

University of South Bohemia
Faculty of Science



**Red-backed Shrikes (*Lanius collurio*) adjust the
mobbing intensity, but not mobbing frequency,
by assessing the potential threat to themselves
from different predators**

Mgr. Michal Němec

RNDr. Thesis

České Budějovice 2013

Bibliographic notation

Strnad M, Němec M, Veselý P, Fuchs R (2012)
Red-backed Shrikes (*Lanius collurio*) adjust the mobbing intensity, but not mobbing frequency, by assessing the potential threat to themselves from different predators.
Ornis Fennica 89:206–215

Anotation

We tested ability to adjust nest defence in the red-backed shrike. We presented dummies of three species of adult bird predators (sparrowhawk, kestrel, and long-eared owl; differing in the potential danger for the defending birds), plus two species of nest predators (jay and magpie; differing in the proportion of nestlings of small passerines in their diets). A dummy pigeon was used as the control. Shrikes regularly attacked all of the dummies tested, with the exception of the magpie and pigeon.

Declaration [in Czech]

Prohlašuji, že svoji rigorózní práci jsem vypracoval/a samostatně pouze s použitím pramenů a literatury uvedených v seznamu citované literatury.

Prohlašuji, že v souladu s § 47b zákona č. 111/1998 Sb. v platném znění souhlasím se zveřejněním své rigorózní práce, a to v nezkrácené podobě elektronickou cestou ve veřejně přístupné části databáze STAG provozované Jihočeskou univerzitou v Českých Budějovicích na jejích internetových stránkách, a to se zachováním mého autorského práva k odevzdanému textu této kvalifikační práce. Souhlasím dále s tím, aby toutéž elektronickou cestou byly v souladu s uvedeným ustanovením zákona č. 111/1998 Sb. zveřejněny posudky školitele a oponentů práce i záznam o průběhu a výsledku obhajoby kvalifikační práce. Rovněž souhlasím s porovnáním textu mé kvalifikační práce s databází kvalifikačních prací Theses.cz provozovanou Národním registrem vysokoškolských kvalifikačních prací a systémem na odhalování plagiátů.

V Českých Budějovicích 2013

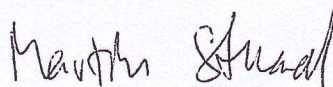
Mgr. Michal Němec

Co-author's agreement

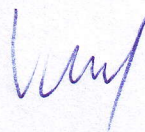
We declare that Michal Němec significantly contributed to publication of the following paper:

Strnad M, Němec M, Veselý P, Fuchs R (2012) Red-backed Shrikes (*Lanius collurio*) adjust the mobbing intensity, but not mobbing frequency, by assessing the potential threat to themselves from different predators. *Ornis Fennica* 89:206–215

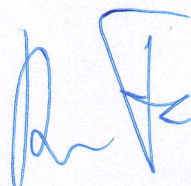
RNDr. Martin Strnad, first author



RNDr. Petr Veselý, Ph.D., corresponding author



RNDr. Roman Fuchs, CSc., head of the team



Acknowledgements

I will send many thanks to my supervisor Roman Fuchs as well as to other co-authors and co-workers from our team. Special thanks to Jarda Mottl for his nice pub and good beer. very special thanks to my family for general support.

Red-backed Shrikes (*Lanius collurio*) adjust the mobbing intensity, but not mobbing frequency, by assessing the potential threat to themselves from different predators

Martin Strnad, Michal Němec, Petr Veselý* & Roman Fuchs

M. Strnad & R. Fuchs, Faculty of Sciences, Charles University, Albertov 6, 128 43 Praha 2, Czech Republic

M. Němec, R. Fuchs & P. Veselý, Faculty of Science, University of South Bohemia, Branišovská 31, 37005 České Budějovice, Czech Republic. *Corresponding author's e-mail petr-vesely@seznam.cz*

Received 21 December 2011, accepted 11 April 2012

We studied the ability of Red-backed Shrikes to adjust their nest defence to the potential threat posed to defending adults and their nests. We presented mounts of two raptor species which prey on adult birds (Eurasian Sparrowhawk, Common Kestrel; differing in the proportion of adult passerines in their diets), and two species of nest predators (Common Magpie, Eurasian Jay; differing in the proportion of bird eggs and nestlings in their diets). A mounted Feral Pigeon was used as a control. Shrikes regularly mobbed the Sparrowhawk, Kestrel and Jay, but not Magpie or Pigeon. The mobbing frequency, in terms of the number of mobbing events per 20 min, did not differ among the three regularly-mobbed predators. If shrikes tried to chase the predator away, they did not adjust the mobbing frequency to the level of potential threat to the nest. The proportion of mobbing events resulting in physical contact (mobbing intensity) declined from the most mobbed species, Jay to the Kestrel, to the Sparrowhawk, which was considered most dangerous to adult shrikes. The Red-backed Shrikes appeared to adjust their mobbing intensity by assessing the potential threat to themselves. Our results show the importance of a differentiation between mobbing intensity and mobbing frequency in the study of nest-defence behaviour.



1. Introduction

Predator mobbing is an important form of avian antipredator defence (Caro 2005). It can occur year round (Shedd 1982, 1983), although it is usually more intense during the breeding season (Shedd 1982, Pavel 2006) when this behaviour is used to avoid nest predation (Biermann & Robertson 1981). Predator mobbing is also connected to

various trade offs. Mobbing may force the predator to leave the nest (Pettifor 1990; Flasskamp 1994). If the predator discovers a nest, mobbing may be the only chance to save the nest (Caro 2005). On the other hand, mobbing is conspicuous, and if the predator is not aware of the presence of the nest, the defence behaviour may draw attention to it, or even attract other predators (Krama & Krams 2005; Krams *et al.* 2007).