

**FIRST PHILIPPINE RECORD OF THE NEOTROPICAL ANT
Strumigenys eggersi Emery (HYMENOPTERA: FORMICIDAE)**

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ABSTRACT

***Strumigenys eggersi* Emery, 1890, a Neotropical ant species, is recorded for the first time from an urban university campus in the Philippines, possibly introduced by trade in potted ornamental plants. The distribution in the country and the ecological impact of this species are unknown.**

Key words: Formicidae, introduced species, Philippines, *Strumigenys*, tramp ants

INTRODUCTION

Ants are important elements of the insect fauna of natural terrestrial habitats (Hölldobler & Wilson, 1990). Some ant species, e.g., *Odontoponera denticulata* F. Smith, are tolerant of human-mediated disturbances, allowing the ants to thrive in agricultural and even urban landscapes (DEMG, personal observation). Other species become tramp ants when they are unintentionally introduced into new localities by human commerce and remain dependent on human activities, e.g. greenhouse agriculture, for survival and dispersal (Holway et al., 2002).

Some tramp ants may be relatively innocuous in their exotic range, e.g., *Strumigenys emmae* (Emery), although their ecological impact may be underestimated (Wetterer, 2012). Among tramp species, a small subset has become invasive and now exerts a tremendous negative impact on the local faunas in other countries, e.g., *Solenopsis invicta* Buren (Holway et al., 2002; Wittman, 2014).

This present contribution documents the discovery of a Neotropical ant species in a university campus in a highly urbanized city in the Philippines.

MATERIALS AND METHODS

Standard measurements and indices

Measurements (in millimeters):

- 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.
- MaL Mandible length, the straight line length of the mandible at full closure, measured in the same plane for which the HL measurement is taken (i.e., full-face view), from the apex of the mandible to the anterior edge of the frontal lobe, or to the transverse line connecting the anteriormost points in those taxa where the margin is concave medially.
- SL Length of scape, excluding basal neck and condyle.
- PrW Maximum width of pronotum, in dorsal view.
- ML Mesosomal length measured from anterior edge of the pronotum (excluding the collar) to posterior edge of propodeal lobe.
- PL Petiole length, straight line length, in lateral view, from anterior margin of petiolar denticle to posterior face of petiole.
- PPL Straight line length, in lateral view, from anterior to posterior inflections.
- GL Maximum length of gaster, from the base of first gastral tergite to the apex of gaster, measured in lateral view.
- TL The total outstretched length of an 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: $HW/HL \times 100$.
- SI Scape index: $SL/HW \times 100$
- MI Mandibular Index: $MaL/HL \times 100$

The specimen was collected, during an authorized training session on the study of ants, from leaf litter using a sifting bag and a Winkler extractor. The specimen will be deposited in the reference collection of the University of the Philippines Diliman, Institute of Biology, Quezon City.

The specimen was examined and measured with a Leica S8 stereomicroscope with ocular micrometer. Images of the ant were created using a Leica MC120HD digital camera attached to the Leica S8 stereomicroscope. These images were stacked using Combine ZM.

RESULTS AND DISCUSSION

Table 1 shows that the specimen compares very well with Bolton's measurements of *Strumigenys eggersi* Emery, 1890 (Bolton, 2000; AntWiki, 2017). The specimen (Figure 1A-D) also compares well with Bolton's (2000) description, confirming the initial identification provided by Doug Booher (D. Booher, personal communication). It was collected from the campus of the University of the Philippines Diliman in Quezon City, Metro Manila, Luzon Island, Philippines. Further, the ant also compares well with images available online from AntWiki (2017).

Diagnosis: mandible long and linear, narrowing distally, with a mesal row of denticles in distal half; spongiform tissue strongly reduced or absent from propodeum, petiole and postpetiole; first gastral tergite opaque.

Table 1. Comparison of standard measurements (mm) of *Strumigenys eggersi* Emery from literature (Bolton, 2000) and this study.

Standard measurements	Bolton (2000) (n=20)	This Study (n=1)
HL	0.40-0.45	0.41
HW	0.32-0.37	0.35
MaL	0.23-0.28	0.24
SL	0.20-0.24	0.21
PrW	0.20-0.23	0.23
ML	0.40-0.46	0.44
PL	n/a	0.23
PPL	n/a	0.09
GL	n/a	0.41
TL	1.6-2.0	1.81
CI	81-86	85
SI	58-64	61
MI	58-65	58

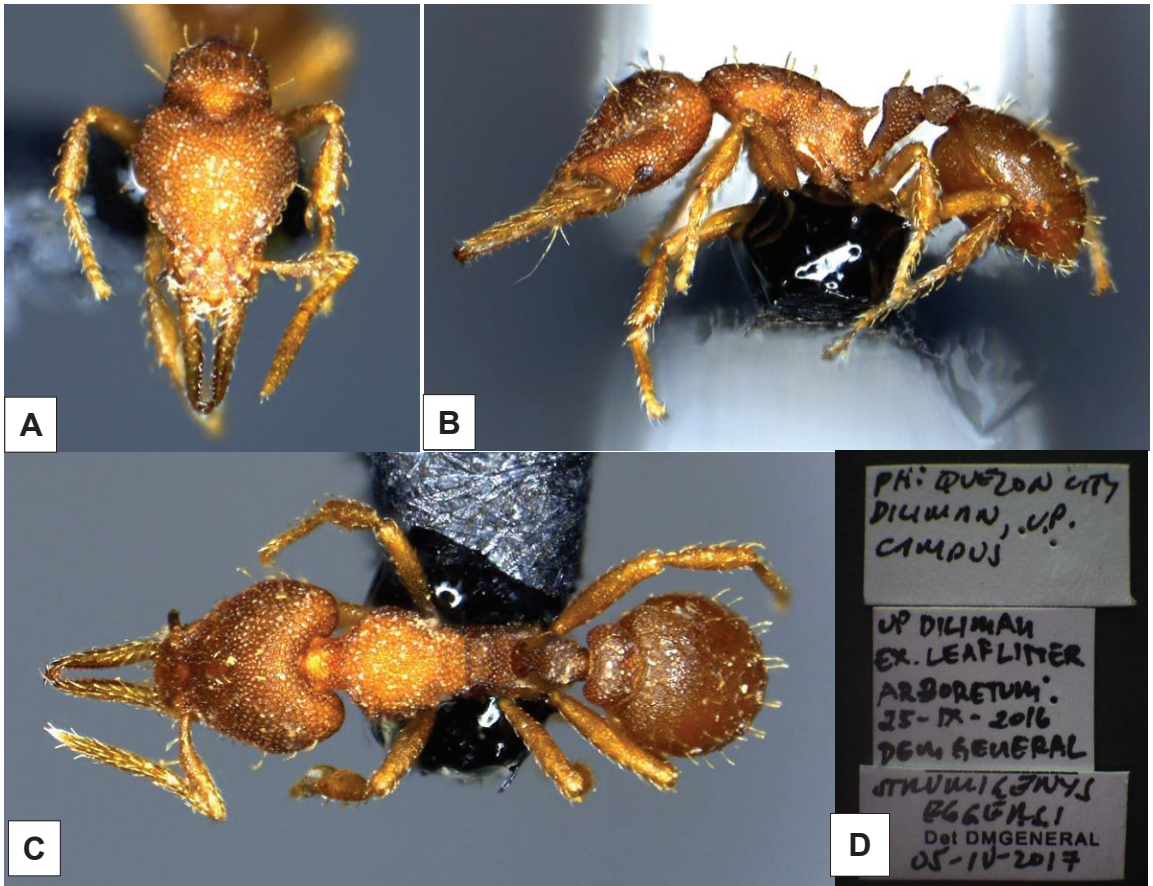


Figure 1. *Strumigenys eggersi* Emery collected from the Arboretum, University of the Philippines Diliman campus, Quezon City, Philippines: A. Full-face view. B. Lateral view. C. Dorsal view. D. Labels. Images courtesy of Perry Buenavente.

This is the first Philippine record of *S. eggersi*, a Neotropical ant species. The natural range of *S. eggersi* includes 22 countries in Central and South America, including islands in the Caribbean Sea (AntWiki, 2017). The ant has also been introduced into Florida, USA (AntWiki, 2017). There is an unconfirmed report of its presence in Singapore (D. Booher, personal communication).

Several species of *Strumigenys* are considered tramp ants (Wetterer, 2012). In the Philippines, *S. emmae* (Emery, 1890), *S. lewisi* Cameron, 1886, and *S. rogeri* Emery, 1890, are introduced species (DEMG, unpublished notes). There may be other species already introduced but have not yet been encountered.

Deyrup (1997) observed that *S. eggersi* thrives in disturbed habitats in Florida, where it is an introduced species. *Strumigenys eggersi* is also known to be rather tolerant of dry conditions, unlike most of its congeners, which live in the moist leaf litter and soil of tropical forests (Deyrup, 1997; Bolton, 2000; AntWiki, 2017).

The Arboretum of the University of the Philippines Diliman is a relatively new refuge for threatened tree species, where seedlings and saplings of rare Philippine trees have been planted. The area is inside the campus and is crisscrossed by concrete stepping stones along established trails. As far as I know, the Arboretum is not irrigated. Foot traffic and periodic weeding provide a constant level of disturbance that may favor colonization by disturbance-tolerant ant species.

Brown (1956) described two *Strumigenys* species from plants originating from the Philippines. The USDA Plant Quarantine Service intercepted these ants. It is conceivable that *S. eggersi* was accidentally introduced into the country through the trade of potted ornamental plants from the Caribbean and Central American countries or even its currently known exotic range, Florida, USA.

The collection of this specimen was a fortunate accident during a training course on the study of ants. The actual distribution of this species in the Philippines and its ecological impacts are unknown, although it is likely to thrive in the Ilocos Region. What other ant species have been introduced into the country is unknown because there is no government program for detecting invasive ants.

The sting of the introduced *Brachyponera chinensis* (Emery) has induced severe allergic reactions among sensitive people in the U.S. (Nelder et al., 2006). *B. chinensis* is known from Luzon (DEMG, unpublished notes). There is a dire need for regular monitoring to detect the presence of invasive alien species of ants, especially because some species may negatively impact human health and biodiversity (Nelder et al., 2006; Moloney & Vanderwoude, 2003; Wittman, 2014).

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