NEW TRAMP ANT SPECIES FOR TURKEY: Tetramorium lanuginosum Mayr (HYMENOPTERA: FORMICIDAE)

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Abstract: Human activities such as tourism, developed transportation and increased trade lead to the introduction of faunal elements into non-native habitats and consequently affect native fauna. These introduced species are called as non-native, exotic, invasive or tramp species. Here we record the well-known tramp species Tetramorium lanuginosum Mayr, for the first time from Turkey (Antalya-Alanya), and present first locality records for Paratrechina longicornis (Latreille) from Antalya-Alanya and Adana. Thus, the number of tramp ant species of Turkey is increased to 19.

Key words: Tramp species, new record, Northeastern Mediterranean, Antalya-Alanya.

Introduction

The increasing rate of human activities (e.g. trade, tourism, developing projects, globalization, import and export etc.) cause the spread of faunal elements out of their native ecosystems (Chown et al. 1998, IUCN 2000, Clavero & Garcia-Berthou 2005). The transferred species are called “non-native”, “alien”, “exotic”, “invasive”, and “tramp” species (McGlynn 1999, Ivanov 2016). Megllynn (1999) recorded 146 ant species belonging to 48 genera within 7 subfamilies, while AntWeb (2017) listed more than 200 ant species belonging to 65 genera within 18 subfamilies as tramp, but the real number is most probably higher (Miravete et al. 2014).

Turkey is an important destination for tourism (Tursab 2016), with more than 35 million tourists who visited the country each year in the last decade. The geographic position of Turkey as a peninsula and the increased internal and external trade activities by shipping resulted in the introduction of non-native ant species to the country. For instance, Anoplolepis gracilipes (F. Smith), Camponotus compressus (Fabricius), C. maculatus (Fabricius), Hypoponera punctatissima (Roger), Linepithema humile (Mayr), Solenopsis geminata (Fabricius), Paratrechina longicornis (Latreille), and Tetramorium bicarinatum (Nylander) have recently been recorded from Turkey as tramp species (Borowiec 2014), but without their distribution localities. According to the records of Borowiec (2014) and AntWeb (2017) the current number of tramp species known from Turkey is 32.

Here we present a new tramp ant species T. lanuginosum Mayr from Antalya-Turkey and give the first locality based records of P. longicornis (Latreille) from Antalya and Adana.

Materials and Methods

Tetramorium lanuginosum Mayr


Paratrechina longicornis (Latreille)

Turkey, Antalya-Alanya (36° 32’ 00” N, 31° 59’ 25” E), 221m., 12.ix.2016, 16/0113a, 20 ♀♂, leg. C. Karaman;
Adana (36° 58’ N, 35° 20’ E), 30m., 01.vii.2016, 16/0104b, 4 ♂♂, S. Yıldız.

The specimens of both species were collected by an aspirator. Digital images were prepared using Nikon D800E DSLR camera with 3.2x and 8x microscope objectives and Combine-Z (2008) free software. The images were cropped with Adobe Photoshop CS2.

Antalya-Alanya and Adana is characterized by a Mediterranean type climate with hot and dry summers and mild and wet winters. The average annual temperature and precipitation values are 18.7°C and 1087mm for Antalya-Alanya and 19.3°C and 679mm for Adana, respectively. Moreover, the average temperature of winter season of these two provinces never fall below 10°C (Climate-data.org).

Results

**Tetramorium lanuginosum** Mayr (Fig. 1)

**Diagnosis:** *Tetramorium lanuginosum* with *T. bicarinatum* are among the few Turkish ants with antennal scrobe. *Tetramorium lanuginosum* can be readily discriminated from *T. bicarinatum* and from other Turkish *Tetramorium* species by the long and profuse bifid pilosity.

**Paratrechina longicornis** (Latreille) (Fig. 2)

**Diagnosis:** *Paratrechina longicornis* is differentiated from all other species of the genus by 5 toothed mandibles, the stiff and blunt hairs and the bare antennal scape.

**Discussion**

The tramp ant species have been known since more than one century. Forel (1911) recorded fifteen ant species spread by human activities in 1911 and Wetterer (2010) mentioned that eight of them [*Anoplolepis gracilipes*, *Linepithema humile*, *Trichomyrmex destructor*, *Monomorium pharaonis*, *Paratrechina longicornis*, *Pheidole megacephala*, *Solenopsis geminata*, and *Tapinoma melanocephalum* (Fabricius)] became “serious pest species” worldwide.

![Fig. 1. Tetramorium lanuginosum: A- Head in full-face view, B- Body in profile.](image1)

![Fig. 2. Paratrechina longicornis: A- Head in full-face view, B- Body in profile.](image2)
Four of these serious pest ant species (A. gracilipes, L. humile, S. geminata and P. longicornis) were reported from Turkey by Borowiec (2014) without exact locality records. Monomorium phar anus and P. megacephala were recorded by different researchers from different localities in Turkey. The other problematic species, T. destructor, is a native ant species for Turkish ant fauna and only one of them (Tapinoma melanocephalum) has not been recorded so far from Turkey.

The records available from Borowiec (2014) and AntWeb (2017) point out presence of at least 32 tramp ant species from Turkey (Table 1). However, 14 ant species (Table 1; written as red) from this list are native to Turkey because their native distribution range comprise Turkey. As a result, the exact and real tramp ant species number of Turkey needs to be revised as 18 (Table 1; written as black).

_Tetramorium lanuginosum_ is widely distributed across tropical and subtropical regions with several records in countries in Western Palearctic (Egypt, England, Israel, Lebanon, Libya, Malta, Netherlands, Spain, Tunisia and Saudi Arabia). We recorded _T. lanuginosum_ from two different urban habitats, pavements of historical bazaar and a coastal road in Alanya (Figure 3A). These findings let us to conclude without doubt that _T. lanuginosum_ is settle to Alanya and became a putative permanent tramp species.

*Paratrechina longicornis* has been recorded in the Western Palearctic Region from Algeria, Azores, Balearic Islands, Belgium, Canary Islands, Czech Republic, Denmark, Egypt, England, Estonia, France, Netherlands, Germany, Gibraltar, Greece, Iran, Iraq, Israel, Italy, Lebanon, Libya, Malta, Morocco, Saudi Arabia, Spain, Sweden, Switzerland, Syria and United Arab Emirates. We recorded _P. longicornis_ in a semi-rural area of Alanya castle (Figure 3B). The workers were collected from _Pinus brutia_ Tenore trunk where they were most probably feeding with aphid honeydew. The Adana record of the species was also from semi-rural area but no information on its biology is available.

Boer & Vierbergen (2008) divided the tramp ant species into 4 groups as intercepted tramps, temporary tramps, local tramps and permanent tramps according to their existence in a country. According to Boer and Vierbergen’s classification, local tramps are non-native ant species moved away from the entry medium and dispersed to settle a temporary population. Permanent tramps are also non-native ant species who settled permanent populations and spread different locations. We, therefore, can categorize _T. lanuginosum_ as a local tramp and _P. longicornis_ as a permanent tramp species. Many tropical and subtropical ant species will become tramp ant species in the future due to global warming (Boer & Vierbergen 2008).

**Table 1.** Tramp ant species of Turkey according to the list in AntWeb (regular: native ant species; **bold**: tramp ant species).

<table>
<thead>
<tr>
<th>SUBFAMILY DOLICHODERINAE</th>
<th>SUBFAMILY MYRMICIANE</th>
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</thead>
<tbody>
<tr>
<td>1. Dolichoderus quadripunctatus (Linnaeus)</td>
<td>17. Cardiocondyla emeryi Forel</td>
</tr>
<tr>
<td>2. Linepithema humile (Mayr)</td>
<td>18. Cardiocondyla mauritianica Forel</td>
</tr>
<tr>
<td>3. Anoplolepis gracilipes (F. Smith)</td>
<td>19. Monomorium monomorium Bolton</td>
</tr>
<tr>
<td>4. Camponotus compressus (Fabricius)</td>
<td>20. Monomorium pharaonis (Linnaeus)</td>
</tr>
<tr>
<td>5. Camponotus maculatus (Fabricius)</td>
<td>21. Monomorium subpunctum (F. Smith)</td>
</tr>
<tr>
<td>6. Camponotus vagus (Scopoli)</td>
<td>22. Myrmica rubra (Linnaeus)</td>
</tr>
<tr>
<td>7. Camponotus variegatus (F. Smith)</td>
<td>23. Myrmica specioides Bondroit</td>
</tr>
<tr>
<td>8. Lasius alienus (Foerster)</td>
<td>24. Pheidole indica Mayr</td>
</tr>
<tr>
<td>9. Lasius fuliginosus (Latreille)</td>
<td>25. Pheidole megacephala (Fabricius)</td>
</tr>
<tr>
<td>11. Lepisiota frauenfeldi (Mayr)</td>
<td>27. Solenopsis geminata (Fabricius)</td>
</tr>
<tr>
<td>14. Paratrechina longicornis (Latreille)</td>
<td>30. Trichomyrmex destructor (Jerdon)</td>
</tr>
<tr>
<td>15. Plagiolepis pygmaea (Latreille)</td>
<td>SUBFAMILY PONERINAE</td>
</tr>
<tr>
<td>16. Crematogaster sordidula (Nylander)</td>
<td>31. Hypoponera eduardi (Forel)</td>
</tr>
<tr>
<td>SUBFAMILY MYRMICIANE</td>
<td>32. Hypoponera punctatissima (Roger)</td>
</tr>
</tbody>
</table>
In conclusion, the current and exact number of tramp ant species in Turkey, after the exclusion of 14 species, all which were regarded as to have a native distribution in Turkey, from the list one can deduce considering the data in Borowiec (2014) and AntWeb (2017) (see Table 1), is increased to 19 by the present record of *T. lanuginosum*. We are expecting that this number will increase in the future with more collecting efforts in urban and semi-rural areas especially in southern parts of Turkey.

Acknowledgement

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Editor-in-Chief note: Authors Celal Karaman and Kadri Kiran are a member of Editorial Board of Trakya University Journal of Natural Sciences. However, they weren’t involved in the decision process during manuscript evaluation.

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