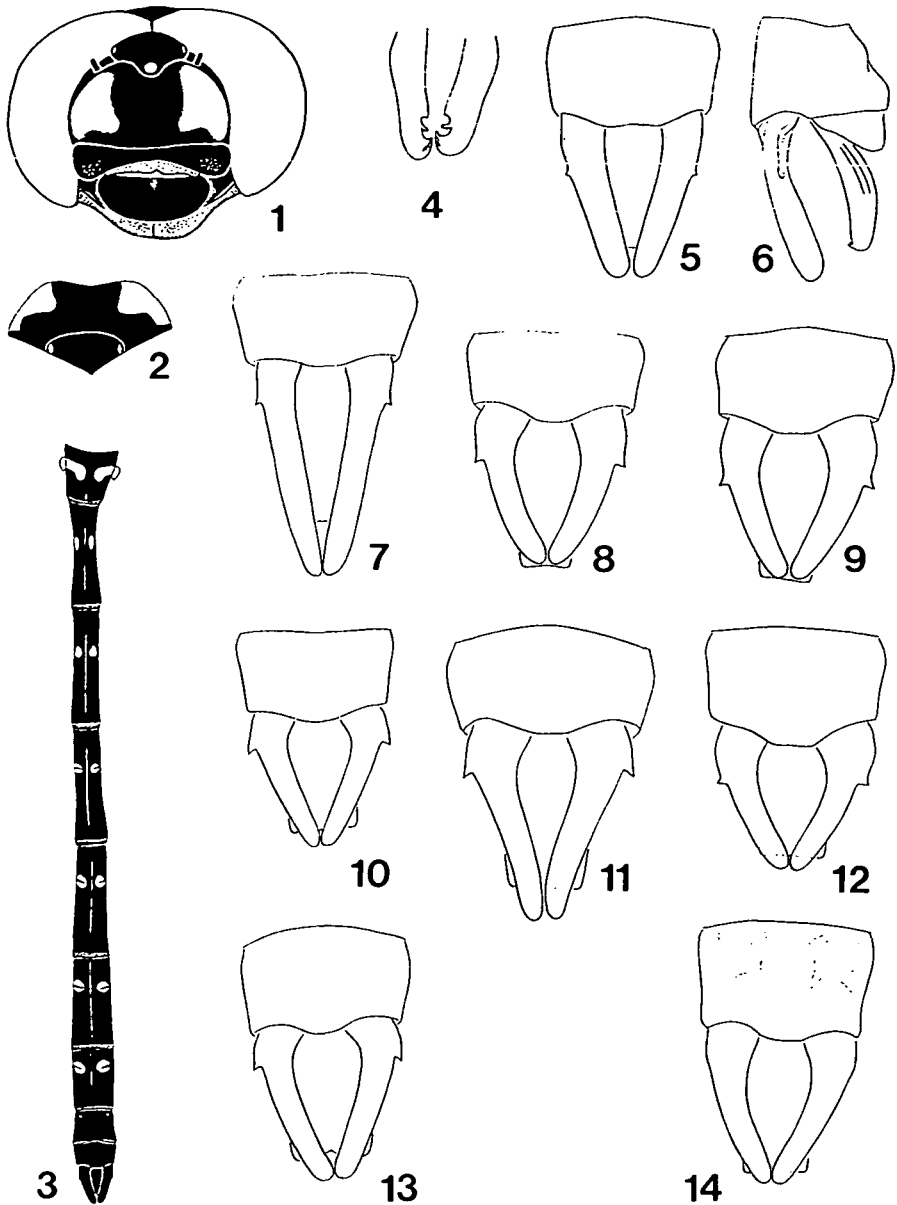
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### Postscriptum

After the above article had submitted, a second last instar larva agreeing in all relevant characters with *Tonyosynthemis claviculata* (TILLYARD) was collected (20.11.1997; N. Waddell, EPA-NSW) and communicated (13.3.1998; J. Ling, EPA-NSW) from Timbara River at Billyrimba in north-eastern New South Wales. It is reasonably safe to assume that this larva is *Tonyosynthemis ofarrelli* (THEISCHINGER & WATSON), a species previously known only from south-eastern Queensland.



Figs. 1-6: *Eusynthemis ursula* sp. n., male: 1 – head, frontal aspect; 2 – top of frons; 3 – abdominal segments 2-10, dorsal aspect; 4 – genital hamules, ventral aspect; 5, 6 – anal appendages: 5 dorsal aspect; 6 lateral aspect. Figs. 7-14: *Eusynthemis* spp., male anal appendages, dorsal aspect: 7 – *E. barbara* (MOULDS); 8 – *E. guttatata* (SELYS); 9 – *E. tilyardi* THEISCHINGER; 10 – *E. brevistyla* (SELYS); 11 – *E. deniseae* THEISCHINGER; 12 – *E. aurolineata* (TILLYARD); 13 – *E. nigra* (TILLYARD); 14 – *E. virgula* (SELYS).