

## A second species of the ant genus *Romblonella* from the Philippines (Hymenoptera: Formicidae)

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### Abstract

*Romblonella coryae* sp. n. is described from Palawan Island. It is the second species known from the province of Palawan, Philippines. *Romblonella coryae* differs from *R. opaca* (F. Smith, 1861) (= *R. grandinodis* Wheeler 1935) in possessing the following characters: a longitudinally costulate first gastral tergite; a subrectangular head (with CI not exceeding 90); compound eyes located at midlength of head; a narrow median clypeus, only as wide as frontal lobe; and a strikingly bi-colored mesosoma. The worker caste of *R. grandinodis* is remeasured and rediagnosed and a lectotype and paralectotypes are designated. A key to the two species, a distribution map, and a short discussion are provided.

**Keywords:** *Romblonella coryae*, Formicidae, new species, Philippines, Palawan.

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### Introduction

Wheeler (1935) erected the myrmicine genus *Romblonella* and described its type species *R. grandinodis* based on a small series of specimens from Romblon Island in the central Philippines. Unknown to him and, subsequently to M. R. Smith (1953, 1956), *R. grandinodis* had already been described in a different genus. Bolton (1976) found that *Myrmica opaca* F. Smith, 1861 from Sulawesi, Indonesia is the senior synonym of *R. grandinodis*. Thus, the type species of the genus is now known as *Romblonella opaca* (F. Smith, 1861) (Bolton *et al.*, 2007).

*Romblonella* ants are characterized by a robust, hard and compact body, stout propodeal spines, massive petiole and postpetiole, and gaster formed largely by the first tergite (Wheeler, 1935).

*Romblonella* ants are found on islands ranging from the Philippines to Fiji and Australia (Sarnat and Economo, 2012; Shattuck *et al.*, 2014). Each described species has a very limited range, is rarely collected, and is known from only a few collections (Smith, 1956; Taylor, 1991; Shattuck *et al.*, 2014). For instance, Sarnat and Economo (2012) failed to collect *R. liogaster* (Santschi, 1928) in their extensive archipelago-wide

survey of the Fiji Islands, its type locality. Only *R. opaca* is widespread, known from small collections (1-5 workers) from four islands in the Philippines and its type locality in Indonesia.

During a recent survey of the primary lowland forest of Cleopatra's Needle, Puerto Princesa City, Palawan Island, Philippines, we discovered a strikingly colored species of *Romblonella*. It has been 24 years since the description of *R. heatwolei* Taylor, 1991, the most recent addition to the genus. This current contribution brings the number of valid species to 9 (Bolton *et al.*, 2007; Shattuck *et al.*, 2014).

### Materials and Methods

#### Measurements and Indices

Measurements (in millimetres)

EL	Maximum eye length along maximum diameter.
GL	Maximum length of gaster, from base of first gastral tergite to apex of gaster, measured in lateral view.
HFL	Maximum length of hind femur in anterior view.

## A second species of the ant genus *Romblonella* from the Philippines

HL	Maximum head length in full face view, measured from anterior-most point of clypeal margin to posterior-most point of head capsule.
HW	Maximum head width in full face view.
ML	Mesosomal length measured from anterior edge of the pronotum (excluding the collar) to posterior edge of propodeal lobe.
PW	Maximum width of pronotum in dorsal view.
SL	Length of scape, excluding basal neck and condyle.
TL	The total outstretched length of ant from mandibular apex to gastral apex; when measured in profile the sum of mandibular length + head length + mesosomal length + lengths of waist segments + length of gaster.

### Indices

CI	Cephalic index: $HW/HL \times 100$
EI	Eye Index: $EL/HW \times 100$
SI	Scape index: $SL/HW \times 100$

### Collection Abbreviations (Brandao *et al.*, 2000)

ANIC	Australian National Insect Collection, Canberra, Australia.
BMNH	Natural History Museum, London, UK.
CASC	California Academy of Sciences, San Francisco, CA, USA.
DMGC	Private Collection, David Emmanuel M. General.
MCZC	Museum of Comparative Zoology, Harvard University, Cambridge, MA, USA.
NHMW	Naturhistorisches Museum, Wien, Austria.
PACB	Private Collection, Perry Archival C. Buenavente.
PNM	National Museum of the Philippines, Manila, Philippines.
UPLB	University of the Philippines Los Baños Museum of Natural History, Los Baños, Laguna, Philippines.

Specimens were examined and measured using a Wild M-5A stereomicroscope with ocular micrometer. Images were created using a Canon 7D digital camera attached to a Leica MZ16 stereomicroscope. Montage images were

rendered using Helicon Focus 6. Images were edited with Adobe Photoshop CS6 Extended. The map was created in ArcMap 10.

All specimens were collected under PNM permit # CPD-A-CT-2014-02 dated January 28, 2014.

### Taxonomy

#### Genus *Romblonella* Wheeler, 1935

Type species: *Romblonella grandinodis* Wheeler, 1935 (junior synonym of *Myrmica opaca* F. Smith, 1861), by original designation.

#### Key to Philippine *Romblonella*, based on the worker caste

1. In dorsal view, first gastral tergite (abdominal tergite IV) longitudinally costulate with interstitial punctulae. In full-face view, head longer than broad (CI 84-89); median clypeus narrow, only as wide as frontal lobe; mesosoma, in lateral view, distinctly dark orange and brown.....*R. coryae* General and Buenavente
- In dorsal view, first gastral tergite (abdominal tergite IV) punctulate but never longitudinally costulate. In full-face view, head subquadrate (CI =95); median clypeus wider than frontal lobe; mesosoma, in lateral view, entirely dark brown.....*R. opaca* (F. Smith)

#### *Romblonella opaca* (F. Smith, 1861)

*Myrmica opaca* F. Smith, 1861: 47 (w.). Indonesia: Sulawesi. Combination in *Tetramorium*: Emery, 1901: 567; Donisthorpe, 1932: 469. Combination in *Romblonella*: Bolton, 1976: 294.

*Romblonella grandinodis* Wheeler, 1935: 7 (w.). Philippines: Romblon. Junior synonym of *M. opaca*: Bolton, 1976: 294.

*R. grandinodis* syntype workers (MCZ Type 20977) [examined]; top worker specimen on double pin here designated as LECTOTYPE. The lower specimen and the collection (2 specimens) of the Smithsonian Institution are designated as PARALECTOTYPES (Ms. Eugenia Okonski kindly confirmed the existence of the last two specimens in the

Smithsonian Institution, by sending DEMG images of the specimens and labels.)

**Labels:** Romblon Is./ 5/6/24 / coll. L. Morato [not Marato, as in Wheeler, 1935 and subsequent publications]

**Lectotype measurements:** TL 5.13, HL 0.98, HW 0.93, CI 95, SL 0.55, SI 59, EL 0.19, EI 20, PW 0.65, ML 1.18, GL 1.08, HFL 0.75.

#### Re-diagnosis of worker

In full face view, posterior margin of head broadly concave; head subquadrate (CI = 95); sides of head gently converging anteriorly; eyes located laterally, slightly behind midlength of head; shallow antennal scrobe present; frontal carina long but about 1 eyelength short of posterior margin of head; antennal scapes short, exceeding posterior edge of eye by less than scape width of distal scape at distal margin; antennae with 12 segments and a 3-segmented club; mandibles triangular, with 6 robust teeth; palp formula 5:3; median clypeus with a median carina flanked by 2 pairs of lateral carinae; median clypeus wider than frontal lobe, posteriorly inserted between frontal lobes; anterior clypeal margin entire, without an isolated median seta; head reticulate with punctae in interstitial spaces; mandibles striate.

In lateral view, dorsal margin of mesosoma smoothly and slightly convex, without grooves or sutures; propodeal spines long and stout; petiole sessile, with anterodorsally directed angle over petiolar spiracle; petiole massive, larger and taller than postpetiole; anterior subpetiolar denticle present; spurs absent on meso- and metatibia.

In dorsal view, pronotum angulate; sides of promesonotum subparallel, propodeum noticeably narrower than promesonotum; propodeal spines divergent at bases but parallel in distal third of their length; mesosoma, petiole and postpetiole dorsally reticulate with interstitial punctulation; first gastral (= 4<sup>th</sup> abdominal) tergite punctulate.

Head and body with abundant short, blunt erect hairs about as long as distance between them; antennal scape with suberect hairs.

Body dark brown with lighter mandibles and antennae.

Other material examined: Philippines: Negros Island, Negros Oriental Province, "Camp, 1924/ Dumaguete, P.I./ coll. J.W. Chapman" [other labels: 1) (yellow) "Cotype/

Romblon, P.I./ L. Morato coll."; 2) (red) MCZ Co-Type [upside-down, no number]; 3) "*Romblonella grandinodis* Wh." (double pin: bottom worker specimen headless and petiole and gaster re-glued to point) (UPLB); Albay Province, Rapu-rapu Island, 07.V.2003, leg. B. Nachor [image presented in Alpert *et al.*, 2006]; Palawan Province, Tara Island, January 2000, leg. V. Samarita (PNM 9022).

#### *Romblonella coryae* General and Buenavente sp. n.

[urn:lsid:zoobank.org:act:F98B881D-F9D2-42CD-A5C4-50F275B9D0D3](https://zoobank.org/urn:lsid:zoobank.org:act:F98B881D-F9D2-42CD-A5C4-50F275B9D0D3)

#### Worker measurements and diagnosis

Measurements (paratypes (n=8) in brackets): TL 4.60 [4.60–4.88], HL 0.93 [0.88–0.93], HW 0.80 [0.78–0.83], CI 86 [84–89], SL 0.58 [0.53–0.58], SI 72 [64–72], EL 0.19 [0.19–0.21], EI 23 [23–27], PW 0.60 [0.58–0.65], ML 1.08 [1.03–1.08], GL 1.03 [1.03–1.30], HFL 0.73 [0.68–0.75].

In full face view, posterior margin of head shallowly emarginate; head longer than wide (CI = 84–89); sides of head subparallel; eyes laterally located, at about midlength of head; shallow antennal scrobe present; frontal carinae long, almost reaching the posterior corners of head; antennal scapes short, exceeding posterior edge of eye by about the width of scape at distal margin; antennae with 12 segments and a 3-segmented club; mandibles triangular, with 6 robust teeth; palp formula 5:3; median clypeus with a median carina flanked by 3 pairs of lateral carinae; median clypeus about as wide as frontal lobe and posteriorly inserted between frontal lobes; anterior clypeal margin entire, without an isolated median seta; head rugo-reticulate with short cross-hatches that do not reach the adjacent rugae; punctae present in interstitial spaces; mandibles striate.

In lateral view, dorsal margin of mesosoma smoothly convex, without grooves or sutures; propodeal spines short and stout; petiole sessile, with anterodorsally directed angle over petiolar spiracle; petiole massive, larger and higher than postpetiole; anterior subpetiolar denticle present; spurs absent on meso- and metatibia.

In dorsal view, pronotum with marginate humeri; sides of promesonotum gently converging posteriorly to base of

## A second species of the ant genus *Romblonella* from the Philippines

propodeal spines, interrupted only by slight bulges at junction between pronotum and mesonotum and at the propodeal spiracle; stout propodeal spines slightly divergent at bases but parallel in distal third of their length; mesosoma, petiole and postpetiole dorsally reticulate with interstitial punctulae; first gastral tergite longitudinally costulate with interstitial punctulae; gastral sculpture disappears before distal edge of first gastral segment.

Head with evenly distributed short, blunt erect hairs that are shorter than distance between them; antennal scape with suberect hairs; short, blunt erect hairs sparsely distributed over rest of body.

*Color:* Head, antennal club, meso- and metapleura, coxae, legs except foretibiae, and gaster dark-brown; rest of mesosoma, petiole and postpetiole dark orange; mandibles, rest of antenna, fore- and midtibiae yellow.

Male and gyne unknown.

**Holotype worker:** PHILIPPINES: Palawan Island, Puerto Princesa City, Tanabag Village, Sitio Kalakwasan, Camp Palaka, 10°03'57" N, 118°58'23" E, 13-26.II.2014, 200 m above sea

level, primary lowland rainforest, leg. D.E.M. General, P.A.C. Buenavente, A.M. Domingo and L.J.V. Rodriguez (PNM 9012, deposited at PNM).

**Paratypes:** 3 workers, same data as holotype; 2 workers from leaf litter collected at camp, same data as holotype; 3 workers from trail to camp, no coordinates recorded (PNM 9013-9020) (1 worker each to ANIC, BMNH, CASC, DMGC, MCZC, NHMW, PACB, UPLB).

**Bionomics:** Workers were opportunistically collected from low vegetation along the trail (estimated length = 15 km) from the road to camp and from the tarpaulin shelters at the camp, and from sifted leaf litter.

**Etymology:** This species is named in honor of our late former President, Corazon C. Aquino (known to all Filipinos by her nickname "Cory"), who led the country out of the dictatorship era. It is fitting that a genus named after a Philippine island has a species named after a modern Filipino hero.



Figures 1-4. *Romblonella coryae* sp.n. (holotype). 1. Lateral habitus; 2. Full-face view of head; 3. Dorsal view of body; 4. Labels.

## Discussion

The biology of *Romblonella* ants is unknown. Collection notes for this species may provide a clue to its nesting preference. Four specimens were opportunistically collected from the tarpaulin covers sheltering our camp. Other specimens were collected from low vegetation along the trails and from the leaf litter between the buttresses of large forest trees. This implies that *R. coryae* may be arboreal and have simply been blown off the trees overhead. It may be necessary to apply arboreal sampling techniques to find a nest in the trees.

Previous to the discovery of *R. coryae*, only *R. opaca* was known from the Philippines (General and Alpert, 2012). The presence of two species in the Philippines implies that other species may remain undiscovered in other islands in the country. Figure 7 clearly shows the distribution of *Romblonella* ants in the Philippines and the spread of the five islands from which they were found.

The UPLB material presents a couple of problems that might not be solvable. On a single pin with 2 mounted specimens, there are two legacy locality labels. The top tag, a typical label by Dr. J.W. Chapman, indicates “Camp, 1924/ Dumaguete, P.I./ coll. J.W. Chapman”. “Camp” presumably refers to Dr. Chapman’s favorite ant-collecting camp somewhere on the Dumaguete side of Mt. Cuernos de Negros, Negros Island. “P.I.” is an abbreviation for Philippine Islands, the American colonial-era term for the Philippines, now disused. There is also a determination label which reads “*Romblonella grandinoda* Wh.”[sic]. The problem arises from the other labels: “Cotype” on one side of yellow card and, on its flipside, a second locality label which reads “Romblon, P.I./ L. Morato coll.”; and a printed red card which reads “MCZ Co-Type” with the handwritten characters “Co- ”but no numbers and now pinned upside-down (see Figures 5 and 6). How is one to interpret this perplexing situation of one double-pin with two locality labels indicating two different islands (Figure 7)?

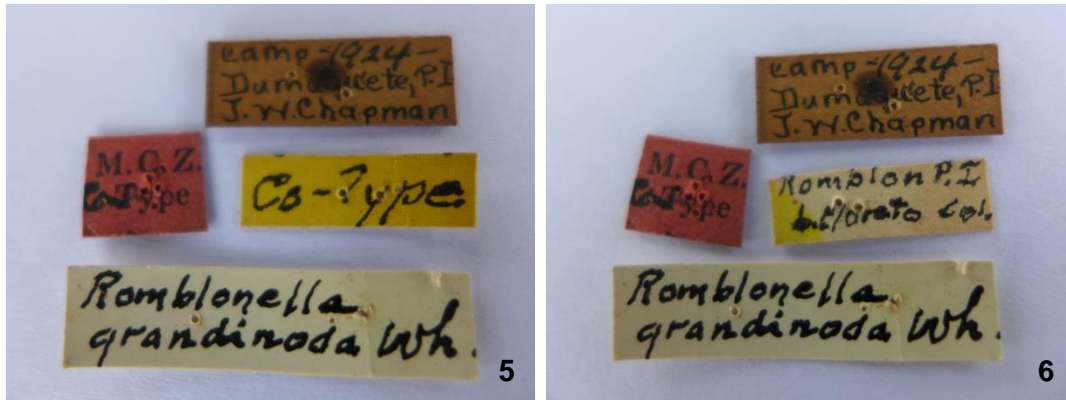
Wheeler (1935) wrote that the type series was composed of 4 workers. The four specimens in the type series are accounted for: two specimens are in MCZ and two are in the Smithsonian Institution (DEMG, unpublished notes, E. Okonski, pers. comm.) We speculate that there were originally 5 workers in the collection by L. Morato. Wheeler returned one specimen of what would become the type series to Chapman before Wheeler wrote the genus description. And that, when Wheeler wrote his 1935 paper, he forgot about the returned specimen as part of the type series, hence he mentioned only 4 workers in the type series and as a consequence, there is a MCZ Co-Type label without a number. This label is now pinned upside-down, probably to indicate that it is no longer considered a real co-type. As regards the second specimen on the pin, it is highly unlikely that Chapman was so short of insect pins that he combined 2 separate collections on a pin. It is more likely that storage space, e.g. insect drawers, was so limited that he combined the 2 collections on a single pin. We emphasize that this is simply speculation to explain the curious situation of 2 legacy locality labels on a single pin. In addition, there is still the intractable problem of which locality label goes with which specimen.

There are more than 7,100 islands in the Philippine archipelago, of which 1,400 islands belong to Palawan Province alone. It is interesting that *Romblonella* ants have not been recorded from the two largest islands, Luzon and Mindanao, although this may simply indicate sampling bias. Obviously, more islands and localities need to be surveyed to determine the actual distribution of these ants in the Philippines.

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A second species of the ant genus *Romblonella* from the Philippines



Figures 5 and 6. Labels of two specimens on a single pin, deposited at the Entomological Collection, University of the Philippines Los Baños Museum of Natural History (see text for discussion)

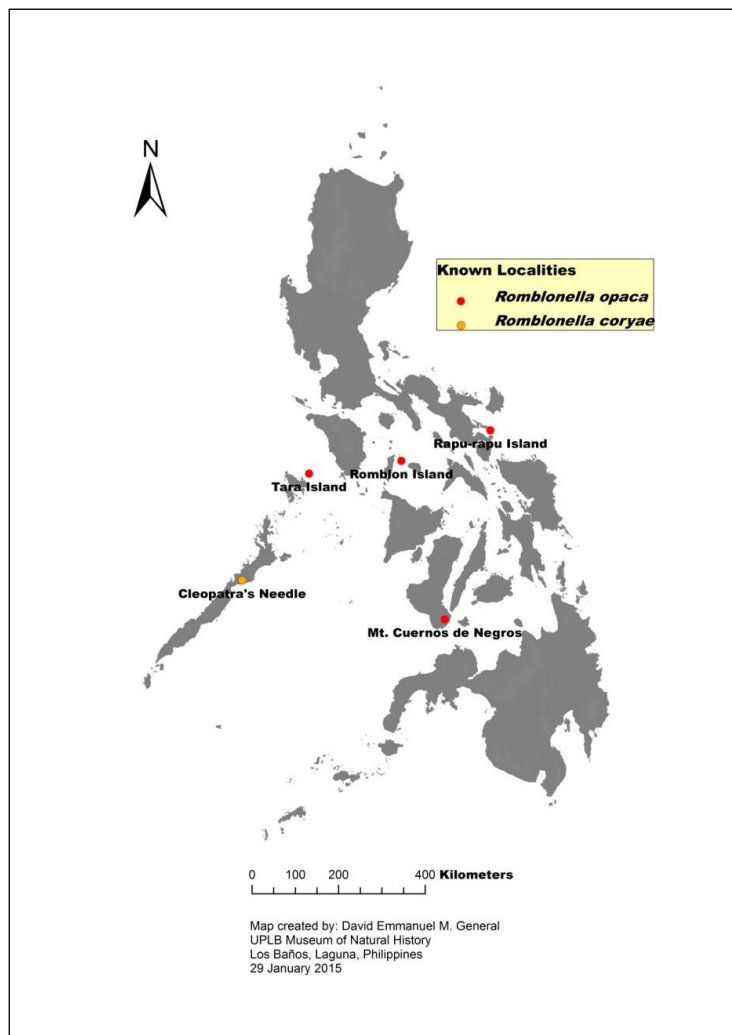


Figure 7. Known localities of *Romblonella* ants in the Philippines. Coordinates for *Romblonella opaca* localities were obtained from the Philippine Gazetteer (DIVA-GIS 2014)

gentle Batak. We also thank PNM for issuing the collecting and transport permits. We also thank Ted Schultz and Eugenia Okonski for verifying the presence of the *Romblonella grandinodis* co-types in the Smithsonian Institution and imaging them for us. We thank Lillian J. V. Rodriguez for imaging the labels of the UPLBMNH specimens. We also thank Philip S. Ward, Seiki Yamane, Robert W. Taylor, and Mostafa R. Sharaf for reviewing the manuscript and providing constructive comments that improved the paper. DEMG is extremely grateful to Gary Alpert and Mary Corrigan for graciously hosting his visit to Cambridge, MA for this study. He also thanks Gary for teaching DEMG how to use his new imaging system and to edit the images for publication. Thanks also to Jignasha Rana for her assistance in the MCZ Ant Room and to JJ Dida for the use of his computer to generate the map. Finally, DEMG is very grateful to the Harvard University Grant Committee for providing an Ernst Mayr Travel Grant for his visit to MCZ.

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