Rec. West. Aust. Mus. 1991, **15**(1): 129-138

A new *Temognatha* species (Coleoptera: Buprestidae: Buprestinae) from north-eastern Australia.

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Abstract

Temognatha (Temognatha) aquilonia sp. nov., from north-east Queensland, is described and figured. It is placed with *T. gigas* (Carter, 1916) and *T. parvicollis* (Saunders, 1869) (including the subspecies *T. parvicollis andromeda* (Peterson, 1988) stat. nov.), in the *T. parvicollis* species-group. These species are diagnosed and keyed and the coloration of *T. gigas* is redescribed, based on live and freshly dead material. Lectotypes are designated for *Stigmodera parvicollis* Saunders, *Stigmodera picea* Kerremans, 1890, *Stigmodera andromeda* Peterson/*Stigmodera princeps* Blackburn, 1891. The zoogeographic significance of *T. aquilonia* is discussed.

Introduction

Temognatha Solier, 1833 is a speciose genus of conspicuous, often spectacular, moderately small to very large Buprestidae/Coleoptera. Only three new, small to medium sized, *Temognatha* species have been described since Obenberger's (1934) catalogue, suggesting that the alpha taxonomy of this genus, especially of its larger members, is almost complete. Most of the larger described taxa have their distributions centred over southern Australia, and it was therefore surprising to find two specimens of a very large apparently undescribed *Temognatha* taxon, from north-east Queensland, in the Queensland Museum, Brisbane. Both specimens are female and only one specimen bears locality data. Comparison with descriptions and identified type material of all described *Temognatha* confirms that this taxon is undescribed and, despite the small series, sufficiently distinct to warrant description as a new species. Ovipositor morphology places this taxon in the nominotypical *Temognatha* subgenus. This species is especially interesting because of its direct taxonomic links to south-west Western Australia. This is the third in a series of papers describing new *Temognatha* taxa. The format is modified from that of Peterson (1982).

Methods and Terminology

Specimen measurements linear, measured to the nearest 0.05 mm using a Zeiss stereomicroscope eyepiece graticule (cephalic, thoracic, leg measurements) or calipers (body measurements). Morphological measurement definitions and their text abbreviations (capitalized in brackets) as follows: total length (TL) — from front of head (between antennae) to elytral apex; total width (TW) — at widest point of body (elytra); head width (HW) — to outer margins of eyes in frontal view; minimum interocular

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distance at vertex (MIDAV); eye length (EL); antennal length (AL) — from basal condyle of basal antennomere to apex; pronotal width (PW) — at widest point.

Drawings were made with the aid of a Zeiss stereomicroscope camera lucida.

The following collection codens are used in the text: BMNH — British Museum of Natural History, London; MMUS — Macleay Museum, University of Sydney; QMBA — Queensland Museum, Brisbane; SAMA — South Australian Museum, Adelaide; WAMP — Western Australian Museum, Perth.

Type specimen label data: a slash mark (/) separates data from individual labels; curved brackets enclose my notations for handwritten (h) or printed (p) label data, where noted; square brackets enclose inferred label data.

Systematics

Temognatha (Temognatha) aquilonia sp. nov.

Figures 1-10.

Holotype

In QMBA (T9129), female: Mt. Molloy, F. Little, May 1970 (h).

Paratype

In QMBA (T9130), female: *Stigmodera parvicollis* Saund. ♀, DuB[oulay] det. (h). ('No locality or collection data provided').

Condition of Types

T. aquilonia holotype complete and in good condition; paratype discolored (darker than holotype) from preservation and (in dorsal view) is missing all tarsomeres on right fore-leg, two tarsomeres on left fore-leg, one tarsal claw on right hind-leg, all tarsomeres and tibia on left hind-leg, seven distal antennomeres on left antenna.

Diagnosis

Size: 46.5 — 48.8 mm (TL) x 19.6 — 19.7 mm (TW), (n=2); frons, pronotum and elytra orange-brown, underside and legs red-brown; postmentum subhexagonal; pronotal base same width as elytral base; elytra striate, epipleuron without apically directed ventral spur at level of hind-coxae, elytral apex bidentate/tridentate-truncate and angled anteromedially; basal hind-tarsomere same length as following hind-tarsomere, tarsal claw not strongly curved or basally lobed. The only character unique to *T. aquilonia,* within *Temognatha,* is the non-metallic orange-brown frons.

Holotype Description

Size: TL: 46.5 mm; TW: 19.6 mm.

Shape/Sculpture: *Body* elongate-oval (Figure 1), TW 42.2% of TL. *Head* (Figure 2) finely and densely punctate, with a strong longitudinal median sulcus on dorsal half of frons; HW 17.0% of TL, HW 48.6% of PW; eyes large, not projecting beyond outline of head, EL 73.1% of HW; inner margins of eyes slightly concave, not strongly converging dorsally, MIDAV 45.6% of HW; distal margin of frontoclypeus shallowly arcuately emarginate between antennal sockets; labrum weakly bilobed, with longitudinal median

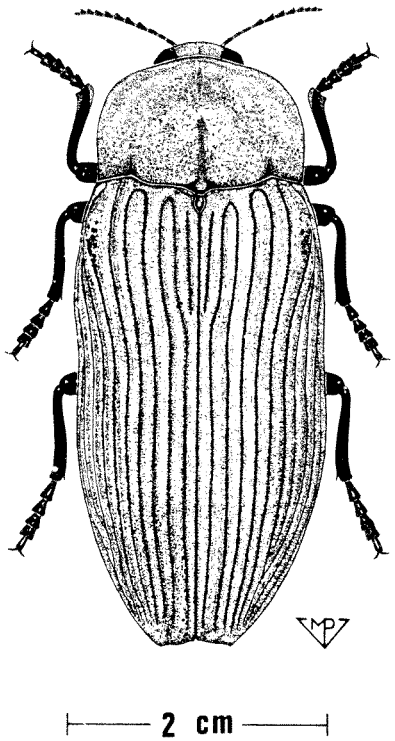
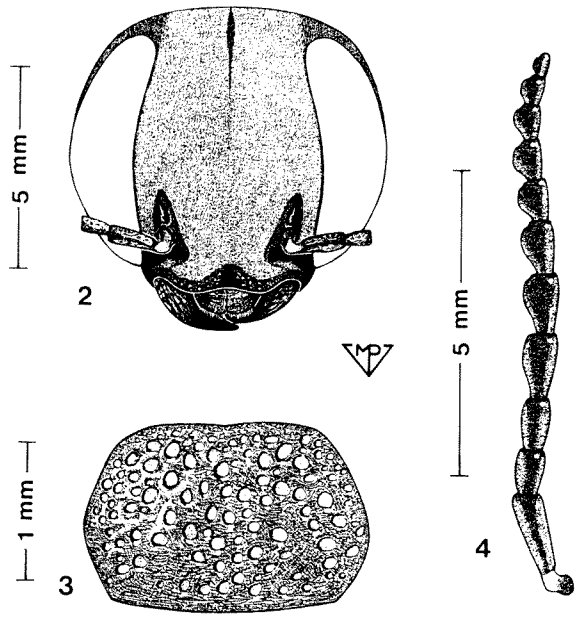
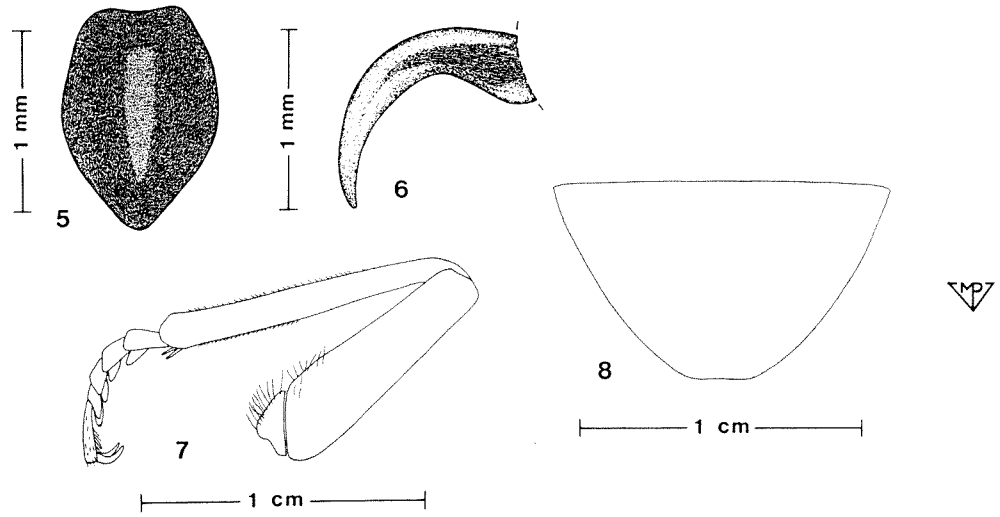


Figure 1. Dorsal view of female *Temognatha aquilonia*.

sulcus, setose distally; postmentum (Figure 3) subhexagonal (with rounded lateral and anterior corners), 1.49x wider than long and widest at middle, very slightly indented anteromedially, punctate-foveolate with long semi-erect setae (one per foveole); narrow supra-antennal pits ventromedially oblique, length equal to antennal socket diameter; antennae (Figure 4) serrate from segment 4; AL 19.0% of TL; antennomere lengths (1-11), expressed as percentage of AL: 20.3, 7.9, 9.1, 11.3, 10.7, 9.6, 7.9, 7.4, 6.2, 5.1, 4.5. *Pronotum* 1.5x wider than long, widest at middle; disc moderately convex, subrectangular from above, narrowly explanate in anterior half when viewed dorsally, and lateral margins sinuate in lateral view (angled higher basally), surface with moderately fine, deep and dense (though irregularly spaced) punctures and a smooth longitudinal median line for length of pronotum (more pronounced in basal half); anterior margin mostly forming straight line but slightly produced in median third, and narrowly explanate for entire width; lateral margins (from above) with basal third forming straight line, angled very slightly anterolaterad, middle third straight, angled slightly mediad, and anterior third weakly convex; basal margin moderately bisinuate, strongly excised on both sides of wide median lobe. *Scutellum* small, nitid, impunctate with shape as in Figure 5. *Elytra* widening laterally from base, narrowing at junction of



Figures 2-4. *Temognatha aquilonia* (holotype) head and associated structures (setae omitted): 2 — head, frontal view; 3 — postmentum; 4 — antenna.



Figures 5-8. *Temognatha aquilonia* (holotype) body and leg structures: 5 — scutellum; 6 — tarsal claw; 7 — hind-leg; 8 — fifth visible sternite.

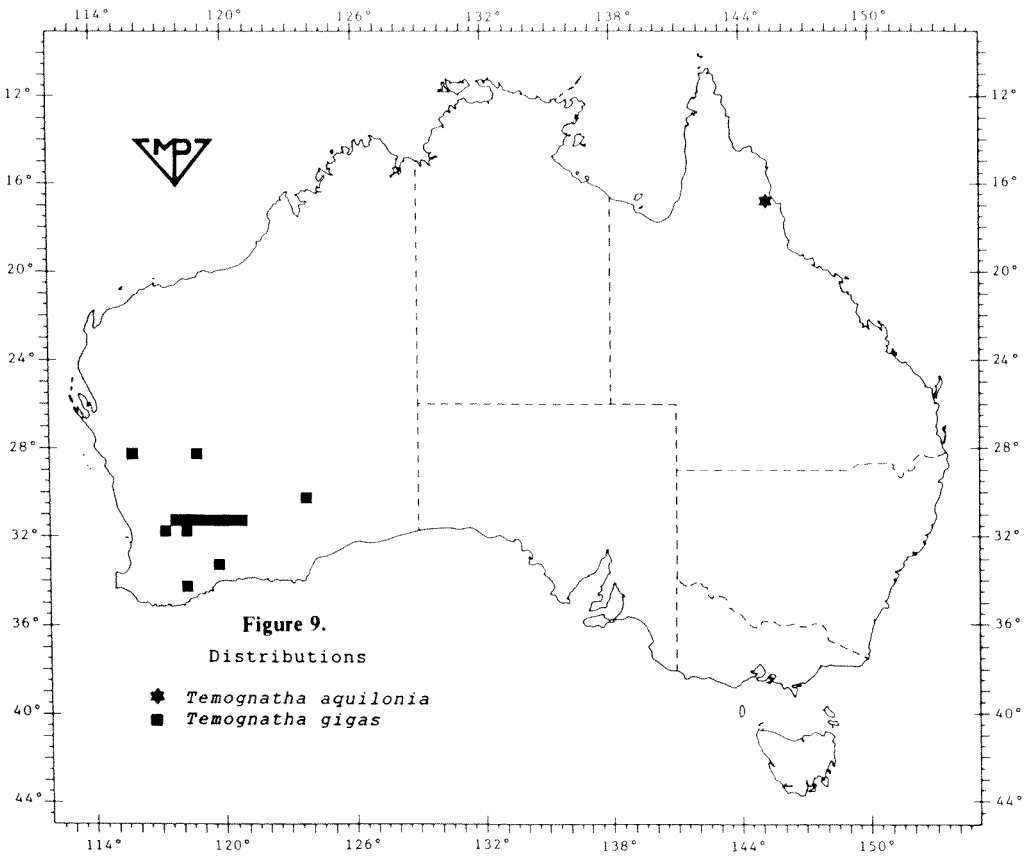
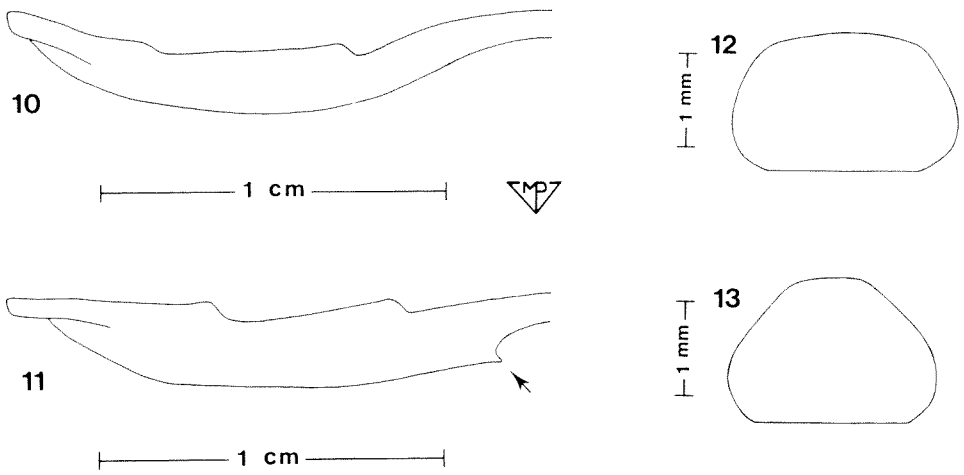


Figure 9.

anterior and middle thirds, slightly expanding in middle third, angled caudomedially to apex in apical third; elytral disc striate, intervals strongly convex basally, medially and laterally, less convex near elytral apices; all intervals finely and sparsely punctate for entire length particularly immediately adjacent to striae; a small area with several deep punctures at expanded base of sixth interval near junction of sixth and seventh intervals; elytral base same width as pronotal base; basal margin slightly undulating transversely; epipleuron entire, moderately expanded and strongly inflexed between level of elytral basal margin and hind-coxae, without apically directed ventral spur at level of hind-coxae (see Figures 10, 11); elytral apices bidentate, truncate, slightly angled anteromedially from level of stria four. *Undersurface* moderately finely but sparsely punctate on prosternum, more densely punctate at lateral and anterior margins of prosternum; anterior margin of prosternum very shallowly emarginate for middle third; hypomera moderately finely, deeply and densely (though irregularly) punctate; metasternum finely and closely punctate except for median area between meso-coxae which is finely but sparsely punctate; visible sternites finely, moderately densely and



Figures 10-13. Outline diagrams of elytral and head structures of *Temognatha parvicollis* group species: 10 — *T. aquilonia* epipleuron; 11 — *T. gigas* epipleuron (arrow indicates apically directed ventral spur); 12 — *T. gigas* postmentum; 13 — *T. parvicollis* postmentum.

evenly punctate; fifth visible sternite (sternite 7) moderately elongate, sides tapering to moderately narrow sub-truncate apex (Figure 8). *Legs* with a few fine, moderately short hairs at proximal extremity of femora; hind-coxae finely and sparsely punctate for medial third becoming gradually more deeply and densely punctate over lateral two thirds, caudal margin slightly sinuate; fore-femora not swollen; fore-tibial brush 46% of fore-tibial length; basal hind-tarsomere not elongate, same length as following hind-tarsomere (Figure 7); pulvilli present on basal four tarsomeres, trapezoidal, slightly bilobed and widest apically, covering distal half of basal hind-tarsomere; tarsal claws simple, moderately curved, basally very slightly expanded but not lobed (Figure 6). *Ovipositor* moderately broad; dorsal surface of dorsal valve longitudinally striated and without sclerotized, apically bifurcate, cornute structures.

Colour/Pattern: *Head* with immaculate, uniform orange-brown frons margined with translucent red along inner margins of eyes; median impressed line on vertex dorsally bronze-black, gradually becoming red-brown ventrally; both sides of vertex, above eyes, red-brown; labrum bronze-black with median apical area red-brown; mandibles bronze-black with red-brown area between cusp and pitted region; postmentum uniformly bronze-black; antennal sockets, supra-antennal pits and distal clypeal margin bronze-black; antennomeres bronze-black except for orange-brown basal elbow and ventral surface (nearly to apex) of antennomere 1. *Pronotum* orange-brown with narrow medial red-brown anterior margin and dark anterior sub-marginal line; basal margin narrowly bronze-black with a median translucent reddish triangular marking (apex directed anteriorly). *Scutellum* black with translucent dark red centre. *Elytra* entirely orange-brown except for narrowly translucent reddish basal margin and median suture.

Undersurface dark red-brown with narrow slightly darker margins to all segments except hypomera, which are orange-brown with narrow translucent reddish inner margins adjacent to prosternum. *Legs* dark red-brown to reddish, basal half of tarsal claw tarsomere bronze-black; coxae dark red-brown with darker margins, fore-coxae slightly brighter (red-orange); tarsal claws translucent reddish to red-brown, base and margins of culmen darker. *Sternal hairs* silvery white.

Paratype Variation

TW 40.4% of TL; HW 16.3% of TL, HW 48.9% of PW; MIDAV 43.4% of HW; postmentum 1.53x wider than long; AL 19.5% of TL; pronotum widest at base, 1.45x wider than long; elytral apices with tridentate truncature; postmentum red-brown with bronze-black basal margin; all antennomeres orange-brown with slightly darker apices.

Distribution

At present, known only from Mt. Molloy, Queensland (16°41'S, 145°20'E) (Figure 9).

Etymology

The specific epithet derives from *aquilonius,* Latin for northerly, and alludes to the northern distribution of this taxon compared to that of its closest relatives (see 'relationships').

Discussion

Relationships

Within the nominotypical *Temognatha* subgenus, I consider *T. aquilonia* most closely allied to *T. gigas* (Carter, 1916) and *T. parvicollis* (Saunders, 1869). These three species form the informal *T. parvicollis* species-group, which is diagnosed by the following combination of characters: large size and robust build; MIDAV >31% of HW; pronotum moderately deeply punctate, without vermiculations and long dense setae; pronotal base same width as elytral base; elytra striate; female tergite 9 broad and caudally convex; undersurface almost nitid, without long dense setae; basal hind-tarsomere same length as following hind-tarsomere; tarsal claws not strongly curved or basally lobed; lateral margins of pronotum (dorsally or ventrally) without narrow paler markings over entire length; elytral color pattern constant, non-fasciated; undersurface coloration red-brown or bronze-black (never metallic bronze). The *T. parvicollis* group species key out as follows:

1. Epipleuron without apically directed ventral spur at level of hind-coxae (Figure 10); frons orange-brown ..... *aquilonia*
   Epipleuron with apically directed ventral spur at level of hind-coxae (Figure 11); frons bronze-black with or without pale spots 2
2. Postmentum subhexagonal (Figure 12); elytral apices truncate; frons with pale spots; pronotum bicolored ..... *gigas*
   Postmentum subtriangular (Figure 13); elytral apices rounded; frons without pale spots; pronotum unicolored ..... *parvicollis*

Within the *T. parvicollis* species-group, I consider *T. aquilonia* more closely related to *T. gigas* (Carter). These two taxa share the following characters: subhexagonal postmentum (Figures 3, 12); a wide subrectangular pronotum; truncate elytral apices (though not as extreme in *T. gigas*); pale matt colored markings on frons. Apart from the key characters, *T. gigas* differs from *T. aquilonia* by possessing a proportionately narrower frons (MIDAV <40% of HW, in females), proportionately narrower head (HW <43% of PW, in females), proportionately shorter antennae (AL <18% of TL, in females (n=10)), black frons with two or three pale yellow spots, black and pale yellow mottled pronotum, dark red-brown elytra with pale yellow to white apicolateral margins, bronze-black venter. Carter's (1916) description of coloration in *T. gigas* was based on discolored dead material, which differs quite markedly from the coloration of live material as described above.

Temognatha parvicollis is more distantly allied to the other members of the *T. parvicollis* species-group, differing from them by possessing a more slender form, subtriangular postmentum, rounded elytral apices, uniformly dark (bronze-black) frons. *Temognatha parvicollis* is divisible into two subspecies: the nominate subspecies, occurring from south-east Western Australia eastwards to central New South Wales and characterized by orange-brown elytra; a western subspecies, restricted to south-west Western Australia and characterized by black elytra with a red or orange narrow apicolateral margin. The available name for the latter race is *T. parvicollis andromeda* (Peterson, 1988) stat. nov.. *Temognatha aquilonia* is most similar in dorsal coloration to the more proximate, nominate *T. parvicollis* subspecies.

Zoogeography

The direct taxonomic connection between the geographically isolated extant faunas of south-west Western Australia and north-east Queensland (Figure 9) has been rarely documented. I am aware of two comparable taxonomic (species-pairs) alliances between the more mesically adapted components of the two respective regional faunas (e.g. (Odonata: Corduliidae): *Lathrocordulia metallica* Tillyard and an undescribed *Lathrocordulia* species (Theischinger, *in litt.*); (Coleoptera: Buprestidae): *Cyria vittigera* (Laporte & Gory) and *C. cincta* Carter). The species-pair relationship of *T. aquilonia* and *T. gigas* is of interest because it stems from the more xeric faunal components, adds further support to the tenuous zoogeographic links between the two faunal regions and suggests the two taxa are relics of an earlier epoch. Interestingly, the four mesic taxa are also relictual, to a similar extent, and the three species-pairs appear to share Gondwanan (South American) connections at generic level. The only other examples, known to me, of possible parallel taxonomic alliances amongst the more xeric faunas of the two regions are those of *Delma fraseri* Gray and *D. mitella* Shea (Lacertilia: Pygopodidae), and *Acantholophus hystrix* (Bohemann) and *A. krefftii* Macleay/*A. doddi* Ferguson (Coleoptera: Curculionidae). However, the closeness of their relationships is uncertain and there are no apparent Gondwanan allies of these, at or below family or subfamily level, respectively. Nevertheless, it is possible that the two latter examples may help to establish the timing of the speciation of *T. aquilonia* and *T. gigas*.

Type Specimens Examined

***Temognatha (Temognatha) aquilonia* sp. nov.:** Holotype: female (QMBA T9129). Paratype: female (QMBA T9130).

***Temognatha (Temognatha) gigas* (Carter):** Holotype of *Stigmodera gigas* Carter, 1916: male; label data: Southern Cross W.[estern] A.[ustralia], Victor (h)/ W.[estern] Austral[ia] (p)/ Type ♀ (p)/ Stigmodera gigas Carter (h), Id by H.J. Carter (p)/ Stigmodera gigas Carter (h); holotype measurements: TL — 44.1 mm, TW — 19.1 mm; holotype has large median triangular hole near apex of sternite 7 (in MMUS).

***Temognatha (Temognatha) parvicollis parvicollis* (Saunders):** Lectotype of *Stigmodera parvicollis* Saunders, 1869 (here designated): male; label data: parvicollis E.[dward] S.[aunders]/ HT/ Saunders 74.18/ type/ Adel.[aide]; lectotype measurements: TL —33.0 mm, TW — 13.3 mm (in BMNH). Lectotype of *Stigmodera picea* Kerremans, 1890 (here designated): female; label data: Picea Kerrem.[ans] Type/ Kerremans 1903-59/ HT/ Australie Deyrolle; lectotype measurements: TL — 46.2 mm, TW — 18.3 mm (in BMNH).

***Temognatha (Temognatha) parvicollis andromeda* (Peterson):** Lectotype of *Stigmodera andromeda* Peterson, 1988/ *Stigmodera princeps* Blackburn, 1891 (here designated): female; label data: W.[estern] Australia, Tammin Scrub, J.C.F. Johnson, 26.3.[18]91 (h); lectotype measurements: TL — 49.5 mm, TW — 17.8 mm (in SAMA).

Acknowledgements

I would like to thank Ms B.M. Coulson (Perth) and Mr G.M. Shea (Sydney) for assistance with numerous aspects of the preparation of this manuscript; the following for loans of and access to specimens in their care: Mr P. Hammond and Mr M. Kerley (BMNH), Dr D.S. Horning (MMUS), Dr G.B. Monteith (QMBA), Dr E.G. Matthews (SAMA); Dr T.F. Houston and Mr B. Hanich (WAMP) for handling of loans and use of equipment; Mr G. Theischinger (Sydney) for use of unpublished Odonata data.

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Received 3 July 1990 Accepted 26 September 1990 Published 31 January 1991