
Rodent Management – Session 1

Deter to protect: use of predator's odor smell to deter granivorous rodents from consuming acorns

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Seed consumption by granivorous rodents such as *Myodes glareolus* and *Apodemus sylvaticus* are one major drawback for the implementation of low-cost direct seeding in forest restoration programs around Europe. As a main prey for several mammal predators, rodents have evolved a complex olfactory system triggering anti-predation behaviors. Although fear-induced behavior in rodents has been studied intensively in recent years, its applicability has not yet been implemented successfully in the field of forest protection. Therefore, we aim to identify how rodents could be deterred by volatile odorant molecules from their predators and how these predator smell could be used as repellents to deter them from acorn consumption when direct seeding is applied. Our focus is on the identification of relevant odor volatiles from feces, urine, and fur of different mammal predators such as mink (*Neovision vision*), stoat (*Mustela erminea*), least weasel (*Mustela nivalis*), ferret (*Mustela putorius furo*) and the red fox (*Vulpes vulpes*). After identifying relevant odor volatiles, behavioral experiments with bank voles (*Myodes glareolus*) were implemented using synthetic generated predator volatiles in a y-maze set up. Finally, field experiments will be carried out optimizing our most relevant volatiles into the base matrix formulation SPLAT (Specialized Pheromone & Lure Application Technology) to investigate rodent deterrence by selected odor compounds during field conditions and possible side effects on seed germination. Our preliminary results show high rodent repellency of mink excrement, and no significant negative effects on acorn germination. Here we present our preliminary volatile compounds from fur and feces of the selected predators and their effects on rodent behavior. The present project could increase our understanding of prey-predator interaction dynamics and how its appliance could enhance seed-based forest restoration.

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Jens Jacob, Jana Eccard (Editors)

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

Potsdam, Germany, 3-7 September 2018

Book of Abstracts



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