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PENSOFT

New locality record of *Discothyrea neotropica* (Bruch, 1919) (Hymenoptera, Formicidae) for Argentina and remarks on its distribution

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Abstract

We collected a queen specimen of *Discothyrea neotropica* Bruch, 1919 in a pitfall trap in Paititi Natural Reserve, southeastern Buenos Aires province, Argentina. The new record represents the southernmost occurrence for this species and extends its habitat preferences to a humid temperate climate. Our record of *D. neotropica* is the first in Argentina since 1949.

Key words

Proceratiinae; habitat; biogeography

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Introduction

The genus *Discothyrea* Roger, 1863 belongs to the family Formicidae, subfamily Proceratiinae. Species of this genus are distributed across tropical areas of the southern hemisphere. In the western hemisphere, *Discothyrea* extends from the southeastern United States to northern Argentina (Latke 2003). The genus includes 37 described species of which 2 are extinct (Antweb, de Andrade 1998); 8 species belong to the Neotropical region (Sosa-Calvo and Longino 2007). Workers are characterized by their diminutive size and single ommatidium. They also possess exposed antennae insertions attached to the head in an anterior cephalic ledge jutting above the mandibles. Antennae in both workers and queens have 6 to 9 segments that gradually increase in size towards the apex. The terminal segment is highly developed, ovoid, and longer than the remaining funiculus combined. Species of this genus build their nests in leaf litter or in decaying logs. They are predators of arthropod eggs (Brown 1979, Sosa-Calvo and Longino 2007).

Discothyrea neotropica (Bruch, 1919) was described from a queen from the city of Alta Gracia, Cordoba province, Argentina. This and another specimen was found in the city of San Fernando, Buenos Aires, Argentina, are housed in the collection of the National Museum of Natural History, Washington DC. A third specimen belongs to the collection of the Miguel Lillo Institute, San Miguel

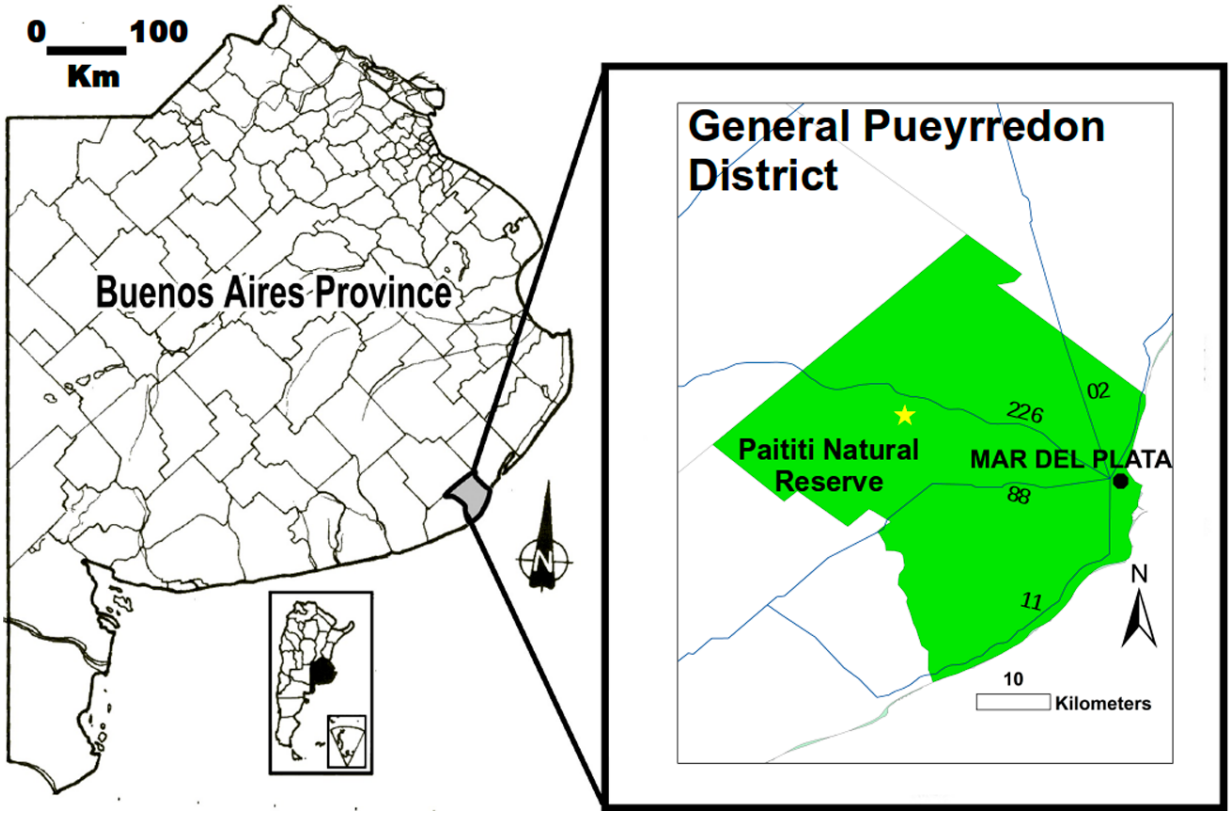

Figure 1. Geographic location of the Paititi Natural Reserve within Buenos Aires Province, Argentina.

Figure 2. Grassland interspersed with shrubs of the study area. PT indicates the place where the pitfall trap was placed.

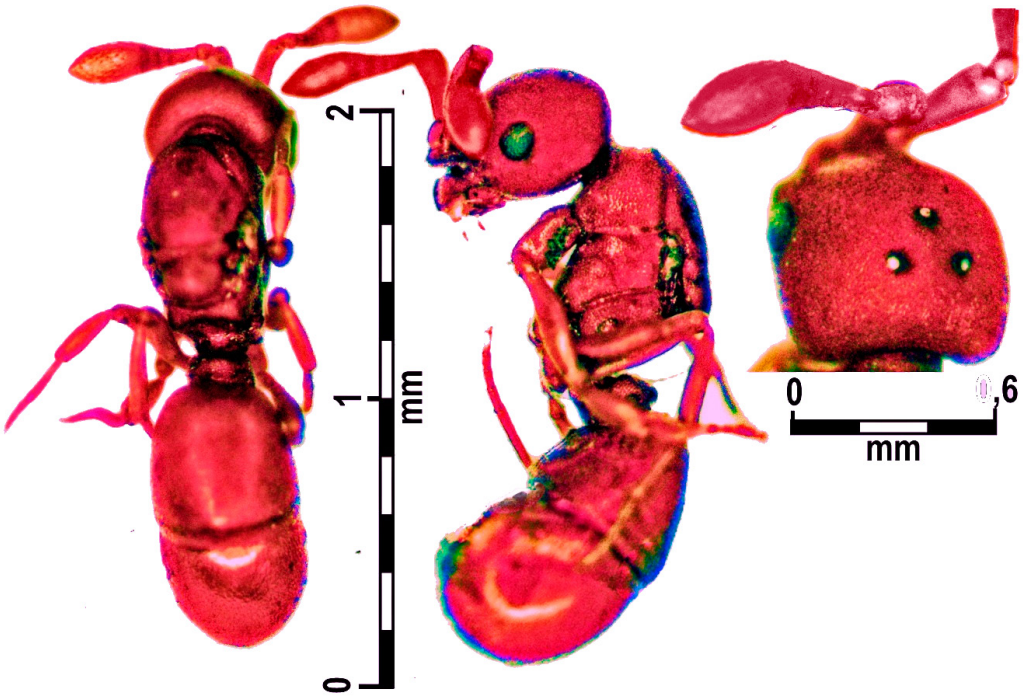

Figure 3. Photograph of the collected queen specimen of *Discothyrea neotropica.*

de Tucuman, Argentina (Borgmaier 1949). For all these records, no habitat data are unknown.

Methods

A queen specimen of *D. neotropica* was collected in February 2016, in a pitfall trap in Paititi Natural Reserve (37°55′14.47″ S, 57°48′46.23″ W), which is 20 km west of the city of Mar del Plata, Buenos Aires province, Argentina (Fig. 1). This is part of the Sierra de Difuntos system, which in turn is part of La Peregrina of the Sierras de Mar del Plata ranges (Guazzelli 1999), is a relict of the pampas grasslands located within the Areas Valiosas de Pastizal (Bilenca and Miñarro 2004). The climate of this area is humid with an average annual rainfall of 800 mm. The maximum average temperature is 20.5 °C in January and the minimum temperature is 7.5 °C in July.

The individual was collected at the foot of a mountain where plant species, *Paspalum quadrifarium* (Lambert) and *P. exaltatum* (Presl.) (Poaceae), form the characteristic landscape of Oriental Pampasic Grassland of the Pampean ecoregion (Morello et al. 2012). Interspersed there are shrubs of *Baccharis dracunculifolia* (de Candolle) (Asteraceae) and *Dodonaea viscosa* (Jacq.) (Sapindaceae) (Fig. 2).

Results

The specimen, a queen individual, was identified using the description of Bruch (1919) and the keys provided by Borgmaier (1949) and Sosa-Calvo (2008). Queens have a blackish area surrounding the ocelli. The body surface is matt and densely dotted. The antennae are composed of 7 segments, of which the scape is very thick. The first article of the funiculum is pedunculated at its base, the second one is obconic, and the next three are transverse, increasing in their width. The terminal segment is ovoid and longer than the remaining of funiculum. This queen is average-size and shows the margin of clypeus concave

Table 1. Known records of *Discothyrea neotropica*.

Locality	Collector	Latitude (S)	Longitude (W)	Year	Collection number or reference
Alta Gracia, Argentina	Bruch, C.	—	—	1919	Bruch 1919
Fronterita, Argentina	Kusnezov, N.	—	—	—	Borgmeier 1949
San Miguel de Tucumán, Argentina	—	—	—	—	Borgmeier 1949
Mar del Plata, Argenitna	Arcusa, J.	37°55′14.47″	057°48′46.23″	2016	This work
San Fernando, Argentina	—	—	—	—	Sosa-Calvo and Longino 2007
Itapúa, Paraguay	Baud, F.	—	—	1982	ANTC20630, BMNH, London
Nova Teutonia, Brazil	Plaumann, F.	27°03′00″	052° 23′60″	1957	Sosa-Calvo and Longino 2007
Caquetá, Colombia	—	—	—	—	Sosa-Calvo and Longino 2007
Bolivar, Venezuela	—	—	—	—	Sosa-Calvo and Longino 2007
Magdalena, Venezuela	—	—	—	—	Sosa-Calvo and Longino 2007

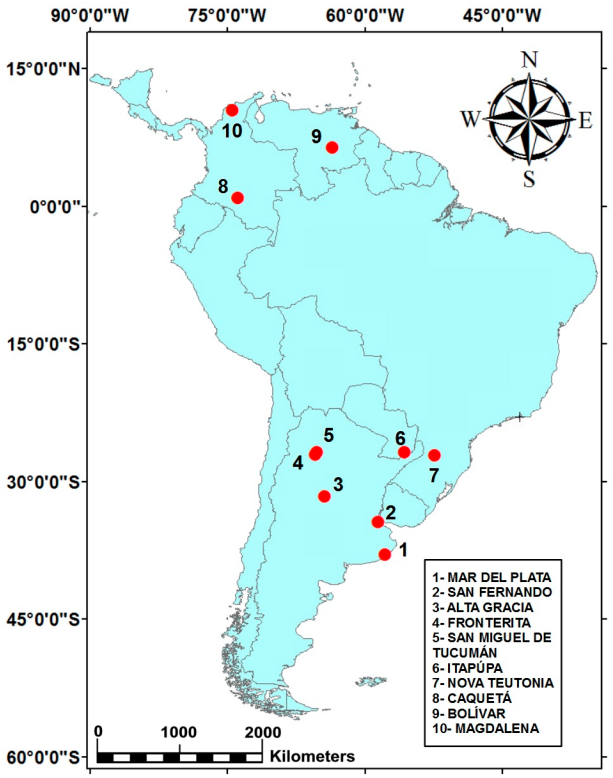

Figure 4. Map of known localities and whole geographic distribution for *Discothyrea neotropica*.

in side view; interantennal semicircular sheet is as in the original description (Fig. 3).

Discussion

Using available data in the literature, a map was prepared to show all locality records of *D. neotropica* and to depict the whole geographical range for this species (Table 1, Fig. 4).Our new data represents the southernmost record known for this species. The geographic distribution in Argentina is therefore increased to encompass not only areas with subtropical subhumid temperate climate to one with a humid temperate climate. This is an important addition to the ecological information of this species. Moreover, our finding of this species in the Paititi Reserve reinforces Ringuelet's (1955) statement that rare or endemic species should be expected in this reserve. With this new record, the value of this area as a natural refuge is increased. Our record rediscovers *D. neotropica* in Argentina after 68 years (Borgmeier 1949).

It has been suggested that 3 Proceratiine genera, *Proceratium, Probolomyrmex,* and *Discothyrea* are of Pangeic origin (Fernandez 2004). Considering the present record, *D. neotropica* exhibits the most southeaster distribution of the 8 other Neotropical species of this genera (Longino and Sosa-Calvo 2008). All known localities for this species (Table 1) are found in remnants of old shields or geological formations of Precambrian age (Veblen et al. 2007, Ruiz et al. 2008). Neither these localities nor their neighboring regions have been drastically affected by megageologic events up to the present era (e.g., marine transgressions and glaciations) (Legarreta et al. 1989, Ponce and Rabassa 2012). This could explain the current distribution of *D. neotropica*.

Authors' Contributions

JMA collected the specimen, described the area, made the distribution map and wrote the text. ACC made the biogeographical analyses and edited the photos.

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