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## **A new species of *Nososticta* HAGEN from Australia (Odonata: Protoneuridae)**

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**A b s t r a c t:** *Nososticta mouldsi* sp. n. (♂ holotype: Florence Falls, Northern Territory, Australia) is described, illustrated and compared with the other species of *Nososticta* HAGEN known from Australia.

**K e y w o r d s:** *Nososticta*, new species, Australia.

### **Introduction**

WATSON & THEISCHINGER (1983) revised the Australian Protoneuridae (under Protoneurinae) and recognised 11 species. New forms were not described since (WATSON et al. 1991, HAWKING & THEISCHINGER 1999). Recently, however, Dr M.S. Moulds (Sydney) brought to my attention 3 specimens he had years ago, tentatively and without being confident, identified as *Nososticta taracumbi* WATSON & THEISCHINGER. These specimens were found not to be of any described species. They belong to a species which is described as new below.

### **Description**

#### ***Nososticta mouldsi* spec. nov. (Figs 1-5)**

Primary type: Holotype ♂: Florence Falls (13°04'S/130°45'E), in shade along small rainforest stream, Northern Territory, Australia, June 21st, M.S. Moulds and M. Humphrey. Additional material: 2 paratype ♀♀, same data as holotype. All material in the collection of The Australian Museum, Entomology, in Sydney.

**N a m e:** Dedication to Dr M.S. Moulds.

A rather small damselfly, black, the male with vivid blue markings and the wings slightly suffused with yellowish brown, the female with whitish to, largely, yellowish brown markings and rather clear wings.

**M a l e** (Figs 1, 2)

**D i m e n s i o n s:** Hindwing 16.2 mm; abdomen (including appendages) 25.7 mm.

**H e a d:** Middle lobe of labium yellow to pale blue, its margin and the lateral lobes pale yellowish brown, end hook and movable hook black; labrum, mandibles and lower margin

of genae blackish brown to black; anteclypeus blue with black spot each side; postclypeus, frons and most of genae vivid blue, forming transverse band extending from anterior articulations of mandibles to centre or posterior margins of antennal sockets; epistomal suture black; rest of head, including antennae, black except for narrow, reddish brown mark from each lateral ocellus towards base of antenna, and a more inconspicuous spot towards median ocellus.

**Cervix and prothorax:** Cervical sclerites largely greyish brown to black with much paler margins; pronotum substantially black; anterior margins and corners of anterior lobe vivid blue; median lobe with, on each side, large bright blue patch, contiguous with blue corner of anterior lobe; posterior lobe black; epimeron black with 3 dull blue marks; episternum pale yellowish brown; coxa and basal portion of trochanter pale greyish yellow, tinged bluish on outer face, distal portion of trochanter blackened; femur black with small yellow patch at the base; tibia and tarsus black, claws blackish brown with brownish yellow subapical ring and black tips.

**Synthorax:** Mesostigmatic lamina, spiracular dorsum, dorsal carina, antealar ridge and sinus black; collar black, its outer corner tipped pale; mesanepisternum metallic black with tapering bright blue stripe on outer portion, extending over approximately 70 % of its length, maximum width about 30% width of sclerite, narrowing above, inner border straight, outer border convex; mesokatepisternum black with hind corner bright blue; mesepimeron metallic black with very small blue spot just behind upper end of mesopleural suture; metanepisternum with broad, bright blue patch forming kind of lateral stripe, and anterior and upper margin, posterior  $\frac{1}{2}$  to  $\frac{1}{3}$  and small subtriangular area dorsal to metastigma, subdividing blue stripe, black; metakatepisternum black with posteroventral corner pale yellowish brown; metepimeron black broadly along metapleural suture and in postero-dorsal corner, narrowly along dorsal edge, remainder pale yellowish brown; metapostepimeron largely black; coxae pale yellowish brown, trochanter yellowish, with small black dorsal patch; femora black with small pale yellowish brown to bluish basal spot extending somewhat into a ventral ray, particularly in hind leg; tibiae and tarsi black; claws blackish brown with brownish yellow subapical ring and black tips; postcoxae and poststernum pale brownish yellow; terga largely brown to black, scutella and tops of mesopostscutellum and metascutum pale yellowish to bluish.

**Wings:** Moderately broad, width/length approximately 0.24; humeral plate and intermediary piece black, axillary plate pale blue; venation brownish black; membrane hyaline with distinct yellowish brown suffusion; pterostigma dark greyish brown, 1.55-1.65 times as long as wide; postnodals 13/10-11; C, R1 and R2 kinked proximal to pterostigma at level of oblique vein; 4/2-3 crossveins between subnodus and origin of R3; CuP reaching wing margin near centre of 1<sup>st</sup> postdiscoidal cell in forewing, slightly beyond beginning of 2<sup>nd</sup> postdiscoidal cell in hindwing; basal postdiscoidal cells narrower to markedly wider in wing axis than deep, many cells much deeper than wide.

**Abdomen:** Tergum 1 brownish black with very small pale posteromiddorsal spot and irregular yellowish lateral patch; tergum 2 black with pale bluish middorsal line across basal  $\frac{2}{3}$  of length and yellowish to bluish ventrolateral patch surrounding secondary genitalia; terga 3-6 black, with basal pair of pale blue spots, increasing slightly in size from 3 to 6, separated along dorsal midline, and narrow brownish to yellowish white stripe along lower margin, not reaching end of segment and narrowly connected with pale basal spot; tergum 7 similar to terga 3-6, but basal mark shorter and more widely separated, and pale

stripe along lower margin broader than in preceding segments; tergum 8 black above, yellowish to bluish white below but lower basal and distal margins black; segments 9 and 10 substantially black; sternum 1 pale yellowish to bluish; secondary genitalia mainly black; sterna 3-7 brown to blackish brown; sternum 8 largely black, pale bluish apicoventrally and apicolaterally; superior anal appendages slender, acute, black outside, inner surfaces paler; inferior appendages brown to black.

**F e m a l e :** (Figs 3-5)

**D i m e n s i o n s :** Hindwing 16.8-17.0 mm; abdomen (including appendages) 25.0-26.2 mm.

**H e a d :** Much as in male, but: anteclypeus, postclypeus, frons and most of genae pale yellowish brown and marks near ocelli more extensive, connected on each side, and also yellowish brown; antennae with scape dark brown and approximately basal half of pedicel yellowish brown.

**P r o t h o r a x :** Anterior lobe upturned, bilaminate, with deep median cleft; front part of posterior lobe subrectangular, slightly forward directed, medially produced into subtriangular flap; hind part of posterior lobe medially shelf-like, slightly bilobed, black, flanked each side by rounded, black and yellow tooth. Colour pattern much as in male, but: markings pale brownish yellow and including in addition anterior rim of anterior and dorsal rim of posterior lobe of pronotum and nearly entire epimeron and episternum; femur and tibia largely yellowish brown; apex of tibia markedly darker.

**S y n t h o r a x :** Much as in male, but: markings generally pale yellowish brown and more extensive; pale stripe on mesanepisternum extending across almost its entire length (90-95%) and with medial and lateral border straight; black along metapleural suture narrowing (but not subdividing) pale lateral stripe on metanepisternum particularly in dorsal half; femora and tibiae ochreous brown, darker at ends.

**W i n g s :** Much as in male; but: width/length approximately 0.22; axillary plate pale to dull yellowish brown; membrane hyaline; pterostigma 1.55-1.70 times as long as wide; postnodals 13-14/11; 4-5/3 crossveins between subnodus and origin of R3; CuP reaching wing margin near centre of 1<sup>st</sup> postdiscoidal cell in forewing, at about 2/3 length of 2<sup>nd</sup> postdiscoidal cell in hindwing.

**A b d o m e n :** Much as in male but: all pale markings whitish to yellowish brown; tergum 1 without pale posteromiddorsal spot; basal pair of pale spots slightly decreasing in size from 4 to 6; tergum 7 without basal marks; lower margin of tergum 9 pale brown; outer valves pale brown with apex black, reaching slightly beyond tips of black anal appendages; styli black.

### Affinities and Discussion

Coloration (black with vivid blue markings in male) and the long narrow pale antehumeral stripes of both sexes and part of the lateral synthoracic pattern of the female indicate that *Nososticta mouldsi* sp. n. is closely related to *N. taracumbi* WATSON & THEISCHINGER from Melville Island. *N. mouldsi*, however, is the only Australian protoneurid species with predominantly black metepimeron in male and with a prominent subtriangular median extension of the subrectangular front part of the posterior lobe of the female pronotum.

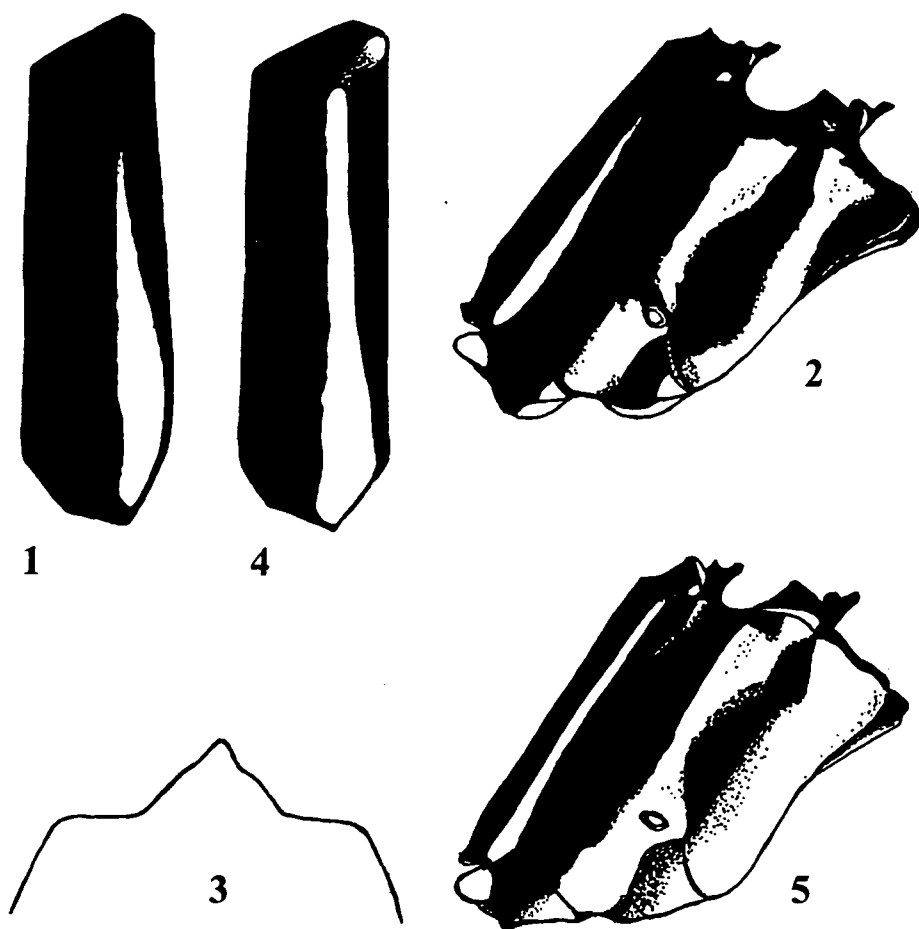
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**Figs 1-5.** *Nososticta mouldsi* sp. n.: 1, 2 – male: 1 – antehumeral stripe; 2 – synthoracic pattern, lateral; 3-5 – female: 3 – front part of posterior lobe of pronotum, frontal aspect; 4 – antehumeral stripe; 5 - synthoracic pattern, lateral aspect.

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