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***Leptoperla dakota* nov.sp., a new stonefly species from the Blue Mountains in New South Wales, Australia  
(Plecoptera: Gripopterygidae)**

Günther THEISCHINGER

**A b s t r a c t :** Both sexes of *Leptoperla dakota* nov.sp. are described from the Blue Mountains in New South Wales, Australia. The new species is compared with its most similar congener and probably closest ally *Leptoperla rieki* THEISCHINGER from the Snowy Mountains in New South Wales.

**K e y w o r d s :** Plecoptera, Gripopterygidae, New South Wales, Australia, new species.

### **Introduction**

The genus *Leptoperla* is listed as having 30 species (THEISCHINGER & CARDALE 1987) and has a distribution along the east coast of Australia, southeast South Australia, southwest Western Australia and Tasmania (DEWALT et al. 2016). Only recently MYNOTT & THEISCHINGER (2016) added *Leptoperla tsyrlini* making *Leptoperla dakota* the 32<sup>nd</sup> *Leptoperla* species.

### **Material and methods**

The material discussed here is housed at the Australian Museum, Sydney (AM) and the Australian National Insect Collection at CSIRO, Canberra (ANIC). The descriptive terminology follows THEISCHINGER (1981).

### **Systematics**

#### ***Leptoperla dakota* nov.sp. (Figs 1-9)**

**T y p e m a t e r i a l :** Holotype ♂: Australia, NSW: Govett's Leap Brook, Blue Mtn NP; -33.640711°/150.30612° 967m; 2.XI.2016, G. Theischinger; sweep (Australian Museum (AM)).

**A d d i t i o n a l m a t e r i a l :** Paratypes: 2♂♂, 4♀♀, same data as holotype; 3♀♀, type locality; 6.XI.2016, G. Theischinger; sweep (all Australian Museum (AM)).

## Description

### Male (Figs 1-6)

**H e a d .** Largely grey with small ill-defined irregular paler patch along eye margin; antennae grey.

**T h o r a x .** Largely greyish yellow to brownish grey. Pronotum about as wide as long. Legs greyish yellow to yellowish grey; in all legs distal  $\frac{1}{5}$  to  $\frac{1}{2}$  of femur, basal  $\frac{1}{6}$  to  $\frac{1}{5}$  of tibia, tarsal segments and claws darker than remainder; basal tarsal segment of hindleg about as long as apical segment.

**W i n g s** (Fig. 1). Rather narrow; membrane largely tinged grey, the forewing whitish or semitransparent at the base between longitudinal veins and at the base of their forks, in the small cells between Cu1 and 1A and broadly along and including the cross-veins in distal half, the hindwing with mainly only the cross-veins brightened up.

**A b d o m e n .** Largely greyish yellow. Three to four terminal segments darker; cerci dark grey.

**G e n i t a l i a** (Figs 2-6). Lateral sclerites of tergite X widely rounded, very hairy; posterior sclerite moderately long, largely conical with apex turned dorsad and bulbous; epiproct flat, short and wide, basally roughly parallel sided, apically winged with about 4 teeth each wing; paraprocts with moderately wide base, lobe almost straight as seen in profile, apex very narrow in dorsal and ventral view.

**D i m e n s i o n s .** Antennae 9.0-10.0 mm; body 7.0-8.0 mm; forewing 7.5-8.0 mm; cerci 6.0-7.0 mm.

### Female (Figs 7-9)

**H e a d .** Much as in male.

**T h o r a x .** Much as in male.

**A b d o m e n .** Much as in male, but particularly subgenital plate distinctly darker than remainder of abdomen.

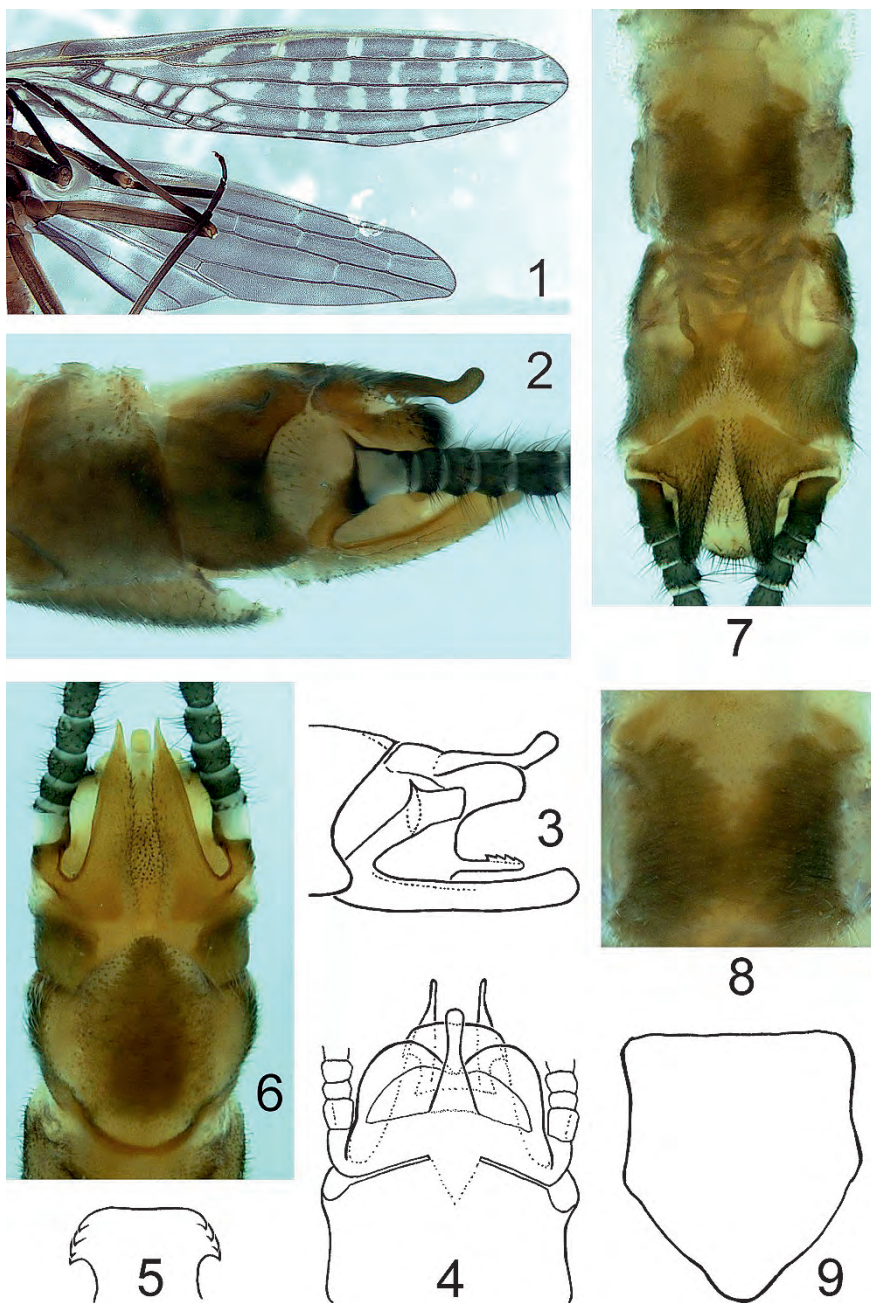
**W i n g s .** Much as in male.

**G e n i t a l i a .** Subgenital plate (Figs 7, 8) distinctly bilobed, apically wider than basally and sclerotized for its whole width, with the angles somewhat produced, almost widely swallow-tailed. Tergite X (Fig. 9) apically distinctly rounded.

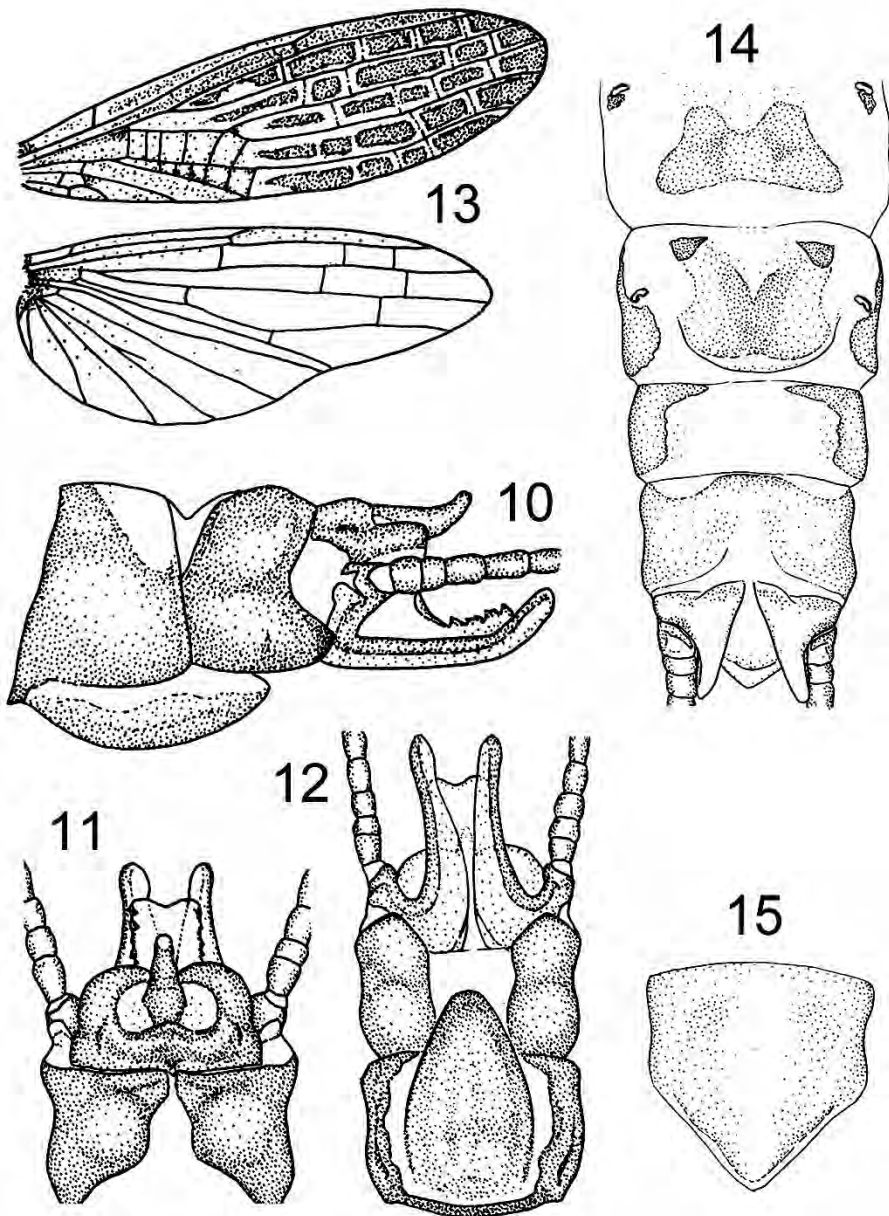
**D i m e n s i o n s .** Antennae 10.0-11.0 mm; body 7.5-8.5 mm; forewing 9.0-9.5 mm; cerci 8.0-9.0 mm.

**E t y m o l o g y .** The species is named for Dakota Martin, daughter of John Martin (Australian Museum) who was pivotal for the discovery of the species and did the photographs. Dakota is used as a noun in apposition to the generic name.

**H a b i t a t .** All specimens were collected in the upper course of a montane stream, largely approximately 1 m wide and flanked by some boggy areas. They were swept from sedges growing at the banks of an approximately 5m wide sandy section (dam) and of markedly narrower sandy pools where the water is normally between  $\frac{1}{4}$  and  $\frac{3}{4}$  m deep.



**Figs 1-9:** *Leptoperla dakota* nov.sp.: (1-6) male: (1) wings; (2-6) genitalia: (2, 3) lateral; (4) dorsal; (6) ventral; (5) epiproct, dorsal; (7-9) female: (7) terminal abdominal segments, ventral; (8) subgenital plate; (9) tergite X, dorsal.



**Figs 10-15:** *Leptoperla rieki* THEISCHINGER, modified from THEISCHINGER (1981): (10-12) male genitalia: (10) lateral; (11) dorsal; (12) ventral; (13-15) female: (13) wings; (14) terminal abdominal segments, ventral; (15) tergite X, dorsal.

## Discussion

The male of *Leptoperla dakota* nov.sp. (Figs 1-6) can be distinguished from all its congeners by the rather long, conical, apically up-turned and thickened posterior sclerite of tergite X, the wide, winged, flat epiproct and the simple, almost straight, basally wide, apically very narrow paraproct lobes. The female of *L. dakota* (Figs 7-9) stands out from all its congeners by its subgenital plate being distinctly bilobed, apically wider than basally and sclerotized for its whole width, with the angles somewhat produced, almost widely swallow-tailed. Only *Leptoperla rieki* THEISCHINGER 1981 (Figs 10-15) from Mount Kosciuszko, a species with shorter and broader wings and markedly shorter antennae and cerci, appears to be somewhat similar to *L. dakota*. In the male of *L. dakota* the paraproct lobes are straighter in profile (Figs 2, 3) and apically much narrower in dorsal (Fig.4) and ventral view (Fig. 6) than in *L. rieki* (Figs 10-12). In the female of *L. dakota* the subgenital plate is apically much wider (Figs 7, 8) than in *L. rieki* (Fig. 14) and tergite X is apically rounded (Fig. 9) as opposed to angulate (Fig. 15).

## Acknowledgements

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## Zusammenfassung

In vorliegender Arbeit wird *Leptoperla dakota* nov.sp. (Gripopterygidae) in beiden Geschlechtern von den Blue Mountains in New South Wales, Australien, beschrieben. Die neue Art ist vergleichbar mit *Leptoperla rieki* THEISCHINGER aus den Snowy Mountains in New South Wales.

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