

NOTES ON THE ANT GENERA *ROMBLONELLA* AND
WILLOWSIELLA, WITH COMMENTS ON THEIR
AFFINITIES, AND THE FIRST DESCRIPTIONS
OF AUSTRALIAN SPECIES
(HYMENOPTERA: FORMICIDAE: MYRMICINAE)

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INTRODUCTION

The new species *Romblonella heatwolei* (Wyer Island, Torres Strait, Queensland) and *Willowsiella anderseni* (King Edward River, Kimberley District, Western Australia) are described below, and their affinities discussed. The genera, which are both new to the Australian fauna, are recognized as probable sister taxa in the tribe Leptothoracini, close to *Leptothorax* Mayr and *Cardiocondyla* Emery.

Genus *Romblonella* Wheeler, 1935

The originally monotypic genus *Romblonella* and its type-species *R. grandinodis* were described by Wheeler (1935) from the small central Philippines Island of Romblon (12° 33'N; 122° 17'E). Two species congeneric with *grandinodis* had in fact been described previously in the genus *Tetramorium* Mayr, namely *R. scrobiferum* (Emery, 1897) (Berlindhafen (= Aitape) (03° 10'S; 142° 17'E), Papua, New Guinea), and *R. elysii* (Mann, 1919) (Malaupina (= Malapina) I. (09° 51'N; 160° 50'E), Three Sisters Is, Solomon Islands) (Smith, 1956).

Four additional species were later described by Marion R. Smith, as follows: *R. townesi* (1953A; Mt. Lasso, Tinian I. (14° 58'N; 145° 38'E), Northern Mariana Is); *R. vitiensis* (1953A; Wakaya I. (17° 39'S; 179° 01'E), Lomaiviti Group, Fiji Is); *R. yapensis* (1953A; Yap I. (09° 30'N; 138° 09'E), Caroline Is); and *R. palauensis* (1953B; Ulebsechel (= Auluptagel, = Aurapushekaru) I., Belau (= Palau) Group (07° 03'N; 134° 30'E), Caroline Is).

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I have studied type material of all these taxa except *R. scrobiferum*, and consider all to be congeneric, representing valid species. All are worker-based, and the male has been described for *R. palauensis*. The workers of *R. elysii*, *R. grandinodis* and *R. scrobiferum* were originally illustrated, and Wheeler's figures of *grandinodis* were reproduced by Smith (1953A). Details of type deposition etc. are given in Smith (1956).

R. palauensis alone has been reported from sites beyond its type locality—from the Belau group islands Ngeruktabel (= Urukthapal) and Babeldaob (= Babelthaup) (Smith, 1953B).

The Australian National Insect Collection (ANIC) has specimens which extend the distributional ranges of *R. elysii* and *R. scrobiferum*, as follows:

Romblonella elysii (Mann)

SOLOMON ISLANDS: Big Nggela (= Florida): Sandfly Passage (Jan. 1964, P. J. M. Greenslade, accs. 11543, 16239, 2 workers).

Romblonella scrobiferum (Emery)

PAPUA NEW GUINEA: *Manus Province*: Small Drova (?Ndrowa I, SE of Manus I) (8 Jan, 1972, P. N. Room, 4 workers); *East Sepik Province*: Cape Wom (03° 31'S; 143° 35'E), 5 km NW of Wewak (on low vegetation, littoral forest, vii, 1980, P. S. Ward, 6 workers); Tab Island (05° 10'S; 145° 50'E), 7 km NE of Madang (<5m, 7.11.1989, P. S. Ward, #10144, 4 workers, male); *Morobe Province*: Markham River delta, near Lae (06° 43'S; 147° 01'E) (on tree, swamp vegetation, 10.1.71, B. B. Lowery, 2 workers); *East New Britain Province*: Yalom (1000m, 19 May, 1962, Danish *Noona Dan* Expedition, 2 workers).

The characteristics and possible relationships of *Romblonella* are discussed in a following section.

Romblonella heatwolei Taylor n.sp.

(Figs 1–3)

Type locality:

QUEENSLAND: *Torres Strait Islands, Murray Group*: Wyer Island (09° 54'S; 142° 46'E).

Material examined:

Holotype worker, three paratype workers, paratype male, collected together (3 Aug. 1974, H. Heatwole). Deposited in ANIC

(type number 7868). The holotype has been gold-palladium coated for scanning electron microscopy; it originally matched the colour of the darkest paratype.

Worker:

The holotype has the following dimensions (mm): Aggregate Total Length (TL) ca 3.7; Maximum Head Length (HL) 0.80; Head Width (HW) (across eyes) 0.82, (maximum behind eyes) 0.77; Cephalic Index (HW behind eyes \times 100/HL) (CI) 87; Scape Length (SL) 0.53; Scape Index (SL \times 100/ HW behind eyes) (SI) 62; Maximum Pronotum width (PW) 0.52; Weber's Length of mesosoma (WL) 1.00; midline length of petiolar node (dorsal view) 0.32; petiolar node width (dorsal view) 0.36; midline length of postpetiole (dorsal view) 0.32; postpetiole width (dorsal view) 0.41. The paratypes have HW (across eyes) 0.79 or 0.81, with other dimensions proportionate.

General features as in accompanying figures. Similar to *R. scrobiferum* (Emery). The two taxa may be distinguished by the following couplet, which adequately characterizes *R. heatwolei*:

Frons between frontal carinae moderately coarsely reticulate, areas between reticulatae distinctly, densely microsculptured; first gastral tergite opaque, with a distinct, fine, dense raised microreticulum, which has a longitudinal trend on the disc of the sclerite. *R. scrobiferum*

Frons between frontal carinae with broken, somewhat erratic spaced longitudinal costulae, with little trace of cross-ribbing, and only weak, partly effaced intervening micro-sculpture. First gastral tergite shining, with only faint traces of fine, incised micro-reticulation, which is without a longitudinal trend. . . .

. *R. heatwolei*

Additional material examined:

Four worker specimens (ANIC) from Buna (08° 40'S; 148° 25'E), Northern Province, Papua New Guinea (15 March, 1972, P. N. Room) are identified here as *R. heatwolei*. They have not been designated as paratypes.

Notes:

R. heatwolei might be sympatric on New Guinea with its probable sister species *R. scrobiferum* (the latter is presently known only north of the main axial cordillera).

This species is probably present on mainland Australia, at least on northern Cape York Peninsula. It is one of the many New Guinea-based taxa apparently vicariantly isolated in parts of northern Australia, and/or on various Torres Strait Islands by the episodic inundation of the Strait.

Genus *Willowskiella* Wheeler, 1934

Willowskiella and its sole previously reported species *W. dispar* were described from a unique worker taken in 1933 on remote Bellona Island (11°20'S; 159°47'E), south of Guadalcanal, Solomon Islands (Wheeler, 1934). There have been no other records of genus or species until the recent unexpected collection of a congeneric worker in the Kimberley district of northern Western Australia. It is described here as *Willowskiella anderseni* n.sp.

The characteristics and possible relationships of *Willowskiella* are discussed below.

Willowskiella dispar Wheeler, 1934
(Figs 4,5)

W. dispar is adequately characterized by Wheeler's description and figures. It is compared below to the new species *W. anderseni*.

The holotype (California Academy of Sciences, San Francisco) is mounted on 2 points, one with the head, mesosoma and petiole, the other with the postpetiole and gaster. It carries a small red tag with the words "HOLOTYPE" (printed) and "*W. dispar*" (hand-written); a large label reading "*Willowskiella dispar* Wheeler (Type)" in Wheeler's handwriting; and four small printed white data labels, reading respectively: "Solomon Islands"; "NW end of Bellona Isd, VI 23-33"; "M. Willows Jr. Collector"; and "Templeton Crocker Exped. 1933".

The specimen has the following dimensions (mm; see above under *Romblonella heatwolei* for explanation of abbreviations): TL ca. 3.2; HL 0.79; HW (across eyes) 0.72, (maximum behind eyes) 0.69; CI 87; SL 0.53; SI 77; PW 0.59; WL 1.00; midline length of petiolar node 0.38; petiolar node width 0.52; midline length of postpetiole 0.24; postpetiole width 0.43.

The ants collected by various expeditions to Bellona and the larger neighbouring Rennell Island have been reviewed by Wilson

(1962) and Taylor (1976). The majority are either tramp species or widespread Indo-Australian elements. It is unlikely that any, including *W. dispar*, are truly endemic to Bellona.

Willowsiella anderseni Taylor n.sp.
(Figs 6–9)

Type locality:

WESTERN AUSTRALIA: *Kimberley District*: King Edward River (15°08'50"S; 126°08'40"E).

Material examined:

Holotype worker (1 June, 1988, A. N. Andersen). Deposited in ANIC (type number 7867). The holotype has been gold-palladium coated for scanning electron microscopy. It was unfortunately damaged in a laboratory accident, but its major parts are complete.

Worker:

Dimensions as follows (mm: see above under *Romblonella heatwolei* for explanation of abbreviations): TL ca. 2.0; HL 0.51; HW (across eyes) 0.46, (maximum behind eyes) 0.47; CI 92; SL 0.29; SI 62; PW 0.35; WL 0.58; midline length of petiolar node 0.14; petiolar node width 0.31; midline length of postpetiole 0.15; postpetiole width 0.33. Smaller than *W. dispar*, with different proportions. General features as in the accompanying figures.

Head expanded posterolaterally; anterior part of frons somewhat inflated; clypeus inflated anteromedially, median anterior border transverse, shallowly concave, abruptly reflexed ventrally and projecting forwards to slightly overhang the closed mandibles. Mandibles 5-toothed, apical tooth the largest and most acute, the others subequal in size, diminishing slightly from apex. Antennal club indistinctly 3-jointed, the two apical segments enlarged.

Pronotal shoulders narrowly rounded in dorsal view, semi-epaulate. Pronotum on each side with an obtuse ridge extending dorsally from its ventrolateral extremity to the shoulder, so that the anterolateral and lateral sections of the sclerite are more-or-less separated. Dorsum and sides of mesosoma lacking sutures, except for a short ventral section of the promesonotal suture on each side below the spiracle. Propodeal spines short but acute, posterodorsolaterally directed, slightly curved; each subtended by an anterodorsal carina, which defines the lateral margin of the propodeal

dorsum; infradental lamellae small, rounded. Propodeal spiracle very small, situated near the middle of the relevant section of the lateral wall of the mesosoma.

Petiole and postpetiole as illustrated; the former much less bulky than in *W. dispar*, strongly transverse in dorsal view. Postpetiole similarly transverse, shorter at midline than petiole. Petiolar peduncle extremely short, slender; the spiracles minute, each surmounted by a strong angular process, which is clearly visible and approximately right-angular in dorsal view. Base of gaster quite deeply emarginate in dorsal view, closely reflecting posterior outline of postpetiole. Gaster somewhat broad and flattened, especially anteriorly; in side view more-or-less triangular, with apex anteriorly directed. Sting moderately strong, blade-like, without apical appendage.

Pilosity sparse; a few relatively long hairs on clypeus and mandibles, and on apex and underside of gaster; clypeus with a median and 2 lateral setae on anterior margin; shorter hairs sparse on underside of head. Fine pubescence everywhere moderately abundant. Sculpturing vaguely, densely foveolate on head, mesosoma and nodes; less distinct and more shining posteriad; overall somewhat reminiscent of some *Crematogaster* species. Gaster dorsally vaguely shagreened, dully shining. Colour bright yellow-brown; eyes black; mandibular teeth dark brown; gastral dorsum darkly infuscated, darkest medially.

Generic assignment:

W. anderseni is confidently assigned to *Willowsiella* on the basis of the characters it shares with *W. dispar*. They are reviewed below in discussion of the attributes of the genus, and in the list of features distinguishing *Willowsiella* from *Romblonella*. These species seem more closely interrelated than either is to any known *Romblonella* species, so that *Willowsiella* and *Romblonella* are considered here to be valid, separately monophyletic, but related, possibly sister, taxa.

Notes:

The holotype was taken by pitfall trap in sclerophyll woodland on brown sand, dominated by *Eucalyptus miniata* and *E. tetradonta*, with under-story of annual grasses (mostly *Aristida* sp.) and the leguminous scrub *Bossiaea bossioides*. Other ant genera present

(identified by Andersen) included *Rhytidoponera* (4 spp.), *Crematogaster* (4 spp.), *Meranoplus* (5 spp.), *Monomorium* (6 spp.), *Tetramorium* (4 spp.), *Iridomyrmex* (6 spp.), *Camponotus* (5 spp.), and *Polyrhachis* (6 spp.). The most abundant species included *Iridomyrmex sanguineus* (Forel), *Monomorium* and *Pheidole* spp., and *Paratrechina* sp. aff. *minutula* Forel (A. N. Andersen *pers comm.*).

W. anderseni is readily distinguished from *W. dispar* by its much smaller size, very different petiolar and postpetiolar structure, and pale colour.

THE GENERA AND THEIR RELATIONSHIPS

Definition of the genera:

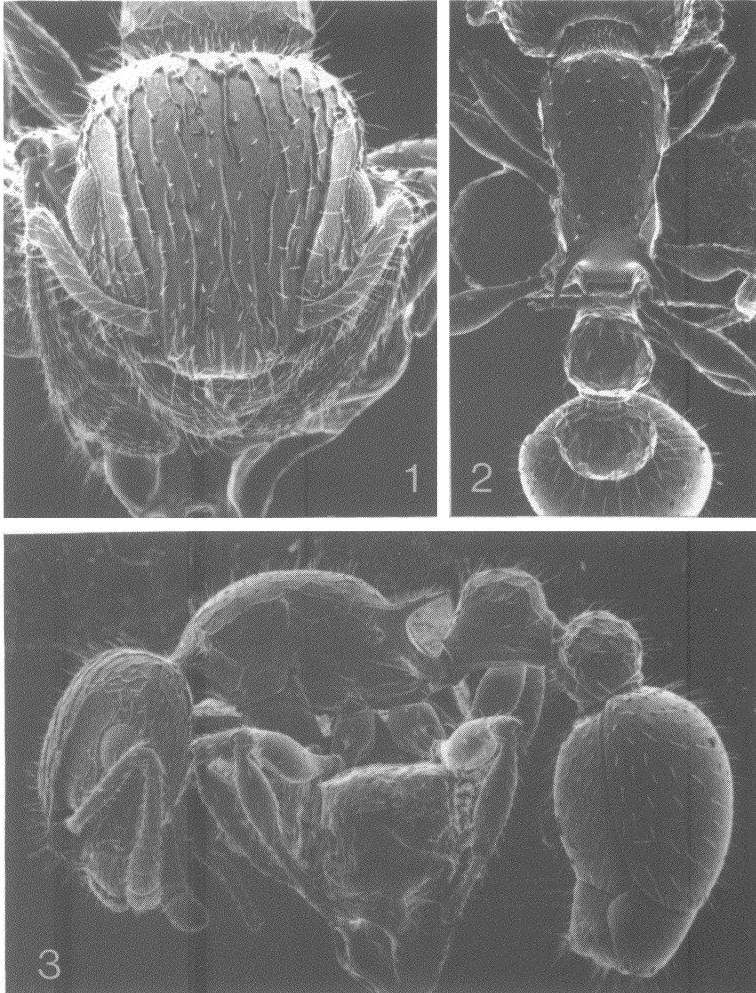
The general features of the *Romblonella* worker caste were reviewed by Wheeler (1935) and Smith (1953A), and those of the male by Smith (1953B).

In addition, the worker has the palpal formula maxillary 5: labial 3 (*scrobiferum* and *heatwolei* dissected); and the sting is blade-like, narrower than deep, and lacks an apical appendage. Sides of propodeum each with a marked, very obtuse, broad diagonal ridge, the crest of which runs from the anteroventral sector of the sclerite, and passes just in front of the propodeal spiracle, to terminate near the bulla of the metapleural gland; the latter very small and posterolaterally directed; propodeal spiracle small, situated a little above and behind the mid-point of the lateral wall of the propodeum, directed posterolaterally. Petiole in dorsal view with a stout triangular projection on each side of the very short peduncle, above the spiracle. It appears that workers of all known *Romblonella* species are monomorphic.

Emendations and additions are required to Wheeler's 1934 diagnosis of *Willowskiella*, as follows: Antennal club distinctly 3-jointed in *W. dispar*, less clearly so in *anderseni*; dorsum of clypeus and anterior part of frons clearly inflated in *dispar*, more so perhaps than implied by Wheeler's description, and even more so in *anderseni*; configuration of sides of propodeum, propodeal spiracles and metapleural glands as in *Romblonella*; petiolar and postpetiolar structures varying considerably between the two species, as described, but with similarities, especially in the presence of spiracular projections on the petiole, and the structure of the postpetiole; gas-

ter basally emarginate in dorsal view; sting as in *Romblonella*, blade-like, and lacking an apical appendage.

The unique holotypes of these rare species have not been dissected, but they appear on detailed inspection to have a 5:3 palpal formula, as in *Romblonella*.



Figs. 1-3: *Romblonella heatwolei* Taylor, holotype worker: 1. head, frontal; 2. mesosoma and nodes, dorsal; 3. whole animal, lateral; see text for dimensions.

Willowsiella and *Romblonella* share several features considered to indicate relationship between them. These include the general configuration of the mesosoma and nodes (despite the differences in the latter), and the fundamentally similar dental, fronto-clypeal, palpal and sting structures (the latter at least as visible without dissection). The two genera may be readily distinguished as follows (compare Figs 1–3 and 4–9):

<i>Willowsiella</i>	<i>Romblonella</i>
Antennae 11-jointed.	Antennae 12-jointed.
Fronto-clypeal area strongly inflated.	Fronto-clypeal area unexceptionally inflated.
Antennal scrobes lacking.	Antenna scrobes strongly developed
Petiole massively inflated (in <i>W. dispar</i>), or somewhat scale-like and transverse (in <i>W. anderseni</i>).	Petiole somewhat globular but not unexceptionally inflated or transverse.
Postpetiole relatively small compared to petiole, transverse, and somewhat scale-like.	Postpetiole of more normal proportions, subspherical, more-or-less as long as wide in dorsal view, at most only slightly smaller than petiole; usually larger.
Gaster emarginate at base, following the posterior outline of the postpetiole when viewed from above.	Gaster not basally emarginate.

Affinities and classification of the genera

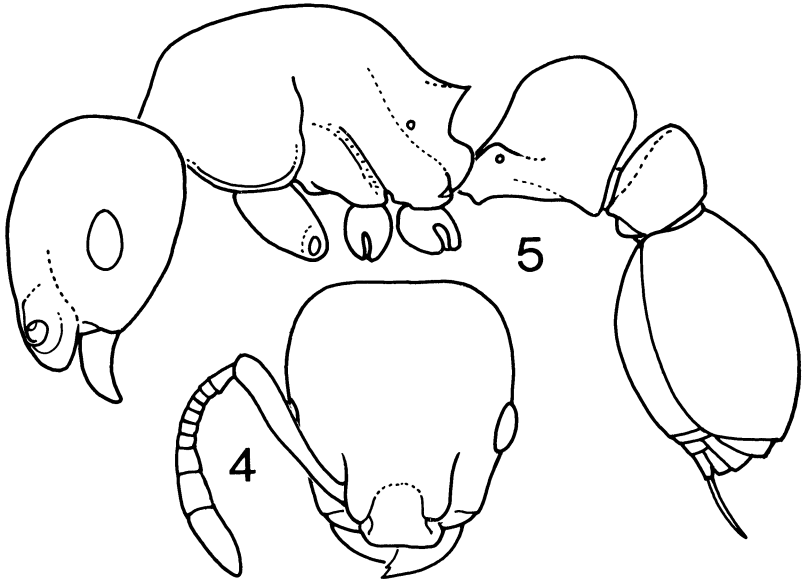
Despite differences of opinion concerning their higher classification, *Romblonella* and *Willowsiella* have been discussed consistently together by authors following Wheeler (1934, 1935), implying their general acceptance as related taxa. There seems little doubt that they are, and that their separate status as probable sister genera is justified.

The original assignments by Emery and Mann of *Romblonella scrobiferum* and *R. elysii* to *Tetramorium* are not tenable. The principal relevant characters distinguishing the two genera happen (per-

haps for good phylogenetic reasons; see below) to be the same as those used by Bolton (1982: 321) to differentiate the major myrmicine genus *Leptothorax* Mayr from *Tetramorium*. They apply similarly to *Willowsiella* and preclude classification of *Romblonella* and *Willowsiella* in tribe Tetramoriini.

Wheeler (1934, 1935) assigned both genera to "Emery's tribe Meranoplini", which then comprised the taxa indicated in Wheeler's 1935 key to meranopline genera.

Tribe Meranoplini has since been disbanded (Kugler, 1978), leaving *Meranoplus* of uncertain taxonomic position at tribal or genus-group level, perhaps peripheral to the *Pheidole* genus-group (Kugler, 1978), but with some similarities to *Willowsiella* and *Romblonella*. The latter were indicated, but considered to be of doubtful taxonomic significance by Bolton (1981), and will not be further pursued here. The other meranopline genera, with some synonymy, were considered by Bolton (1981) to be relatives of *Lordomyrma* Emery, partly to constitute the *Lordomyrma*-group of genera.



Figs 4, 5: *Willowsiella dispar* Wheeler, holotype worker: 4. head, frontal; 5. whole animal, lateral; see text for dimensions.

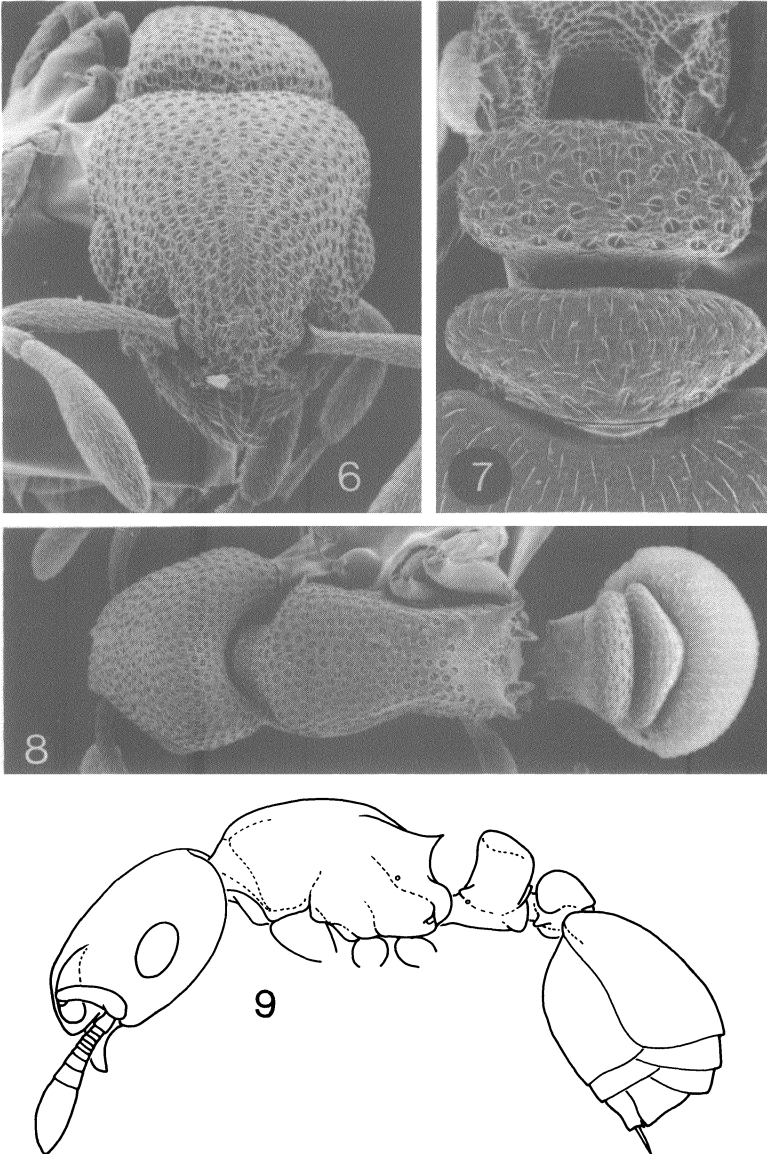
M. R. Smith at first (1953A) accepted Wheeler's placement of *Romblonella* in the Meranoplini, but later (1953B) rejected it on the basis of newly accessible male characters, and proposed allocation to "the tribe Myrmecini, subtribe Podomyrmina (sic!) of Emery, 1922". This taxon included the Australasian genus *Podomyrma* and its apparent satellites, the sub-Saharan African *Atopomyrma* André and *Terataner* Emery, and the Papuasian *Dilobocondyla* Santschi (along with *Atopula* Emery, now a junior synonym of *Tetramorium* (Bolton, 1976), and *Lordomyrma*) (Emery, 1922). *Podomyrma* (with Australian junior synonyms *Dacryon* Forel and *Pseudopodomyrma* Crawley (Brown, 1973; Taylor and Brown, 1985)), *Atopomyrma*, *Dilobocondyla* and *Terataner* remain associated at genus-group level, along with the aberrant eastern Australian *Peronomyrma* Viehmeyer (Taylor, 1970; Bolton, 1981), and possibly also the Oriental *Paratopula* Wheeler and Madagascan *Ireneopone* Donisthorpe (Bolton, 1988).

I have suggested elsewhere (Taylor, 1990) that *Podomyrma* could be close to, or even congeneric with, *Leptothorax*. This prospect remains under consideration in my current studies on the species and species-group-level taxonomy and affinities of *Podomyrma*. Relationship between the two genera appears to be strongly supported, implying that *Podomyrma* and its satellites properly belong in tribe Leptothoracini. If this is the case, Smith's placement of *Romblonella* and *Willowsiella* with *Podomyrma* and its relatives in effect implied relationship to *Leptothorax*.

Bolton (1981, p. 45) also inferred relationship between *Leptothorax* and *Romblonella*/*Willowsiella*, when he noted that the latter genera "both show a triangular prominence on each side of the petiole near the base of the node, such as is commonly seen in leptothoracines" and continued "whether there is any sort of relationship remains to be seen, although there are similarities between *Romblonella* and some tropical species of *Leptothorax*". The character discussed is present, incidentally, in many species of *Podomyrma*.

The hypotheses that *Willowsiella* and *Romblonella* are related to *Leptothorax*, and might therefore reasonably be classified in the tribe Leptothoracini, are implicit in the above suggestions, and will now be addressed.

Leptothorax has been characterized, with a review of its generic-level synonymy, by Bolton (1982: 321). Examination of the relevant



Figs 6-9: *Willowsiella anderseni* Taylor, 6. head, frontal; 7. petiole and postpetiole, dorsal; 8. whole animal, dorsal; 9. whole animal, lateral; see text for dimensions.

diagnosis, and consideration of the details provided here regarding *Willowsiella* and *Romblonella*, indicates that the formal prescription of *Leptothorax* could readily be extended to include *Willowsiella* and *Romblonella*. It would need only to cite (1) the presence of unreduced antennal scrobes to cover *Romblonella*, and (2) changes in the specifications for petiolar and postpetiolar characteristics to cover both genera.

The Neotropical *Leptothorax* species *wilda* M. R. Smith (a sometime member of the genus-group taxon *Nesomyrmex*, which was synonymised under *Leptothorax* by Bolton, 1982), has purportedly “vestigial” antennal scrobes (Kempf, 1959:422). Kempf’s use of the word “vestigial” implies derivation from an ancestor possessing non-vestigial scrobes, and that scrobes must therefore, in his view, have been present in the ancestry of modern *Leptothorax* species (assuming that *Nesomyrmex* and *Leptothorax* are genuinely related). The presence of antennal scrobes would not therefore necessarily preclude otherwise eligible taxa like *Romblonella* from classification in the Leptothoracini. I consider that the scrobes in *wilda* are genuinely vestigial, partly because of their barely reduced similarity to those of some Australian species of the *Podomyrma novemdentata* group, which share additional features of possible taxonomic significance with *wilda* and other Neotropical species of “*Nesomyrmex*”, and with some of the southern African *Leptothorax* species, notably *L. humerosus* Emery (see figs. 28 of Kempf, 1959; and 16 of Bolton, 1982). These same *P. novemdentata*-group species appear to be among the least derived in *Podomyrma*, most species of which lack antennal scrobes. If these various taxa are truly related, the definition of tribe Leptothoracini must accommodate the presence of antennal scrobes, as well as their alternative absence, and for that reason would not exclude *Romblonella*.

Substantial diversity in petiolar and postpetiolar attributes (which does not quite extend to include the conditions in *Romblonella* and *Willowsiella*) is already accepted in Bolton’s prescription for *Leptothorax*.

I do not suggest that *Leptothorax*, *Romblonella* and *Willowsiella* should be considered congeneric, but that, in terms of their formal

definition and fundamental similarities, the three genera may reasonably be considered relatives.

The aberrant mesosomal configuration represented in both *Romblonella* and *Willowsiella* might seem to preclude relationship with *Leptothorax*, which is generally more conservative in this regard. This is clearly not a particular problem, considering the broadly similar (presumably homoplastic) attributes of the Neotropical *L. anduzei* Weber (Kempf, 1959, fig. 12).

Apart from *Leptothorax* (which, despite some hesitation by Bolton (1982:322), I take to include the Neotropical *Macromischa* Roger as a junior synonym, following Baroni Urbani, 1978) and several parasitic northern hemisphere genera, the Leptothoracini currently includes only the widespread paleotropical genus *Cardiocondyla* Mayr, which was reasonably assigned to the tribe by Bolton (1982: 311) (with the dissolution of tribe Cardiocondylini). Francoeur and Loiselle (1988), incidentally, on the basis of male genitalic attributes, have suggested that *Cardiocondyla* is more closely related to "*Nesomyrmex*" (which they did not consider to be a junior synonym of *Leptothorax*) than the latter is to their *Leptothorax* s. str.

There are marked similarities between *Willowsiella* and *Cardiocondyla* in the structure of the clypeo-frontal area (which for *Cardiocondyla* is "hinted at in some species of *Leptothorax*" (Bolton, 1982:311)), the transversity of the postpetiole, the reduced pilosity, sculpturation etc. These features might not be homologous, but they certainly reinforce the argument that the definition and possible phylogenetic integrity of the Leptothoracini would not be challenged by inclusion of *Willowsiella* in the tribe.

On these grounds I propose that *Romblonella* and *Willowsiella* should now be assigned to tribe Leptothoracini, along with *Leptothorax*, *Cardiocondyla*, and the various parasitic genera discussed by Bolton (1982). A further review in this context of *Podomyrma* and its satellites is in preparation, with discussion supporting an hypothesis of early Gondwanic diversification of the Leptothoracini, relative to which the northern hemisphere *Leptothorax* species are derivative and peripheral.

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SUMMARY

Romblonella heatwolei (Wyer Island, Torres Strait, Queensland) and *Willowsiella anderseni* (King Edward River, Western Australia) n. spp. are the first species of their genera to be reported from Australia. The genera are assigned to tribe Leptothoracini.

REFERENCES CITED

BARONI-URBANI, C.

1978. Materiali per una revisione dei *Leptothorax* neotropicale appartenenti al sottogenere *Macromischa* Roger. *Entomologica basil.* 3: 395–618.

BOLTON, B.

1976. The ant tribe Tetramoriini (Hymenoptera: Formicidae). Constituent genera, review of small genera and revision of *Triglyphothrix* Forel. *Bull. Br. Mus. Nat. Hist. (Ent)*. 34: 283–379.
1981. A review of six minor genera of Myrmicinae in the Ethiopian zoogeographical region. *Bull. Br. Mus. Nat. Hist. (Ent)*. 43: 245–307.
1988. A review of *Paratopula* Wheler, a forgotten genus of myrmicine ants (Hym., Formicidae). *Entomologist's Mon. Mag.* 124: 125–144.
1982. Afrotropical species of the myrmicine ant genera *Cardiocondyla*, *Leptothorax*, *Melissotarsus*, *Messor* and *Cataulacus*. *Bull. Br. Mus. Nat. Hist. (Ent)*. 45: 307–370.

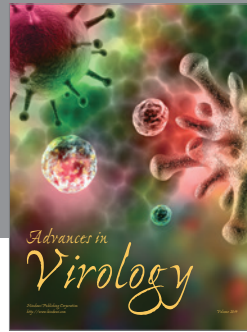
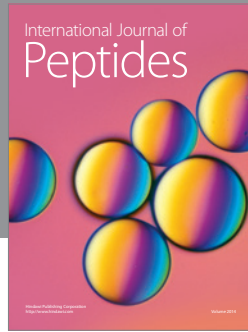
BROWN, W. L. JR.

1973. A comparison of the Hylean and Congo-West African rain forest ant faunas. In *Tropical forest ecosystems in Africa and South America: a comparative review*. Ed. Meggers, B. J., Ayensu, E. S. and Duckworth, W. D. Washington: Smithsonian Institution Press, pp. 161–185.

EMERY, C.

1897. Formicidarum species novae vel minus cognite in collectionae Musaei Nationalis Hungarici, quas in Nova-Guinea, Colonia Germanica, collectit L. Biró. *Természetr. Füz.* 20: 571–599.
1922. Hymenoptera Fam. Formicidae Subfam. Myrmicinae in Wytzman, P. (ed.) *Genera Insect. fasc.* 174C; 192 pp (207–397).

- FRANCOEUR, A. AND R. LOISELLE
 1988. The male of *Leptothorax wilda* with notes on the subgenus *Nesomyrmex* (Formicidae, Hymenoptera). In *Advances in Myrmecology*. Ed. James C. Trager, Leiden: E. J. Brill, p. xxvii + 551.
- KEMPF, W. W.
 1959. A synopsis of the New World species belonging to the *Nesomyrmex*-group of the ant genus *Leptothorax* Mayr. *Studia ent.* **2**: 391-432.
- KUGLER, C.
 1978. A comparative study of the myrmicine sting apparatus. *Studia ent.* **20**: 413-548.
- MANN, W. M.
 1919. The ants of the British Solomon Islands. *Bull. Mus. Comp. Zool. Harv.* **43**: 273-391.
- SMITH, M. R.
 1953A. A revision of the genus *Romblonella* W. M. Wheeler (Hymenoptera: Formicidae). *Proc. Hawn. Ent. Soc.* **15**: 75-80.
 1953B. A new *Romblonella* from Palau, and the first description of a *Romblonella* male (Hymenoptera: Formicidae). *J. New York Ent. Soc.* **61**: 163-167.
 1956. A list of the species of *Romblonella* including two generic transfers (Hymenoptera: Formicidae). *Bull. Brooklyn ent. Soc.* **51**: 18.
- TAYLOR, R. W.
 1970. Characterization of the Australian endemic ant genus *Peronomyrmex* Viehmeyer (Hymenoptera: Formicidae). *J. Aust. ent. Soc.* **9**: 209-211.
 1976. The ants of Rennell and Bellona Islands. *Nat. Hist. Rennell Isl., Br. Solomon Isls.* **7**: 73-90.
 1990. Australasian ants of the genus *Leptothorax* Mayr. (Hymenoptera: Formicidae: Myrmicinae). *Mem. Qld Mus.* **27**(2): 605-610.
- TAYLOR, R. W. AND D. R. BROWN
 1985. Hymenoptera: Formicoidea. In *Zoological Catalogue of Australia*, Volume 2. Australian Government Publishing Service, Canberra. 381 pp. (1-149, 306-348).
- WHEELER, W. M.
 1934. Formicidae of the Templeton Crocker expedition. *Proc. Cal. Acad. Sci.* **21**: 173-181.
 1935. Two new genera of myrmicine ants from Papua and the Philippines. *Proc. New England Zool. Club* **15**: 1-9.
- WILSON, E. O.
 1962. The ants of Rennell and Bellona Islands. *Nat. Hist. Rennell Isl., Br. Solomon Isls.* **4**: 13-23.



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