

NOMENCLATURAL CHANGES AND NEW AUSTRALIAN RECORDS IN THE ANT GENUS *POLYRHACHIS* FR. SMITH (HYMENOPTERA: FORMICIDAE: FORMICINAE)

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Six former subspecies are elevated to specific rank: *P. ammon angusta* Forel, *P. daemeli argentosa* Forel, *P. ammonoides crawleyi* Forel, *P. hermione cupreata* Emery, *P. schenkii lydiae* Forel and *P. terpsichore rufifemur* Forel. *P. andromache* Roger is removed from the synonymy of *P. ithona* Fr. Smith and reinstated as a valid species. Fourteen synonyms of species-group names are proposed: *P. ammon* (Fabr.) = *P. ammon angustata* Forel, *P. andromache* Roger = *P. connectens australiae* Emery, *P. dives* Fr. Smith = *P. exulans* Clark, *P. erato* Forel = *P. aeschyle* Forel, *P. jervens* Fr. Smith = *P. valerus* Fr. Smith = *P. indocilis* Santschi = *P. kershawi* Clark, *P. cupreata* Emery = *P. daemeli exlex* Forel, *P. mjobergi* Forel = *P. anguliceps* Viehmeyer, *P. ornata* Mayr = *P. humerosa* Emery = *P. chrysolorax* Viehmeyer, *P. paxilla* Fr. Smith = *P. lachesis maeandrisfera* Emery, *P. sokolova* Forel = *P. sokolova degener* Forel and *P. rufifemur* Forel = *P. terpsichore elegans* Forel. Two species, *P. consimilis* Fr. Smith and *P. paxilla* Fr. Smith, are recorded for the first time from Australia.

□ Formicidae, *Polyrhachis*, Australia, synonymy, distribution.

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Polyrhachis is a large formicine ant genus presently containing well over 800 species-group names, of which over 125 have been listed from Australia (Taylor, 1987). My studies on the systematics of the genus clearly indicate that this number will increase. Examination of type material has revealed a number of unsuspected synonyms, and that many currently infraspecific names should in fact be assigned specific rank. Also, a number of species previously known from elsewhere (New Guinea, Indonesia, etc.) are yet to be reported from localities along the northern fringe of the Australian continent. The most significant developments result from recent collecting activities. Particularly important are the surveys conducted by Dr G.B. Monteith, of the Queensland Museum, on Cape York Peninsula and the mountain ranges along the eastern Queensland coast. My collecting in the open forests and lowland rainforests of northern Australia, including the Gulf of Carpentaria area, has also been productive. These activities have brought to light some of the most interesting *Polyrhachis* species known to science. A decline in the number of valid species, versus available names of Ethiopian *Polyrhachis* was reported by Bolton (1973, 1974) when he reviewed that fauna. The Australian fauna shows the reverse relationship. It can confidently be predicted that, when the neces-

ary changes are implemented and new species described, the characteristically Australian subgenera, such as *P. (Hagionymra)* and *P. (Hedonymra)*, will include probably three times as many species as there are names currently available. Considering the known undescribed species in other subgenera, and also species described from elsewhere but not yet reported from Australia, the overall total of continental *Polyrhachis* species must exceed the available names by a factor of at least two. This study is the first in a projected series dealing with the Australian fauna of the genus, paving the way to more detailed revisionary studies now in preparation. The available names have been set out by Taylor and Brown (1985) and Taylor (1987).

The illustrations were drawn using a Zeiss (Oberkochen) SR Stereomicroscope and camera lucida. The scanning electron micrographs were prepared with a Hitachi S-530 SEM, using gold coated specimens.

Conventions for measurements and indices are those of Bolton (1973) and Kohout (1988).

Distribution data are given as 'short' coordinates based on the 1-degree grid cell system initiated by Taylor (1987). The distribution ranges reported here take account also of specimens in the Australian National Insect Collection (ANIC), CSIRO, Canberra, another

major source of recently collected *Polyrhachis* material. The words "New Guinea" used alone indicate the whole island of that name in the geographic sense. The abbreviations used for institutions and depositories are identical to those of Taylor and Brown (1985), with the following addition: ZIK — Zoological Institute of the Academy of Sciences, Ukrainian SSR, Kiev.

and gaster, with the head and most appendages missing. Direct comparison shows the promesonotal dorsum to be rather more narrowed posteriorly that is usual in specimens of *P. ammon*, but not to a degree considered of taxonomic importance. No other significant features distinguishing *angustata* could be found — I therefore consider it to be a junior synonym of *P. ammon*.

***Polyrhachis ammon* (Fabricius, 1775)**

Formica ammon Fabricius, 1775: 394. Holotype worker. AUSTRALIA, BMNH.

Polyrhachis ammon var. *angustata* Forel, 1902: 525. Holotype worker. AUSTRALIA: GMNH (Examined). Syn. nov.

The unique holotype of *P. ammon angustata* is damaged. It consists of the mesosoma, petiole

***Polyrhachis andromache* Roger, 1863
(Fig. 1 A,C; Fig. 3 A)**

Polyrhachis hector Fr. Smith, 1859: 142. Holotype worker. INDONESIA: Aru Is., OUM (Examined). Nom. preocc. (Junior homonym of *Polyrhachis hector* Fr. Smith, 1857).

Polyrhachis andromache Roger, 1863: 8, 46. (Replacement name).

Polyrhachis connectens Emery, 1887: 230. Syntype workers. INDONESIA, NEW GUINEA: Pulo

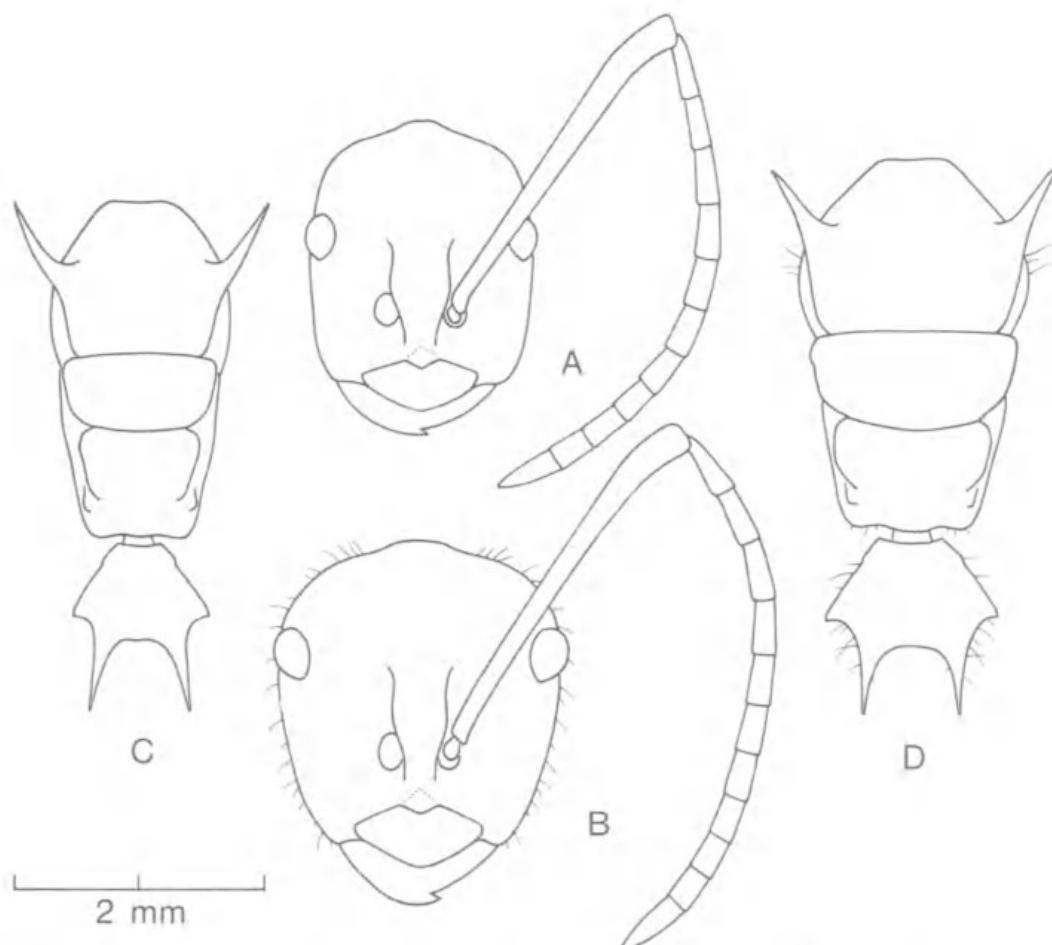


FIG. 1 A, B Head in full face view (right antenna omitted): A — *P. andromache* (holotype); B — *ithona* (syntype). C, D Mesosomal dorsum and petiole: C — *P. andromache* (holotype); D — *ithona* (syntype).

Faor, Fly River, Tangion Bair, Mansinam, Ramoi, Isole Aru. Wokan, MCG (Examined). Syn. by Emery (1897).

Polyrhachis connectens var. *australiae* Emery, 1887: 231. Syntype workers, female. AUSTRALIA: Cape York, Somerset, MCG (Examined). Syn. nov.

Polyrhachis relucens ssp. *decipiens* var. *australiae* Emery, 1897: 580; 1925: 202.

Polyrhachis relucens australiae Taylor and Brown, 1985: 140; Taylor, 1987: 62.

(*Polyrhachis ithona* Fr. Smith; Bolton, 1974: 177. Erroneous synonymy).

Bolton (1974) considered *P. andromache* to be conspecific with *P. ithona* (Fig. 1 B,D), and gave a synonymy which I believe to be erroneous. I have examined all the relevant types and have seen a substantial number of specimens from Australia, Papua New Guinea and Indonesia. As a result I consider both names to be those of valid species. *P. ithona* is easily separable in having numerous short hairs projecting from the sides of the head behind the eyes. Such hairs are never present in *P. andromache*. The head of *P. ithona* is much broader behind than in front and the antennal scapes relatively short (SI < 140) compared to those of *P. andromache* (SI > 145). *P. andromache* is also more slender and delicate than *ithona*, which is a relatively large and stoutly built species.

P. andromache usually nests in tree cavities (surface splits, hollow branches etc.), but occasionally builds pocket-like nests of silk and vegetation debris against tree trunks (Fig. 3 A). In Australia it inhabits the lowland rainforests of northern Cape York Peninsula, from the Torres Strait islands south to Iron Range (Grid cells 9/142, 10/142, 12/143).

***Polyrhachis angusta* Forel, 1902 Stat. nov.**
(Fig. 2 A)

Polyrhachis ammon r. *angusta* Forel, 1902: 524. Syntype workers, females, males. AUSTRALIA: Queensland, Mackay, GMNH (Examined).

This species stands close to *P. ammon*, but is consistently separable by its distinctly slender, more gracile stature. The pronotum in dorsal view is almost quadrate, 0.7–0.8 times as wide as the head, with narrowly rounded shoulders, and the lateral margins distinctly sinuate behind. The propodeal spines are oblique to the main axis of the mesosoma in side view and

slightly divergent from above. In *P. ammon* the pronotum is more or less transverse with the shoulders broadly rounded and the lateral margins narrowed posteriorly and almost straight in outline. The propodeal spines project horizontally, and are subparallel. The appressed pubescence in *P. angusta* is shorter and more dilute, and the pilosity distinctly longer, than in *P. ammon*.

This species nests in soil and appears to be much less common than *P. ammon*. It is patchy distributed from Eungella in northern Queensland to central New South Wales (Grid cells 21/148, 27/152, 28/152, 31/152).

***Polyrhachis argentosa* Forel,**
1902 Stat. nov.
(Fig. 2 G)

Polyrhachis daemeli r. *argentosa* Forel, 1902: 515. Syntype workers. AUSTRALIA: Queensland, Mackay, GMNH (Examined).

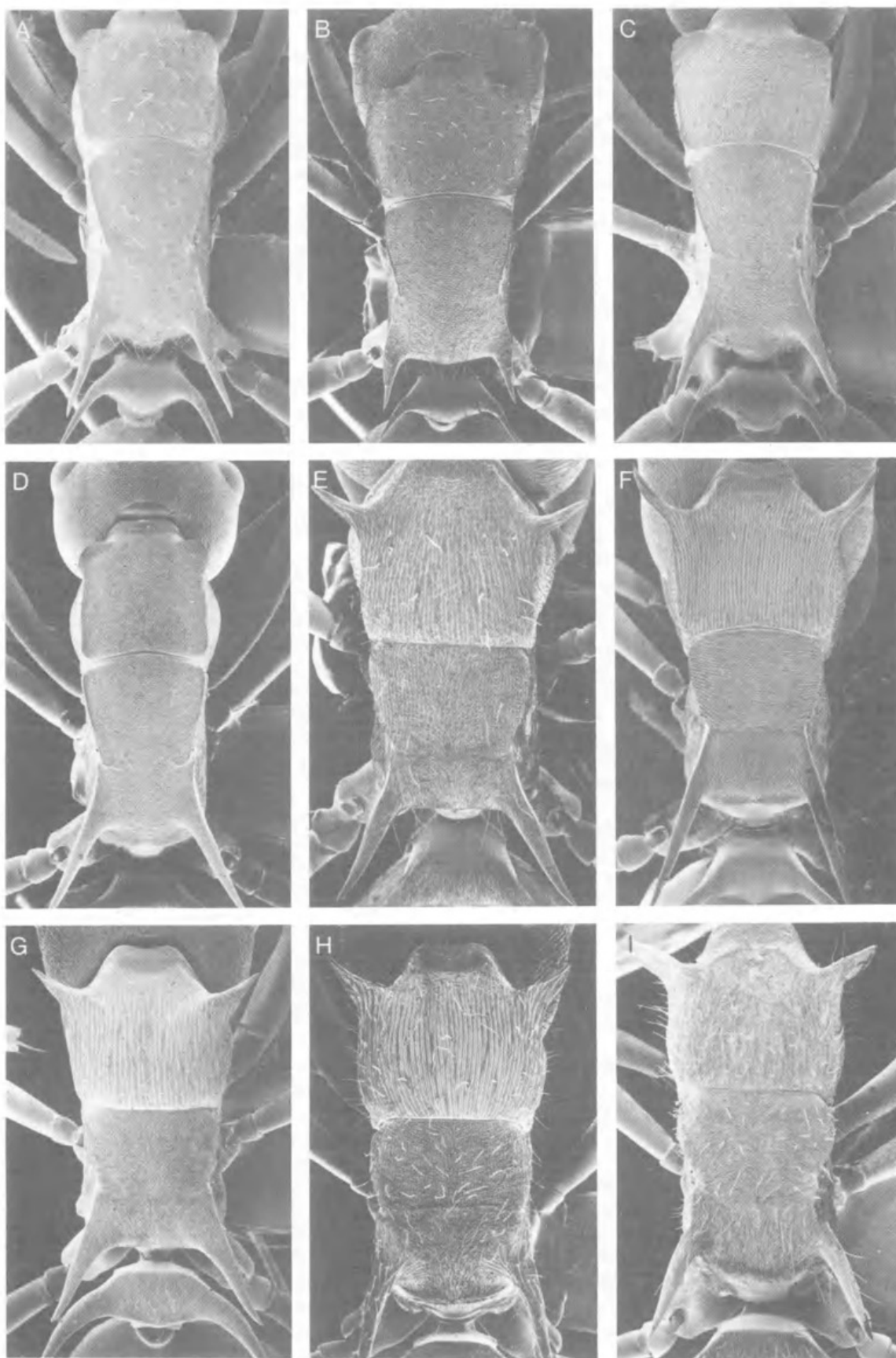
Direct comparison of syntypes of *P. daemeli* *argentosa* with original material of *P. daemeli* from the Naturhistorisches Museum, Vienna (Mayr collection) shows that they represent distinct species. *P. argentosa* is consistently smaller and more slender than *P. daemeli*, with the pronotal sculpturation less coarse, and the mesonotal/propodeal dorsum convex in profile, whereas it is almost straight in *P. daemeli*. *P. argentosa* lacks pubescence on the gastral dorsum and has virtually no pilosity on the dorsal surfaces of the body, which are abundantly pilose in *P. daemeli*.

This is a relatively common species, nesting in plant cavities, usually in small hollow branches. Distribution is restricted to central and northern Queensland, where *P. argentosa* has been taken from Proserpine, south to Rundle Range, northwest of Gladstone (Grid cells 20/148, 20/149, 21/148, 23/150).

***Polyrhachis consimilis* Fr. Smith, 1858**

Polyrhachis consimilis Fr. Smith, 1858: 73, Pl. 4, figs 30, 31. Holotype worker. AFRICA: Sierra Leone, BMNH (Examined).

The type locality of this species, as given in the original description, is highly questionable. Bolton (1973) suggests that Smith was in error when he listed Sierra Leone as the provenience of the type specimen, and this opinion is now



supported by the discovery of a single specimen in the Kimberley region of North Western Australia (near Kalamburu Mission, August 1967, collected by W. Leutert, Grid cell 14/126). I have directly compared this individual with the unique holotype of *P. consimilis* and am satisfied that they are conspecific.

The occurrence of this species in Australia represents an unexpected addition to the continental *Polyrhachis* fauna.

***Polyrhachis crawleyi* Forel, 1916 Stat. nov.**
(Fig. 2 D)

Polyrhachis (*Hagiomyrma*) *ammonoeides* var. *crawleyi* Forel, 1916: 447. Syntype workers. NORTH AUSTRALIA, GMNH (Examined).

The unique holotype of *P. ammonoeides* Roger has apparently been lost. I have compared syntypes (Forel coll.) of *P. ammonoeides crawleyi* with specimens identified as *ammonoeides* in the BMNH and ZMB collections (one of which, ZMB, bears an identification label in Forel's handwriting). The two taxa are consistently separable, and I am confident that they are separate, valid species. *P. crawleyi* is smaller (HL < 1.80), has longer antennal scapes (SI > 155) and the body is covered by very fine, somewhat dilute silvery pubescence. *P. ammonoeides*, on the other hand, is always larger (HL > 1.90), with much shorter antennal scapes (SI < 148), a generally more glossy appearance, and with pubescence virtually absent from all body surfaces except the gaster. The widely divergent propodeal spines are almost straight in *P. crawleyi*, while in *P. ammonoeides* their tips are distinctly turned outwards.

P. crawleyi is a ground nesting species found in North Queensland and the Northern Territory. It is known from Lakefield on Cape York Peninsula south to Rockhampton, areas to the south of the Gulf of Carpentaria, and the Darwin district (Grid cells 12/130, 12/131, 13/130, 13/131, 14/144, 18/139, 19/146, 20/148, 23/150).

***Polyrhachis cupreata* Emery,**
1895 Stat. nov.
(Fig. 2 I)

Polyrhachis hermione var. *cupreata* Emery, 1895: 357. Holotype worker. AUSTRALIA: Queensland, Cairns, MCG (Examined).

Polyrhachis (*Hedomyrma*) *daemeli* var. *exlex* Forel, 1915: 110. Holotype worker. AUSTRALIA: Queensland, Yarrabah, SMNH (Examined). Syn. nov.

I have examined the types of *hermione*, *hermione cupreata*, *daemeli* and *daemeli exlex* and I am confident that the separate status of *P. cupreata* is justified, that *exlex* is its junior synonym, and that *P. daemeli* and *P. hermione* are separate species. In *P. cupreata* the whole dorsum of the body is covered with a pale golden pubescence. In contrast, the pubescence in *P. daemeli* is always silvery and is virtually absent from its pronotal dorsum, while in *P. hermione* it is of a rich golden hue and covers most of the body, except the gaster. The mesonotum of *hermione* is strongly transverse, while it is only slightly wider than long in the other two species.

I have seen only one nest of *P. cupreata*, situated at the base of clumped *Pandanus* leaves and constructed of vegetation debris bonded with brownish silk. Distribution is seemingly confined to the coastal wetlands of North Queensland, with records from the Torres Strait islands south to Townsville, and the Northern Territory, where it has been taken on Cobourg Peninsula and near Darwin (Grid cells 9/142, 10/142, 11/132, 12/130, 12/143, 16/145, 17/145, 17/146, 18/145, 18/146, 19/146).

***Polyrhachis dives* Fr. Smith, 1859**
(Fig. 3 B)

Polyrhachis dives Fr. Smith, 1857: 64. Holotype worker. SINGAPORE, BMNH (Examined).

Polyrhachis (*Myrmhopla*) *exulans* Clark, 1941: 91, pl. 13, fig. 24. Syntype (?) workers. AUSTRALIA: Northern Territory, Koolpinyah, NMV (Examined). Syn. nov.

Direct comparison of types and subsequent examination of numerous specimens has shown this synonymy to be quite straightforward. The distribution of *P. dives* in Australia is apparently confined to two widely separated areas, one in the Northern Territory (Koolpinyah), and the other in North Queensland (Yarrabah south to Mission Beach) (Grid cells 12/131, 16/145, 17/146). *P. dives* is very common in suitable

FIG. 2 A — I Scanning electron micrographs of the mesosomal dorsum: A — *P. angusta*; B — *lydiae*; C — *schenkii*; D — *crawleyi*; E — *rufifemur*; F — *terpsichore*; G — *argentosa*; H — *daemeli*; I — *cupreata*. (Not to scale).

habitats in Papua New Guinea, but I have never seen material collected in the Torres Strait islands, on Cape York Peninsula, or south of the Gulf of Carpentaria. The species is only moderately variable, and, although the Australian populations are each apparently well isolated from others, Australian specimens are closely comparable to those from elsewhere.

Nesting habits seem to be identical throughout the range. *P. dives* is found in open woodlands and swampy coastal plains, where it builds a characteristic carton structure on the lower branches of trees and shrubs, joining the foliage and twigs with silk to form the nest (Fig. 3 B).

***Polyrhachis erato* Forel, 1902**

Polyrhachis erato Forel, 1902: 512. Syntype workers. AUSTRALIA: Queensland, Mackay, GMNH, ANIC (Examined).

Polyrhachis (Hedomyrma) aeschyle Forel, 1915: 111. Holotype worker. AUSTRALIA: Queensland, Cedar Creek, SMNH (Examined). Syn. nov.

The only difference between *P. erato* and *P. aeschyle* appears to be the densely pubescent gastral dorsum of the former. However, a few patches of hairs on the gaster of the unique holotype of *P. aeschyle* seem obviously to be the remnants of pubescence now largely lost from the specimen, possibly by abrasion. I believe that when the specimen was fresh, its gaster would have been just as densely pubescent as those of the *P. erato* syntypes. These names are confidently considered to be synonyms.

P. erato nests in tree cavities or under bark on tree trunks, and is distributed from north to south Queensland on the eastern side of the Great Dividing Range. It occurs in a wide variety of habitats, ranging from open *Eucalyptus* forests to the coastal wallum communities (Grid cells 17/145, 21/148, 25/153, 26/153, 27/152, 27/153).

***Polyrhachis fervens* Fr. Smith, 1860**

Polyrhachis fervens Fr. Smith, 1860: 101, pl. 1, fig. 26. Holotype worker. INDONESIA: Amboyna, OUM (Examined).

Polyrhachis valerus Fr. Smith, 1861: 40, pl. 1, fig. 10. Holotype worker. INDONESIA: Celebes (Tondano), OUM (Examined). Syn. nov.

Polyrhachis (Hedomyrma) bicolor Karawajew, 1927: 21, fig. 11. Holotype worker. INDONESIA: Amboyna, ZIK (type presumed lost). Nom. preocc. (Junior homonym of *Polyrhachis bicolor* Fr. Smith, 1858).

Polyrhachis (Hedomyrma) indocilis Santschi, 1928: 139. (Replacement name for *Polyrhachis bicolor* Karawajew). Syn. nov.

Polyrhachis (Hedomyrma) kershawi Clark, 1930: 12, fig. 1, nos. 10, 10a. Syntype workers. AUSTRALIA: North Queensland, Claudie River, NMV (Examined). Syn. nov.

Prof. Radchenko of the Zoological Institute, Kiev, informs me that the unique holotype of Karawajew's homonym *P. bicolor* cannot be found in the Karawajew collection, and is presumed lost. However, the original description and illustration are sufficient to establish its synonymy beyond reasonable doubt.

The comparison of syntypes of *P. kershawi* with the holotypes of *P. fervens* and *P. valerus* shows all three taxa are essentially identical and that they undoubtedly represent various populations of a single species.

This species is distributed from Sulawesi to New Guinea and northern Australia. It is known from lowland rainforests at Bamaga near the tip of Cape York Peninsula and at Iron Range, where it usually nests in the dry hollow stems of bamboo (Grid cells 10/142, 12/143).

***Polyrhachis lydiae* Forel, 1902 Stat. nov. (Fig. 2 B)**

Polyrhachis schenkii r. *lydiae* Forel, 1902: 523. Syntype workers, female. AUSTRALIA: Queensland, Mackay, GMNH (Examined).

Direct comparison of the *schenkii* holotype with *lydiae* syntypes (Forel coll.) shows *lydiae* to be a distinct and valid species. The most obvious difference is the colour, which in *lydiae* ranges from light metallic green to greenish or bluish black, save for the anterior part of the pronotum, which is always more or less reddish brown. *P. schenkii* is uniformly light reddish brown. Also, the lateral margins of the pronotal and mesonotal dorsa are more strongly converging posteriorly in *schenkii* than in *lydiae*.

Both species nest in the ground, but they differ markedly in distribution. *P. lydiae* is known from Charters Towers in north Queensland, south to Raymond Terrace in central New South Wales (Grid cells 19/146, 20/145, 20/148, 21/148, 22/149, 23/150, 26/153, 27/152, 27/153, 28/151, 28/152, 28/153, 32/151). *P. schenkii* ranges from Papua New Guinea across the Torres Strait islands to Australia, where it occurs on Cape York Peninsula, and in the

Northern Territory (Grid cells 10/142, 11/132, 12/132, 12/136, 12/142, 12/143, 13/136, 14/136, 17/145).

***Polyrhachis mjobergi* Forel, 1915**

Polyrhachis (Hedomyrma) mjobergi Forel, 1915: 112. Syntype workers. AUSTRALIA: Queensland, Glen Lamington, SMNH, GMNH (Examined).

Polyrhachis (Hedomyrma) anguliceps Viehmeyer, 1925: 148. Syntype workers. AUSTRALIA: New South Wales, Trial Bay, ZMB (Examined). Syn. nov.

Viehmeyer seems to have been unaware of Forel's *P. mjobergi* when he described *anguliceps*. I have examined the types of both names indicated above and am confident in declaring them conspecific.

This species is distributed from Eungella in northern Queensland to Batemans Bay in southern New South Wales, and is found at various elevations, mostly in open *Eucalyptus* forest (Grid cells 21/148, 23/149, 25/153, 26/152, 26/153, 27/153, 28/153, 30/152, 30/153, 32/151, 33/151, 35/150). It nests in any suitable cavities on trees, usually in dry hollow twigs or small branches.

***Polyrhachis ornata* Mayr, 1876**

Polyrhachis ornata Mayr, 1876: 73. Syntype workers. AUSTRALIA: Queensland, Rockhampton, NHMW (Examined).

Polyrhachis (Hedomyrma) humerosa Emery, 1921: 18. Syntype workers. AUSTRALIA: Adelaide (?), MCG (Examined). Syn. nov.

Polyrhachis (Hedomyrma) chrysothorax Viehmeyer, 1925: 148. Syntype workers. AUSTRALIA: New South Wales, Trial Bay, ZMB (Examined). Syn. nov.

Direct comparison of the types has shown *P. humerosa* and *P. chrysothorax* to be obvious synonyms of *P. ornata*, representing the same, rather variable species. The differences between them are mostly trivial, based on such characters as the elevation and direction of spines, colour and density of pubescence and, to a lesser degree, on the shape of the petiolar dorsum and convexity of the clypeus. These characters appear at first to be geographically variable. Thus specimens from north and central Queensland are characterised by the pronotal teeth being produced and acute, the propodeal spines strongly divergent and elevated, and the anterior and posterior borders of the petiolar

dorsum gently curved. The pubescence of the mesosoma is almost invariably of a rich copper hue, and completely obscures the underlying sculpturation, except for that on the spines and a small patch in the centre of pronotum, where the pubescence is diluted. In contrast, specimens from New South Wales and Victoria have the pronotum only angulate, the propodeal spines much shorter and subparallel, and the petiolar dorsum transverse and narrow, with the anterior and posterior borders parallel. The pubescence is brassy and much diluted, especially on the pronotal dorsum. However, these forms intergrade and in South East Queensland the variation is very marked, with the extreme conditions being represented in single series. When specimens from the whole range of distribution are considered together, no apparently taxonomically significant variability is evident, and the above synonymy follows naturally.

Nests of *P. ornata* can be very numerous, with the colonies usually occupying large hollow branches high in trees. The known distribution ranges from north Queensland to Victoria, where *P. ornata* has been recorded as far south as Bemm River. The original locality of *P. humerosa* was given as Adelaide, but I have never seen specimens collected in South Australia. I believe that the locality given by Emery is questionable, more so as the label under a syntype from the MCG reads 'Adelaide M', with the edge cut just through the letter 'M'. There apparently is no Adelaide M(ountain) in Australia, but *Mount Adelaide* is located in the Conondale Range in South East Queensland, where *P. ornata* is a common species. I suggest that this was the true source of the *humerosa* types. This is supported by the close similarity between recent Conondale Range collections and the syntype. (Summary distribution: 19/146, 20/149, 21/148, 23/150, 23/151; 26/152, 26/153, 27/152, 27/153, 30/153, 33/150, 33/151, 35/150, 37/148).

***Polyrhachis paxilla* Fr. Smith, 1863**

Polyrhachis paxillus Fr. Smith, 1863: 17. Holotype worker. INDONESIA: Martabello I., OUM (Examined).

Polyrhachis lachesis ssp. *maeandrifera* Emery, 1897: 582. Holotype worker. NEW GUINEA: Puumom River. MCG (Examined). Syn. nov.

It is obvious that Emery (1925) did not have a clear conception of *P. paxilla*, since he placed it

in the subgenus *P. (Chariomyrma)*, while listing *P. lachesis maeandrifera* properly as a *P. (Hagiomyrma)*. This is a very distinct and relatively invariable member of that subgenus. Examination of specimens from Indonesia, Papua New Guinea and Australia reveals almost negligible variability, and the relevant types, when compared, prove to be almost identical, justifying the above synonymy.

P. paxilla represents a new record for the Australian *Polyrhachis* fauna, and was first collected very recently near the tip of Cape York Peninsula (Bamaga, 10.53 S $\times$ 142.23E, 18.iii.1987, rainforest, RJK acc. 87.8), (Grid cell 10/142). I collected a nest on 27.viii.1984, near Wampit (06.45 S $\times$ 146.40 E), Morobe Prov., Papua New Guinea. It occupied the hollow interior of a small dry bamboo stem.

***Polyrhachis rufifemur* Forel,**
1907 Stat. nov.
(Fig. 2 E)

Polyrhachis terpsichore var. *rufifemur* Forel, 1907: 41.
Holotype worker. AUSTRALIA: New South Wales, Springwood, MNH (Examined).

Polyrhachis terpsichore r. *elegans* Forel, 1910: 84.
Syntype workers. AUSTRALIA: Queensland, Kuranda, GMNH (Examined). Syn. nov.

Comparison of the unique alate female holotype of *P. terpsichore* with confidently identified females of *rufifemur* has proved beyond doubt that they represent separate species. Further examination also indicates that the light colour of the appendages of the *terpsichore* holotype, a character mentioned by Forel (1893, 1907), is probably due to that specimen being callow.

Direct comparison of the holotype of *rufifemur* with a syntype of *P. terpsichore elegans* indicates that they represent geographically varying populations of a single species. They were distinguished by Forel using characters now known to vary infraspecifically, such as the average size of individuals, the length and elevation of propodeal spines, and the colour and density of pubescence. The representatives of southern populations are generally smaller, with relatively short propodeal spines and more coppery golden pubescence, which almost obscures the underlying sculpturation. Those of northern populations (and some from southern mountains e.g. McPherson Range, Bunya Mountains) tend to be larger, with distinctly

longer propodeal spines. The pubescence is pale brassy and more dilute. This variability applies only to the workers as females vary only in size, and not in the other features discussed above. In spite of these differences I believe that these ants represent a single, albeit rather variable, species.

I have found nests of *P. rufifemur* only occasionally, always inside the cavity of a tree trunk, usually that of a *Melaleuca*. This species is relatively uncommon, with known records restricted to three widely separated areas, one in central New South Wales and the other two in the southern and northern Queensland (Grid cells 16/145; 26/151, 26/152, 26/153, 27/152, 27/153; 33/150).

***Polyrhachis sokolova* Forel, 1902**
(Fig. 3 C — F)

Polyrhachis sokolova Forel, 1902: 522. Syntype workers. AUSTRALIA: Queensland, Mackay, GMNH (Examined).

Polyrhachis sokolova var. *degener* Forel, 1910: 84.
Holotype worker. AUSTRALIA: Queensland, Mackay, GMNH (Examined). Syn. nov.

I consider this to be a straightforward synonymy, since the holotype of *degener* is obviously simply a small worker of *P. sokolova*.

This is the only species of *Polyrhachis* known to nest in marine and estuarine mud of the intertidal zone (Fig. 3 C — F). Its nests are mound-like, with a small opening at the top, and are completely submerged at each high tide. Distribution is limited to the tidal mudflats of coastal mangrove forests. *P. sokolova* has been taken along the coastline from Torres Strait to as far south as Gladstone in central Queensland (Grid cells 9/141, 9/142, 9/143, 9/147, 16/145; 18/146, 20/148, 21/149, 23/150, 23/151). I have also collected *sokolova* in southern Papua New Guinea.

A closely related, undescribed species with similar nesting habits, was recently collected by members of the Australian Littoral Society, from tidal mangrove flats on the north coast of the Northern Territory.

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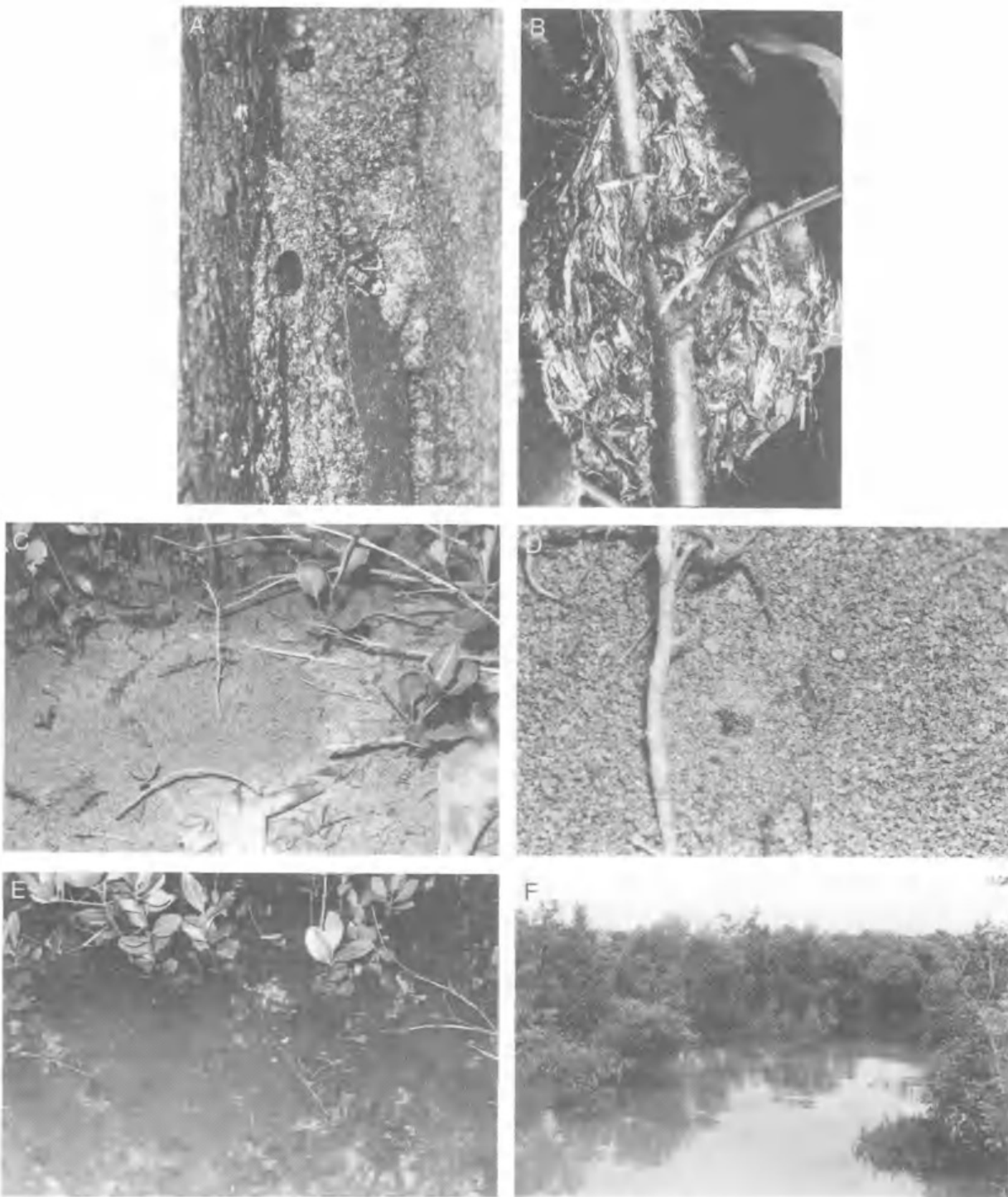


FIG. 3 A — F Nests of *Polyrhachis* ants. A *P. andromache* — pocket-like nest of silk and various debris against tree trunk (Lockerbie Scrub, near tip of Cape York). B *P. dives* — characteristic carton nest incorporating the foliage and twigs (Stth. Mission Beach, North Queensland). C *P. sokolova* — mound nest of excavated mud and sand particles. D ditto — close-up of a single entrance at the top of the nest. E ditto — same nest inundated. F intertidal mangrove zone (at high tide) where the nests of *P. sokolova* were observed and above photographs taken (Town Beach, Mackay, North Queensland).

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