Two species of exotic ants (Hymenoptera: Formicidae) new to Malta

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Abstract: *Nylanderia jaegerskioeldi* (Mayr, 1904) and *Tetramorium bicarinatum* (Nylander,1846) are recorded for the first time from the island of Malta. A summary of the distribution of these species in the Mediterranean is provided, with an annotated checklist of the archipelago's ants.
Key words: Hymenoptera, Formicidae, *Nylanderia jaegerskioeldi, Tetramorium bicarinatum*, exotic ants, distribution, Malta.

Dos especies de hormigas exóticas nuevas para Malta (Hymenoptera: Formicidae)
Resumen: *Nylanderia jaegerskioeldi* (Mayr, 1904) y *Tetramorium bicarinatum* (Nylander,1846) se citan por primera vez de la isla de Malta. Se incluyen un resumen de la distribución de estas especies en el Mediterráneo y un catálogo comentado de las especies del archipiélago.
Palabras clave: Hymenoptera, Formicidae, *Nylanderia jaegerskioeldi, Tetramorium bicarinatum*, especies exóticas, distribución, Malta.

Introduction

Malta is composed by three relatively small islands (Malta, Comino and Gozo) located midway between the island of Sicily and Tunisia. 56 ant species have been reported from the islands, including this paper. Its fauna is mainly native, with 7 widespread exotic and invasive species (12%).

Some haphazardous samplings where conducted in September 2017 by the author in the South of the island of Malta, resulting in the finding of these two exotic species new to the island and the confirmation of other widespread exotic and invasive ants (*Paratrechina longicornis* (Latreille), *Pheidole indica* Mayr and *Linepithema humile* (Mayr)).

Materials and methods

Images are downloaded and used with permission from Antweb (www.antweb.org). Antmaps (www.antmaps.org) was extensively used to gather historical citations.

Results

Two exotic species are are cited for the first time in the island of Malta:

Nylanderia jaegerskioeldi (Mayr, 1904) (fig. 1)
This species has an African origin (Lapolla *et al*., 2011) and it's distributed from Southern Africa to the Arabian Peninsula to the East and the Canary Islands to the West. It seems to be expanding its range throughout the Mediterranean, with citations from Madeira (Wetterer *et al*., 2007), Canary Islands (Espadaler & Bernal, 2003), Morocco (Taheri *et al*., 2017), Iberian Peninsula (Espadaler & Collingwood 2001, among others), Balearic Islands (Gómez & Espadaler, 2006), Ionian Islands (Borowiec & Salata, 2014) and Turkey (Kiran & Karaman, 2012).

The Malta samples were collected at a city garden adjacent to the beach of Birzebuggia, (35.84252, 14.54623 06/09/2017, sea level, Gómez, K. leg.). The workers were foraging in an irrigated lawn with palm trees. [Voucher specimens KG03729D01, KG03729D02 at author's collection]

This is the typical habitat for this species out of its natural distribution: irrigated gardens or lawns, plenty of humidity and high temperatures. It hasn't been found in the wild by now in the Mediterranean and does not seem to be an invasive species.

Tetramorium bicarinatum (Nylander, 1846) (fig. 2)
Exotic species of Southern Asian origin distributed worldwide in all the tropics and subtropics (Bolton, 1977). It has been reported from the Mediterranean in the Iberian Peninsula (Reyes & Espadaler, 2005), Italy (Limonta *et al*., 2003), Montenegro (Petrov, 2008) and Morocco (Taheri *et al*., 2017).

Malta samples were collected at two localities, the first at Birzebuggia (see above) [Voucher specimens KG03731B01] and at Villa Valetta, Marsaxlokk (35.85383, 14.54054, 40m, 03/09/2017. Gómez, K. leg.) [Voucher specimens KG03724C01, KG03724C02 at author's collection]. This nest was into a stone wall in an irrigated olive trees cultive.

Updated List and notes on the ants of the Maltese Islands

The following species have been cited in the literature as present in the Maltese islands. This list updates the nomenclature and excludes some doubtful records (see below). Species marked with an asterisk are new to the Islands. [E] Exotic species, [I] Invasive species. Number in brackets for literature references.

1. *Aphaenogaster campana* Emery [1], [7]
2. *Aphaenogaster inermita* Bolton [7]
3. *Aphaenogaster ionia* Baroni Urbani[1], [7]
4. *Aphaenogaster melitensis* Santschi [5]
5. *Aphaenogaster sicula* Emery [1], [7]
6. *Aphaenogaster splendida* (Roger) [1], [7]
7. *Camponotus barbaricus* Emery [1], [7]
8. *Camponotus lateralis* (Olivier)[1], [7]
9. *Cardiocondyla nigra* Forel [7], [8]
10. *Colobopsis truncata* (Spinola) [7]
11. *Crematogaster scutellaris* (Olivier) [5], [1], [7]
12. *Hypoponera eduardi* (Forel) [1], [7]
13. *Lasius* nr. *emarginatus* [1] (as emarginatus), [7] (as *niger*)
14. *Lasius lasioides* (Emery) [1], [7] (as L. *alienus* (Foerster)), [8], [9]
15. *Lepisiota frauenfeldi velox* (Baroni Urbani) [5], [1], [7]
16. [I] *Linepithema humile* (Mayr) [1], [7]
17. *Messor bouvieri* Bondroit [1], [7]
18. *Messor caducus* (Victor) [7], [8]
19. *Messor capitatus* (Latreille) [5], [1], [7]
20. *Messor structor* (Latreille) [5], [1], [7]
21. *Messor wasmanni* Krausse [1]
22. *Monomorium subopacum* (Smith) [1], [7]
23. *Myrmecina graminicola* (Latreille) [1], [7]
24. [E] *Nylanderia jaegerskioeldi**(Mayr)
25. *Oxyopomyrmex santschii* Forel [8]
26. *Oxyopomyrmex saulcyi* Emery [6]
27. [E] *Paratrechina longicornis* (Latreille) [7], [8]
28. [E] *Parvaponera darwini* (Forel) [8]
29. [I] *Pheidole indica* Mayr [1], [7]
30. *Pheidole pallidula* (Nylander) [5], [1], [7]
31. *Plagiolepis pygmaea* (Latreille) [1], [7]
32. *Proceratium melinum* (Roger) [7], [8]
33. *Proceratium melitense* Baroni Urbani & De Andrade [2]
34. *Solenopsis orbula* Emery [1], [7]
35. *Solenopsis santschii* Forel [1], [7]
36. *Stenamma petiolatum* Emery [7]
37. *Stigmatomma denticulatum* Roger [7]
38. *Strongylognathus insularis* Baroni Urbani [1], [7], [8]
39. *Strumigenys baudueri* (Emery) [7], [8]
40. [E] *Strumigenys lewisi* Cameron [8]
41. *Strumigenys membranifera* Emery [8]
42. *Tapinoma erraticum* (Latreille) [1], [7]
43. *Tapinoma nigerrimum* (Nylander) [7]
44. *Tapinoma simrothi* Krausse [7]
45. *Temnothorax angustulus* (Nylander) [7], [8]
46. *Temnothorax aveli* (Bondroit) [7], [8]
47. *Temnothorax mediterraneus* Ward, Brady, Fisher & Schultz [8]
48. *Temnothorax splendidiceps* (Baroni Urbani) [1], [7], [8]

Fig. 1. *Nylanderia jaegerskioeldi* (Source: AntWeb. Available from: https://www.antweb.org/specimenImages.do?name=casent0264012. Accessed 15 October 2017. Photographer: Will Ericson).
Fig. 2. *Tetramorium bicarinatum* (Source: AntWeb. Available from: https://www.antweb.org/specimenImages.do?name=casent0060334. Accessed 15 October 2017. Photographer: April Nobile).

49. *Temnothorax recedens* (Nylander) [7], [8]
50. *Temnothorax sp.* [7]
51. *Temnothorax unifasciatus* (Latreille) [4], [8]
52. [E] *Tetramorium bicarinatum** (Nylander)
53. *Tetramorium caespitum* (Linnaeus) [5], [1], [7]
54. *Tetramorium diomedeum* Emery [1], [7]
55. *Tetramorium lanuginosum* Mayr [7], [8]
56. *Tetramorium semilaeve* André [1], [7]

Notes:

• Citations of the ant genus *Lasius* have been reidentified in Schembri & Collingwood (1995) to *Lasius lasioides* for the *L. alienus* citations and to a cryptic species near to *Lasius emarginatus* for the *L. niger* records.
• *Temnothorax sp.*is a possible undescribed species, belonging to the *T. aveli* group (Dr. Xavier Espadaler, pers. com.)
• The following species have been cited in two catalogues (Borowiec 2014, Borowiec & Salata 2014) as present in the islands, but its presence needs confirmation:

Crematogaster auberti Emery [3], [4]
Crematogaster laestrygon Emery [3]
Formica fusca Linnaeus [3], [4]
Formica rufa Linnaeus [3], [4]
Hypoponera ragusai (Emery) [4]
Lepisiota frauenfeldi (Mayr) [3], [4]
Lepisiota frauenfeldi atlantis (Santschi) [3]
Leptanilla revelierii Emery [3]
Proceratium algiricum Forel [3], [4]
Solenopsis fairchildi Wheeler [3]
Solenopsis fugax (Latreille) [3], [4]
Stenamma striatulum Emery [3], [4]
Strumigenys tenuipilis Emery [3], [4]
Temnothorax laestrygon (Santschi) [3]
Tetramorium davidi Forel [3], [4]
Tetramorium meridionale Emery [3], [4]

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