

Abstract*

Preliminary results on the interaction of *Liometopum microcephalum* (PANZER, 1798) with other ants (Hymenoptera: Formicidae)

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Mainly based on anecdotal evidence (e.g., ZDOBNITZKY 1910) the dolichoderine ant *Liometopum microcephalum* (PANZER, 1798) has been reported to be very aggressive. From these observations, it is apparent that the species is territorial and therefore occupies a high position in the ant hierarchy. However, little well-founded evidence on its interactions with other ants and on its position in the hierarchy of myrmecocoenoses has been published. In this respect we have more data on North American *Liometopum* species than on the single European representative of the genus (ALAN 1997). The northwestern border of the range of the species is situated in southernmost Moravia (Czech Republic), where it is almost restricted to the floodplains of the Rivers Dyje (Thaya) and Morava (March); however, this population on the edge of the distribution area is a very large one. The species is apparently thermophilous and requires suitable nest and foraging trees, particularly old, but live oaks. However, both requirements are also met by sites outside the floodplains, where the species seems to have problems with the foundation and survival of colonies. Thus, interactions with other ants might not only be interesting *per se*, but also as a potential factor limiting the distribution of the species in this area. Potential strong competitors massively foraging on trees would be some of the *Formica* species, almost missing from the floodplains, and *Lasius fuliginosus* (LATREILLE, 1798). From May to July and again in September 2005, we collected ants by pitfall trapping along a 14 m long transect between a *L. microcephalum* colony and a *L. fuliginosus* colony in a floodplain forest (not exposed to flooding since the early 1970s) close to the River Dyje in South Moravia, Czech Republic. The transect was situated parallel to the forest edge adjacent to a meadow. Four lines of 8 small pitfall traps were set perpendicular to the transect (with a distance of 2.5 m between the transects and 1 m between the traps of one line; all in the forest); in September a fifth line was added at the level of the *L. fuliginosus* nest tree. Both species build their nests either always (*L. microcephalum*) or mostly (*L. fuliginosus*) in trees and are considered to be territorial and aggressive; although *L. fuliginosus* fights in a rather passive way, its chemical defence has been reported to make it a very successful combatant (CZECHOWSKI 1999). Thus, the potential competition between these two species is of particular interest. Although both colonies seemed very vivid at the beginning of May, *L. fuliginosus* very soon almost disappeared from the pitfall trap catch,

remaining active on its nesting tree. For most of the time the dominance of *L. microcephalum* was massive along the entire transect. Another 10 ant species were captured at the site: *Dolichoderus quadripunctatus* (LINNAEUS, 1771), *Lasius brunneus* (LATREILLE, 1798), *L. niger* (LINNAEUS, 1758), *L. platythorax* SEIFERT, 1991, *Temnothorax corticalis* (SCHENCK, 1852), *T. crassispinus* (KARAWAJEW, 1926), *Myrmecina graminicola* (LATREILLE, 1802), *Myrmica rubra* (LINNAEUS, 1758), *M. ruginodis* NYLANDER, 1846, and *Stenammina debile* (FÖRSTER, 1850). *Myrmica rubra* was the most abundant of these, even exceeding *L. microcephalum* in the September catch. While most species became more frequent with increasing distance from the *L. microcephalum* colony (and thus closer to the *L. fuliginosus* colony), this was not very pronounced for *M. rubra*, which probably avoided encounters with *L. microcephalum* by moving through the litter layer and being active during the colder days and nights. Other (accidental) observations of interactions between *L. microcephalum* and *L. fuliginosus* in the field confirm the stronger competitive strength of the first: In all observed cases of fights between adjacent colonies, *L. fuliginosus* later disappeared. However, our preliminary observations (n = 3) of one-on-one fights in a small arena showed *L. fuliginosus* to be the more successful combatant, probably due to its chemical warfare: Although *L. microcephalum* was the one to attack, biting into the body appendages of its foe and holding the latter, it ended up dead, having been dragged along by *L. fuliginosus* for some time. Baits (tuna + sugar solution) presented on the ground at various distances from nesting trees were practically ignored by *L. microcephalum* and only the closest bait (distance 0.5 m) attracted some *L. fuliginosus* workers.

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References

- ALAN, N.A. 1997: Functional groups and patterns of organization in North American ant communities: a comparison with Australia. – *Journal of Biogeography* 24: 433-460.
- CZECHOWSKI, W. 1999: *Lasius fuliginosus* (LATR.) on a sandy dune – its living conditions and interference during raids of *Formica sanguinea* LATR. (Hymenoptera, Formicidae). – *Annales Zoologici* 49: 117-123.
- ZDOBNITZKY, W. 1910: Beitrag zur Ameisenfauna Mährens. – *Mitteilungen der Kommission zur naturwissenschaftlichen Durchforschung Mährens, Zoologische Abteilung, Brünn* 15: 9-10.

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