



## First record of *Camponotus (Tanaemyrmex) compressus* (Hymenoptera: Formicidae: Formicinae) from Bulgaria with notes on invasive and alien ants in the country

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### INTRODUCTION & AIM

Human activities such as global trade and travel create opportunities for the spread of many groups of invertebrates (Pombo, 2012). Such a group, and a particularly successful one, are ants. Globally, there are about 200 established ant species that have been transported outside their native range (Yang and Shoemaker, 2021).

In Bulgaria, 195 ant species have been recorded to date (Lapeva-Gjonova & Antonova, 2022), of which four (2.05%) are known to be introduced. These non-native species belong to four different subfamilies and exhibit varying degrees of synanthropy and invasiveness.

- The Argentine ant (*Linepithema humile*, *Dolichoderinae*) originates from South America and is now found on every continent except Antarctica.
- The pharaoh ant (*Monomorium pharaonis*, *Myrmicinae*) is a highly synanthropic species, widespread globally, and typically inhabits heated buildings such as hospitals, factories, and residential areas.
- *Hypoponera punctatissima* (*Ponerinae*) is a cosmopolitan tramp species of uncertain (likely tropical) origin. It is commonly found in human-modified habitats, though in parts of Europe it can occasionally be present in natural and semi-natural environments.
- *Lasius neglectus* (*Formicinae*), native to the Anatolian Peninsula, is currently one of the most aggressive invasive ant species in the Palearctic region.

This study reports the first recorded case of the introduction of *Camponotus compressus* in Bulgaria and Eastern Europe. It also compiles all available data on the distribution of other alien species. The localities of the introduced species till 2010 are given according to Lapeva-Gjonova et al. (2010). Methods for monitoring and detecting potential invasive species are proposed.

### METHOD

Six major workers of the species *Camponotus compressus* were hand collected in August 2023 in the city of Sofia, Bulgaria (42.7099°N, 23.3976°E). The ants were discovered in a building materials warehouse after a shipment of tiles from India. Numerous live and already dead specimens were found in the shipping boxes, but after several weeks, no additional individuals were observed in the area.

The collected material is preserved in 70% ethanol and deposited in I. Georgiev's personal collection.

### RESULTS & DISCUSSION

#### Dolichoderinae Forel, 1878

##### *Linepithema humile* (Mayr, 1868)

Distribution in Bulgaria: Sofia, Varna, Burgas (Atanassov and Dlusskij 1992 as *Iridomyrmex humilis*) (Fig. 1).

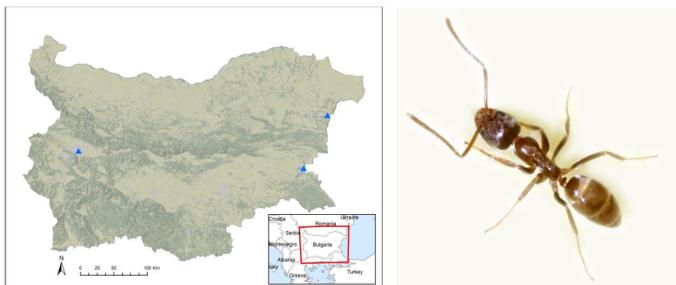


Fig. 1. Left, distribution of *Linepithema humile* in Bulgaria. Right, photo of a worker.

#### Formicinae Lepeletier, 1836

##### *Camponotus compressus* (Fabricius, 1787)

New data: **Sofia Basin**: 6 major workers, Sofia, 02.08.2023, Ts. Katevska leg. (Fig. 2).

Notes: *Camponotus compressus* is native to South Asia. Its natural range includes Bangladesh, India, the Maldives, Nepal, Pakistan, and Sri Lanka. Due to human activities, it has spread to various islands from the mainland.

There are reports of this taxon in a few localities of Europe, North Africa, the Arabian Peninsula, and Turkey (Borowiec, 2014; Karaman and Kiran, 2018). However, many of these records are likely based on misidentifications, later taxonomic synonymies, or introduced specimens. Most of these reports are non-traceable, and no specific localities are provided for the specimens found. Thus, we exclude these regions from the species' natural range.

##### *Lasius neglectus* Van Loon, Boomsma & Andrasfalvy, 1990

Distribution in Bulgaria: Senokos vill., Dobrich (Espadaler et al. 2007), Albena (Seifert 1992 as *Lasius turcicus*), Seifert 2000), Kranevo, Balchik, Kavarna, Varna municipality (Espadaler et al. 2007) (Fig. 2).

New data: **Western Danubian Plain**: 7 workers, near Izvos vill., 26.05.2021, S. Schär (AntWeb: SS190582SS15A767); 7 workers, Lom, 17.08.2019, S. Schär (AntWeb: SS190582SS19B756C); 2 workers, Archar vill., 11.08.2023, S. Schär (AntWeb: SS190582SS23C158F); **Sofia Basin**: 2 workers, Sofia, 11.07.2018, S. Schär (AntWeb: SS190582SS18B566A); **Southern Black Sea coast**: 12 workers, Arapyra, 12.07. 2022, S. Schär (AntWeb: SS190582SS22C029D).

Notes: According to Tartally et al. (2016) the populations have generally been declining or have stagnated. No detailed information about the size of the colonies exists for the new data.

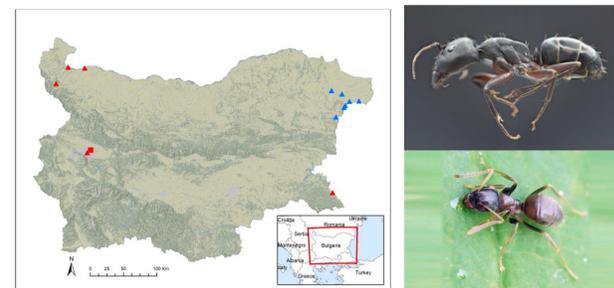


Fig. 2. Left, distribution of *Camponotus compressus* (red square) and *Lasius neglectus* (red triangles – new records, blue triangles - historical records) in Bulgaria. Top right *C. compressus* major worker, bottom right *L. neglectus* worker *in situ*.

#### Myrmicinae Latreille, 1804

##### *Monomorium pharaonis* (Linnaeus, 1758)

Distribution in Bulgaria: Ruse, Shumen, Sofia, Plovdiv, Malko Tarnovo, Varna, Obzor vill., Burgas, Tsarevo, Sozopol, Ahtopol (Atanassov and Dlusskij 1992), Svilengrad (Atanassov 1965) (Fig. 3).

Notes: Current data is available by citizen science in known localities (Varna and Sofia cities).

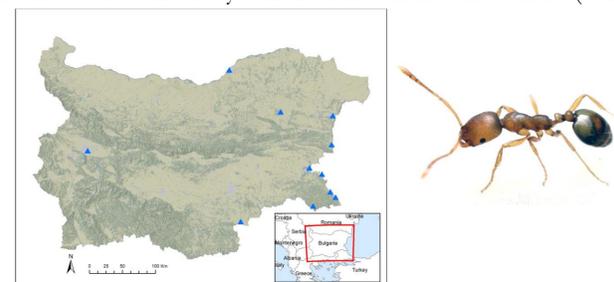


Fig. 3. Left, distribution of *Monomorium pharaonis* in Bulgaria. Right, photo of a worker.

#### Ponerinae Lepeletier, 1835

##### *Hypoponera punctatissima* (Roger, 1859)

Distribution in Bulgaria: Silistra, Sofia, Sredna Gora Mts, Kulata, Melnik (Atanassov and Dlusskij 1992), Hisarya (Atanassov 1936 sub *Ponera punctatissima*) (Fig. 4).

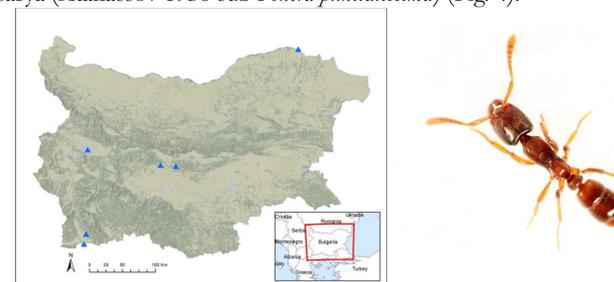


Fig. 4. Left, distribution of *Hypoponera punctatissima* in Bulgaria. Right, photo of a worker.

### CONCLUSION

We conclude that in the current climatic conditions, *Camponotus compressus* is unlikely to establish itself in Bulgaria. It is probable that there were no reproductive individuals in the shipping containers, but only a small portion of a satellite nest consisting of workers (20-30 ex.).

We recommend periodical monitoring in locations such as greenhouses, warehouses, botanical gardens, zoos, city parks, airports, and seaports to identify potential distribution hubs for alien species and to take rapid response measures if necessary. Suitable collection techniques could include hand collection, examination of rotten logs (Schär et al., 2018), leaf litter sifting and extraction using Winkler bags or Berlese-Tullgren funnels, as well as pitfall and baited traps, which could also yield valuable results.

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