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“Bridging the gap between increasing knowledge and decreasing resources”

## Reaction to Predators in Guinea Pigs (*Cavia porcellus*)

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### Abstract

Wild cavy of South America, the feral ancestor of domestic guinea pig, is a social mammal with a well developed social system. Its spatial organisation is an efficient adaptation to high predation pressure. Wild cavies live in small groups that reduce the risk of detection by predators; they may be attacked from the air, on the ground, and from the water. Cavies make three types of alarm calls when a predator approaches – *drrr* to warn close individuals, chirrup and alarm whistle to intimidate potential predators at long distances.

The aim of our study was to test the reaction of domestic guinea pigs to terrestrial and aerial types of predators. We used 27 (14 male, 13 female) animals. Each individual was exposed to contact with a dog (border collie), to an imitation of bird of prey and a human as a control and we monitored four types of reaction (freezing, moving, head moving toward stimulus and vocalisation). The Principal Component Analysis (PCA) was used to assess the variations in the data and their correlations. Non-parametric Kruskal-Wallis test was used to test the reaction of individuals to each predator type. Only two guinea pigs responded to presence of predator by vocalisation (*drrr* as reaction to dog presence and alarm whistle in presence of aerial bird of prey). Guinea pigs reacted significantly ( $p < 0.01$ ) more often and longer by moving in presence of an aerial predator model than to the presence of the terrestrial one. Longer time of freezing occurred upon exposure to dog. Likewise, guinea pigs moved the head towards terrestrial predator significantly ( $p < 0.01$ ) more often and longer than towards the aerial one. In conclusion, the animals may have shown different reactions to our models of predators in the laboratory setting but it is also possible that domestication influenced their reactions to some extent.

**Keywords:** Alarm call, guinea pigs, reaction to predators, recognition of predators, wild cavy