

A new *Polyrhachis* (*Myrma*) *vestita*-group species from Sulawesi (Hymenoptera: Formicidae: Formicinae)

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Polyrhachis vanachterbergi, a new species in the recently established *Polyrhachis vestita*-group, of the subgenus *Myrma*, is described and illustrated. An updated identification key to the species of this endemic Sulawesian group is provided. A number of new distribution records of other *Polyrhachis* species from the South East, South West and Central Sulawesi are included.

Introduction

The *Polyrhachis vestita* species-group of the subgenus *Myrma* Billberg, 1820, was recently established by Kohout (2008). He characterised the species comprising this group as medium to large ants with a scale-like petiole lacking the elongated dorsal spines that characterise most of the other members of the subgenus. The dorsal margin of the petiole in *vestita*-group species is mostly entire, but in some species it may be shallowly medially emarginate, armed with blunt teeth or is variously jagged. The group is apparently endemic to Sulawesi and contains *P. vestita* Fr. Smith, 1860, and four recently described species, *P. cognata* Kohout, *P. gobini* Kohout, *P. masaokai* Kohout and *P. ogatai* Kohout. However, an additional new species belonging to this group was identified from material of Sulawesian *Polyrhachis* received from Kees van Achterberg (RMNH). The specimens were not received in time for the new species to be included in the recent review of the Sulawesian *Polyrhachis* fauna (Kohout, 2008) and consequently it is described below together with additional records of several other *Polyrhachis* species from Sulawesi.

Methods

Digital photographs of the holotype specimen were taken with a Leica MZ16A stereomicroscope and Prog.Res 3012 scanning digital camera. Images were then processed using Adobe Photoshop CS2 software.

The standard measurements (in mm) and indices follow those of Kohout (2008): TL = Total length (the necessarily composite measurement of the outstretched length of the entire ant measured in profile); HL = Head length (the maximum measurable length of the head in perfect full face view, measured from the anterior-most point of the clypeal border or teeth, to the posterior-most point of the occipital margin); HW = Head width (width of the head in perfect full face view, measured immediately in front of the eyes); CI = Cephalic index ($HW \times 100/HL$); SL = Scape length (length of the antennal scape, excluding the condyle); SI = Scape index ($SL \times 100/HW$); PW = Pronotal width (width of the

pronotal dorsum measured at the bases of the pronotal spines, or across the humeri in species without spines); MTL = Metathoracic tibial length (maximum measurable length of the tibia of the hind leg). All measurements were taken using a Zeiss (Oberkochen) SR stereomicroscope with an eyepiece graticule calibrated against a stage micrometer.

Abbreviations and glossary of common and Indonesian terms: Gn. = Gunung = Mountain; nr = near; C = Central (Sulawesi Tengah); SE = South East; SW = South West; w = worker/s.

Abbreviations for institutions (with names of cooperating curators): ANIC – Australian National Insect Collection, Canberra, Australia (Dr S.O. Shattuck); BMNH – The Natural History Museum, London, UK (S. Ryder); MCZC – Museum of Comparative Zoology, Harvard University, Cambridge, MA, USA (Dr S.P. Cover); QMBA – Queensland Museum, Brisbane, Australia (Dr C.J. Burwell); RMNH – Nationaal Natuurhistorisch Museum, Leiden, The Netherlands (Prof. Dr Ing. C. van Achterberg).

Systematics

Key to *Polyrhachis vestita*-group species based on worker caste

1. Larger species (HL >3.10); dorsal margin of petiole acute in lateral view 2
 - Smaller species (HL <2.75); dorsal margin of petiole narrowly rounded in lateral view *P. gobini* Kohout
2. Antennal scape with distinct process near apex *P. ogatai* Kohout
 - Antennal scape without process near apex 3
3. Whole body with mostly brown or black hairs and distinctly rusty-brown, closely adpressed pubescence 4
 - Whole body with mostly yellow or golden hairs and white, greyish or golden adpressed pubescence 5
4. Pronotal spines very short, only about twice as long as their basal widths; propodeal dorsum about as wide as long (fig. 3) *P. vanachterbergi* spec. nov.
 - Pronotal spines long, at least three times as long as their basal widths; propodeal dorsum distinctly wider than long *P. cognata* Kohout
5. Body pubescence mostly white or grey; petiole distinctly transverse with dorsal margin medially emarginate and jagged, laterally delimited by distinct, upturned, acute denticles *P. masaokai* Kohout
 - Body pubescence mostly rich golden or pale yellow; petiole relatively narrow with dorsal margin arcuate, entire; lateral teeth usually very short or ill-defined *P. vestita* Fr. Smith

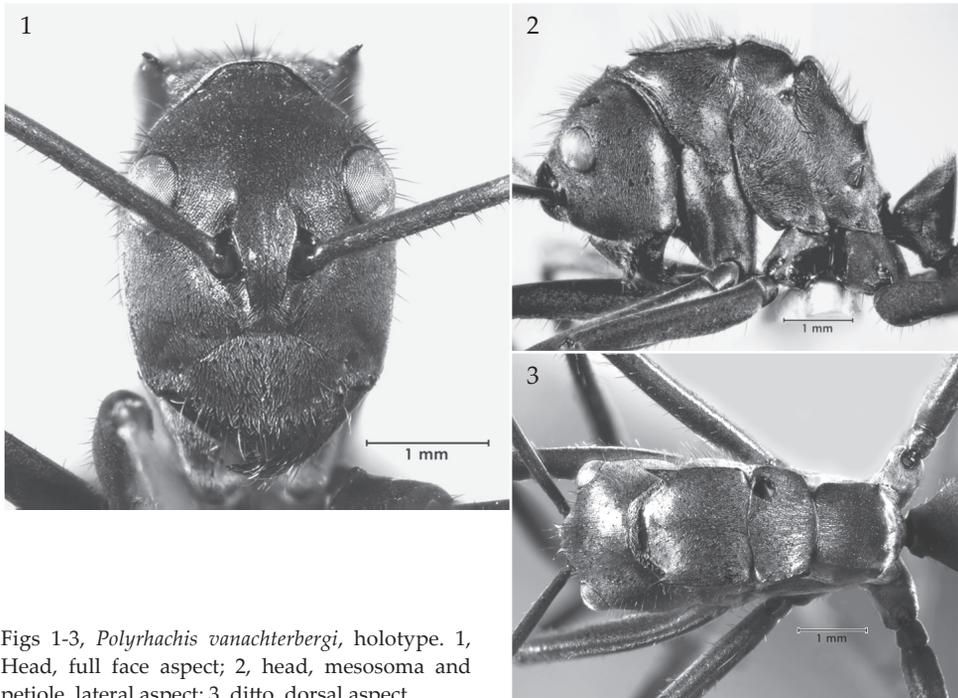
Polyrhachis vestita species-group

Polyrhachis vanachterbergi spec. nov.
(figs 1-3)

Material.- Holotype: "Indonesia, C. Sulawesi, nr Luwuk, Salodik, c. 400 m, 21-31.x.1989, Malaise trap 14, C. van Achterberg, RMNH'89" (worker). Paratypes: data as for holotype (17 workers). Type distribution: Holotype and most paratypes in RMNH; 2 paratypes in QMBA; 1 paratype each in ANIC, BMNH and MCZC.

Worker.— Dimensions (holotype cited first): TL c. 13.30, 12.85-14.51; HL 3.17, 3.07-3.33; HW 2.27, 2.24-2.37; CI 72, 69-73; SL 4.38, 4.33-4.59; SI 193, 187-200; PW 1.81, 1.66-1.91; MTL 5.24, 5.24-5.59 (13 measured).

Anterior clypeal margin arcuate, obtusely and widely truncate medially. Clypeus with blunt median carina that is more prominent posteriorly. Clypeus in profile straight for most of its length, posteriorly rounding into moderately impressed basal margin that is laterally indicated by a flat, thin line. Frontal triangle distinct. Frontal carinae with sharp, highly elevated laminate lobes; central area concave with rather flat frontal furrow. Sides of head in front of eyes weakly convex; behind eyes sides rounding into convex, medially weakly emarginate, occipital margin. Eyes convex, in full-face view only marginally breaking lateral cephalic outline. Ocelli lacking. Pronotal dorsum weakly convex, with pair of very short, anteriorly directed, dorso-medially and ventrally flattened, horizontal spines; promesonotal suture deeply impressed laterally, medially indicated by shallow, bowed line. Mesonotal dorsum flat, with weakly upturned, anteriorly and posteriorly rounded, lateral margins; metanotal groove well impressed. Propodeum with lateral margins subparallel, anteriorly forming distinctly upturned laminae; margins rather flat posteriorly, terminating in upturned teeth; propodeal dorsum and declivity almost in the same plane, forming only weakly angled line in lateral view (fig. 2). Petiole in profile with anterior and posterior faces flat, converging dorsally; petiolar dorsum acute, transversely arcuate, terminating laterally in weakly upturned denticles. Anterior face of first gastral segment flat basally, with anterodorsal margin widely rounding onto dorsum of gaster.



Figs 1-3, *Polyrhachis vanachterbergi*, holotype. 1, Head, full face aspect; 2, head, mesosoma and petiole, lateral aspect; 3, ditto, dorsal aspect.

Mandibles distinctly, longitudinally striate with numerous piliferous pits. Head, mesosoma, petiole and gaster generally very finely reticulate-punctate with sculpturation on pronotal and mesonotal dorsa somewhat organised into irregular, rather indistinct, longitudinal striae.

Mandibles with numerous, semi-erect, golden hairs (= setae). Anterior clypeal margin fringed medially with medium length, anteriorly directed, golden setae, reducing in length laterally. Leading edge of antennal scape with short, erect, yellowish-brown hairs and few hairs arising along inferior edge distally. Front and sides of head with medium length, erect, mostly rusty-brown hairs, those on vertex distinctly longer, darker and more anteriorly directed. Mesosomal dorsum, except declivity, with numerous, relatively long, anteriorly curved, rusty-brown or black hairs, those on sides of mesosoma distinctly shorter. Coxae with several long, yellowish- and rusty-brown hairs. Legs with abundant, black and rusty-brown hairs, notably on tibiae, basal segments of tarsi and ventral surfaces of femora. Dorsal surfaces of fore femora hairless; middle and hind femora with only a few, short hairs along dorsal surfaces. Petiole with several short, black hairs near dorsal margin in lateral view. Gaster with abundant, relatively long, somewhat posteriorly directed, black and brown hairs. Very short, dense, adpressed, rusty-red pubescence over most body surfaces, notably over anterior portion of pronotal dorsum; somewhat yellowish pubescence on pronotal collar and meso- and metapleurae.

Black throughout, with legs very dark reddish-brown in some specimens.

Sexuals and immature stages unknown.

Etymology.— Named after the collector, Prof. Dr Ing. C. (Kees) van Achterberg, whose collecting across Indonesia and elsewhere in South East Asia has brought to light a number of new species of ants and other insects.

Remarks.— *Polyrhachis vanachterbergi* is similar in general appearance to the other species of the *vestita*-group, notably to *P. cognata* and *P. ogatai*. It shares with them the characteristic rusty-red and black pilosity and pubescence. However, it differs by the very short pronotal spines and the shape of the propodeal dorsum that is marginally longer than wide. It also differs from *P. ogatai* by its smaller size and by the lack of the peculiar antennal process in the latter species (see Kohout, 2008).

Addendum

Below is a list of *Polyrhachis* species collected from various localities in South East, South West and Central Sulawesi by C. van Achterberg (CvA), R. de Vries and Y. Yasir.

Subgenus *Myrma* Billberg, 1820

(*P. inermis*-group)

Polyrhachis inermis Fr. Smith, 1858. C Sulawesi, nr Luwuk, Salodik, c 400 m, 21-31.x.1989 (CvA) (w); ditto, Salodik-Linyek, c. 375m, 1-14.xi.1989 (CvA) (w).

(*P. relucens*-group)

Polyrhachis rixosa Fr. Smith, 1858. C Sulawesi, nr Luwuk, Salodik, c 400 m, 21-31.x.1989 (CvA) (w); ditto, Salodik-Linyek, c. 375 m, 1-14.xi.1989 (CvA) (w).

Polyrhachis sculpturata Fr. Smith, 1860. SE Sulawesi, nr Sanggona, Gn. Watuwila, c. 200 m, 12-15.x.1989 (CvA) (w).

(*P. vestita*-group)

Polyrhachis gobini Kohout, 2007. C Sulawesi, nr Luwuk, Salodik, c 400 m, 21-31.x.1989 (CvA) (w).

Polyrhachis vestita Fr. Smith, 1860. SW Sulawesi, Gn. Bulusaraung, nr Camba, Mallawa, c. 750 m, 7.ii-28.iii.1995 (CvA & Y. Yasir) (w); ditto, c. 800 m, 21.ii-25.iii.1997 (CvA & R.de Vries) (w).

(*P. zopyra*-group)

Polyrhachis zopyra Fr. Smith, 1861. C Sulawesi, nr Luwuk, Salodik, c 400 m, 21-31.x.1989 (CvA) (w).

Subgenus *Myrmhopla* Forel, 1915

(*P. armata*-group)

Polyrhachis nudata Fr. Smith, 1860. C Sulawesi, nr Luwuk, Salodik, c 400 m, 21-31.x.1989 (CvA) (w); ditto, 1-14.xi.1989 (CvA) (w).

Polyrhachis saevissima Fr. Smith, 1860. C Sulawesi, nr Luwuk, Salodik, c 400 m, 21-31.x.1989 (CvA) (w).

(*P. hector*-group)

Polyrhachis abdominalis Fr. Smith, 1858. C Sulawesi, nr Luwuk, Salodik, c 400 m, 21-31.x.1989 (CvA) (w).

(*P. sexspinosa*-group)

Polyrhachis rugifrons Fr. Smith, 1860. C Sulawesi, nr Luwuk, Salodik, c 400 m, 21-31.x.1989 (CvA) (w); SW Sulawesi, Gn. Bulusaraung, nr Camba, Mallawa, c. 800 m, 21.ii-25.iii.1997 (CvA & R.de Vries) (w).

Subgenus *Myrmothrinax* Forel, 1915

(*P. aequalis*-group)

Polyrhachis imitator Kohout, 2008. C Sulawesi, nr Luwuk, Salodik, c 400 m, 21-31.x.1989 (CvA) (w).

Subgenus *Polyrhachis* Fr. Smith, 1857

Polyrhachis erosispina Emery, 1900. C Sulawesi, nr Luwuk, Salodik, c 400 m, 21-31.x.1989 (CvA) (w).

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Literature

- Billberg, G.J., 1820. Enumeratio Insectorum in Museo Gust. Joh. Billberg. [ii]: 1-138. — Holmiae.
- Bolton, B., 1995. A New General Catalogue of the Ants of the World: 1-504. — Cambridge.
- Kohout, R.J., 2008. A review of the *Polyrhachis* ants of Sulawesi with keys and descriptions of new species (Hymenoptera: Formicidae: Formicinae). — Mem. Qd Mus. 52(2): 255-317.
- Smith, F., 1860. Descriptions of new species of hymenopterous insects collected by Mr A.R. Wallace at Celebes. — J. Linn. Soc. Zool. 5 (Supp. to vol. 4): 57-93.

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