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A new *Lissodesmus* Chamberlin, 1920 from Tasmania, Australia (Diplopoda, Polydesmida, Dalodesmidae)

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Abstract

Lissodesmus meunna sp. n. co-occurs with *Lissodesmus latus* Mesibov, 2006 and *Lissodesmus perporosus* Jeekel, 1984 near Meunna in northwestern Tasmania. It is smaller and paler in colour than the other two *Lissodesmus* species and has a normal pore formula and an unbranched femoral process on the gonopod telopodite.

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Introduction

The millipede genus *Lissodesmus* Chamberlin, 1920 is currently represented by 20 species in Tasmania and 11 in Victoria. In northwestern Tasmania, the most widespread and abundant *Lissodesmus* species are *Lissodesmus latus* Mesibov, 2006 and *Lissodesmus perporosus* Jeekel, 1984, which co-occur over most of the region (Mesibov 2006). Here I describe a new *Lissodesmus* species from a single site in the *Lissodesmus latus/Lissodesmus perporosus* overlap area.

Methods

Specimens were hand-collected and preserved in either 75% or 95% ethanol. Selected specimens were dissected for gonopod imaging. The images in Fig. 1 were captured with a Celestron Labs 5 MP digital microscope using Guvcview webcam software. Gonopods (Fig. 2) were placed in 90+% lactic acid for ca 12 hours until cleared, temporarily mounted in a 1:1 glycerol:water mixture and imaged with an Omax A35180U3 eyepiece video camera mounted on an AmScope B210 microscope using ToupView software, with subsequent stacking of manually focused images using Zerene Stacker 1.04 software; images were reduced in resolution in generating Fig. 2. The distribution map (Fig. 3) was prepared with QGIS 3.40 using OpentTopoMap (https://opentopomap.org/) as a base layer. Figures and plates were composed with GIMP 3.04.

Gonopod terminology as in Mesibov (2006).

Abbreviations used: TMAG - Tasmanian Museum and Art Gallery, Hobart, Australia; a.s.l. - above sea level.

Taxonomy

Order Polydesmida Pocock, 1887

Suborder Dalodesmidea Hoffman, 1980

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Figure 1. Adult *Lissodesmus* males from Meunna area, freshly preserved in 75% ethanol; scale bars = 5 mm. A) *Lissodesmus latus* (TMAG J8132). B) *Lissodesmus meunna* sp. n. (top, paratype specimen from TMAG J8129), *Lissodesmus perporosus* (bottom, specimen from TMAG J8134).

Family Dalodesmidae Cook, 1896

Genus *Lissodesmus* Chamberlin, 1920

Lissodesmus Chamberlin (1920): 135

Type species. *Lissodesmus modestus* Chamberlin, 1920, by original designation.

Other included species. *Lissodesmus adrianae* Jeekel, 1984, *L. alisonae* Jeekel, 1984, *L. anas* Mesibov, 2006, *L. bashfordi* Mesibov, 2006, *L. blackwoodensis* Mesibov, 2006, *L. catrionae* Mesibov, 2006, *L. clivulus* Mesibov, 2006, *L. cognatus* Mesibov, 2006, *L. cornutus* Mesibov, 2006, *L. devexus* Mesibov, 2006, *L. dignomontis* Mesibov, 2006, *L. gippslandicus* Mesibov, 2006, *L. grampianensis* Mesibov, 2008, *L. hamatus* Mesibov, 2006, *L. horridomontis* Mesibov, 2006, *L. inopinatus* Mesibov, 2006, *L. johnsi* Mesibov, 2006, *L. latus* Mesibov, 2006, *L. macedonensis* Mesibov, 2006, *L. martini* (Carl, 1902), *L. meunna sp. n.*, *L. milledgei* Mesibov, 2006, *L. montanus* Mesibov, 2006, *L. nivalis* Mesibov, 2018, *L. orarius* Mesibov, 2006, *L. otwayensis* Mesibov, 2006, *L. peninsulensis* Mesibov, 2006, *L. perporosus* Jeekel, 1984, *L. piscator* Mesibov, 2019, *L. plomleyi* Mesibov, 2006, *L. tarrabulga* Mesibov, 2006.

Lissodesmus meunna sp. n.

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Holotype. Male, Australia, Tasmania, Myalla Road, -41.0600 145.4780 ±25 m, 310 m a.s.l., leg. Robert Mesibov, 2026-09-16, TMAG J8131.

Paratypes. 2 males, details as for holotype but 2026-09-09; TMAG J8128; 2 males, same details but 2026-09-12, TMAG J8129; 1 male in 95% ethanol, same details, TMAG J8130.

Diagnosis. Distinguished from co-occurring *L. latus* and *L. perporosus* by its smaller size and live colour difference (Fig. 1): paranota, prozonites and metazonites light brown, vs light brown paranota and dark red or reddish purple colouring laterally on prozonites in *L. latus*, and brown paranota and metazonites with reddish brown colouring laterally on prozonites in *L. perporosus*. Distinguished from all other *Lissodesmus* species by a unique combination of gonopod telopodite characters: base with rounded shoulder on posterior surface at level of solenomere origin, femoral process unbranched, prefemoral process slightly tapering to posteriorly bent, apically emarginate tip, and two small unci on posterior

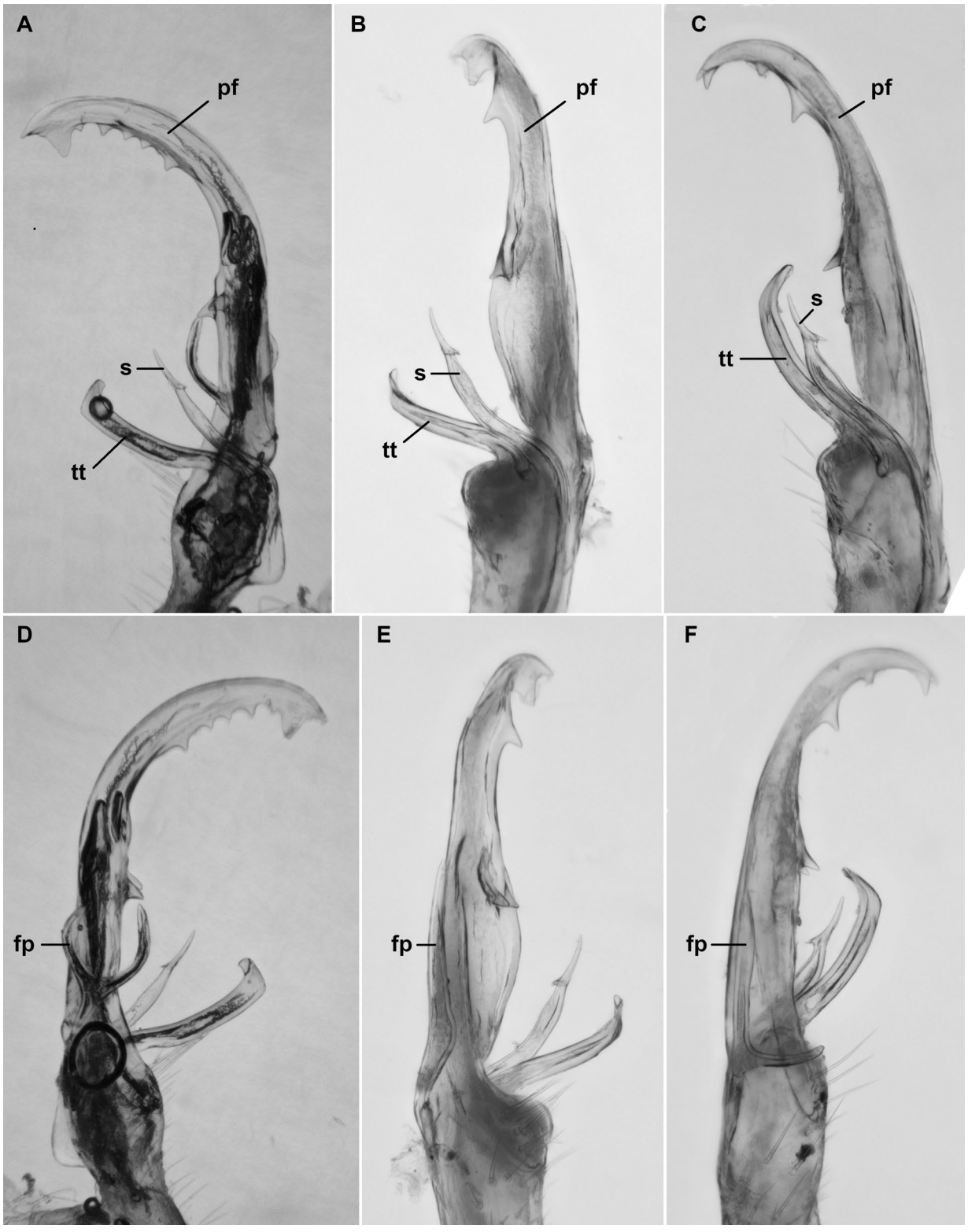


Figure 2. Right gonopod telopodites of *Lissodesmus* males from Meunna area in medial view (A, B, C) and lateral view (D, E, F), not to scale. A, D) *Lissodesmus latus* (TMAG J8132). B, E) *Lissodesmus meunna* sp. n. (paratype specimen from TMAG J8128). C, F) *Lissodesmus perporosus* (TMAG J8133). Abbreviations: fp = femoral process, pf = prefemoral process, s = solenomere, tt = tibiotarsus.

surface at half the distance between solenomere origin and telopodite tip.

Description. The characters of *Lissodesmus* species have been repeatedly described (Carl 1902; Chamberlin 1920; Jeekel 1983, 1984; Johns 1964; Mesibov 2006, 2008, 2018, 2019) but for the sake of completeness I here provide a description of adult male *L. meunna* sp. n. No female has yet been found.

H+20 body plan. Length ca 14 mm, midbody metazonite width ca 1.7 mm, midbody ring diameter ca 1.4 mm.

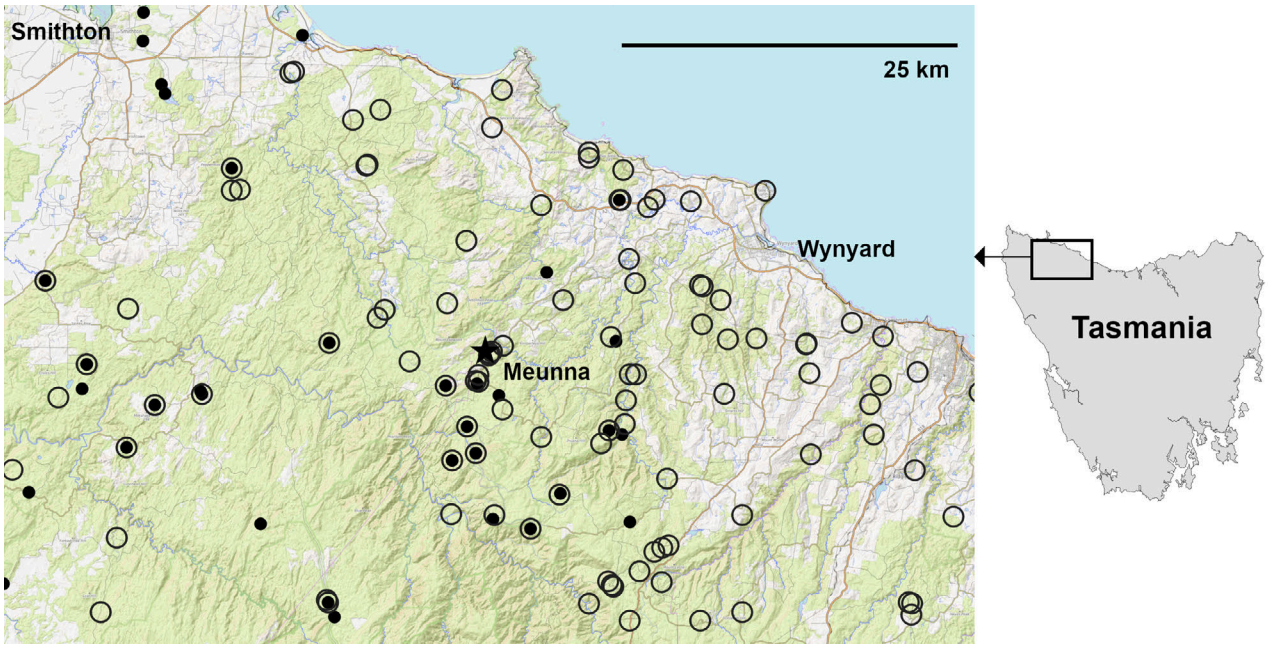


Figure 3. Known localities for *Lissodesmus latus* (round dots) and *Lissodesmus perporosus* (circles) near the *Lissodesmus meunna* sp. n. type locality (star), which is also a *Lissodesmus perporosus* locality.

Uniformly light brown in colour but paler ventrally(Fig. 1B, top).

Head with vertex sparsely setose, frons and clypeus setose, clypeus more so. Vertigial sulcus extending to just above line joining antennal sockets. Sockets separated by ca 2.5x socket diameter. Antenna slender, slightly clavate, reaching tergite 2 when manipulated dorsally. Antennomere lengths 6>(2,3)>>(4,5); antennomere 6 widest; antennomeres 7+8 ca 1/3 length of 6.

Collum with anterior margin strongly convex with transverse row of long setae, posterior margin almost straight, corners rounded. Overall widths (head, collum, tergite 5)>(tergite 4)>(tergites 2,3); widths 6-16 subequal, 17-19 diminishing. Tergite 2 lateral margin at same level as collum corner, slightly lower than tergite 3 margin. Paranotum with anterior margin strongly convex, lateral margin slightly convex with 3-4 notches, posterior margin more or less straight; posterior corner not turned up; corner slightly projecting as tooth, more prominently on posterior rings; long seta at each posterior corner directed posterodorsally; midbody paranota at ca 1/2 ring height. Metazonites bare; no obvious sculpturing of prozonite or metazonite. Limbus at lower magnification a simple lamina. Normal pore formula; ozopore prominent, round, not elevated, close to lateral paranotal margin at ca 3/4 length of paranotum.

Preanal ring setose; epiproct with truncate tip extending a little past anal valves; spinnerets in square array; hypoproct trapezoidal.

Sternites a little wider than long; impressions shallow. Midbody legs ca 1.5x ring diameter; podomere lengths tarsus>femur>prefemur>>(postfemur, tibiotarsus); tarsus straight; claw ca 1/4x tarsus length. Anterior legs with prefemur swollen dorsally, femur less so. Brush setae not forked, each seta tapering to point; sphaerotrichome with base globose, seta long, tapering to point and directed distoventrally; sphaerotrichomes on tarsus, tibia, a few on postfemur and femur; brush setae and sphaerotrichomes densest on anterior legs, but present on midbody legs. Spiracles round, slightly protruding, rims thickened; spiracles on diplosegments above and slightly anterior to leg bases.

Gonopore prominent at distomedial end of leg 2 coxa. Aperture ovoid, ca 1/2 width of ring 7 prozonite, margins slightly produced laterally and posteriorly. Telopodites reaching legpair 6 when retracted; ring 6 sternite excavate to accommodate retracted telopodites.

Gonocoxae small, subconical, slightly setose, lightly joined medially. Telopodite (Figs 2B, 2E) straight; base with sparse long setae posteriorly; setose portion of base swollen distally, forming shoulder on posterior telopodite surface at ca 1/3 telopodite height. Solenomere (s) arising on anteromedial surface, bending posteriorly over shoulder of base, directed posterodistally, tapering to point with subapical tooth on anterodistal surface. Prostatic groove running on medial surface to solenomere base and continuing to solenomere tip. Tibiotarsus (tt) flattened with near-uniform width and laterally bent tip, arising just posterior to solenomere, directed posteriorly and a little distally. Femoral process (fp) arising on anterolateral surface of telopodite at about the same level as solenomere origin, sword-like, unbranched, appressed to telopodite and directed distally. Telopodite extending as prefemoral process (pf), slightly swollen at ca 2/3 telopodite height and bearing two small unci on posterior surface just above swelling. Prefemoral process only slightly curving

posteriorly near tip, the tip bent posteriorly and slightly expanded with apex rounded and emarginate; one rounded tooth near apex on posterior surface.

Distribution & habitat. Known from a single site near Meunna in northwestern Tasmania (Fig. 3). Found in leaf litter in a ca 75 sq m patch of wet sclerophyll regrowth between a road and a *Pinus radiata* plantation.

Etymology. For the type locality; noun in apposition.

Remarks. Lissodesmus meunna sp. n. is rare and probably a short-range endemic. Northwestern Tasmania has been repeatedly sampled for *Lissodesmus* species (and other millipedes) over many years, and the area within which *L. meunna* sp. n. occurs has previously only yielded *L. perporosus* and *L. latus*. On two field days in the week after finding the new species, I searched for *L. meunna* sp. n. unsuccessfully at six native forest sites within 6 km from its type (and only) locality.

The colour differences between *L. meunna* sp. n. and *L. latus* and *L. perporosus* (Fig. 1) are reliable diagnostic features. The two larger species vary very little in colour over most of northwestern Tasmania, and both retain their colouring fairly well after long preservation in alcohol, although *L. latus* paranota often fade to white in storage.

Lissodesmus perporosus is unique in its genus for having ozopores on rings 11 and 14 and for secreting mainly the strongly smelling o-cresol (Jones et al. 2018). I could not smell a defensive secretion in live *L. meunna* sp. n.

At the type locality *L. meunna* sp. n. was found with other Dalodesmidae previously recorded in the Meunna area, namely *Gasterogramma psi* Jeekel, 1982, *L. perporosus, Paredrodesmus taurulus* Mesibov, 2003 and *Tasmaniosoma compitale* Mesibov, 2010.

Disclosures

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