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### Exotic ant records from Italy (Hymenoptera, Formicidae) (\*)

**Abstract** - We report records of several exotic ant species in Italy, including the major tramp species *Tapinoma melanocephalum* (F.), *Technomyrmex pallipes* (F. Smith), *Tetramorium bicarinatum* (Nyl.) and *Wasmannia auropunctata* (Roger).

**Riassunto** - Segnalazioni di formiche esotiche per l'Italia (Hymenoptera, Formicidae).

Riportiamo diverse segnalazioni di formiche esotiche in Italia, incluse le significative *Tapinoma melanocephalum* (F.), *Technomyrmex pallipes* (F. Smith), *Tetramorium bicarinatum* (Nyl.) e *Wasmannia auropunctata* (Roger).

**Key words:** exotic ants, Italy, new records, pest.

### INTRODUCTION

Biological invasions resulting from human commerce are a serious threat to global biodiversity. In particular, exotic pest ant species can cause damage, especially to agriculture and stored products, and they can also successfully compete with native ant species (Williams, 1994; Holway *et al.*, 2002). Passera (1994) summarized biological characteristics of tramp ants. Usually they are small, omnivorous, polygynous (i.e. with more than one ovipositing queen), and found new colonies by budding. Moreover, neighboring colonies do not compete one against other. Because of their small size and their ability to nest in different materials, ants can easily be transferred. In temperate regions, most tropical ants have been found in greenhouses or other heated building only (Williams, 1994).

Exotic ants recorded from Italy include the well-known Argentine ant, *Linepithema humile* (Mayr) and the pharaoh ant, *Monomorium pharaonis* (Linnaeus). Baroni Urbani (1971) listed several Italian localities and references for both. The present work examines the occurrence of some other exotic ants in Italy.

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## METHODS

In April-September 2006, graduate students from the Istituto di Entomologia Agraria, University of Milan, surveyed insects at Cargo City, on the grounds of Milan's Malpensa International Airport (45°37'N, 8°43'E). We collected ants inside a storage hangar, where mostly exotic plants, flowers, vegetables, and fruits are stored before being dispatched to their final destination. Additional records came from private citizens who submitted some specimens to us for identification, and from specimens we found in the collections of our institutions or among the material collected by some colleagues.

Specimens are deposited at:

IEUM: Istituto di Entomologia Agraria, University of Milan, Italy

MSNM: Museo Civico di Storia Naturale, Milan, Italy

MSNV: Museo Civico di Storia Naturale, Verona, Italy

MZUF: Museo Zoologico "La Specola", University of Florence, Italy

## RESULTS

We recorded eleven exotic ant species at Cargo City. Five of these were common tropical tramp species: *Cardiocondyla wroughtonii* (Forel), *Paratrechina bourbonica* (Forel), *Pheidole megecephala* (Fabricius), *Tapinoma melanocephalum* (Fabricius), and *Technomyrmex albipes* (F. Smith). The other six are not known as tramps: *Crematogaster* sp., *Dolichoderus thoracicus* (F. Smith), *Nesomyrmex* sp., *Pheidologeton affinis* (Jerdon), *Pheidologeton diversus* (Jerdon), and *Technomyrmex elatior* Forel. Specimens of these taxa are deposited at IEUM.

In addition, we recorded the following exotic ants:

*Camponotus atriceps* (F. Smith): Emilia Romagna, no locality data, greenhouse, on *Dracaena fragrans* trunks (2 workers without further data in Poldi collection) (MSNM).

*Lasius neglectus* Van Loon *et al.*: Venice, Lido (workers and queens, 45°24'N, 12°22'E, May 1991, A. Salvarani leg.). Parco Nord Milano (many specimens of all castes, 45°32'N, 9°13'E, May-July 1994, F. Rigato leg.) (MSNM).

*Tapinoma melanocephalum* (Fabr.): Rozzano (Milan), in apartment kitchen (workers, 45°23'N, 9°09'E, 26 April 2007, P. Della Rovere leg.) (IEUM).

*Technomyrmex pallipes*: Milan, apartment (45°28'N, 9°11'E, June 2002, collector unknown) (MSNM).

*Tetramorium bicarinatum* (Nylander): open habitat at Sena, near Cropani Marina (Catanzaro prov.) (one worker, 38°56'N, 16°49'E, 14 July 2004, A. Scupola leg.) (MSNV).

*Tetramorium lucayanum* Wheeler: Bruzzano (Milan), greenhouse (several workers, 45°31'N, 9°16'E, September 1991, F. Rigato leg.) (MSNM).

*Wasmannia auropunctata* (Roger): Aeolian Archipelago, Lisca Bianca Island (one worker; 38°38'N, 15°07'E, April 1996, P. Lo Cascio & V. Pancioli legg.) (MZUF).

### Species Accounts (+ = no previous records from Italy)

#### **+*Cardiocondyla wroughtonii* (Forel)**

This harmless ant probably originates from SE Asia and is one of several *Cardiocondyla* spread in many tropical and subtropical countries by human commerce (Bolton, 1982).

**+*Camponotus atriceps* (F. Smith)**

This large Neotropical carpenter ant was not previously recorded from Europe.

**+*Dolichoderus thoracicus* (F. Smith)**

No previous European records for this common arboreal SE Asian ant.

***Lasius neglectus* Van Loon *et al.* (Fig. 1)**

In Italy, Seifert (2000) previously reported this species from Volterra in Tuscany. *Lasius neglectus* probably originates from temperate West Asia. Its first European record came from Budapest in 1974 (Van Loon *et al.*, 1990). It has since spread across Europe and now is reported from urbanized habitats of many European countries where it successfully competes with native ants (see Radchenko 2004). This species may be easily overlooked because of its morphological similarity with some native *Lasius*.

**+*Paratrechina bourbonica* (Forel)**

*Paratrechina bourbonica* is an Old World tramp species spread through human commerce. Radchenko (2004) reports it from United Kingdom and Vierbergen (2003) from The Netherlands.

***Pheidole megacephala* (Fabricius) (Fig. 2, 3)**

In Italy, Limonta & Colombo (2003) reported *Pheidole megacephala* collected in 2001 in a plant nursery at Parabiago (45°34'N, 8°57'E), near Milan. This well known tropicopolitan pest is of Afrotropical origin. European records from Radchenko (2004) include: Azores, British Islands, Crete, Dodecanese Islands, France, Madeira, Romania and Yugoslavia. Vierbergen (2003) reports it from The Netherlands. Ceballos (1956) reported several localities and references for Spain; yet Gómez & Espadaler (2007) do not list it among Iberian ants.

**+*Pheidologeton affinis* (Jerdon)****+*Pheidologeton diversus* (Jerdon)**

These SE Asian "swarm-raiding" ants were not previously found in Europe.

**+*Tapinoma melanocephalum* (Fabricius) (Fig. 4)**

The "ghost ant" is very widespread especially in the tropics, its native territory is uncertain (Wilson & Taylor, 1967). *T. melanocephalum* is considered a significant urban pest; in Florida, for instance, it infests houses, causing nuisance and infesting food (Klotz *et al.*, 1995). In temperate regions it is generally found in heated buildings or inside structures (Harris *et al.*, 2005), especially in places with a high degree of humidity and temperature, such as greenhouses, bathrooms and kitchens (Espadaler & Espejo, 2002). The species is also known from the following European countries: Austria (Steiner *et al.*, 2003), Belgium (Dekoninck *et al.*, 2006), Denmark (Jespersen & Christensen, 2003), Finland (Sorvari, 2002), France (Hugel *et al.*, 2003), Germany (Scheurer, 1984), Norway (Gederaas *et al.*, 2007), Romania (Radchenko, 2004), Russia (Kunashev & Niyazova, 1998), Spain (Espadaler & Espejo, 2002), Sweden (Hagström *et al.*, 2005), Switzerland (Dorn *et al.*, 1997), The Netherlands (Vierbergen, 2003), U.K. (Williams, 1956; Shah & Pinniger, 1996).

**+*Technomyrmex albipes* (F. Smith) (Fig. 5)****+*Technomyrmex elatior* Forel**

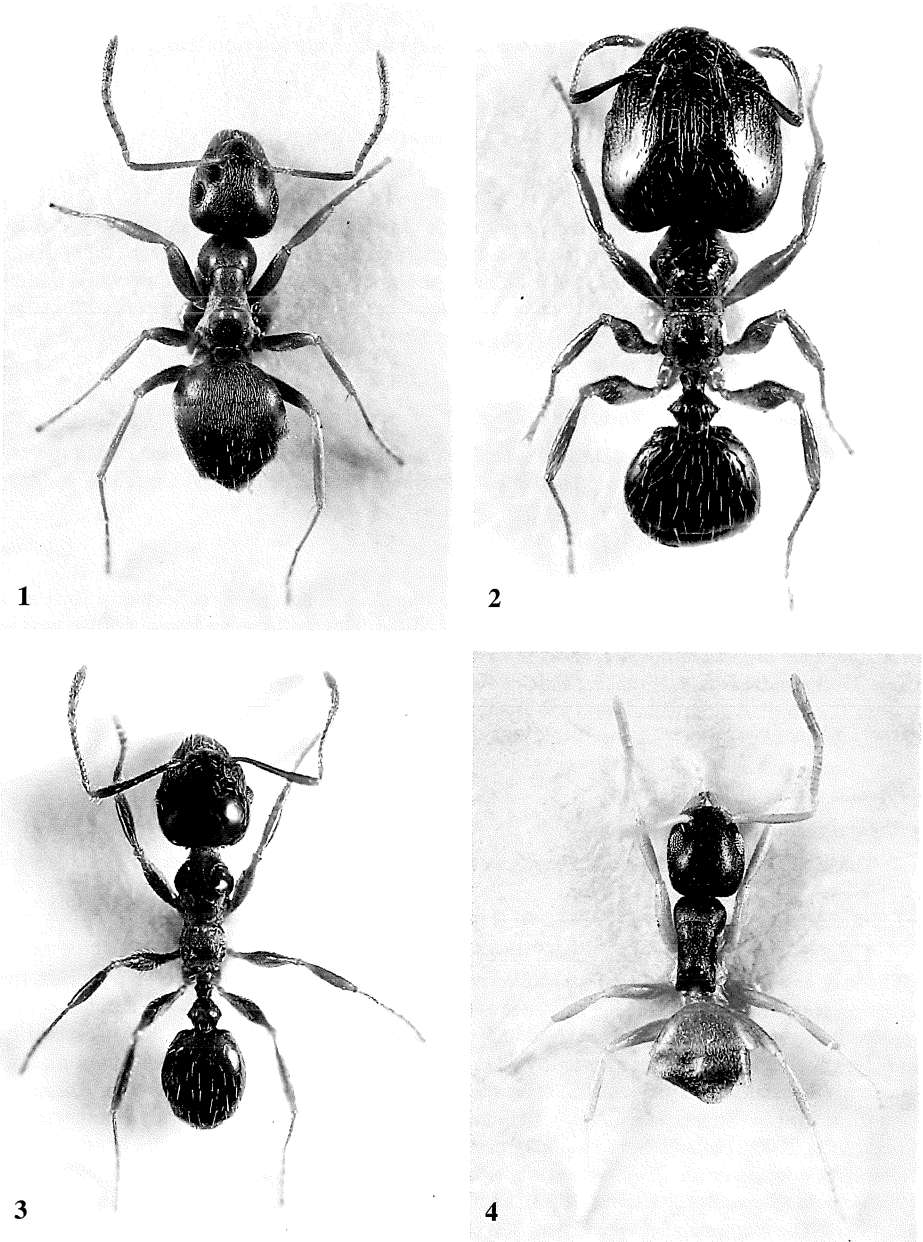
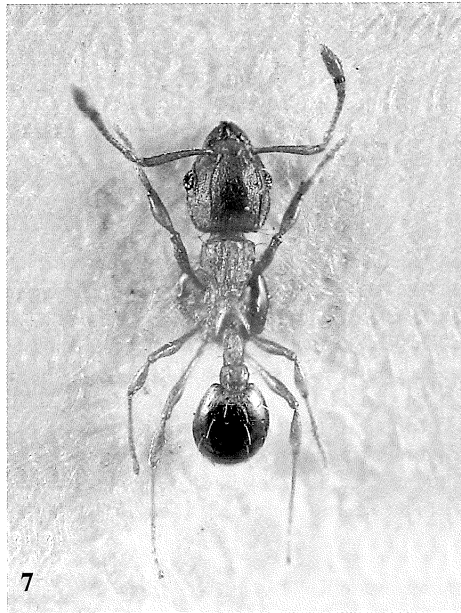
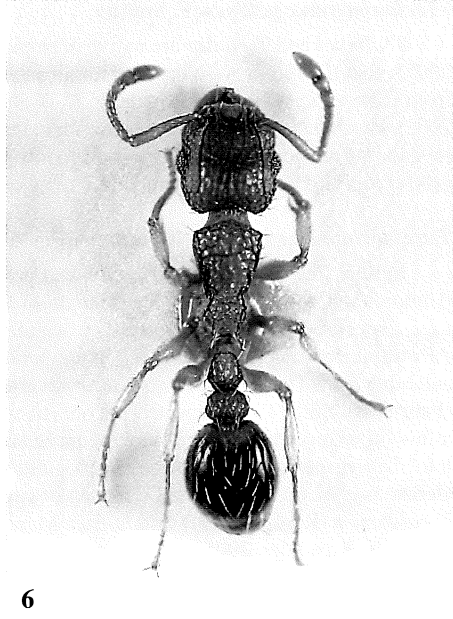
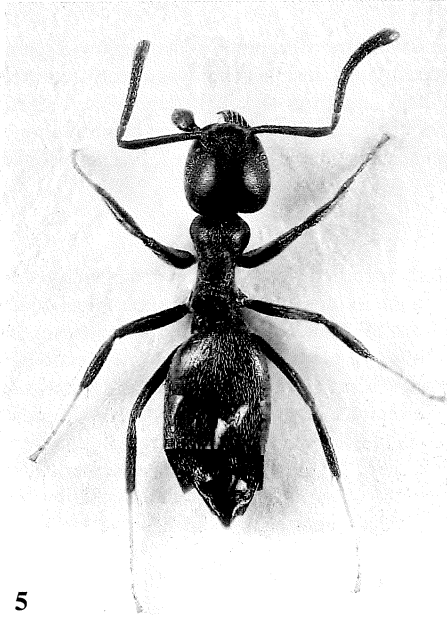


Fig. 1 - 4: 1, *Lasius neglectus* (full length: 3 mm ca.); 2, *Pheidole megacephala* (major worker, full length: 4.6 mm ca.); 3, *Pheidole megacephala* (minor worker, full length: 3 mm ca.); 4, *Tapi-  
noma melanocephalum* (full length: 1.7 mm ca.).



Figg. 5 - 7: 5, *Technomyrmex albipes* (full length: 2.6 mm ca.); 6, *Tetramorium bicarinatum* (full length: 3.3 mm ca.); 7, *Wasmannia auropunctata* (full length: 1.6 mm ca.).

**+*Technomyrmex pallipes* (F. Smith)**

*T. albipes* and *T. elatior* are native of tropical Asia and are widespread in that region (Bolton, 2007); also, *T. albipes* is a renowned tramp ant with pest status. Just the latter was already reported from Europe: from hothouses in the U.K. (Bolton, 2007) and from The Netherlands (Vierbergen, 2003). However last record may be considered as doubtful because it was published before Bolton's revision of the genus. *T. pallipes* is an Afrotropical species closely related to *T. albipes*. Bolton (2007) reported *T. pallipes* from U.K.

***Tetramorium bicarinatum* (Nylander) (Fig. 6)**

In Italy, *Tetramorium bicarinatum* was previously recorded close to Milan in a plant nursery (Limonta & Colombo, 2003). *T. bicarinatum* is common in many tropical and subtropical countries, especially on islands. It probably originates from SE Asia and is virtually absent from the Afrotropical region (Bolton, 1977). In temperate countries it has been reported from greenhouses and other heated buildings. This species was cited from several European countries as *T. guineense* (Fabricius). Stitz (1939) reported it from Austria, Germany and Hungary; Pisarski (1957) added a few other records from the same countries and Poland. Bolton (1977) corrected *T. guineense* into *T. bicarinatum* and listed several localities from U.K. plus Amsterdam (The Netherlands). Gederaas *et al.* (2007) reported it from Norway. Also, this species together with the other tramps *T. caldarium* (Roger) and *T. lanuginosum* Mayr was recently reported from open habitats in Spain (Reyes & Espadaler, 2005).

**+*Wasmannia auropunctata* (Roger) (Fig. 7)**

The possibility that the renowned and widespread "little fire ant" could survive in open habitats in the relatively warm southern Italy cannot be excluded. Yet no further data were collected in recent years. This species is a widespread pest of Neotropical origin and it may strongly influence native ant faunas (Wetterer & Porter, 2003). Under temperate climates it may be a greenhouse dweller and was introduced in several tropical countries all around the world. For Europe, Donisthorpe (1927) reported it from England in greenhouses and in a banana store.

## CONCLUSIONS

The above-mentioned species are surely just a part of what we could find if a careful survey of the Italian alien ant fauna was possible. At present, most of these exotic species seem relatively harmless both considering natural environments and human beings. They are nearly always of tropical origin; so they can thrive especially in artificial environments, i.e. greenhouses and other heated buildings. Yet an invader like *Lasius neglectus* lives outdoors and can be considered as a serious threat especially for native ants. The presence of several alien, including non-tramp, species at Malpensa airport shows how it is difficult to cope with these overlooked invaders. Of course, it depends on the increasing mobility of human beings and their goods, which cannot be completely controlled. Mated queens or even small ant colonies can easily escape and spread when they find favourable conditions. So, in the near future further findings of exotic species are expected.

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