

## Taxonomic additions to the *Polyrhachis (Myrma) cyaniventris* species group (Insecta: Hymenoptera: Formicidae)

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### Abstract

*Polyrhachis (Myrma) baca* sp.n. from Central Luzon, Philippines, a species of the *P. cyaniventris* species group, is described. In addition, an alate gyne from Hikdop Island offshore Mindanao which belongs to the same group is described, but remains nameless. A key to workers of the species group is included.

**Key words:** Hymenoptera, Formicidae, *Polyrhachis*, *Myrma*, *Polyrhachis cyaniventris* species group, new species, Philippines, Luzon, Hikdop

### Zusammenfassung

*Polyrhachis (Myrma) baca* sp.n. aus Zentralluzon, Philippinen, wird beschrieben. Sie gehört in die *P. cyaniventris*-Artengruppe. Außerdem wird eine alate Gyne von der Insel Hikdop vor der Küste Mindanaos verzeichnet, die in die gleiche Artengruppe gehört; sie wird beschrieben, bleibt aber unbenannt. Ein Bestimmungsschlüssel für Arbeiterinnen der Artengruppe ist beigelegt.

### Introduction

*Polyrhachis* F. SMITH, 1857 is one of the most dominant ant genera in the Oriental, Malesian and Australian Regions with well over 600 valid species; about 100 species occur in the Philippines (SORGER & ZETTEL 2009). Recently, SORGER & ZETTEL (2009) established the *Polyrhachis cyaniventris* species group of the subgenus *Myrma* BILLBERG, 1820 based on two Philippine species, *P. cyaniventris* F. SMITH, 1858 and *P. pirata* SORGER & ZETTEL, 2009. The *P. cyaniventris* group can be distinguished from KOHOUT's (1989) *P. relucens* group by the metallic shimmer of the integument, a strong reduction in pilosity, small and less protruding eyes (most peculiar in workers), short legs, a high propodeum, and long dorsal spines of the petiole, that are curved posterolaterad and embrace the gaster's base in the worker caste. For a diagnosis and a detailed description of the *P. cyaniventris* group we refer to SORGER & ZETTEL (2009).

The collection of the Natural History Museum Vienna holds two more specimens collected by the late Stefan Schödl obviously belonging to further undescribed species of this clade. One worker from Mt. Makiling, Central Luzon, is newly described hereafter. An alate gyne from the small island of Hikdop near Mindanao extends the known distribution area of the group further south. Without knowledge on the worker caste, the authors refrain from naming this species.

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## Material and methods

Specimens are dry mounted on card triangles and kept in the Natural History Museum Vienna. Examination of specimens was carried out with an Olympus SZH10 Research stereomicroscope and measurements were taken at magnifications of 20× and 40×. Digital photographs were taken with a Leica DFC490 camera attached to a Leica MZ16 binocular microscope by help of Image Manager IM50 and processed with Auto-Montage Pro and Adobe Photoshop 7.0 programmes.

### Measurements and indices:

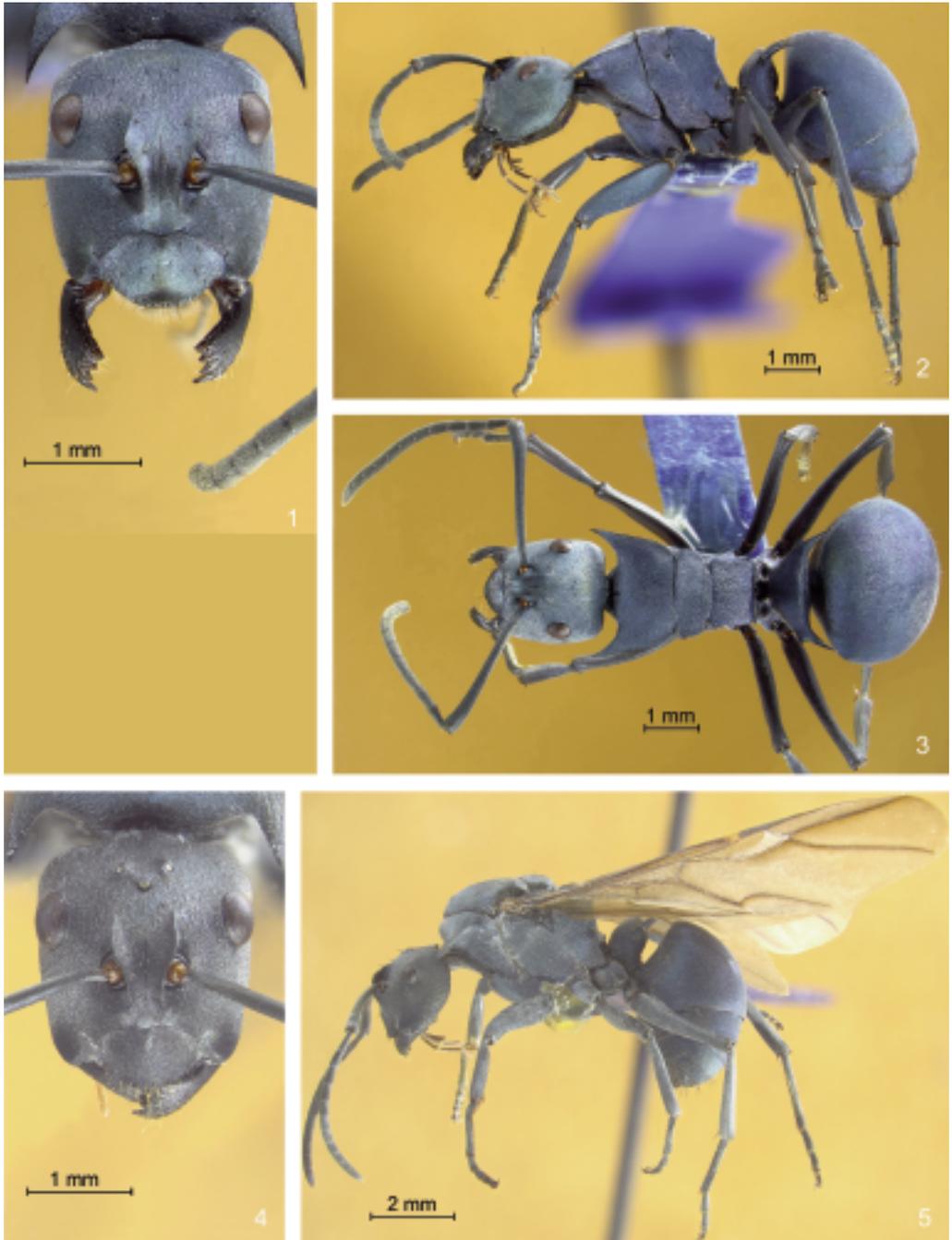
- HW Head width. Maximum width of head, in full-face view, in front of eyes (excluding eyes in gyne).
- HL Head length, in full-face view, excluding mandibles, measured from most-anterior point on clypeal margin to most-posterior point on medial convexity on vertex.
- CI Cephalic index.  $HW/HL \times 100$ .
- MTL Metatibia length. Maximum length of metatibia (extensor side) excluding basal constriction.
- PPI Propodeum index.  $PPW/PPL \times 100$ .
- PPL Propodeum length. Length of propodeum measured from posterior corner parallel with midline until anterior margin. For correct positioning the specimen is tilted forward until anterior and posterior margin of dorsal face of propodeum are in the same horizontal plane.
- PPW Propodeum width. Width of propodeum at level of posterior corners.
- PSPD Pronotal spine distance. Maximum distance between apices of pronotal spines.
- PTW Petiole width. Maximum distance between apices of long spines of petiole.
- SL Scape length. Length of antennal scape excluding basal constriction.
- SI Scape index.  $SL/HW \times 100$ .
- TL Total length. Length of entire ant measured in dorsal view with head stretched out, from anterior margin of clypeus to apex of abdomen.

**Setiferation:** Standing setae with length > 0.1 mm were counted. On frons, numbers of setae were taken only from the area medial of frontal lobes between posterior margin of clypeus and level of posterior end of frontal lobes. For vertex, setae behind level of posterior end of frontal carinae were counted; for genae and head venter, the limitation between these two areas is defined by microsculpture – densely punctured on genae, smooth and shining on venter. For counting setae on clypeus, marginal setae are excluded. Setae numbers on femora and tibiae are the total of all six legs.

### *Polyrhachis (Myrma) baca* sp.n. (Figs. 1–3)

**Etymology:** *Baca* is the Latin word for "pearl," here used as a noun in apposition. Besides an obvious similarity in subtle metallic shimmer, the name refers to both, the gracile beauty of this species and the unexpected encounter of the single specimen in the Natural History Museum Vienna.

**Type locality:** Philippines, Luzon Island, Laguna Province, Los Baños, on northern slopes of Mount Makiling (alternative spelling: Maquiling), Mud Springs (area name), ca. 650 m a.s.l., N 14° 07', E 121° 11', in degraded dipterocarp forest.



Figs. 1–5: (1–3) *Polyrhachis baca* sp.n. (holotype worker): (1) head, frontal view; (2) lateral view; (3) dorsal view. (4–5) *Polyrhachis* sp. A from Hikdop Island (gyne): (4) head, frontal view; (5) lateral view.

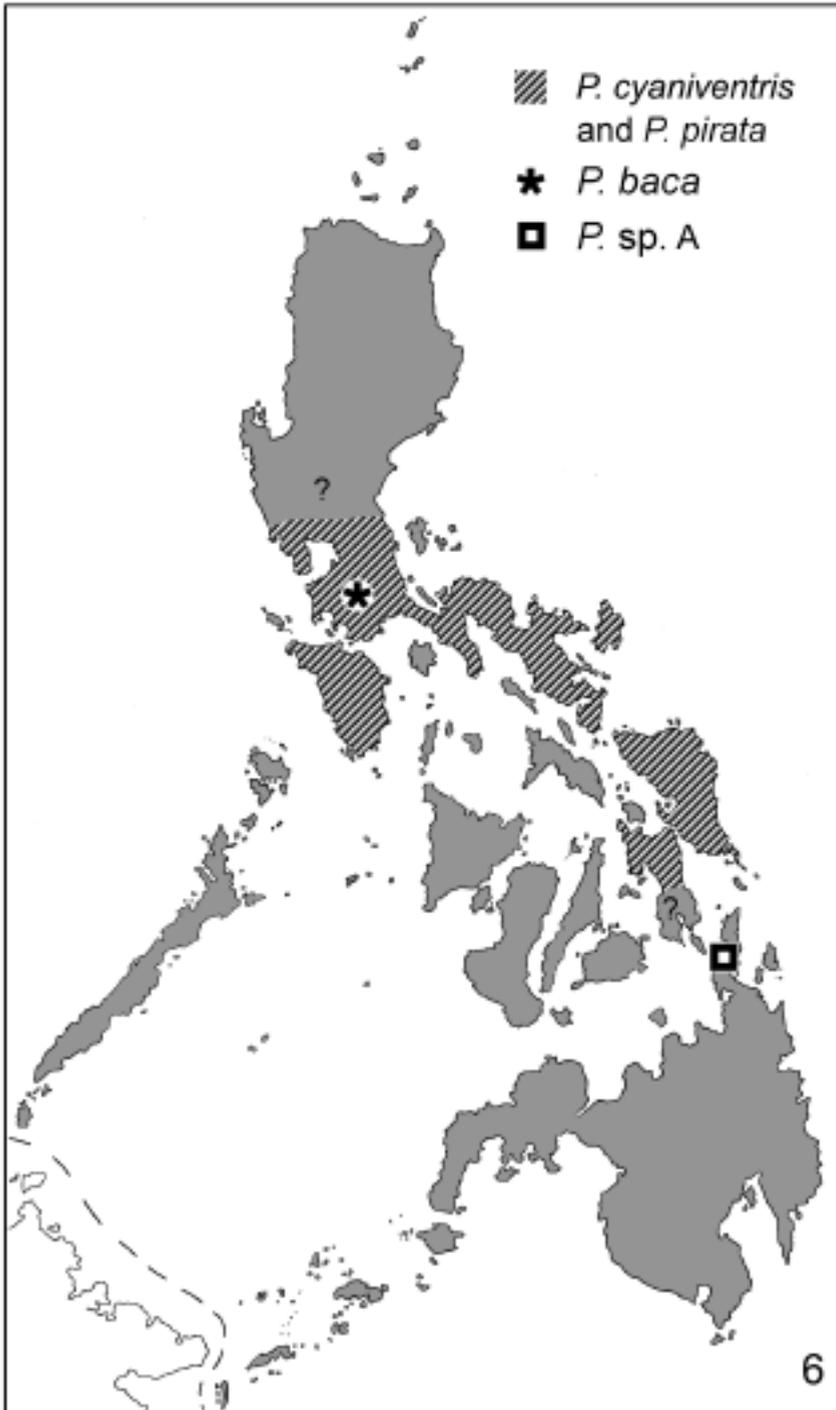


Fig. 6: Philippines. Distribution of the *Polyrhachis cyaniventris* species group.

**Type material:** Holotype (worker) labelled "PHILIPPINES, Luzon\ 13 ii 1999, Laguna,\ Los Baños, Mt. Makiling,\ Mud Springs", ca. 650m,\ leg. Schödl (2)".

**Description of holotype worker:** Measurements: TL 8.6 mm, HW 2.00 mm, HL 2.48 mm, CI 81, SL 2.85 mm, SI 142, PSPD 2.44 mm, PPL 0.95 mm, PPW 1.16 mm, PPI 122, PTW 2.33 mm, MTL 2.90 mm.

Head (Fig. 1) with greenish blue shimmer, mesosoma, petiole and gaster with dark bluish shimmer. Legs and antennae with greenish blue shimmer. Head finely punctured. Venter of head with 10 setae located mostly on outer margins. Vertex with 10 setae. Frons with fine median furrow and 5 setae. Genae without setae (a few setae right on margin with venter not counted). Clypeus on disk with 10 setae. Mesosoma dorsally without setae, microsculpture punctured. Pronotal spines gracile, in cross-section rather flat, their bases slightly elevated over anterior pronotal disk (Figs. 2, 3). Propodeum with dorsal and posterior face separated by almost straight ridge (Fig. 3). Sides of propodeum dorsal of stigma with some fine longitudinal rugae overlaying microsculpture (Fig. 2). Femora with 4 setae, tibiae without setae. Gaster with isodiametric reticulum and numerous setae (6 on tergite 1, 9 on tergite 2) increasing in length and number towards apex of abdomen (Fig. 2).

**Distribution:** Only known from the type locality in Central Luzon (Fig. 6).

**Comparative notes:** *Polyrhachis baca* sp.n. differs from *P. cyaniventris* in sculpture on mesosoma and gaster; from *P. pirata* in size and colour of mesosoma; and from both species in shape of pronotal spines and setiferation.

#### Key to workers of *P. cyaniventris* species group

- 1 Mesosoma dorsally with numerous short black setae. Numerous setae on entire body. Microsculpture of gaster overlaid with fine longitudinal striation. Sides of propodeum with longitudinal rugae overlaying microsculpture. .... *P. cyaniventris*
- Mesosoma dorsally without setae. Other parts of body with a few short black setae. .... 2
- 2 Small species (TL of holotype 8.6 mm; HW of holotype 2.00 mm). Vertex with 10 setae (Fig. 2). Pronotal spines in cross-section flat. Dorsal and posterior faces of propodeum separated by almost straight ridge. Head and mesosoma with bluish shimmer. .... *P. baca* sp.n.
- Large species (TL 10.1–11.5 mm; HW 2.19–2.50 mm). Vertex with 0–2 setae. Pronotal spines in cross-section triangular and massive. Dorsal and posterior faces of propodeum separated by sinuate ridge, slightly depressed medially. Head and mesosoma with greenish to coppery shimmer. .... *P. pirata*

#### *Polyrhachis (Myrma) sp. A* (Figs. 4–5)

**Material examined. Hikdop Isl.:** Surigao del Norte Prov.: 10 km N Surigao City, along southern and southeastern coast, N 9°52', E 125°31', 5.II.2000, leg. S. Schödl (#8), 1 alate gyne.

**Description of gyne:** Measurements: TL 10.7 mm, HW 2.08 mm, HL 2.55 mm, CI 81, SL 2.98 mm, SI 143, PSPD 2.68 mm, PPL 0.83 mm, PPW 1.48 mm, PPI 179, PTW 2.13 mm, MTL 3.05 mm.

Head (Fig. 4) and mesosoma (except propodeum; Fig. 5) with dark green (slightly bluish, coppery) shimmer. Propodeum, petiole and gaster with dark bluish shimmer.

Antennae and legs (except femora) black. Clypeus on disk with 8 setae, frons with 10 setae, vertex with 5 setae, genae and venter of head without setae. Microsculpture on pronotum overlaid with fine striation, on propodeum overlaid with distinctly coarser striation than on pronotum. Gaster microsculpture overlaid with distinct striation, gradually becoming finer from tergite 1 to tergite 4.

**Comparative notes:** This single gyne differs from gynes of *P. cyaniventris* in head shape (genae more convex in *P. cyaniventris*), colour (more bluish in *P. cyaniventris*), number of setae (higher in *P. cyaniventris*), and microsculpture of gaster tergite 1 (longitudinal striation stronger in *P. cyaniventris*). Although the gynes of *P. pirata* and *P. baca* sp.n. are unknown, it is very unlikely that the Hikdop specimen belongs to one of them, because the setiferation is much more developed in *Polyrhachis* sp. A than in workers of these two species.

**Distribution:** The specimen originates from the small island of Hikdop offshore Surigao City on Mindanao and represents the most southern record of the *P. cyaniventris* species group (see Fig. 6). Records of *P. cyaniventris* and *P. pirata* are restricted to the central and southern parts of Luzon island, and to the islands of Catanduanes (*P. cyaniventris* only), Mindoro, Samar, and Leyte (*P. cyaniventris* only). According to the biogeographical division suggested by ONG et al. (2002), the distribution of the group covers parts of three major regions, i.e. Greater Luzon, Greater Mindoro, and Greater Mindanao. The absence of the group from the central Philippines (Greater Negros-Panay) is notable.

#### Acknowledgements

Thanks to Mag. Dominique Zimmermann at the Natural History Museum Vienna for access to collection and library. Acknowledgements are given to Rudy Kohout (Queensland Museum), Archie McArthur (South Australian Museum) and one anonymous reviewer for their valuable comments to improve the manuscript, and to Simon Robson (James Cook University) for language review.

#### References

- KOHOUT R.J., 1989: The Australian ants of the *Polyrhachis relucens* species-group (Hymenoptera: Formicidae: Formicinae). – *Memoirs of the Queensland Museum* 27(2): 509–516.
- ONG P.S., AFUANG L.E. & ROSELL-AMBAL R.C. (eds.) 2002: Philippine biodiversity conservation priorities: A second iteration of the National Biodiversity Strategy and Action Plan. – Department of Environment and Natural Resources; Protected Areas and Wildlife Bureau; Conservation International Philippines, Biodiversity Conservation Program; University of the Philippines, Center for Integrative and Development Studies; and Foundation for the Philippine Environment, Quezon City, Philippines, 113 pp.
- SMITH F., 1858: Catalogue of hymenopterous insects in the collection of the British Museum. Part VI. Formicidae. – British Museum, London, 216 pp.
- SORGER D.M. & ZETTEL H., 2009: *Polyrhachis (Myrma) cyaniventris* F. SMITH, 1858 (Hymenoptera: Formicidae) and a related new ant species from the Philippines. – *Zootaxa* 2174: 27–37.