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Technomyrmex vitiensis MANN, 1921 (Hymenoptera: Formicidae) – a new exotic ant species in Poland

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Abstract: We report the presence of the tropical ant species *Technomyrmex vitiensis* MANN, 1921 in Poland. The species was found in a greenhouse of the Botanical Garden of the University of Wrocław, Poland. *Technomyrmex vitiensis* is native to the Indo-Malayan region and has been previously reported from greenhouses in several European countries. The number of introduced ant species known from Poland increases to 12.

Key words: biological invasion, exotic species, house pests, pest ants, tramp species.

INTRODUCTION

There are five species of the genus *Technomyrmex* MAYR, 1872 known from Europe, four of them known only from indoor sites. The most widespread is *T. albipes* (SMITH F., 1861) recorded from Austria, Czechia, Denmark, France, Germany, Ireland, Italy, Netherlands, Norway, Switzerland, and United Kingdom (BOLTON 2007, GUÉNARD *et al.* 2017). *Technomyrmex vitiensis* MANN, 1921 was noted from Austria, Belgium, Denmark, Finland, France, Germany, Netherlands, Switzerland, and United Kingdom (BOLTON 2007, GUÉNARD *et al.* 2017). While *T. pallipes* (SMITH F., 1876) is known from Italy, Netherlands and United Kingdom (BOLTON 2007, GUÉNARD *et al.* 2017). The latest addition is a discovery of *T. difficilis* FOREL, 1892 in greenhouses in Lyon, France (BLATRIX *et al.* 2018). The only species of *Technomyrmex* known in Europe also from outdoor sites is *T. vexatus* (SANTSCHI, 1919). The species was found in Gibraltar in the Upper Rock Nature Reserve and the Gibraltar Botanic Gardens (GUILLEM & BENSUSAN 2008).

Technomyrmex vitiensis MANN, 1921 is native to the Indo-Malayan region and widespread tramp species introduced to numerous greenhouses in Europe. It nests in variety of sites but most often in natural cavities in plants and in the litter. Its workers are often found feeding on honeydew produced by sap-feeding hemipterans, but they can also kill and consume small

arthropods (BOLTON 2007, BLATRIX *et al.* 2018). Here we record this species for the first time from the Botanical Garden of the University of Wrocław, Poland. With this discovery, the number of introduced ant species known from Poland increases to 12.

MATERIAL AND METHODS

Greenhouses of the Botanical Garden in Wrocław were searched for specimens of introduced invertebrate species. The main method applied in all sites was a hand collecting, later supplemented with pitfall traps. The main part of collected material is preserved in vials with 95% EtOH and is deposited in the Department of Biodiversity and Evolutionary Taxonomy, University of Wrocław (DBET). Several pinned specimens were donated to Museum of Natural History, University of Wrocław (MNHW) and Upper Silesian Museum, Bytom, Poland (USMB).

RESULTS

Technomyrmex vitiensis MANN, 1921

Figs. 1–4.

Poland: Lower Silesia, Wrocław, Botanical Garden (indoors), 51.1163 17.0454, 121 m a.s.l., hand collecting, leg. F. Pawluk, 27.01.2022, 12 workers; 20.05.2022, 25 workers (DBET, MNHW, USMB).

Technomyrmex vitiensis MANN, 1921 was observed for the very first time in January 2022 in soil while digging up several plants in a greenhouse of the Botanical Garden of the University of Wrocław. At the time of the first observation, specimens were noted near the roots of the transplanted plants. Since then, foraging workers have been seen in the same greenhouse foraging on structural elements, cracks on the floor and leaves of plants of the genera *Spathiphyllum* SCHOTT, *Aglaonema* SCHOTT, and *Strelitzia* AITON. Occasionally, they have been seen on orchids (Orchidaceae JUSS.) or feeding on honeydew produced by Diaspididae (Fig. 4). The number of observed foraging ants was always low, at most a few individuals at the same time. Their activity always increased immediately after watering the plants. The occurrence of *T. vitiensis* was observed in only one greenhouse with tropical plants grown on hydroponic tables. The temperature and humidity in the greenhouse are relatively low compared to other greenhouses (temperature always > 13° C, air humidity > 60%). *Technomyrmex vitiensis* co-occurs with *Plagiolepis alluaudi* EMERY, 1894 – another tramp species recently recorded from Wrocław (PAWLUK *et al.* 2022). However, no interactions were recorded between these two species.

DISCUSSION

Wrocław, compared to remaining big Polish cities, is a place with very high number of recorded tramp species. The most common introduced species, that in the past could be often found in apartment blocks and hospitals across the city, is *Monomorium pharaonis* (LINNAEUS, 1758). The Wrocław Zoological Garden hosts *Hypoponera punctatissima* (ROGER, 1859) and *Nylanderia jaegerskioeldi* (MAYR, 1904) (SALATA *et al.* 2015, 2018). The only Polish record of Argentine ant, *Linepithema humile* (MAYR, 1868) comes from the Botanical Garden of the University of Wrocław (CZECHOWSKI *et al.* 2012). However, because the greenhouse was recently dismantled, this species is considered extinct in Poland. Recently, PAWLUK *et al.* (2022), noted *Plagiolepis alluaudi* EMERY, 1894 from several greenhouses of the Botanical



Figs. 1–2. *Technomyrmex vitiensis* MANN, 1921. Specimen collected in the Botanical Garden of the University of Wrocław. 1 – dorsal view. 2 – lateral view. Scale bar 0.5 mm. Photographed by Lech Borowiec.

Garden of the University of Wrocław. There is also one introduced ant species that maintains outdoor colonies in Wrocław – *Tetramorium immigrans* SANTSCHI, 1927 (BOROWIEC & SALATA 2018). In Poland, the Botanical Garden of the University of Wrocław is now the only known locality of two tramp species: *Technomyrmex vitiensis* and *Plagiolepis alluaudi*. However, considering ongoing reconstructions of both the Botanical Garden of the University of Wrocław and the Wrocław Zoological Garden, one can expect the number of tramp species to increase in the near future.



Figs. 3–4. *Technomyrmex vitiensis* MANN, 1921. Specimen collected in the Botanical Garden of the University of Wrocław. 3 – head. Scale bar 0.5 mm. Photographed by Lech Borowiec. 4 – worker foraging on plant infested with scale bug (*Diaspididae*) infestation. Photographed by Filip Pawluk.

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