

THE NOMENCLATURE AND DISTRIBUTION OF SOME AUSTRALIAN ANTS OF THE GENUS *POLYRHACHIS* Fr SMITH (HYMENOPTERA: FORMICIDAE: FORMICINAE)

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Abstract

Polyrhachis inconspicua insularis Emery, *P. thalia* io Forel, *P. polymnia maculata* Forel, *P. micans ops* Forel and *P. sidnica perthensis* Crawley are elevated to species rank. New synonymies include: *P. fuscipes* Mayr = *P. semipolita hestia* Forel; *P. hexacantha* (Erichson) = *P. froggatti* Forel; *P. hirsuta* Mayr = *P. hirsuta quinquedentata* Viehmeyer; *P. inconspicua* Emery = *P. thalia* Forel; *P. insularis* Emery = *P. inconspicua subnitens* Emery; *P. phryne* Forel = *P. sempronia* Forel. *P. jacksoniana* Roger is declared a *species inquirenda*, and the names *P. sidnica* Mayr, *P. sidnica tambourinensis* Forel, *P. leae* Forel and *P. leae cedarensis* Forel are reserved as *species inquirendae* under the aggregate name *P. (sidnica)*. Lectotypes are designated for *P. hexacantha*, and *P. perthensis*. Other confirmed valid species and synonyms are listed. All relevant names previously assigned to the subgenus *Campomyrma* Wheeler have been considered.

Introduction

The named Australian ant species of the subgenus *Polyrhachis* (*Campomyrma*) Wheeler are reviewed. The traditional subgeneric classification of *Polyrhachis* is seldom used in contemporary ant taxonomy, but *Campomyrma* is clearly enough delimited to define the scope of this study. All appropriate species group taxa have been considered. Unless otherwise noted, type material of every taxon has been examined and almost all are now represented in the Australian National Insect Collection (ANIC) by types or type-compared voucher specimens. Apart from several old junior synonyms and those newly declared below as junior synonyms or *species inquirendae*, the available names apparently all refer to good species. Distributions of relevant species are summarised using 1-degree grid cells, as in Taylor (1987). Confirmed species and synonymies additional to those treated in detail are: *P. femorata* Fr. Smith (= *P. emeryi* Forel), *P. flavibasis* Clark, *P. gravis* Clark, *P. hecuba* Forel, *P. macropus* Wheeler (= *P. longipes* Wheeler), *P. micans* Forel, *P. patiens* Santschi, *P. polymnia* Forel, *P. prometheus* Santschi, *P. pseudothrinax* Hung, *P. pyrhus* Forel, *P. schweidlandi* Forel, *P. semipolita* André, *P. templi* Forel, *P. thalia* Forel and *P. zimmeri* Clark. For references etc. see Taylor (1987). There are many additional undescribed species in the ANIC. Others doubtless await first collection.

Abbreviations: ANIC, Australian National Insect Collection, CSIRO, Canberra; GM, Museum d'Histoire Naturelle, Geneva, Switzerland (Dr C. Besuchet); HNM, Hungarian Natural History Museum, Budapest (Dr J. Papp); MCSN, Museo Civico di Storia Naturale 'Giacomo Doria', Genoa, Italy (Dr R. Poggi, Dr V. Raineri); MNB, Museum für Naturkunde, Humboldt-Universität, Berlin, D.D.R. (Dr H. J. Hannemann); NHMB, Naturhistorisches Museum, Basel, Switzerland (Dr M. Brancucci); NHMV, Naturhistorisches Museum, Vienna, Austria (Dr M. Fischer); OX, University Museum, Oxford, U.K. (Mr I. Lansbury); ZSM, Zoologische Staatssammlung, Munich, F.D.R. (Dr F. Brachmaier, Dr G. Lawitsky).

Polyrhachis fuscipes Mayr

Polyrhachis fuscipes Mayr, 1862:679.

Polyrhachis semipolita hestia Forel, 1911:295. Syn. n.

The holotype worker of *P. semipolita hestia* (type locality Australia, ZSM) is clearly conspecific with that of *P. fuscipes* (Tasmania, NHMV). The latter is labelled 'Type Vandiemer' and has 2 tags reading *Polyrhachis* (or *Polyrh*) *fuscipes*, one of them with the word 'Type' handwritten in red. The NHMV also has a presumed paratype worker labelled 'Dup n 47', with a Mayr determination label reading *Polyrh. fuscipes* M, but no indication of type-status. *P. semipolita* André is a separate species (see under *P. hexacantha*). *P. fuscipes* is known from the mountains of southeastern New South Wales (NSW) and the Australian Capital Territory (ACT), through the Victorian Alps to Tasmania (Tas.) (Grid Cells 33/150, 35/148, 37/144, 38/145, 42/146, 42/147).

Polyrhachis hexacantha (Erichson)

Formica hexacantha Erichson, 1842:260.

Polyrhachis froggatti Forel, 1910:89. Syn. n.

A syntype worker of *P. froggatti* (Bombala (36/149), NSW, ANIC, donated by GM) is essentially identical to a worker syntype of *P. hexacantha* (Tasmania [probably from Woolnorth (40/144), the major site of the collector Adolphus Schayer], MNB). The latter is accompanied by an alate female similarly labelled as a type; the worker is here designated lectotype; it and the female are appropriately labelled. *P. hexacantha*, *P. fuscipes* and *P. semipolita* (type locality Victorian Alps, syntype worker in ANIC) are similar and distinguished primarily by sculptural differences. *P. fuscipes* is less regularly and coarsely sculptured than *P. hexacantha*, while *P. semipolita* has all body surfaces remarkably smooth and strongly reflective. The 3 species seem to be similarly distributed (except that *P. hexacantha* ranges north to the New England Tableland) and are likely closely sympatric in parts of southeastern mainland Australia and Tas. (Grid Cells for *P. hexacantha*: 30/152, 33/150, 35/148, 35/149, 36/146, 36/147, 36/148, 37/145, 41/146, 41/147, 42/147; for *P. semipolita*: 35/148, 36/149, 37/145, 40/144, 42/147, 43/147).

Polyrhachis hirsuta Mayr

Polyrhachis hirsuta Mayr, 1876:75.

Polyrhachis (Campomyrma) hirsuta quinquedentata Viehmeyer, 1925: 147. Syn. n.

I have studied 3 identically labelled worker syntypes of *P. hirsuta quinquedentata* (Liverpool (33/150), NSW), 2 from MNB, and 1 from NHMV. The latter was placed in the Mayr Collection under the name *P. hirsuta*, the type of which cannot be located in either collection and must be presumed lost. Nonetheless, the above synonymy is proposed. A *P. quinquedentata* syntype might eventually need to become the neotype of *P. hirsuta*. Modern ANIC material evidences a widespread, extremely hirsute, eastern Australian species, which conforms to the *P. hirsuta* description and is conspecific with the *P. quinquedentata* syntypes. *P. hirsuta* is very distinctive. It is known from Rockhampton, Queensland (Qld), south to Eltham, Victoria (Vic.) (Grid Cells 23/150, 28/151, 33/150, 33/151, 35/148, 35/149, 35/145).

Polyrhachis inconspicua Emery

Polyrhachis inconspicua Emery, 1887:225.

Polyrhachis thalia Forel, 1902:530. Syn. n.

As conceived here *P. inconspicua* is widespread and variable and could include several similar biological species. Nonetheless, the types of *P. inconspicua* (Somerset (10/142), Qld, holotype worker, MCSN) and *P. thalia* (Charters Towers (20/146), Qld, 2 syntype workers on 1 pin, GM) are essentially identical and are considered conspecific. *P. inconspicua* is relatively small and structurally simple. It virtually lacks pronotal denticles and has those of the propodeum very reduced or absent. The metanotal suture is feebly marked but distinct. The petiole is moderately inflated in side view, with its median spines reduced to obtuse angles and the laterals small but distinct and sharply acute. The first gastral tergite is subopaque and moderately coarsely sculptured, totally lacking smooth shining areas. Its sculpturing varies from regular non-directional shagreening to a condition where distinct superimposed fine longitudinal striation is prominent (as in the 3 relevant types). There is also variation in the intensity of the relatively coarse sculpture on the head and mesosoma, in the proportions of the propodeal dorsum (which is as wide as, or (more usually) wider than long), and the configuration of its posterodorsal margin and posterodorsolateral corners. There is no evident overall pattern to this variability, which is essentially encompassed by some local collections (e.g. in specimens from the Charters Towers area), while others are almost invariable (as on Barrow I. (20/115), Western Australia (WA) and near Katherine (14/132), Northern Territory (NT)).

P. inconspicua is the senior member of a species group which includes *P. insularis* Emery and *P. io* Forel, discussed below. In the present sense this species ranges across

northern Australia from Barrow I, through the Kimberlies and 'top end' NT, south to Katherine and Larrimah and northeast to Gove and Groote Eylandt. In Qld it occurs south from the Torres Strait Is (Badu (= Mulgrave) and Prince of Wales) to Mt Isa, Charleville and the Mackay area (Grid Cells 10/142, 11/132, 11/133, 11/136, 12/130, 12/132, 12/136, 12/143, 13/136, 14/126, 14/132, 15/124, 15/126, 15/133, 16/122, 16/145, 17/144, 17/145, 18/123, 18/146, 20/115, 20/139, 20/144, 20/146, 20/148, 21/117, 26/146).

***Polyrhachis insularis* Emery. Stat. n.**

Polyrhachis inconspicua insularis, Emery, 1887:225.

Polyrhachis inconspicua subnitens Emery, 1895:357. Syn. n.

Emery presumably treated *P. insularis* and *P. subnitens* as separate taxa partly because of the provenance of their type localities, Yule I. (8/146), Papua New Guinea (PNG), and Kamerunga (16/145), Qld. The worker holotypes (both MCSN) are in fact almost identical and doubtless conspecific. Modern ANIC material shows this species to be widespread in New Guinea and northern Australia; from Kairiru I. near Wewak, east of the Popondetta area and south to Yule I.; from Groote Eylandt in the NT; and in Qld from the Torres Strait Is (Moa (= Banks), Prince of Wales and Maer, in the Murray Group), south to near Gladstone (Grid Cells 3/143, 7/146, 8/146, 8/148, 9/144, 10/142, 12/136, 12/143, 16/122, 22/149, 23/150). *P. insularis* is sympatric with *P. inconspicua* at Groote E. and Iron Range. These species are similar, but *P. insularis* has the first gastral tergite smooth and shining, with scattered minute point-punctures; the sculpturing otherwise is less intense than in *P. inconspicua*, and the propodeal dorsum consistently narrower, seldom much wider than long.

***Polyrhachis io* Forel. Stat. n.**

Polyrhachis thalia io Forel, 1915:114.

P. io is close to *P. inconspicua*, but its worker holotype (Derby (17/123), northwestern WA, GM) is more intensively sculptured (especially on the first gastral tergite) than any specimen assigned here to *P. inconspicua*. Also, the median part of the posterodorsal propodeal border is indented so that, when viewed from behind, the small propodeal denticles appear to stand more independently than in *P. inconspicua* and are separated as the apices of an obtuse 'v'. The holotype is matched almost totally by a specimen from Katherine Gorge, NT (A. N. Andersen leg., 12-7-86, ANIC) and these specimens are sufficiently distinct from others to justify the retention of *P. io* as a separate species. It and *P. inconspicua* are nowhere represented by sympatric material, but *P. inconspicua* specimens from northwestern WA, and especially several series (B. B. Lowery leg.) from near Katherine, are duly distinctive.

***Polyrhachis jacksoniana* Roger**

Polyrhachis jacksoniana Roger, 1863:158.

The type of types of this species (type locality Port Jackson [Sydney] (33/151), NSW) are not in the Roger Collection (NHMB) and cannot be found elsewhere. Mayr (1876) considered *P. jacksoniana* close to *P. hexacantha* and Emery (1925) listed it as a subspecies of *P. hexacantha*. This seems unlikely on distributional grounds. *P. jacksoniana* must at present be considered a *species inquirenda*. It could be a senior synonym of *P. sidnica*, discussed below.

***Polyrhachis maculata* Forel. Stat. n.**

Polyrhachis polymnia maculata Forel, 1915:115.

Comparison of the holotype worker of *P. maculata* (Malanda (17/145), Qld) with 2 syntype workers of *P. polymnia* (Mackay, Qld) (all GM), shows that they represent distinct species. Both are rare. *P. polymnia* is known from grid cells 20/148, 21/148, and 21/149, and is uniformly blackish-brown, with distinctive, unusually expanded frontal lobes. *P. maculata* is known only from the type locality and from Dawes Range (24/151), where the ANIC paradigms were collected by R. J. Kohout. This is the smallest described species of the *P. femorata* species group, which also includes *P.*

femorata, *P. flavibasis* and *P. templi*. It is basically dark brown in colour. The gaster is medium brown, with the anterior part of its first tergite orange-brown, matching the legs. Mesosomal armament is almost lacking, and the dorsum of the mesosoma is finely longitudinally sculptured.

***Polyrhachis ops* Forel. Stat. n.**

Polyrhachis micans ops Forel, 1907a:308.

Comparison of their holotypes (GM and NHMV) shows *P. ops* and *P. micans* to be dissimilar and clearly not conspecific. The latter (type locality Rockhampton (23/150)) is one of several North Queensland species which have the median petiolar spines greatly enlarged (*P. prometheus* is another). *P. ops* is structurally conservative and somewhat like the common, smaller, probably sympatric *P. perthensis*. It totally lacks pubescence on the first gastral tergite, which is well developed in *P. perthensis*. These are the only *Campomyrma* species described from southwestern WA. Apart from the type locality (Albany (35/117)), *P. ops* is known only from Mundaring (31/116), and the Porongorup Ranges (34/117) (ANIC).

***Polyrhachis perthensis* Crawley. Stat. n.**

Polyrhachis sidnica perthensis Crawley, 1922:36.

Following the description of '*P. sidnica perthensis*' (in which he seems to have misidentified *P. phryne* as *P. sidnica*), Crawley stated the provenance of his material as 'Perth (Clark, nos. 8 and 20), type W.C.C. coll.'. I have seen 10 putative syntypes of this name from the Crawley collection (OX). All are mounted on separate card points: 4 on 1 pin, with '8' written on a small circular paper label, and with a blue printed 'cotype' label; 3 on 1 pin with a scrap paper label handwritten in pencil, reading 'Perth WA J Clark. 20', and with a circular label reading '20'; and 3 on 1 pin with only a circular label reading '20', but this has been corrected from an original '25'. The topmost specimen on the '8' pin is here designated lectotype, and the others paralectotypes; all are appropriately labelled. Ivor Lansbury (OX) has generously donated a paralectotype from the lectotype pin to the ANIC.

There are specimens of this species in Australian museums labelled incorrectly as types. They have autograph determination labels by John Clark, often with the printed words 'J. Clark Det.'. There are 2 styles of (usually) printed data labels, reading either 'Swan R.' or 'Armadale', printed above 'W. Australia, J. Clark'. The type labels vary. I have seen a blue printed 'Cotype' label, a red printed 'type series' label, and a red hand written 'Type Series' label on specimens from the Museum of Victoria or Western Australian Museum collections. Such specimens, while correctly identified, cannot be considered types, and were presumably labelled by Clark at some time after 1922.

P. perthensis is certainly not conspecific with any of the putative *P. (sidnica)* group species discussed below. It is similar to *P. phryne* (see below) and like that species has abundant and regionally distinctive fine pubescence on the first gastral tergite. This species seems to be reasonably common in southwestern WA, with records centred on Perth (31/115).

***Polyrhachis phryne* Forel**

Polyrhachis phryne Forel, 1907b: 41.

Polyrhachis sempronia Forel, 1907b: 39. Syn. n.

The holotype of *P. sempronia* (HNM) differs slightly from a syntype of *P. phryne* (GM) in intensity of sculpturing and proportions of the propodeum and its posterodorsal projections. Both are workers collected on Mt Victoria (33/150), NSW, by Lajos Biró in 1901, and carry identical data labels. Forel evidently failed to appreciate their similarities because he related them separately to different other *Polyrhachis* species. Apart from statements of comparison with these, the original descriptions (which were published together) are identical in substance. I consider the types conspecific, especially in light of the variability evidenced by modern series (ANIC). *P. phryne* is found in southeastern mainland Australia, in NSW, the ACT, and Vic. (Grid Cells: 33/145, 33/148, 33/150, 34/145, 34/147, 34/148, 34/149, 35/148,

35/149, 36/144, 37/144). This species has locally distinctive very fine, dense, brassy pubescence clouding the dorsum of the first gastral tergite. The most similar other described species is *P. perthensis*.

The Polyrhachis (sidnica species complex)

Under the provisions of Art. 6 of the International Code of Zoological Nomenclature (3rd edn, 1985), I propose use of the aggregate name *P. (sidnica)* to contain the nominal species listed below. They are clearly related by similarity in numerous details, but intractable as to their individual status and definition as taxa. They could represent a single variable species, or more likely 2 or 3. Until resolution is possible aggregate nomenclature, with the reservation from use of all names other than *P. (sidnica)* as *species inquirendae*, is practicable. Types have been studied as indicated, and critically type-compared vouchers are in the ANIC. It is possible that *P. jacksoniana* is a senior synonym of *P. sidnica* (see above). Mayr (1876) synonymised his *P. quadricuspis* 1870 (type locality, New South Wales) with *P. sidnica*. I have been unable to locate the *P. quadricuspis* type(s) in any major European ant collection, but the synonymy seems incontestable. The relevant names are:

P. sidnica Mayr, 1866:886. (Sydney (33/151), NSW, 2 worker syntypes, NHMV).

P. sidnica tambourinensis Forel, 1915:113. (Tambourine Mountain (27/153), Qld, holotype worker, GM).

P. leae Forel, 1913:193. (Hobart (42/147), Tas., 2 worker syntypes, GM).

P. leae cedarensis Forel, 1915:114. (Cedar Creek (= Ravenshoe) (17/145)), Qld, syntypes, 2 worker and 1 female, GM).

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