



A SECOND SPECIES OF *DINOTOPERLA* TILLYARD, 1921 FROM THE WARRUMBUNGLERANGE (PLECOPTERA: GRIPOPTERYGIDAE)

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ABSTRACT

Dinotoperla jacobsi sp. n. (Holotype male, New South Wales, Warrumbungle, Belar Creek, 31.3430° S, 149.09200° E, 29-Sept-2015) is described from the Warrumbungle Range in New South Wales, Australia. Its affinities are discussed.

Keywords: Plecoptera, Gripopterygidae, *Dinotoperla* new species, Australia

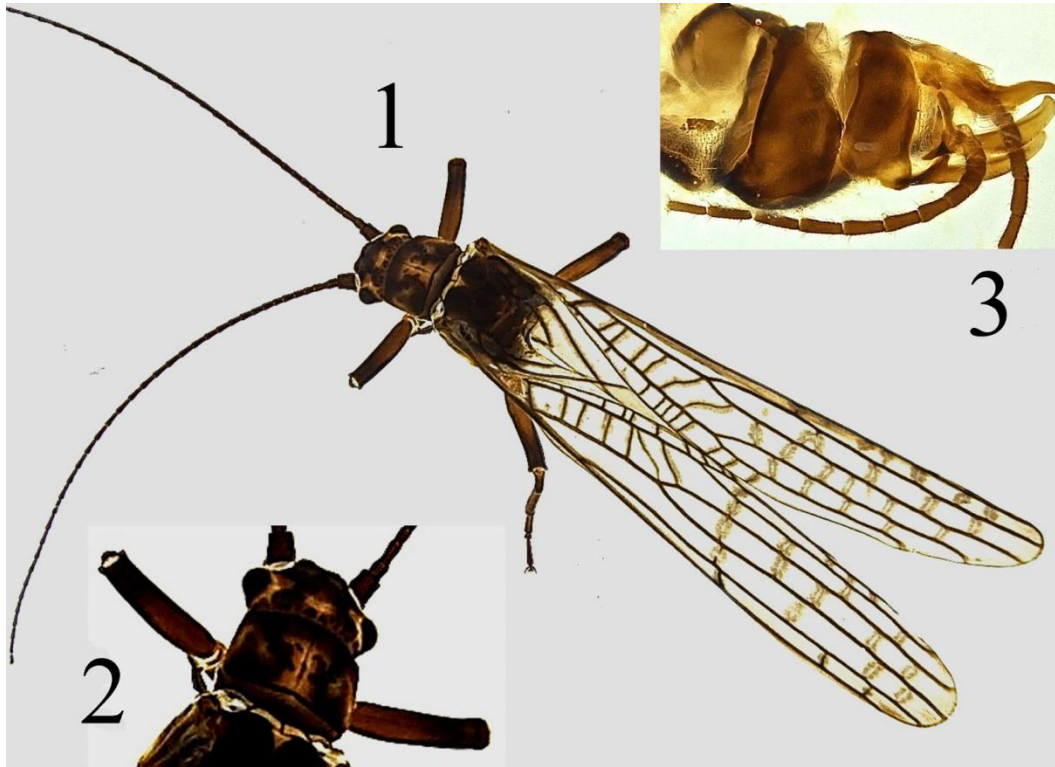
INTRODUCTION

The major streams in the Warrumbungle Range showed good flow when L. Müller and I tried to collect dragonflies there on October 7 1983. Whereas several individuals of *Austroaeschna unicornis* (Martin, 1901) commanded attention, there were not too many other dragonfly species around. Sweeping some vegetation along the banks, however, resulted at least in obtaining numerous stoneflies. They all looked like *Dinotoperla* species to me and were more or less ignored until they were included as *Dinotoperla* sp. nr. *christinae* and *Dinotoperla* sp. nr. *pseudodolichoprocta* in Theischinger and Cardale (1987). A year later the first was described as *Dinotoperla inermis* Theischinger, 1988, whereas the second was stored in the Australian Museum under a provisional name (*Dinotoperla* "warra", as from the Warrumbungle). Nothing else was planned unless some more specimens would come up elsewhere and require a descriptive paper. Whereas recently during some activities in the Warrumbungle, *D. inermis* was found rather regularly, particularly in

Upper Castlereagh River, the other was not collected until September 29 2015 at Belar Creek. Steve Jacobs who had been reminded for more than a decade to keep an eye on adult stoneflies apparently became lucky, collecting an adult male, a larva and an exuvia. As the species appears morphologically distinct, this fresh material was sent to Julia Mynott who uses DNA to associate life stages of larvae and adults for stoneflies (Mynott 2015) and currently is working on the genus *Dinotoperla* (Mynott *et al.* in prep.). Based on morphological distinctness and on the fact that Julia does not have larvae or adults that genetically match the species, it is described in this paper as new and dedicated to Steve in recognition of his latest effort and of the fact that he was great company on monitoring trips over many years.

MATERIAL AND METHODS

Specimens were preserved in 70% ethanol and lodged in the collection of the Australian Museum (Sydney). Illustrations were done with the aid of a



Figs. 1-3. *Dinotoperla jacobsi* sp. n., ♂: (1) dorsal (without hindwings and abdomen); (2) head and pronotum, dorsal; (3) genitalia, lateral.

camera lucida. Colouration given is that from the holotype.

DESCRIPTION

Dinotoperla jacobsi sp. n.

(Figs. 1-4)

<http://lsid.speciesfile.org/urn:lsid:Plecoptera.speciesfile.org:TaxonName:479686>

A moderate sized *Dinotoperla* species, the male with conspicuous colour pattern on head and thorax, the terminalia similar to *D. pseudodolichoprocta* Theischinger, 1982 but with a shorter membranous cone on tergite X, a plumper epiproct and paraprocts and with cerci containing fewer and longer segments.

Material studied. Holotype ♂, New South Wales, Warrumbungle, Belar Creek, 31.3430° S, 149.09200° E, 29 September 2015, S. Jacobs; in Australian

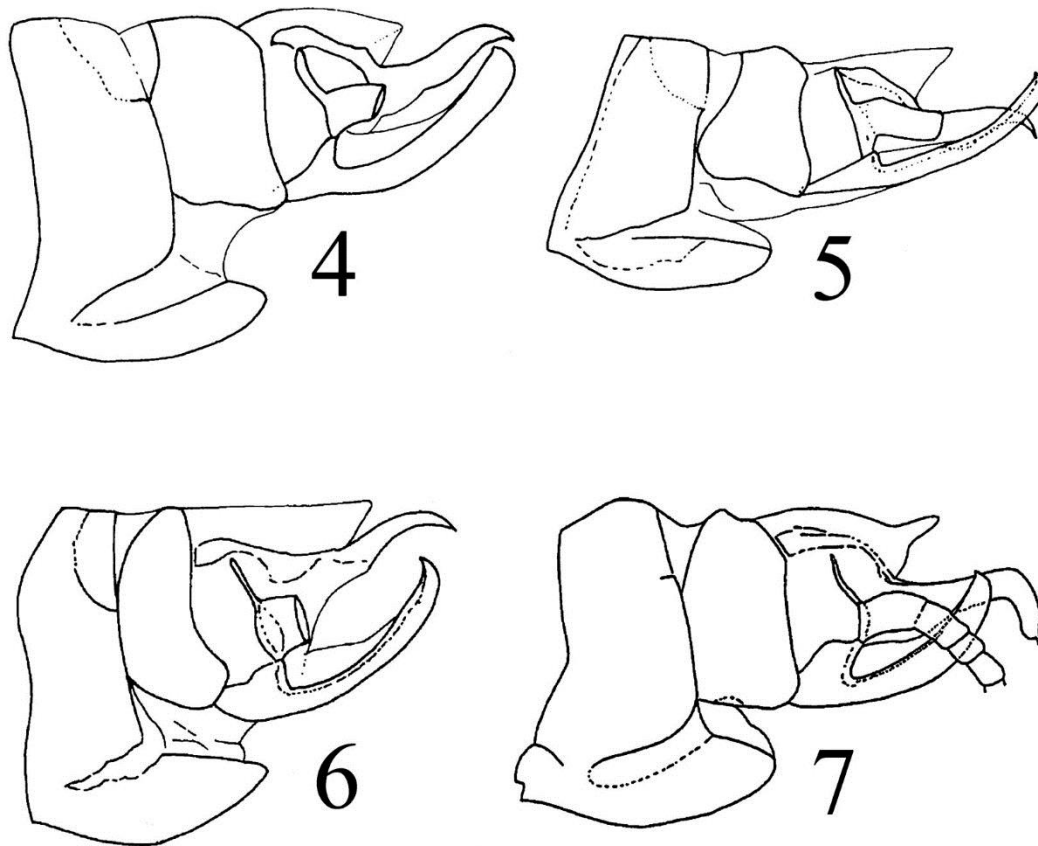
Museum.

Paratypes: 1 larva and 1 exuviae, same data as holotype. 4♂, Warrumbungle Range, New South Wales, 7 October 1953, G. Theischinger.

Male. Head and body dorsally largely dark greyish to blackish brown, ventrally yellowish grey to greyish brown; a bright yellow spot on vertex and some yellow along eye margin, an irregular stripe along mid-dorsal line of pronotum. Legs yellowish grey to greyish brown, distal 1/3-1/4 of femora, a subbasal ring on tibiae and the tarsi markedly darker, up to brownish black.

Wings faintly suffused with pale greyish; darker small blotches around most cross-veins, particularly in apical half of forewing.

Genitalia. Central sclerite of tergite 10 wide, produced posteriorly into a short, low and rather obtuse cone. Epiproct simple evenly curved, blade-shaped, with base not swollen and apical half deep. Paraprocts with base moderately long and wide,



Figs. 4-7. *Dinotoperla* species, male genitalia, lateral (modified from Theischinger & Cardale, 1987): (4) *D. jacobsi* sp. n.; (5) *D. dolichoprocta*; (6) *D. pseudodolichoprocta*; (7) *D. inermis*.

lobe largely almost parallel-sided, rather obtuse. Cerci 12-13 segmented, the basal segments longer than wide, the next 3-4 short, at least the apical 4 rather long.

Measurements: body 8.0 mm, forewing 9.0 mm.

Variability. Paratypes agree with holotype except colouration has faded into much paler (greyish to brownish yellow). Measurements: body 7.0-8.0 mm, forewing 8.5-9.2 mm (N=4).

Female. Unknown.

Larva. Described in Mynott *et al.* (in prep.)

Distribution. Possibly restricted to the Warrumbungle Range.

Etymology. Dedicated to Steve Jacobs who recently rediscovered the species after 33 years.

Affinities and diagnosis. *Dinotoperla jacobsi* sp. nov. is most similar to *D. pseudodolichoprocta* Theischinger, 1982 from the Blue Mountains. Preliminary, genetic studies suggest that it is a sister species of a group including *D. hirsuta* McLellan, 1971, *D. serricauda* Kimmins, 1951, *D. subserricauda* Theischinger, 1988, *D. thwaitesi* Kimmins, 1951, *D. uniformis* Kimmins, 1951, *D. walkeri* Dean & St. Clair, 2006 and two as yet unassociated species (J. Mynott, pers. comm.).

Dinotoperla jacobsi can be distinguished from its most similar congeners *D. dolichoprocta* Theischinger, 1982 and *D. pseudodolichoprocta* by a yellow spot on top of the head and a yellow stripe along mid-line of the pronotum, by a shorter, more

obtuse membranous cone on abdominal tergite X, a deeper epiproct without swollen base and more parallel sided, apically not attenuated, obtuse paraprocts. The width/length ratio of the pronotum is smaller (ca 1.6) than in *D. dolichoprocta* (ca 2.0) but wider than in *D. pseudodolichoprocta* (ca 1.5), whereas the first cercal segment is markedly shorter than in *D. dolichoprocta* (3 times as long as wide: Fig. 5) but longer than in *D. pseudodolichoprocta* (as long as wide: Fig. 6). The cerci as a whole are longer than in both species but with more segments (12-13) than in *D. dolichoprocta* (9-11) and fewer than in *D. pseudodolichoprocta* (13-16).

Dinotoperla jacobsi has a prominent colour pattern (very dark and yellow) on top of head and pronotum (similar to its coexisting congener *D. inermis* Theischinger, 1988 which has very different genitalia, in particular a very different epiproct (Fig. 7), whereas its most similar congener in the Blue Mountains, *D. pseudodolichoprocta*, is rather uniformly dark. It appears that *D. inermis* is the only *Dinotoperla* species co-occurring with *D. jacobsi* in the Warrumbungle, whereas *D. pseudodolichoprocta* co-occurs with *D. carpenteri* Tillyard, 1921, *D. dolichoprocta*, *D. fontana* Kimmins, 1951 and *D. serricauda* in the Blue Mountains (Theischinger 1982).

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