

RECORDS OF *HYPOPONERA ERGATANDRIA* (FOREL, 1893) FROM SLOVAKIA (HYMENOPTERA: FORMICIDAE, PONERINAE)

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Abstract: Records of the tropical and subtropical tramp species *Hypoponera ergatandria* (Forel, 1893) are given from Slovakia. This non-native ant was found in heated greenhouses of Botanical Gardens in the towns of Košice and Bratislava, Slovakia.

Key words: Hymenoptera, Formicidae, Ponerinae, *Hypoponera ergatandria*, heated greenhouses, Slovakia.

INTRODUCTION

Hypoponera ergatandria (Forel, 1893) [syn. *Hypoconera schauinslandi* (Emery, 1899)] is a cosmopolitan tramp species of tropical and subtropical origin (Figs 1, 2). Its antropogenous introduction into the north temperate zone started in the 19th century, when tropical plants and animals were imported in higher numbers and could be kept in greenhouses with stable heating conditions throughout the year (SEIFERT 2013). This small hypogeic species has been reported in several countries of Europe (e.g. Belgium, England, Germany, Switzerland, the Netherlands, Poland, Spain and the Czech Republic) and other parts of the world (e.g. Hawaii, Indonesia, Japan, Tanzania) (BABÍK 2010, BOER & VIEBERGEN 2008, CZECHOWSKI et al. 2012, PECH 2014, SEIFERT 2003, 2013). In Europe, it is restricted to different kinds of heated buildings offering some sort of moist soil substrate or decomposing organic matter. The majority of its nest sites is associated with greenhouses of botanical and zoological gardens, butterfly parks, plant stores, museums etc. (SEIFERT 2013). Outdoor nesting was not confirmed in the north temperate zone. This small ponerine species was redescribed as *H. schauinslandi* (Emery, 1899) by SEIFERT (2003) and separated

from *H. punctatissima* (Roger, 1859). BOLTON & FISCHER (2011) synonymised both species but SEIFERT (2013) confirmed the separation of both taxa and synonymised *H. schauinslandi* with *H. ergatandria*.

MATERIAL AND METHODS

In 2014, we studied biodiversity of ant fauna at three indoor study plots of the Botanical Garden in Bratislava (Figs 3–5):

- 1 – the greenhouse of tropical and subtropical decorative plants (average air temperature of 22–24 °C and 75–80% humidity);
- 2 – the greenhouse with lotus, water lily and royal victoria plants oriented on hygrophilous flora of tropical rain forests (average air temperature of 24–26 °C and 75–85% humidity);
- 3 – the palm house containing a collection of palms, cycads and araucaria plants (average air temperature of 18–22 °C and 65–70% humidity).

To study epigeic and hypogeic fauna we applied three methods – formaldehyde pitfall traps, soil samples and individual collecting. Soil invertebrates were collected from February to December 2014 at regular monthly intervals.



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Table 1. Survey of ant species collected in the greenhouses of the Botanical Garden in Bratislava during 2014.

Species/study plot	1	2	3	Σ	%	Month of occurrence
<i>Hypoponera ergatandria</i> (Forel, 1893)	115	80	55	250	26.77	III-XII
<i>Myrmecina graminicola</i> (Latreille, 1802)	12	0	12	24	2.57	IV, VI, VII, IX, X, XI, XII
<i>Solenopsis fugax</i> (Latreille, 1798)	195	318	72	585	62.63	III-XII
<i>Temnothorax parvulus</i> (Schenk, 1852)	0	0	2	2	0.21	III
<i>Tetramorium</i> cf. <i>caespitum</i>	22	14	2	38	4.07	III, IV, V, VI, VIII, IX
<i>Lasius bicornis</i> (Förster, 1850)	0	3	0	3	0.32	V
<i>Lasius emarginatus</i> (Olivier, 1792)	13	10	2	25	2.68	III-XII
<i>Lasius niger</i> (Linnaeus, 1758)	7	0	0	7	0.75	VII
Total number of collected individuals	364	425	145	934	100.00	
Total number of species	6	5	6	8		

RESULTS AND DISCUSSION

The first finding of *H. ergatandria* in Slovakia came from greenhouses of the Botanical Garden in Košice (48°44'7" N, 21°14'16" E, altitude 227 m) (SUVÁK 2011).

The following records are from heated greenhouses of the Botanical Garden in Bratislava (48°08'49" N, 17°04'21" E, altitude 153 m). *Hypoponera ergatandria* was recorded from all three heated greenhouses investigated. In total 250 specimens were collected. This ant species markedly preferred the greenhouse of tropical and subtropical decorative plants with an average temperature of 22–24 °C and a humidity of 75–80%. The lowest abundance of *H. ergatandria* was recorded in the palm house with an average temperature of 18–22°C, 65–70% humidity and heavier clay-loam soil (Fig. 6). Wingless ergatoid queens with well developed ovarioles and spermathecae were observed on 20. 11., 4. 12.

and 19. 12. 2014. In the greenhouses, *H. ergatandria* was accompanied by other ant species, all being native: *Solenopsis fugax* (Latreille, 1798), *Myrmecina graminicola* (Latreille, 1802), *Temnothorax parvulus* (Schenk, 1852), *Tetramorium* cf. *caespitum*, *Lasius bicornis* (Förster, 1850), *Lasius emarginatus* (Olivier, 1792) and *Lasius niger* (Linnaeus, 1758) (Table 1, Fig. 6). Occurrence of *H. ergatandria* was not observed in outdoor parts of the Botanical Garden in Bratislava.

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Figure 1. *Hypoponera ergatandria* – the habitus of a worker, lateral view (photograph by A. Šestáková).



Figure 2. *Hypoponera ergatandria* – the head of a worker, frontal view (photograph by A. Šestáková).

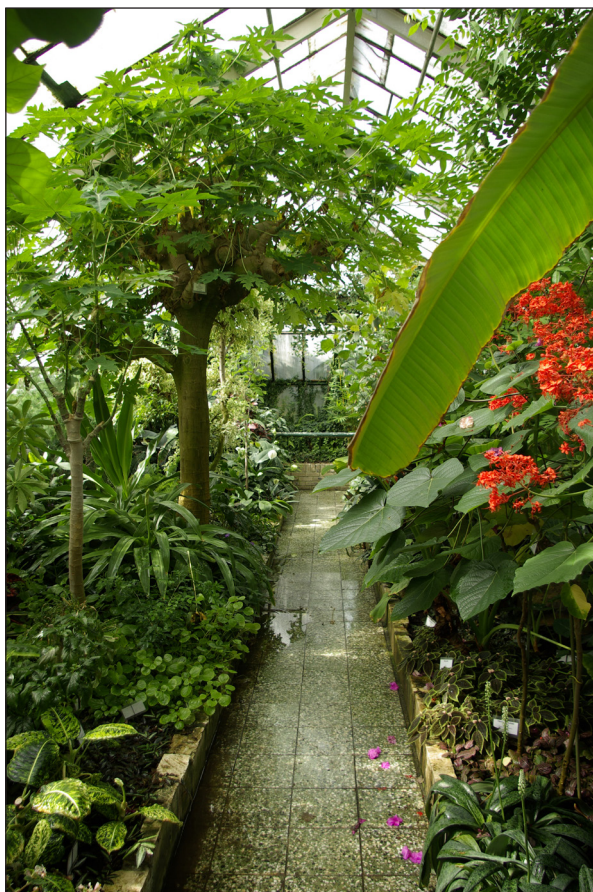


Figure 3. The greenhouse of tropical and subtropical decorative plants (photograph by P. Fend'a).



Figure 5. The palm house containing a collection of palms, cycads and araucaria plants (photograph by P. Fend'a).



Figure 4. The greenhouse with lotus, water lily and royal victoria plants oriented on hygrophilous flora of tropical rain forests (photograph by P. Fend'a).

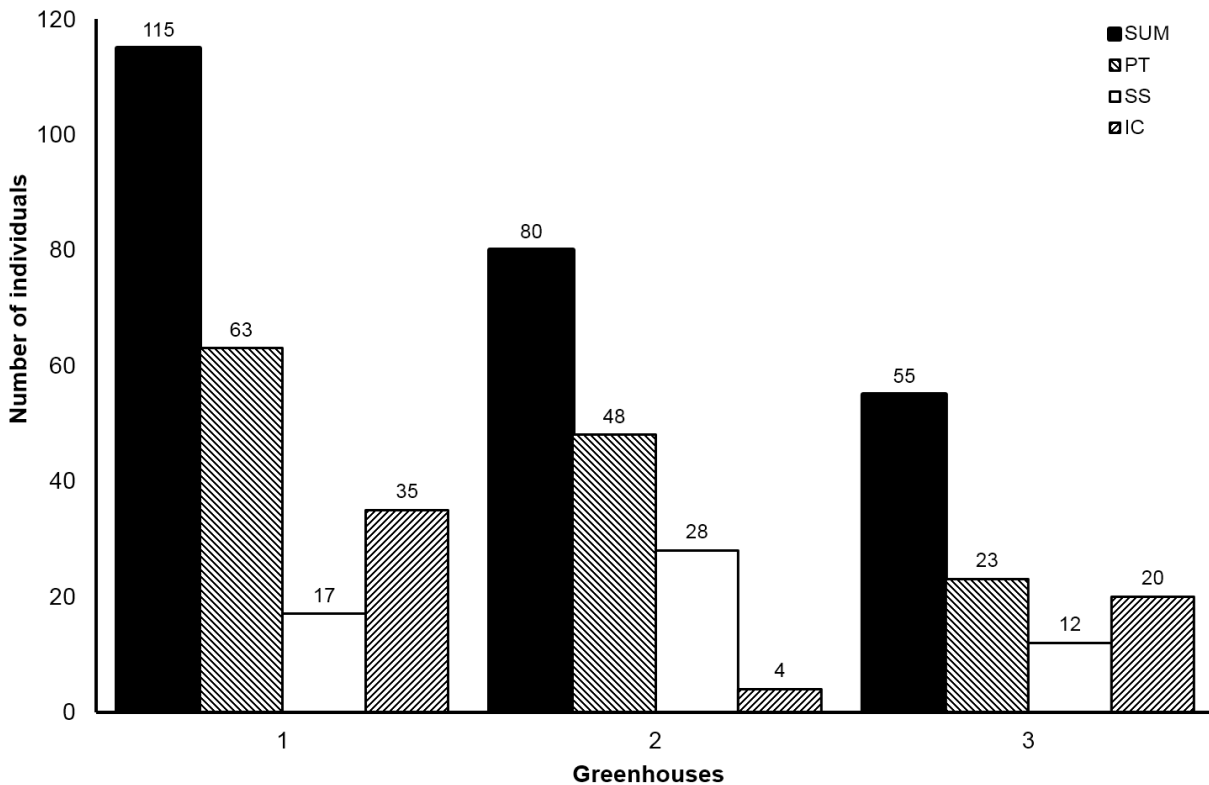


Figure 6. *Hypoponera ergatandria* – total number of individuals (SUM), number of individuals in pitfall traps (PT), in soil samples (SS) and in individual collecting (IC) in three greenhouses examined in 2014.

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