
Rodent Behaviour – Session 1

Communicating fear: the role of alarm pheromones in a bank vole

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Predation involves more than just predators consuming prey. Indirect effects, such as fear responses caused by predator presence, can have consequences for prey life history. Laboratory experiments have shown that some rodents can recognize fear in conspecifics via alarm pheromones. Individuals exposed to alarm pheromones can exhibit behavioural alterations that are similar to those displayed by predator-exposed individuals. Furthermore, mice alarm pheromone may be biochemically related to predator-produced scent cues and both contain similar sulfur-containing volatiles. Yet the ecological and evolutionary significance of alarm pheromones in wild mammals remains unclear. We investigated how alarm pheromones affect the behaviour and fitness of wild bank voles (*Myodes glareolus*) in several experiments conducted either in the lab or under semi-natural conditions in large outdoor enclosures. Specifically, we have compared the effects of exposure of voles to a second-hand fear cue, which in this case was transmitted via bedding material used by predator-exposed voles. Control animals were exposed to bedding used by voles with no predator experience. We have also compared alarm pheromone effects to real predator odor. Besides that we have studied the gross generational effects of predation risk emitted either via real predator odor or alarm pheromone. The first results show for instance a double increase in litter size in the group exposed to the alarm pheromone compared to control odor. Furthermore, female voles seems to be attracted to bedding that had been used by predator-exposed male voles. In a subsequent experiment female reproduction was also enhanced in the alarm pheromone treatment. In contrast males were repelled by conspecific male alarm pheromone. Our results suggest that predation risk can exert population-level effects through indirect alarm cue by prey individuals having experienced and escaped a predator attack.

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Jens Jacob, Jana Eccard (Editors)

6th International Conference of Rodent
Biology and Management
and
16th Rodens et Spatium

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Book of Abstracts



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