Abstract*

Red wood ants as a perilous temptation for small rodents

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Red wood ants and rodents share territories in forest habitats. Surprisingly, their inter-relations have not been investigated. We found that the composition of rodent communities is the same on the territory of a super-colony of *Formica aquilonia* Yarrow and on control plots: they consist of the same 10 species and have similar population sizes. However, ants prevent rodents from staying too long on their territories: in summer the digging activity and the number of rodents' holes differ essentially on the plots inhabited by ants and on the control plots. In autumn and spring when ants are not active we found that up to 70% of ant mounds (n = 80) were penetrated with holes of rodents (up to 25 holes per ant-hill). With the use of snap-traps we found the following species digging ant-hills: *Apodemus* (*Alsomys*) *peninsulae* Thomas, *Apodemus agrarius* Pallas, *Clethrionomys glareolus* Schreber, *Clethrionomys rutilus* Pallas, *Clethrionomys rufocanus* Sundevall, *Sorex araneus* Linnaeus. In the series of laboratory experiments with striped field mice (*Apodemus agrarius*) we examined their trophic relations with red wood ants. In the first experiment with 20 mice we presented them with materials from an ant-hill and from the control plot in two containers and compared how much materials mice eat and how much time they spend in each container (80 tests, 13 hours of observation). It turned out that mice eat significantly more materials from an ant-hill (both from a dome and a bank), and they also spend more time in corresponding containers. In the second experiment we investigated whether rodents can interact with ants as hunters and mass prey. We placed 13 mice one by one into arenas together with a group of 4-9 ants (39 tests). Video records were analyzed by the Noldus system. In the great majority of tests mice displayed high hunting activity towards ants (Fig. 1), and their efficiency of hunting was comparable with specialized predators: mice killed and ate 0,36±0,19 ants per minute (Panteleeva *et al*. 2011). A threshold in number of biting ants in the arenas when rodents stop hunting and start to panic corresponds to the dynamic density in the vicinity of ant-hills and ants' routes. In sum, ants attract rodents and antagonize them, thus displaying a complex type of interspecies interaction.

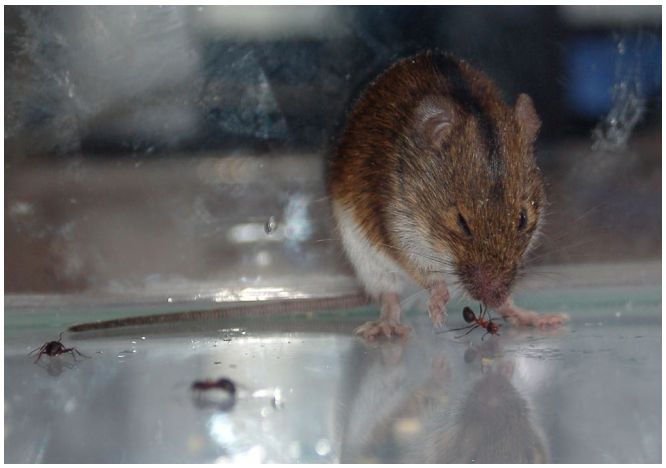

Fig. 1. A striped field mouse (*Apodemus agrarius*) is attacking an ant as a prey.

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References

Panteleeva S., Vygonyailova O. and Reznikova Zh. (2011) Red wood ants as potential mass prey for striped field mice: results of laboratory experiments. *Euroazian Entomological Journal* 10(1): 99 – 103.

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