

## A further new blue *Polyrhachis* ant (Hymenoptera: Formicidae) from the Philippines

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**ABSTRACT.** *Polyrhachis (Myrma) viola* sp. nov. from Mangkagangi Island and a near locality on Mindanao Island, both in Surigao del Sur Province, the Philippines, is described and illustrated. It is the fourth-named species in the *P. cyaniventris* species group which comprises striking blue-coloured ants that are endemic to the Philippines. In addition, *Polyrhachis (Myrma) cyaniventris* F. Smith, 1858 is reported from Cebu Island, and thus the biogeographical subregion of Greater Negros-Panay, for the first time.

**Keywords:** Hymenoptera, Formicidae, *Polyrhachis*, *Myrma*, *Polyrhachis cyaniventris* species group, new species, Philippines, biogeography, taxonomy

### INTRODUCTION

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. A third species, *P. baca* Sorger & Zettel, 2010, was subsequently described (Sorger & Zettel 2010). These ants are unique among *Polyrhachis* species in their strong metallic, usually blue shimmer. For a diagnosis and a detailed description of the *P. cyaniventris*-group refer to Sorger & Zettel (2009). The species group is chiefly distributed in the northern parts of the Philippine archipelago. Hitherto, records were from the biogeographical subregions of Greater Luzon, Greater Mindoro, and Greater Mindanao (following the division in Ong *et al.* 2002).

By the courtesy of Mr Clister V. Pangantihon from the University of San Carlos, I was able to study new *Polyrhachis* material from Surigao del Sur Province, which represented an undescribed species of the *P. cyaniventris*-group and the southernmost records of the group. It is named *Polyrhachis viola* sp. nov. and is possibly conspecific with a gyne called "*Polyrhachis* sp.

A" by Sorger & Zettel (2010). In addition, I present the first record of *P. cyaniventris* from Cebu, the first occurrence of the species group in the biogeographical subregion of Greater Negros-Panay.

### MATERIAL AND METHODS

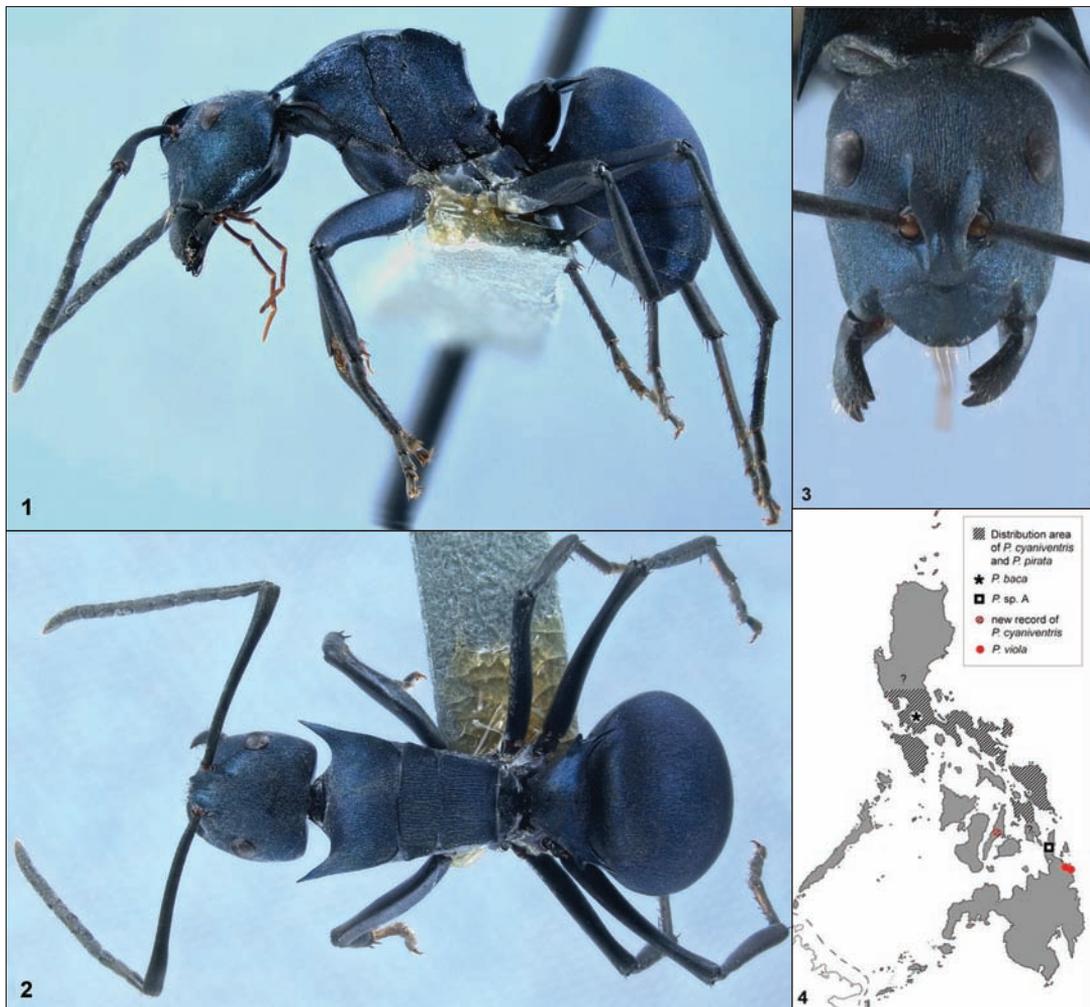
SPECIMENS are dry-mounted on card triangles or card squares. Depositories are mentioned in the 'material examined' section below.

METHODS follow Sorger & Zettel (2009). Specimens were examined with a Leica Wild M10 stereomicroscope and measurements were taken at magnifications of 20× (TL) and 50× (others). Measurements were taken from the holotype and from the paratype workers with the smallest and largest HW.

### MEASUREMENTS AND INDICES

- HW Head width. Maximum width of head, in full-face view, in front of eyes.
- HL Head length, in full-face view, excluding mandibles, measured from anteriormost point of clypeal margin to posteriormost point of medial convexity on vertex.
- CI Cephalic index. HW/HL × 100.

MTL	Metatibia length. Maximum length of metatibia (extensor side) excluding basal constriction.	PSPD	Pronotal spine distance. Maximum distance between apices of pronotal spines.
PPI	Propodeum index. $PPW/PPL \times 100$ .	PTW	Petiole width. Maximum distance between apices of long spines of petiole.
PPL	Propodeum length (see Sorger & Zettel 2009: fig. 3). Length of propodeum measured from posterior corner parallel with midline, to 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.	SL	Scape length. Length of antennal scape excluding basal constriction.
PPW	Propodeum width. Width of propodeum at level of posterior corners.	SI	Scape index. $SL/HW \times 100$ .
		TL	Total length. Length of entire ant measured in a straight line in dorsal view with head stretched out, from anterior margin of clypeus to apex of abdomen.



**Figs. 1 – 4.** *Polyrhachis viola* sp. nov. (holotype worker; TL 8.8 mm, HW 1.81 mm): (1) Lateral view; (2) dorsal view; (3) Head, frontal view, of *Polyrhachis viola* sp. nov. (holotype worker; TL 8.8 mm, HW 1.81 mm). (4) Distribution of the *Polyrhachis cyaniventris* species group (modified from Sorger & Zettel 2010): question marks indicate that the distribution limits of *P. cyaniventris* on Luzon and Leyte are uncertain; red symbols indicate new data.

## SETATION

The number of setae on various parts of the head was counted based on the following defined areas: frons – within the area medial of frontal lobes and between the posterior margin of clypeus and the level of the posterior end of the frontal lobes; vertex – behind the level of the posterior end of frontal carinae; genae and venter of head – these two areas were delimited by microsculpture, i.e. densely punctured on genae, smooth and shiny on venter; clypeus – marginal setae were excluded. Numbers of setae are given for the holotype, and as the minimum and maximum values for paratypes (in parentheses).

## STACKED DIGITAL IMAGES

Figs 1-3 were taken with a Leica DFC camera attached to a Leica MZ16 binocular microscope and processed with the help of Leica Application Suite. They were then stacked with ZereneStacker 64-bit and processed with Adobe Photoshop 7.0.

## RESULTS AND DISCUSSION

### *Polyrhachis (Myrma) viola* sp. nov.

(Figs. 1-4)

## ETYMOLOGY

The species is named for its colour which resembles that of a violet (or *Viola*) flower; the epithet is used as a noun in apposition.

## TYPE LOCALITY

Philippines, Surigao del Sur Province, municipality of Tandag, Mangkagangi Island (N 9°06' E 126°13', 0-40 m a.s.l.) off Mindanao Island.

## TYPE MATERIAL

Holotype (worker; in University of San Carlos, Cebu City) and six paratypes (currently held in author's collection and in Natural History Museum Vienna) labelled "Philippines: Surigao d. Sur\ Tandag, Mangkagangi Isl.\ 21.10.2010, leg.\ C.V. Pangantihon (P363)". One paratype worker labelled "Philippines: Surigao d. Sur\ Lanuza,

Sibahay, Magkawas\ Falls 26.10.2010, leg.\ C.V. Pangantihon (P367)" (in author's collection).

## DIAGNOSIS OF WORKER

A species of the *Polyrhachis (Myrma) cyaniventris*-group as defined by Sorger & Zettel (2009). Within this group recognised by combination of small body size (TL 8.1-9.0 mm, HW 1.75-2.02 mm), vivid blue shimmer of body tending to violet on gaster, mesosomal dorsum without setae, gracile and rather flat pronotal spines, distinct longitudinal striation on pro- and mesonotal disk, and relatively short propodeal dorsum (PPI 135-141).

## DESCRIPTION OF WORKER

Measurements: Holotype: TL 8.3 mm, HW 1.81 mm, HL 2.22 mm, CI 82, SL 2.71 mm, SI 150, PSPD 2.26 mm, PPL 0.82 mm, PPW 1.11 mm, PPI 135, PTW 2.04 mm, MTL 2.76 mm. Paratype with smallest HW: TL 8.1 mm, HW 1.75 mm, HL 2.17 mm, CI 81, SL 2.60 mm, SI 149, PSPD 2.27 mm, PPL 0.79 mm, PPW 1.08 mm, PPI 137, PTW 2.05 mm, MTL 2.58 mm. Paratype with largest HW: TL 9.0 mm, HW 2.02 mm, HL 2.43 mm, CI 83, SL 2.89 mm, SI 143, PSPD 2.55 mm, PPL 0.93 mm, PPW 1.31 mm, PPI 141, PTW 2.22 mm, MTL 2.94 mm.

Body with blue shimmer; tending to violet, most strongly on gaster. Legs slightly darker than head, mesosoma and gaster, antennae almost black. Head finely and densely punctured or reticulate; frons and vertex with fine longitudinal striation in addition. Venter of head with 4 (range 3-12) setae. Vertex with 2 (2-6) setae. Frons with fine median furrow and 8 (5-10) setae. Genae with 0 (0) setae. Clypeus with 8 (6-12) setae on disk. Mesosoma dorsally with 0 (0) setae, longitudinally striate, with dense microsculpture between striation. Pronotal spines (Figs. 1, 2) gracile, in cross-section rather flat, their bases not elevated above anterior pronotal disk. Propodeum with dorsal and posterior faces separated by almost straight, low ridge (Fig. 2). Sides of mesosoma (Fig. 1) densely punctured, with only traces of very fine longitudinal striation. Gaster (Figs. 1, 2) with isodiametric reticulum, overlaid in anterior third

of tergite 1 by very fine longitudinal striation; number of setae low, tergite 1 with 2 (1-6) setae, tergite 2 with 3 (3-12) setae; setae increasing in length and number towards apex of abdomen.

#### DISTRIBUTION

Known only from two sites in the province of Surigao del Norte (Fig. 4).

#### COMPARATIVE NOTES

*Polyrhachis viola* sp. nov. is most similar to *P. baca* Sorger & Zettel, 2010 from Central Luzon with regard to size, setation and structure of the pronotal spines. It differs from that species by its more vivid metallic shimmer (tending to violet in *P. viola* sp. nov. and to green in *P. baca*), the presence of longitudinal striation on the entire dorsum of the mesosoma (restricted to propodeum in *P. baca*) and anterior third of gastral tergite 1 (absent in *P. baca*), larger PPI (135-141 vs 122) and by its fine and low transverse propodeal ridge (elevated in *P. baca*). It is possible that *Polyrhachis viola* sp. nov. is conspecific with *Polyrhachis* sp. A of Sorger & Zettel (2010) known from a gyne from Hikdop Island, Surigao del Norte, but this remains speculation until both castes are collected in a nest series.

#### *Polyrhachis (Myrma) cyaniventris* F. Smith, 1858

#### FIRST RECORD FROM CEBU

1 worker labelled "Philippines: Cebu, \ Cebu City, Cantipla-Uno\ 7.11.2010, leg. H. Zettel\ & C.V. Pangantihon (526)" (in author's collection).

#### NOTES

Published records of *P. cyaniventris* are from the islands of Luzon, Catanduanes, Mindoro, Samar, and Leyte (Sorger & Zettel 2009). This is the first record of the species from Cebu Island and from the biogeographical subregion of Greater Negros-Panay. The single worker was collected from the Cantipla watershed area in the municipality of Cebu City. The site, one of the last naturally forested areas on the island, lies at an altitude of ca. 800 m a.s.l. It is known

for its interesting ant fauna; for example it is the type locality of *Pristomyrmex cebuensis* Zettel, 2007 (Zettel 2007). *Polyrhachis cyaniventris* must be relictual and extremely rare in the area, given that the forest was intensively studied for its ant fauna in the past, including a survey of *Polyrhachis* species (Pangantihon & Andrade 2008), without records of this species. Although the importance of the collection was recognised in the field, no further specimens of *P. cyaniventris* could be obtained.

The occurrence of *P. cyaniventris* is another indicator that the fauna of Cebu is influenced not only by the western Visayas (as part of the Greater Negros-Panay region; see Ong *et al.* 2002), but also by the eastern Visayas (Greater Mindanao region).

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