Poster Session 1 – Rodent Behaviour

17 Secondhand horror: effects of direct and indirect predator cues on behavior and reproduction of the bank vole

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In the evolutionary arms race between prey and predator, early risk recognition by the prey species is of paramount importance. Mammalian prey species are able to detect direct predator cues, like odors and to display appropriate defensive behaviors. Not much is known about indirect predation cues in mammals, i.e. the scent of scared individuals detectable by conspecifics, and how they affect recipient behavior. Current theories predict also cross-generational, maternally transferred, effects of increased predation risk or fear to their offspring. To escape predation now or in the next generation, predation risk is suggested to delay or suppress reproduction. However, in theory, enhancement of reproduction, bet-hedging or terminal investment, may be an adaptive strategy as well. Not much is known about cross-generational effects of predation risk on offspring behavior and fitness. We assessed how direct and indirect predation cues, in the form of predator odor or odor of scared conspecifics, alarm pheromones, affect bank vole (*Myodes glareolus*) reproduction and pup fitness. In our experiment, we exposed males and females either directly to least weasel (*Mustela nivalis*) odor, to indirect alarm pheromones from weasel-scared male voles, or to control odor. The treatments were started before mating and lasted until the pups were born. Contradictory to our expectations both predator odor and alarm pheromones enhanced reproduction compared to control. Alarm pheromone treated females had a significantly higher pregnancy rate and pups from predator-treated parents were significantly heavier at birth. Stress metabolite levels were similar in the predator odor and alarm pheromone treatment. Our study provides two novel results: compared to a signal of general danger, i.e. predator odor, the odor of a scared conspecific convey an immediate risk of attack and possible death. Both cues can work at the same time and trigger enhancement of reproduction in form of final investment.

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

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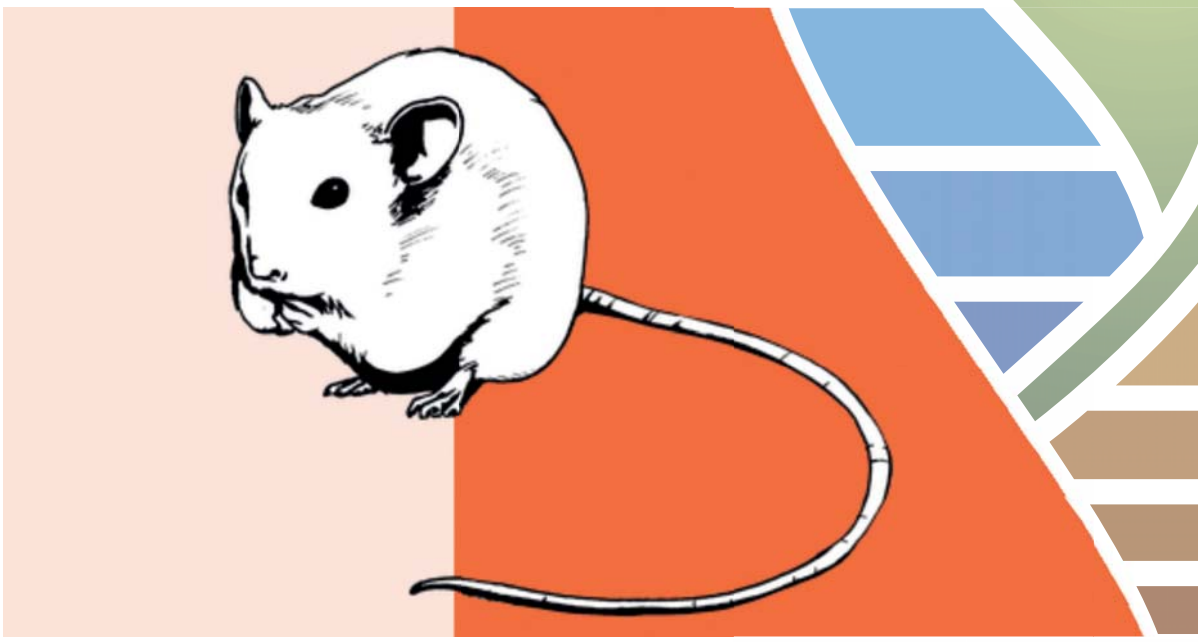

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