NEW SYNONYMY AND A NEW NAME IN THE ANT GENUS POLYRHACHIS F. SMITH (HYM., FORMICIDAE)

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Introduction

Recent study of the types of some nominal species created by F. Smith, Donisthorpe and others in the genus Polyrhachis has brought to light a number of previously unsuspected synonyms and has allowed the unravelling of a number of tangles in the species-level nomenclature of the genus.

Polyrhachis is an extremely large genus, the second largest in the family Formicidae, and contains on recent count some 855 specific and infraspecific names. A study by the present author on the genus in the Ethiopian Region showed that less than 50 per cent of the names represented valid species and if this figure applies to the remainder of the genus then there will be about 400 distinct species of Polyrhachis in the Old World tropics and subtropics.

The present paper is intended as the first of a series in which new synonymy is established and which will pave the way towards revisionary studies of species group or larger units within this huge genus. The new synonyms recorded in this contribution are listed below and the museums in which types are deposited are abbreviated as follows:

BMNH.—British Museum, Natural History, London.
NM, Vienna.—Naturhistorisches Museum, Vienna.
UM, Oxford.—University Museum, Oxford.

List of New Synonymy

derecyna F. Smith
  = taurus Donisthorpe
dives F. Smith
  = mutilia F. Smith
  = dives var. euclides Forel
gab Forel
  = gab var. tripellis Forel
  = crawleyella Santschi
gracilior Forel
  = weberi Donisthorpe
hector F. Smith
  = abdominalis F. Smith
  = mutatus F. Smith
  = malignus F. Smith
hostilis F. Smith
  = hostilis var. intricata Forel
  = hostilis ssp. hebes Donisthorpe
illaudata Walker
  = latispinosa Donisthorpe
  = duodentata Donisthorpe
incrimis F. Smith
  = bryanti Donisthorpe
  = hosei Donisthorpe
ithona F. Smith
  = andromache Roger
  = chaonia F. Smith
lactepennis F. Smith
  = simplex Mayr
olenia F. Smith
  = eurytus F. Smith
rubipes F. Smith
  = exasperatus F. Smith
  = phipsoni Forel
  = exasperata var. oblisa Forel
rufofemorata S. Smith
  = merops F. Smith
sacvissima F. Smith
  = acantha F. Smith
  = acasta F. Smith
zopyra F. Smith
  = moorei Donisthorpe
Proposed new name

_hungi_ nom. n. for _nitens_ Donisthorpe, 1944.

_Polyrhachis derecyana_ F. Smith

_Singapore._ (A. R. Wallace) (BMNH) [examined].


_Polyrhachis derecyana_ F. Smith, 1873: 316 [first replacement name].

_Polyrhachis pseudonyma_ Forel, 1886: 243 [second replacement name].


The distinctive, raised, strongly expanded lobes of the frontal carinae render this species immediately recognisable. In other series from Waigio Island the frontal carinae are rather more widely separated and somewhat less raised up than in the type of _taurus_, as is the case in the type of _derecyana_, but other characters are consistent.

_Polyrhachis dives_ F. Smith

_Singapore._ (A. R. Wallace) (BMNH) [examined].

_Polyrhachis mutilia_ F. Smith, 1861: 39 pl. 1 figs. 7, 15. Syntype workers. SULAWESI: Tondano (A. R. Wallace) (UM, Oxford) [examined]. _Syn. n._


_P. mutilia_ is a small worker of the common _dives_, and I am almost certain that this worker is from the same series as _democi_, the name given to the female by Smith in the same publication. In the variety _euclides_ the workers are also quite small and have the gaster brown in colour, with the pubescence less distinct than is usual, but in view of the variability of the species separate status on these grounds is not advisable.

_Polyrhachis gab_ Forel


_Polyrhachis gab_ Forel, Dalla Torre, 1893: 362 [raised to species].

_Polyrhachis (Chariomyrmex) gab_ var. _tripellis_ Forel, 1915: 108. Syntype workers, females. _Australia_: Kimberley Distr., Derby, Noonkanbah (E. Mjöberg) (UM, Oxford) [examined]. _Syn. n._

_Polyrhachis comata_ Crawley, 1915: 237. Holotype and paratype workers. _Australia_: Northern Territory, Stapleton, 22.xii.1912 (Hill) (BMNH; UM, Oxford) [examined]. _Nom. preocc._ [junior homonym of _comata_ Emery, 1911].

_Polyrhachis crawleyella_ Santschi, 1916: 243 [replacement name]. _Syn. n._

The varieties applied to _gab_ by Forel, namely _senilis_, _aegra_ and _tripellis_ are founded wholly or in large part upon differences in density and coloration of the pubescence, which appears to be quite variable even in specimens from the same locality. Crawley's species _comata_ is indistinguishable from _tripellis_ apart from a more brassy tinge to the gasteral pubescence.

The differences used to separate _aegra_ are very minor and I presume that this variety is also synonymous with _gab_, but in the case of _senilis_
some anatomical differences are cited and a comparison of types will have to be made before a conclusion can be reached.

*Polyrhachis gracilior* Forel


*Polyrhachis gracilior* Forel, Bingham, 1903: 388 [raised to species].

*Polyrhachis* (*Myrmmophila*) *weberi* Donisthorpe, 1943a: 206. Holotype and paratype workers. **India**: Travancore, Tenmalai, 500–800 ft., 11–17.x.1938 (BMNH) [examined]. **Syn. n.**

This synonym is quite straightforward. Donisthorne was obviously unaware of *gracilior* as in the original description he compares his species to the two closely related species *furcata* F. Smith and *exasperata* F. Smith, but does not mention *gracilior*. Two named specimens of *gracilior* from the Bingham collection (in BMNH) which matched the descriptions of Forel (1893) and Bingham (1903) were compared with the type-series of *weberi* and no significant differences could be found.

*Polyrhachis hector* F. Smith


*Polyrhachis abdominalis* F. Smith, 1858a: 63. Holotype worker. **Burma**. (BMNH) [examined]. **Syn. n.**

*Polyrhachis mutatus* F. Smith, 1858a: 64 pl. 4 figs. 12, 13. Holotype worker. **Burma**. (Type presumed lost). **Syn. n.**

*Polyrhachis malignus* F. Smith, 1858a: 70 pl. 4 fig. 44. Holotype female. **Philippines**. (BMNH) [examined]. **Syn. n.**

*Polyrhachis phyllophilus* F. Smith, 1863a: 69. Holotype worker. **Sulawesi**: Makasar (*A. R. Wallace*). (UM, Oxford) [examined] [the synonym *abdominalis* = *phyllophilus* by Forel, 1893: 24, 32].

*Polyrhachis achilles* Forel, 1893: 24, 32. Syntype workers. **Burma** (Bingham). [Diagnosis in key.] [The synonym *abdominalis* = *achilles* suggested in Bingham, 1903: 398].

*Polyrhachis mutata* race *ajax* Forel, 1893: 24, 32. Holotype (?) worker. **Burma** (Bingham). [Diagnosis in key] [The synonym *mutata* = *ajax* in Bingham, 1903: 399].

Direct comparison shows *abdominalis* to be a synonym of *hector*, and *malignus* has proved to be the female of this species. *P. abdominalis* and *mutata* have traditionally been separated upon grounds of size, length of spines and strength of propodeal margination. Bingham (1903) utilised the presence of short spiniform bristles on the lower tibial margins of the legs as a diagnostic feature of *mutata*, despite the statement by Smith (1858a) that the legs were without spines. However, Bingham did recognise that the development of such spines was variable in *abdominalis* as he says that ‘the tibiae in some specimens slightly spinose, in others smooth.’ The legs in the type of *abdominalis* are without bristles below and in fact this specimen fits the descriptions of *mutata* just as well as those of *abdominalis*. Finally, series from the Andaman Islands show some specimens with spiniform bristles and some without.

With *hector* one is dealing with a variable species which has a wide distribution and appears capable of developing local populations in different parts of its range. However, these local forms are characterised only by minor differences of colour, spine length, sharpness of propodeal margination and similar features and all such characters are intergradient, often showing variation in different samples from the same area.
Polyrhachis hostilis F. Smith

Polyrhachis hostilis F. Smith, 1858b: 139. Holotype worker. Indonesia: Aru Islands (A. R. Wallace) (UM, Oxford) [examined].

Polyrhachis hirsuta Emery, 1911: 532. Nomen nudum [junior homonym of hirsuta Mayr, 1876].


[Polyrhachis hostilis var. hirsutula Emery sensu Santschi, 1916: 243. improper procedure—see below].

Polyrhachis hostilis var. intricata Forel, 1917: 727 [replacement name for hirsuta Viehmeyer]. Syn. n.


At its inception the name hirsuta Emery, besides being a nomen nudum was also a preoccupied name as hirsuta Mayr had been previously described in 1876. Viehmeyer’s (1913) description of var. hirsuta appears to be based on Emery’s original specimen, and Forel’s var. intricata was proposed as a substitute name for this form.

Santschi (1916) gave hostilis var. hirsutula Emery as a senior synonym of hirsuta Viehmeyer, but in fact the name hirsutula was originally applied by Emery to a variety of continua Emery, a very different species. Santschi does not give any reason for his transference of var. hirsutula from continua to the unrelated hostilis, nor for his assumption that hirsutula was a senior synonym of hirsuta, and one must assume a mistake on his part.

Donisthorpe separated his subspecies hebes principally on the characters of the tooth at the base of the scape being blunter and more rounded; the pronotum being not nearly so transverse as in hostilis, and the pronotal teeth being shorter than in hostilis. The first of these characters shows some slight variation between hostilis specimens in the BMNH and the reduction of the tooth in hebes is not excessive. The statement that the pronotum is not as strongly transverse in hebes is incorrect as the pronotal width (PW) of the holotype and paratype are 2.10 and 2.36 mm respectively, whilst the PW of a type-compared hostilis worker is 2.34 mm, and that of another specimen from Aru Is. is 2.22 mm.

The length of the pronotal teeth is quite variable in the species and in fact in the holotype of hebes the tooth on the right pronotal corner is better developed than that on the left whilst in the paratype the teeth are scarcely more than slightly prominent angles.

Other differences given by Donisthorpe such as abundance of hairs and sculptural variations are trivial in the extreme and only serve to emphasise the variation of individuals within the species.

Polyrhachis hungi nom. n.


As Donisthorpe described two very different species as nitens a replacement name is necessary for the later name. A number of
homonyms still exist in the genus *Polyrhachis*, but they are all of forms described as varieties or subspecies. As such forms are usually synonymous with the species of which they are supposed to be variants the proposal of replacement names seems unnecessary. If however such forms are found to be distinct species replacement names can easily be decided by the revisor.

*Polyrhachis illaudata* Walker

*Polyrhachis illaudatus* Walker, 1859: 373. Holotype worker (not male). *Sri Lanka* (BMNH) [examined].


*Polyrhachis (Myrm) latispinosa* Donisthorpe, 1942a: 460 pl. 2 fig. 1. Holotype female. *India*: Travancore, Tenmalai, 500–800 ft. 11–17.x.1938 (BMNH) [examined].

**Syn. n.**

*Polyrhachis (Myrm) duodentata* Donisthorpe, 1942a: 461 pl. 2 fig. 2. Holotype female. *India*: Malabar, Nadungayam, 200 ft. 16–22.ix.1938 (BMNH) [examined].

**Syn. n.**

Walker’s original description was supposedly of a male, but his specimen was actually a worker, as pointed out by Donisthorpe (1932) and as is obvious from the original description where Walker states that this ‘male’ is apterous. The name *mayri* was given by Roger (1863) to a number of specimens from Ceylon described by Mayr (1862) as being *relucens*, but which were actually of a different species. *P. mayri* was thus the only known name of this quite common species until Donisthorpe (1932) rediscovered Walker’s types and found *illaudata* to be a senior synonym. Ten years later Donisthorpe (1942a) founded two species, *latispinosa* and *duodentata*, on two females from southern India which were separable from each other only on the structure of the median dorsal prominence of the petiole and were separable from *illaudata* only by the supposed absence of such a prominence in this species. However, a number of females captured in southern India show a low prominence in the middle of the dorsal petiolar margin and in one case there is a distinct triangular tooth in this position, which is somewhat truncated apically. Thus the presence or absence of such a prominence and its degree of development is seen to be variable in otherwise similar specimens, and *latispinosa* and *duodentata* fall as synonyms of *illaudata*.

*Polyrhachis inermis* F. Smith

*Polyrhachis inermis* F. Smith, 1858a: 68 pl. 4 figs. 25, 26. Holotype worker. *Sulawesi* (BMNH) [examined].

*Polyrhachis (Myrm) bryanti* Donisthorpe, 1942b: 707. Holotype and paratype workers. *Borneo*: Sarawak, Mt. Matang, 1.xi.1914 (G. F. Bryant) (BMNH) [examined]. **Syn. n.**

*Polyrhachis (Myrm) hosei* Donisthorpe, 1942b: 708. Holotype and paratype workers. *Borneo*: Santubong, i.1907 (J. Hose) (BMNH) [examined]. **Syn. n.**

In the above publication Donisthorpe stated that, ‘some myrmecologists would possibly treat all these ants [of the *imermis* group] as subspecies of one of the older species’, but said that he preferred to regard them as separate. I have examined the types of the six named species in this group (not counting infraspecific forms) and find that they resolve into three reasonably distinct species, namely *imermis*,...
with the synonyms quoted above, *vindex* F. Smith with *orsylla* F. Smith as a synonym, and *carbonaria* F. Smith.

Wheeler (1919: 125) redescribed *vindex* and commented that the species was ‘very close to Smith’s *inermis* and *orsyllas*, especially the latter’. Later Wheeler (1924: 254) gave *orsylla* as a synonym of *vindex* and this synonymy is now confirmed.

Donisthorpe’s species *brasili* and *hosei* are inseparable from *inermis* and were originally differentiated from it only on trivial and intrinsically variable characters of spine lengths and thicknesses.

*Polyrachis ithona* F. Smith

*Polyrachis hector* F. Smith, 1858b: 142. Holotype worker. **Indonesia**: Aru Islands (*A. R. Wallace*) (UM, Oxford) [examined]. **Nom. preocc.** [junior homonym of *hector* F. Smith, 1857].

*Polyrachis andromache* Roger, 1863: 8, 46 [replacement name]. **Syn. n.**

*Polyrachis ithonus* F. Smith, 1860b: 99 pl. 1 fig. 18. Syntype worker, female. **Indonesia**: Batjan Island (*A. R. Wallace*) (UM, Oxford) [examined]. **Valid name.**

*Polyrachis chaonita* F. Smith, 1861: 42 pl. 1 fig. 18. Holotype female. **Indonesia**: Halmahera (= Gilolo) Island (*A. R. Wallace*) (UM, Oxford) [examined]. **Syn. n.**

Very closely related to *relicens* (Latreille), but separable by the lack of short, erect hairs on the leading edge of the scape and the dorsal surfaces of the posterior tibiae. In *relicens* these are always present. The two females described as *ithona* and *chaonita* are very similar, differing principally in the development of the dorsal petiolar spines which in the former are lower, broader and blunter than in the latter. The holotype of *hector* is quite a small individual, but larger specimens are present in the BMNH collection which link the relatively large *ithona* queen to the smaller *hector* worker.

*Polyrachis lacteipennis* F. Smith

*Polyrachis lacteipennis* F. Smith, 1858a: 60 pl. 4 fig. 40. Holotype female. **Northern India** (BMNH) [examined].

*Polyrachis simplex* Mayr, 1862: 682. Holotype female. **India**: Kashmir (probably in NM, Vienna). **Syn. n.**

*Polyrachis spiniger* Mayr, 1878: 653. Syntype worker, male. **India** (Rothney). [The synonymy *simplex* = *spiniger* by Forel, 1893: 36.]

Comparison of the type of *lacteipennis* with several queen-containing series of the common Middle-Eastern and Indian *simplex* shows that this well known name must fall as a synonym of *lacteipennis*.

*Polyrachis olena* F. Smith

*Polyrachis olenus* F. Smith, 1861: 39 pl. 1 fig. 8. Holotype worker. **Sulawesi**: Tondano (*A. R. Wallace*) (UM, Oxford) [examined].

*Polyrachis euryta* F. Smith, 1861: 43 pl. 1 fig. 24. Holotype female. **Sulawesi**: Tondano (*A. R. Wallace*) (UM, Oxford) [examined]. **Syn. n.**

After careful examination of the types of these two forms I am convinced that *euryta* is in fact the female of *olenus*.

Neither the specimen labelled as type of *euryta* nor the original description of F. Smith matches the figure of the petiole of this species appended to the original description (fig. 24, not fig. 23 as stated in the text. The corrective note is given by Smith on page 66). According to Smith the petiole of *euryta* is ‘widely emarginate above and subdentate at the angles.’ This fits the specimen labelled as type, but the figure
shows a very different structure in which the dorsal margin of the petiole between the narrow, truncated dorsal teeth is raised into a broad, rectangular prominence. It is apparent that the description and the figure do not refer to the same specimen and as the female labelled as type of euryta fits the description I am prepared to accept it as the true holotype and assume the figure to belong to another species.

The figure of the petiole appended to the description of olena (fig. 8) is more or less accurate, with a pair of long dorsal spines subtended by a pair of lateral teeth, and the petiole configuration of euryta is a reduction of this, as is common in the genus.

**Polyrhachis rufipes** F. Smith

*Polyrhachis rufipes* F. Smith, 1858a: 66 pl. 4 fig. 28. Holotype worker. **BORNEO**: Sarawak (BMNH) [examined].

*Polyrhachis exasperatus* F. Smith, 1861: 41 pl. 1 fig. 16. Syntype workers. **SULAWESI**: Tondano (*A. R. Wallace*) (BMNH; UM, Oxford) [examined]. **Syn. n.**


Synonymy of rufipes and exasperata was attained by the direct comparison of types, the only mentional differences between them being details of length and thickness of the petiolar spines. In view of the variation of shape and size of these structures in other workers of the species such characters are of no value in differentiation.

Forel (1911: 395) pointed out that his species phipsoni was in fact nothing more than a variant of exasperata. Comparison of his description with specimens implies that phipsoni is inseparable from exasperata, and thus from rufipes. The very short original description of var. oblisa stated that it differed from the type of exasperata only in the narrower petiolar spines. As is now known, such forms fall within the limits of variation of this species.

**Polyrhachis rufofemorata** F. Smith

*Polyrhachis rufofemoratus* F. Smith, 1858b: 142. Syntype workers. **INDONESIA**: Ånu Islands (*A. R. Wallace*) (UM, Oxford) [examined].

*Polyrhachis merops* F. Smith, 1860b: 98 pl. 1 fig. 17. Holotype worker. **INDONESIA**: Batjan Island (*A. R. Wallace*) (UM, Oxford) [examined]. **Syn. n.**

Emery (1898: 241) indicated that merops was a variety of rufofemorata and not a distinct species. Examination of the types of both species shows clearly that they are the same and differ slightly in the development of the dorsal pair of petiolar teeth which are more acute and longer in the type of merops.

**Polyrhachis saevissima** F. Smith

*Polyrhachis saevissimus* F. Smith, 1860a: 71. Holotype worker. **SULAWESI**: Makassar (*A. R. Wallace*) (UM, Oxford) [examined].

*Polyrhachis acantha* F. Smith, 1860b: 98 pl. 1 fig. 16. Holotype worker. **INDONESIA**: Batjan Island (*A. R. Wallace*) (UM, Oxford) [examined]. **Syn. n.**

*Polyrhachis acasta* F. Smith, 1860b: 100 pl. 1 fig. 23. Holotype worker. **INDONESIA**: Batjan Island (*A. R. Wallace*) (UM, Oxford) [examined]. **Syn. n.**

Direct comparison of the types shows that these three forms are members of the same rather variable species, and I suspect that acantha
and acasta originated in the same series of the Wallace collection. I have also examined the type of diaphanta F. Smith and find it to be very close to and probably inseparable from saevissima.

Polyrhachis zopyra F. Smith.

Polyrhachis zopyrus F. Smith, 1861: 43 pl. 1 fig. 22. Holotype worker. Sulawesi: Tondano (A. R. Wallace) (UM, Oxford) [examined].


The two types are very similar; zopyra is slightly more stoutly built with a broader and somewhat thicker petiolar scale and with the lateral margination of the propodeum rather better defined than in moorei. On the other hand moorei has slightly thicker pronotal teeth and the pubescence is dense and fine over the entire dorsal surface of the specimen. It is not so dense in zopyra, but where it does occur it is apparent that much of the pubescence has been lost and the specimen when fresh was probably just as densely pubescent as the type of moorei. The anterior clypeal margin in zopyra is irregular medially whilst that of moorei is quite regularly arcuate apart from a small median impression. In spite of this and in view of the otherwise marked similarities of the two I am satisfied that the two names represent only a single species.

Synopsis

Twenty-six new synonymy and one new name are proposed in the ant genus Polyrhachis F. Smith. Older synonymy are given where applicable and details of variation are species noted in some cases.

References


British Museum (Natural History), London. November 30th, 1972.