

Abstract

This PhD. thesis contributes to the investigation of aposematism – the phenomenon explaining the occurrence of warning colouration in nature. Aposematism is an antipredatory strategy usually based on predator learning to avoid a noxious prey with a conspicuous signal. However, not only particular aspects of aposematic prey signalling (warning colour pattern, conspicuousness, unpalatability), but also predator's psychology leading to avoidance behaviour is an important factor for explaining the evolution of aposematism.

The differential species-specific response of our common passerine birds to living aposematic prey (the firebug) and corresponding underlying variation in predator's ecology requirements has been the starting point of this PhD. thesis.

The next parts of the present thesis have been focused mainly on the species responding positively (innate biases, learning, memory etc.) to the warning signal of aposematic prey. We investigate the diversity of psychological processes leading to avoidance behaviour in these species. Firstly, we investigate if the avoidance behaviour is acquired by learning or if the prey is avoided on the basis of innate biases in several species of the family Paridae. We focused on the mode of avoidance learning and the durability of the acquired behaviour in the model species (great tits). The changes in memory for aposematic prey avoidance after the long-term retention interval as well as the importance of observational learning in naive or wild-caught predators have not been experimentally studied yet.

Observation learning is also necessary precondition for origin and spreading of new behavioural tradition in animals. We report here the finding of the population of black rats that probably possess independent tradition of pine-cone opening using the highly efficient technique known as stripping, which is one of the best examples of traditions described in animals.