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## ***Maddisonia*—A New Jumping Spider Genus from Australia (Arachnida: Araneae: Salticidae)**

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**ABSTRACT.** The genus *Maddisonia* is described from Queensland, New South Wales and Western Australia to include three new species: *M. richardsoni*, *M. whytei* and *M. berbekai*. *Maddisonia richardsoni* is designated the type species.

**KEYWORDS:** Salticidae; new genus; new species; jumping spiders; taxonomy.

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According to the official databases, 81 genera and about 364 species of Salticidae are known from Australia (Richardson & Żabka, 2011; Platnick, 2014). The lists, however, are far from being complete. The generic revisions published over the last decades have revealed great species diversity; in many cases several times larger than expected. The genera *Opisthoncus*, *Prostheclina*, *Lycidas*, *Maratus*, *Neon*, *Clynotis*, *Cosmophasis*, *Cytaea*, *Prostheclina* or the Astieae group are the best examples of this phenomenon (Wanless, 1988; Richardson & Żabka, 2007; Richardson, 2013; Żabka & Waldock, 2012; Waldock, unpubl.; Żabka, unpubl.). The potential sources of new taxa are poorly studied inland and tropical areas (see predictions by Richardson *et al.*, 2006). At the moment the genus *Maddisonia* comprises only three species, although future research may reveal greater diversity.

### **Material and methods**

The material for this study was provided by the curators of the Australian Museum, Sydney (AMS), Queensland Museum, Brisbane (QMB) and Western Australian Museum, Perth (WAMP). The types are deposited in original collections. Methods of specimen examination are as described by Żabka (1991). Photographs were taken with a Canon A620 camera and Nikon 800 stereomicroscope, and digitally processed with ZoomBrowser and HeliconFocus software.

**Abbreviations** used: *AEW*, anterior eyes width; *AL*, abdomen length; *AW*, abdomen width; *CH*, cephalothorax height; *CL*, cephalothorax length; *CW*, cephalothorax width; *e*, embolus; *EFL*, eye-field length; *L*, leg length; *PEW*, posterior eyes width; *p*, projection at the base of embolus; *sd*, sperm duct; *tl*, tegular lobe.

## Taxonomy

### *Maddisonia* gen. nov.

**Etymology.** The name is proposed for Prof. Wayne Maddison (University of British Columbia, Vancouver), the world authority in salticid taxonomy, biogeography and evolution. The name is feminine in gender.

**Type species:** *Maddisonia richardsoni* sp. nov.

**Diagnosis.** Small/tiny spiders. Embolus large, cork-screw-like. In some species a projection at the embolus' base present. Seminal reservoir not meandering, tibial apophysis long, single or bifurcate, sometimes with a ventral protrusion. First legs stout, 4th legs longer than 3rd ones.

**Description.** Spiders below 3 mm long. Cephalothorax pear-shaped, widest at the fovea level, rather low, elongate, posterior thoracic slope starts at  $\frac{2}{3}$  of thorax's length. Fovea well behind PLE, in the middle of cephalothorax. Clypeus very narrow. Abdomen ovoid, spinnerets not distinctive. Chelicerae with single or two-cuspidate teeth on the posterior margin. First legs stout, with 3 and 2 pairs of ventrolateral spines on tibiae and metatarsi, respectively. Other legs rather delicate, not distinctive, legs 4 longer than legs 3. All legs, especially 2–4 with dark and light bands on particular segments. Palpal organ's embolus large, cork-screw-like, sometimes with a small projection (*p*) at its base. Sperm duct (*sd*) not meandering, tegulum ovoid or with lobe (*tl*). Palpal tibial apophysis long, sometimes bifurcate, with or without additional protrusion. Females not known.

**Relationships and distribution.** Due to the unique male genitalic structure, the taxonomic position of this enigmatic genus is unclear—at least as long as females are known. The particular species are recorded from single localities (Fig. 5), thus the predictions of their potential distribution are not possible at this stage.

### *Maddisonia richardsoni* sp. nov.

Figs 1, 4A,B

**Etymology.** The species' name is proposed for Prof. Barry Richardson (Australian National Insect Collection, Canberra) in recognition of his research on salticid taxonomy.

**Material examined.** HOLOTYPE male, New South Wales, River State Forest, 30°33'27"S 152°16'59"E, grassy forest, transect W38, pitfall trap, Jan. 1993, I. Oliver, AMS KS74652.

**Diagnosis.** Tegulum with lobe (arrow, Fig. 4A), tibial apophysis bifurcate (Figs 1E, 4B).

**Description.** Male (Fig. 1A–C) cephalothorax brown with darker eye field. Hairiness scant. Abdomen macerated, natural colouration not preserved. Clypeus dark brown.

Chelicerae dirty brown with 2 promarginal teeth and single retromarginal two-cuspidate (fissdentate) tooth. Maxillae, labium and sternum dirty brown. Abdomen macerated, natural colouration not preserved. Spinnerets grey. Palpal organ as in Figs 1D, 1E, 4A, and 4B. Dimensions: CL 1.56; EFL 0.62; AEW 0.88; PEW 0.93; CW 1.24; CH 0.57; AL 1.30; AW 0.98; L1 0.98 + 0.63 + 0.63 + 0.385 + 0.385; L2: 0.70 + 0.455 + 0.455 + 0.385 + 0.385, L3: 0.595 + 0.455 + 0.385 + 0.42; L4: 1.05 + 0.49 + 0.70 + 0.525 + 0.35.

**Distribution.** Known only from type-locality (Fig. 5, triangle).

### *Maddisonia whytei* sp. nov.

Figs 2, 4C,D

**Etymology.** The name of the species is proposed for Mr Robert Whyte, Australian naturalist, arachnologist and photographer.

**Material examined.** HOLOTYPE male, Queensland, Chelsea Rd Bushland Res., 27°29'S 153°11.5'E, coastal ironbark, open forest, 15 m, 1–31 March 2004, QM party, 51974, QMB S90766.

**Diagnosis.** Tibial apophysis bifurcate with additional ventral protrusion (see arrow at Fig. 4C). Tegular lobe pointed, embolus' base with projection (see arrow, Fig. 4C).

**Description.** Male (Fig. 2A–E). Cephalothorax brown, eye field and eye surroundings darker. Whole surface with scattered light hairs, more numerous on sides. Anteriorly with brownish longer hairs. Abdomen blackish with a pattern of lighter spots and dots. Spinnerets dark grey. Clypeus very narrow, brown. Chelicerae vertical, brown, with two pro- and retromarginal teeth. Maxillae, labium and sternum dirty brown. Venter brownish grey. Legs I dirty brown, others with dark grey and light bands. Palpal organ as in Figs 2F, 2G, 4C, and 4D. Dimensions: CL 1.50; EFL 0.57; AEW 0.88; PEW 0.88; CW 1.09; CH 0.72; AL: 1.24; AW: 0.83; L1: 0.805 + 0.665 + 0.70 + 0.545 + 0.315; L2: 0.525 + 0.420 + 0.420 + 0.245 + 0.28; L3: 0.63 + 0.245 + 0.385 + 0.315 + 0.385; L4: 0.595 + 0.35 + 0.42 + 0.385 + 0.385.

**Distribution.** Known only from type-locality (Fig. 5, closed-circle).

### *Maddisonia berbekai* sp. nov.

Figs 3, 4E,F

**Etymology.** The name of the species is proposed for the late Mr Maciej Berbeka, distinguished Polish mountaineer, who died during a pioneering winter ascent of Broad Peak in Karakoram on 6 March 2013.

**Material examined.** HOLOTYPE male, Western Australia, Jarrahdale (Alcoa) Mine area, 31°16'S 116°06'E, vacuum sampled, April 1998, K. E. C. Brennan, WAMP T49432.

**Diagnosis.** Tegular lobe round, not distinctive, tibial apophysis single, thin and long, embolus cork-screw-shape the most distinctive of all species here.

**Description.** Male (Fig. 3A–C) cephalothorax brown with darker eye field and eye surroundings, hairiness scant. Abdomen macerated, colouration not preserved. Spinnerets



Figure 1. *Maddisonia richardsoni* sp. nov., male holotype. (A) dorsal, (B) ventral and (C) frontal aspects, and (D–E) palpal organ. Scales: A and C, 1.0 mm; D, 100  $\mu$ m.

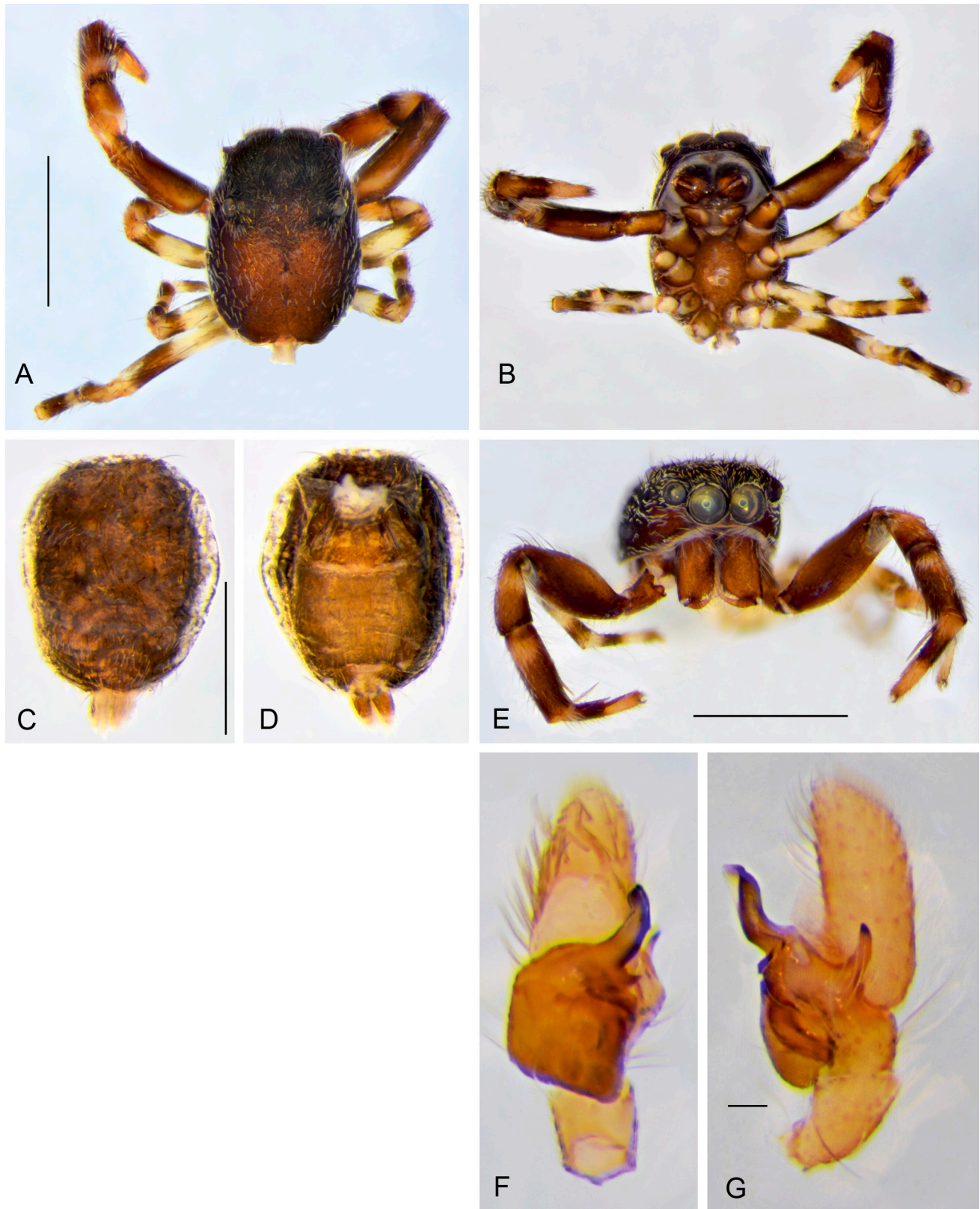


Figure 2. *Maddisonia whytei* sp. nov., male holotype. (A) dorsal cephalothorax, (B) ventral cephalothorax, (C) dorsal abdomen, (D) ventral abdomen, (E) frontal aspect, and (F, G) palpal organ. Scales: A, C, and E, 1.0 mm; G, 100  $\mu$ m.

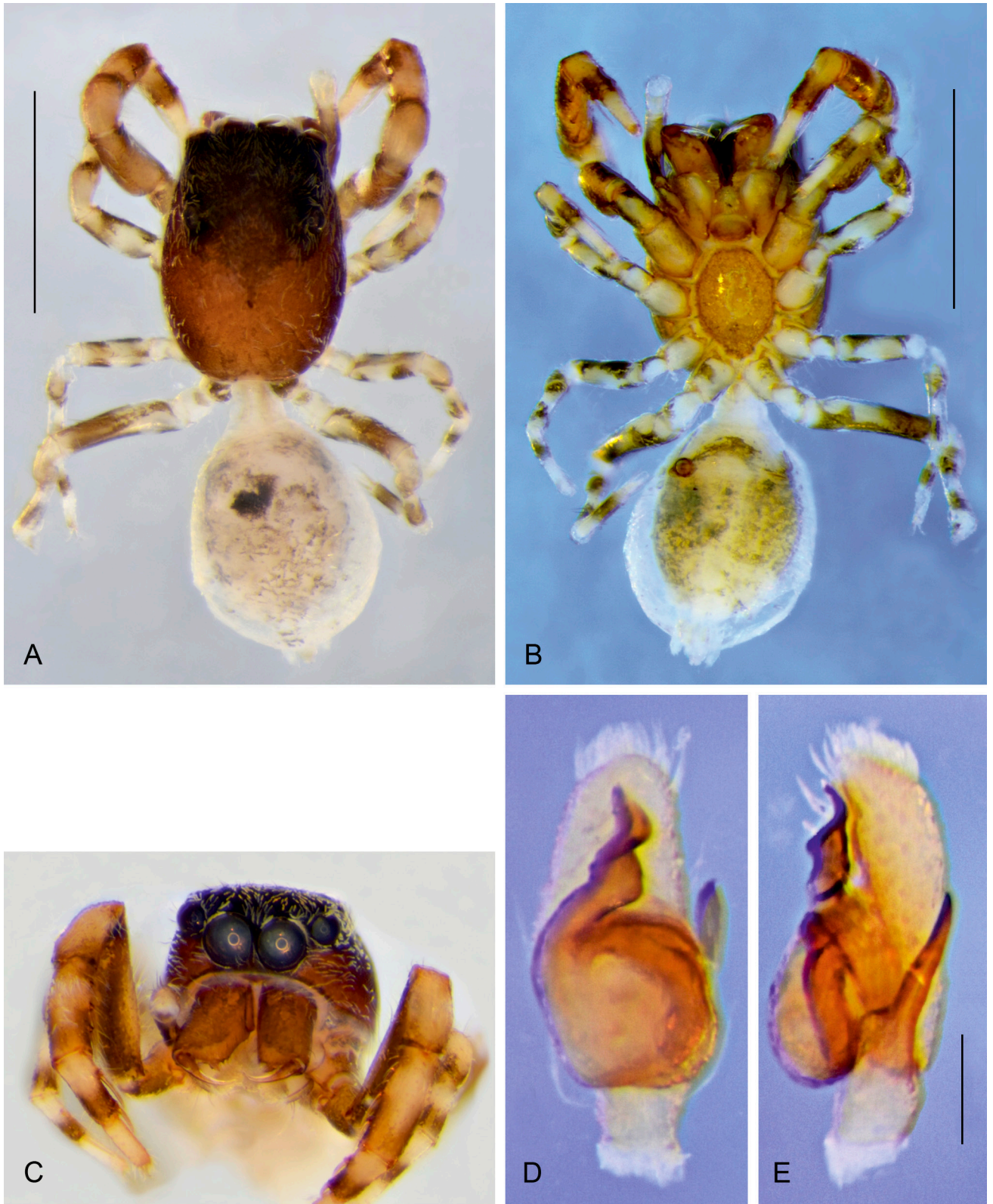


Figure 3. *Maddisonia berbekai* sp. nov., male holotype. (A) dorsal, (B) ventral, and (C) frontal aspects, and (D, E) palpal organ. Scales A–C 1.0 mm; D, E 100  $\mu$ m.

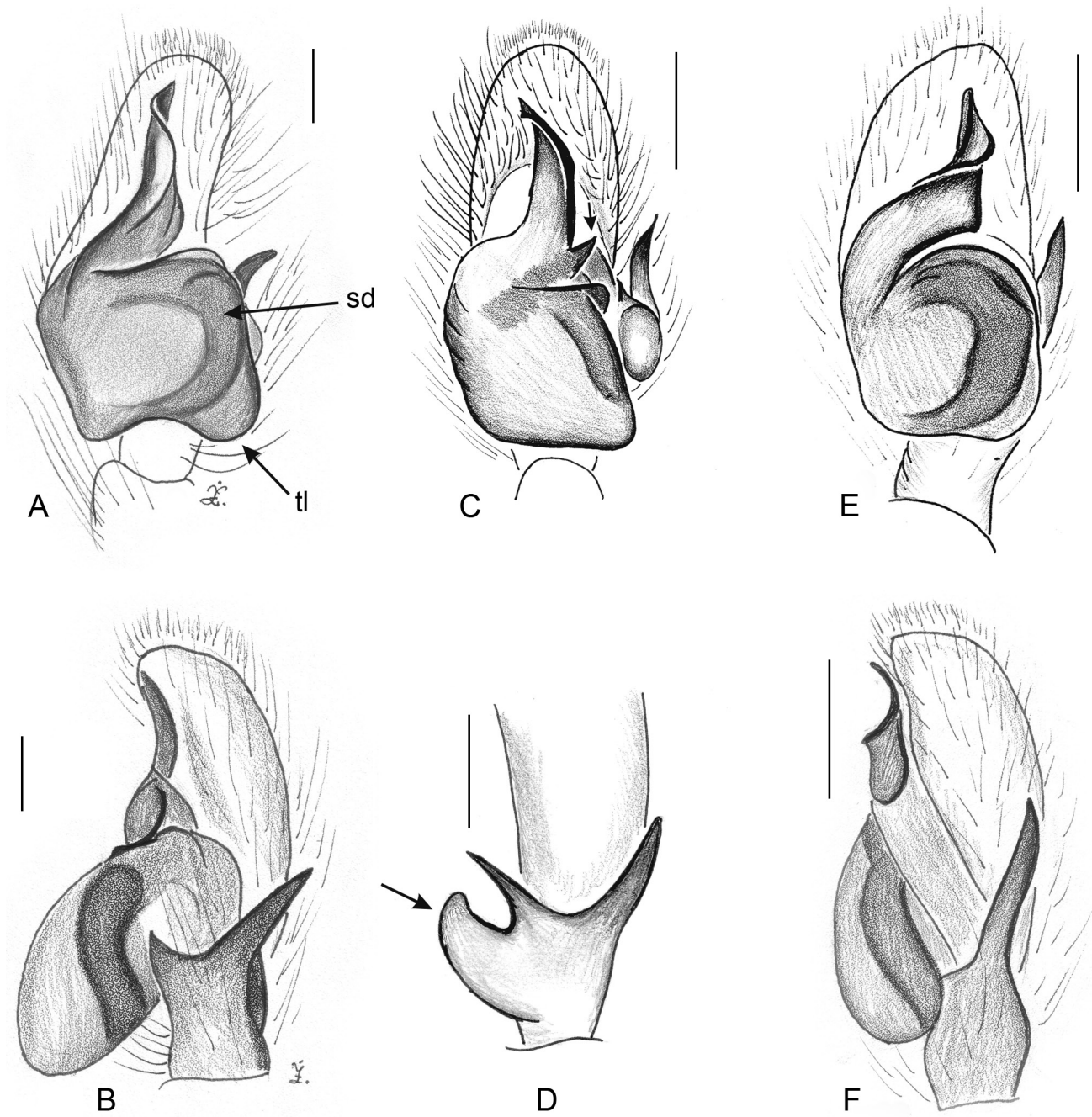


Figure 4. Palpal organs of new *Maddisonia* species. (A, B) *Maddisonia richardsoni* sp. nov., male holotype; (C, D) *Maddisonia whytei* sp. nov., male holotype, D, side view of tibia; (E, F) *Maddisonia berbekai* sp. nov., male holotype. Scales 100  $\mu$ m.

light grey. Clypeus brown. Chelicerae dirty light brown, with two separate teeth and one two-cuspidate tooth on anterior and posterior margins, respectively. Maxillae, labium and sternum dirty light brown. Legs 1 long and massive, pale brown with lighter sides of femora and light and dark grey bands on podomeres. Other legs delicate, with light and dark grey bands. Palpal organ as in Figs 3D, 3E, 4E, and 4F. Dimensions: CL 1.00; EFL 0.384; AEW 0.564; PEW 0.58; CW 0.713; CH 0.58; AL 1.16; AW 0.796; L1: 0.796 + 0.48 + 0.498 + 0.332 + 0.232; L2: 0.464 + 0.394 + 0.348 + 0.332 + 0.232; L3: 0.498 + 0.215 + 0.332 + 0.265 + 0.232; L4: 0.89 + 0.298 + 0.332 + 0.448 + 0.332.

**Distribution.** Known only from type-locality (Fig. 5, closed-square).

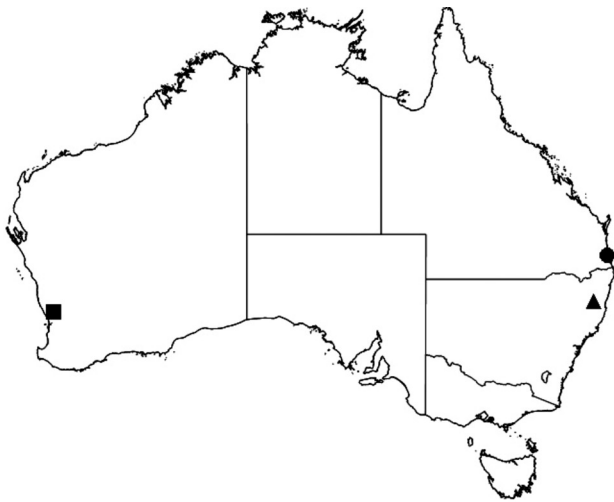


Figure 5. Distributional map of *Maddisonia*: ▲ *M. richardsoni* sp. nov., ● *M. whytei* sp. nov., ■ *M. berbekai* sp. nov.

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