

ADDITIONS TO THE ANT FAUNA OF PORTUGAL (HYMENOPTERA, FORMICIDAE)

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Abstract: One ant subfamily – Leptanillinae – and four species – *Bothriomyrmex saundersi*, *Leptanilla revelierii*, *Temnothorax parvulus* and *Temnothorax* sp. – are added to the myrmecofauna of continental Portugal. New findings of two other uncommon species – *Dolichoderus quadripunctatus* and *Amblyopone gaetulica* – are also reported.

Key words: Hymenoptera, Formicidae, Leptanillinae, Iberian Peninsula, Portugal.

Adiciones a la fauna de hormigas de Portugal (Hymenoptera, Formicidae)

Resumen: Se añade una subfamilia – Leptanillinae – y cuatro especies – *Bothriomyrmex saundersi*, *Leptanilla revelierii*, *Temnothorax parvulus* y *Temnothorax* sp. – a la fauna de hormigas de Portugal, y se aportan nuevas localidades para otras dos especies poco conocidas de ese país: *Dolichoderus quadripunctatus* y *Amblyopone gaetulica*.

Palabras clave: Hymenoptera, Formicidae, Leptanillinae, Península Ibérica, Portugal.

Introduction

The building of comprehensive databases of any insect group in a given region is a collective effort and a long lasting, cumulative process. The need for such an attainment is now unquestionable (Blackmore, 1996; Norris, 2000; Raven & Wilson, 1992) and has developed into vast international research programmes like Diversitas (<http://www.diversitas-international.org/>) and recent books (Samways, 2005) and collective efforts like the Journal of Insect Conservation. Many software tools for biodiversity data management (<http://darwin.eeb.uconn.edu/links/category.php?id=40>) and analysis may be also freely available (<http://vice.roy.eeb.uconn.edu/EstimateS> or <http://www.gary.entsmin.ber.com/ecosim/ecosim.htm>).

During the last few years there has also been a considerable effort in Iberia and Macaronesia to update the knowledge on the terrestrial arthropod biodiversity and to provide valuable tools for conservation planning and management [e.g., Arechavaleta et al. 2005; Borges et al. 2005; Izquierdo et al. 2004; and the projects Fauna Iberica (<http://www.fauna-iberica.mncn.csic.es/index.php>) and Biota-Especies (<http://www.gobcan.es/medioambiente/biodiversidad/ceplam/bancodatos/biotaespecies.html>)]. Nevertheless there is still missing a reference work on the ant fauna of Iberia that summarizes the large amount of scientific data produced during the last decades, emphasizing the high species richness and the uniqueness of Iberian ants, and replacing the major reference on this subject (Collingwood, 1978) now out of date. Several efforts have already been made (see <http://www.hormigas.org>, <http://www.mirmiberica.org>) and we hope they will also be a stimulus for a much thorough analysis on the biodiversity and ecology of Iberian ants.

The key works for the Portuguese myrmecofauna are those from Collingwood & Prince (1998) and the excellent paper of Salgueiro (2002a). They furnish the base for any

intent to study the ants from the Atlantic region of the Iberian Peninsula. Some other papers (Boieiro et al., 1999, 2002; Salgueiro 2002b, 2003) have subsequently added interesting findings to the list of ants of Portugal. The present paper shows that any inventory should be considered provisional: here we add one ant subfamily – Leptanillinae – and four species – *Bothriomyrmex saundersi*, *Leptanilla revelierii*, *Temnothorax parvulus* and *Temnothorax* sp. – to the ant fauna of Portugal.

Results and discussion

Subfam. DOLICHODERINAE

• *Bothriomyrmex saundersi* Santschi, 1922

This biologically interesting and taxonomically difficult genus was known from only one place in Portugal (Schmitz, 1955), under the name of *B. meridionalis* (Roger, 1863). At present, it is extremely difficult to name ants of this genus in the Mediterranean Region because of the similarity between species and scarcity of useful morphological characteristics to differentiate species. More than 27 taxa have been described or mentioned for the Mediterranean Basin and, despite only three species have been reported from Iberia, a minimum of five distinct morphological entities are known from this geographic area. The identity of the single worker collected is, therefore, tentative. Its head is longer than wide, its colour is uniform and the alitrunk is relatively short, fitting the description of *B. saundersi* in Collingwood (1978). The specimen was collected in pitfall traps at Tesoureira (29SMD8709), during 1-12/May/2001, in an area of matorrals where *Quercus coccifera*, *Pistacia lentiscus*, *Lonicera etrusca*, *Genista* sp., *Cistus crispus* and *Cistus salvifolius* were the most abundant plant species. In the

same habitat we have also found *Tapinoma nigerrimum*, a species with which *Bothrio-myrmex* ants might be associated. Species of the genus *Bothriomyrmex* are known to be social parasites of other ant species (e.g., *Tapinoma* spp.) for colony foundation (Buschinger, 1986; Santschi, 1920).

• *Dolichoderus quadripunctatus* (Linnaeus, 1771)

This species, formerly known from several localities in western Portugal (Schmitz 1950), has remained elusive for more than 50 years. At 8/August/2005, we located a colony of this species near Badamalos and Miuzela do Côa (29TPE709841) from which we collected some individuals for identification. The colony was nesting on an alder (*Alnus glutinosa*) at the banks of the Côa River and many of the individuals were involved in cooling ant larvae at the trunk surface. The apparent rarity of this species is probably due to the mismatch between its peculiar life habitats and the traditional sampling procedures used by most myrmecologists, which usually involve the study of soil surface dwelling ant species. Directed, biased, collecting in dead twigs on trees and oak galls (Espadaler & Nieves, 1983) is probably needed to detect this strictly arboricolous and beautiful ant.

Subfam. LEPTANILLINAE

• *Leptanilla revelierii* Emery, 1870.

This finding is the first record of Leptanillinae ants in Portugal. The specimens were identified using the original description (Emery, 1870), the keys from Baroni Urbani (1977) and López et al. (1994). The presence of particular morphological characteristics point to *L. revelierii*, namely non protruding anterior clypeal border, relatively long scape and visible ventral postpetiole protuberance (Fig. 1). The mandible has four denticles and this fits with Emery's original description: "...denticulis quatuor acutis armatae". This four-denticle mandibles are also figured by Emery (1899; fig. c; type).

This exceedingly scarce hypogaecic ant is an unpredictable finding and needs specifically focused sampling methods (Espadaler & López-Soria, 1991). Nineteen workers were collected beneath a stone at Monte Fernandes (29SPB2265), near Mértola, in 4/April/2004. The habitat patch where the finding took place was a scrubland dominated by *Cistus ladanifer* plants. Males of *Leptanilla* spp. had previously been collected from some other localities in Portugal, but since they were unassociated with workers, specific identification was precluded: Parque Natural do Douro Internacional, 31/August/2001 (7) in Malaise traps, N. Oliveira leg.; Vale Garcia (29SND37), 27/August/2002 (1) in Malaise traps, N. Oliveira leg.; Santo António (29SND27), 31/August/2002 (1) in Malaise traps, N. Oliveira leg.; Serro Ventoso (29SND17), 24/September/2002 (1) in Malaise traps, N. Oliveira leg.; Azóia (29SMC8553), 14/June to 4/July/2003 (1) in pitfall traps; Cabo Ares (29SMC9354), 14/June to 4/July/2003 (1) in pitfall traps; Risco, Serra da Arrábida (29SMC9757), 14/June to

4/July/2003 (1) in pitfall traps. This wide range of time for flying males –from mid June to late September– was also noted in a north-eastern Spanish locality (Espadaler & López-Soria, 1991). Interestingly, this enlarged flying time window is also known for Dorylinae (Gotwald, 1995) that share with Leptanillinae the hypogaecic and predatory life-style.

Subfam. MYRMICINAE

• *Temnothorax parvulus* (Schenck, 1852)

The specimens (8) were collected in pitfall traps at Risco, Serra da Arrábida (29SMC9757), between 28/July and 11/August/2003. The traps were located in a scrubland patch dominated by *Cistus* spp., near the margin of a cereal field. In Iberia this species uses as nesting sites diverse plant structures such as partly rotten acorns, oak galls or pine cones and small twigs on soil surface.

• *Temnothorax* sp.

This soil nesting, morphologically very characteristic species is already known from several localities in Spain (provinces of Ciudad Real, Córdoba, Madrid, Granada; unpublished observations) and is in course of formal description by Dr. A. Tinaut (Granada University, Spain).

A large number of specimens (72) were collected in pitfall traps during July 1999 at the Herdade da Mitra, Évora (29SNC856658). The habitat was an evergreen oak (*Quercus rotundifolia*) woodland with the undercover dominated by *Cistus* spp., *Ornithopus* spp., *Genista triacanthos* and *Tolpis barbata*. Another single specimen was collected in pitfall traps, during September 2005, in a small patch of pine forest located at Souto (29SND6580), concelho de Abrantes. This area was regularly subjected to human disturbance and presented sparse trees of *Pinus pinaster* and a poorly developed undercover.

Subfam. PONERINAE

• *Amblyopone gaetulica* Baroni Urbani, 1978

Two workers of this species were collected beneath a stone in an evergreen scrubland near Alcoutim (29SPB3449) at 5/April/2004. The mesosternal process of both specimens is not as pointed as in formerly known Iberian specimens (Boieiro *et al.* 2002) indicating that it is a variable trait, from being absent (type material) to a clearly developed, pointed process.

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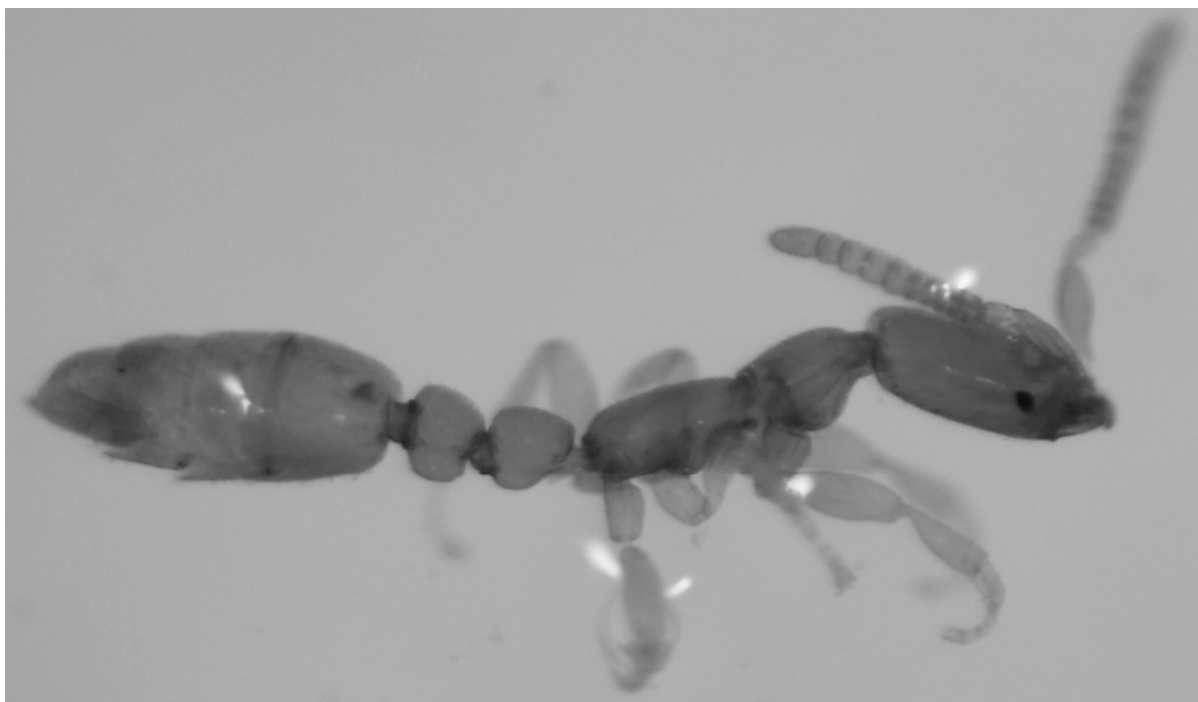


Fig. 1. Lateral view of *Leptanilla revelierii*. The postpetiole shows a big ventral protuberance. Total length: 1.38 mm.

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