

# Artificial dummies as stimuli in field mobbing experiments



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## Introduction

Anti-predation behaviour is usually studied using dummies – animal is confronted with a dummy of predator. Dummies are most often stuffed, however these dummies of many species are not available. Dummies made of different (artificial) materials could replace the stuffed ones but their surface is featherless and so is changing general view and impression of dummies. Response of red-backed shrike (*Lanius collurio*) to European jay's (*Garrulus glandarius*) dummy made of different materials has been tested.

We presented three dummies of the jay placed in random order in proximity to shrike nests. The dummies were made from different materials – stuffed (the most veracious dummy), plush (the dummy with intermediate veracity as it possesses a surface similar to birds' feathers) and silicone (the least veracious dummy, possessing a glossy surface).



Stuffed dummy

## Methods

We presented three dummies of the jay to shrike nests – stuffed, plush and silicone.

Each trial (presentation of one dummy) lasted 20 minutes from the appearance of at least one parent. If the parents did not appear within 20 minutes, the trial was terminated and recorded as a zero reaction. The time interval until the presentation of the next dummy was precisely one hour.

We computed residual values for number of swoops after eliminating influence of the pair, because each of them was tested three times. In ANOVA, we used these residuals to test the influence of type of the dummy, type of the previous dummy, sequence of dummies, age of nestlings and interactions between type of the dummy and type of the previous dummy, and type of the dummy and sequence of dummies.



## Conclusion

Stuffed jay provoked red-backed shrikes to the most intense defence (most of swoops and physical contacts), plush dummy provoked them to the less intense defence. Shrikes were the least interested in silicone dummy. Thus, it is possible to use artificial dummies in experiments though their efficiency compared to stuffed dummies is lower.

The least veracious, silicone, dummy initiated defence reaction by shrikes only if shrikes had previous experience with a more veracious dummy. Silicone dummy alone did not imitate predator sufficiently.



## Results

- Most of pairs attacked all of the dummies at least once (Fig.1).
- Intensity of reaction is significantly different for different type of dummy (Fig. 2, Tab.1).
- The reaction on silicone dummy is influenced by previous dummy (Fig.3, Tab.1).
- Intensity of mobbing is not dependent on the order of dummies (Tab.1).

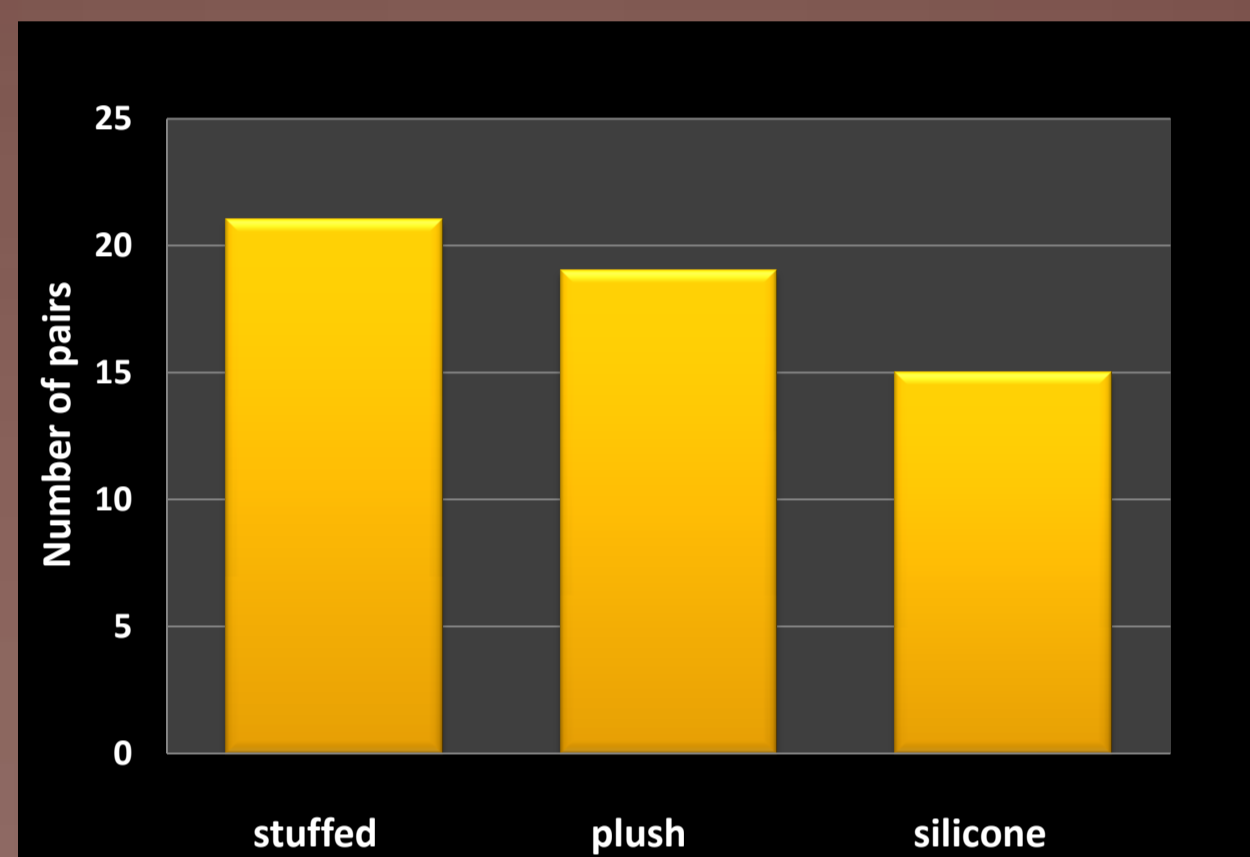


Fig. 1 – Number of pairs with at least one attack on dummy.

	DF	F value	p
Sequence of dummies	2	1.08	0.34
Type of dummy	2	10.40	<0.01
Previous dummy	2	1.53	0.22
Age of nestlings	2	10.95	<0.01
Type of dummies: previous dummy	3	2.72	<0.05
Sequence of dummies: type of dummy	2	0.27	0.76
Residuals	147		

Table 1 - Factors influenced number of swoops to tested dummies (ANOVA, n = 27, residuals of number of swoops without influence of the pair).



Plush dummy



Silicone dummy

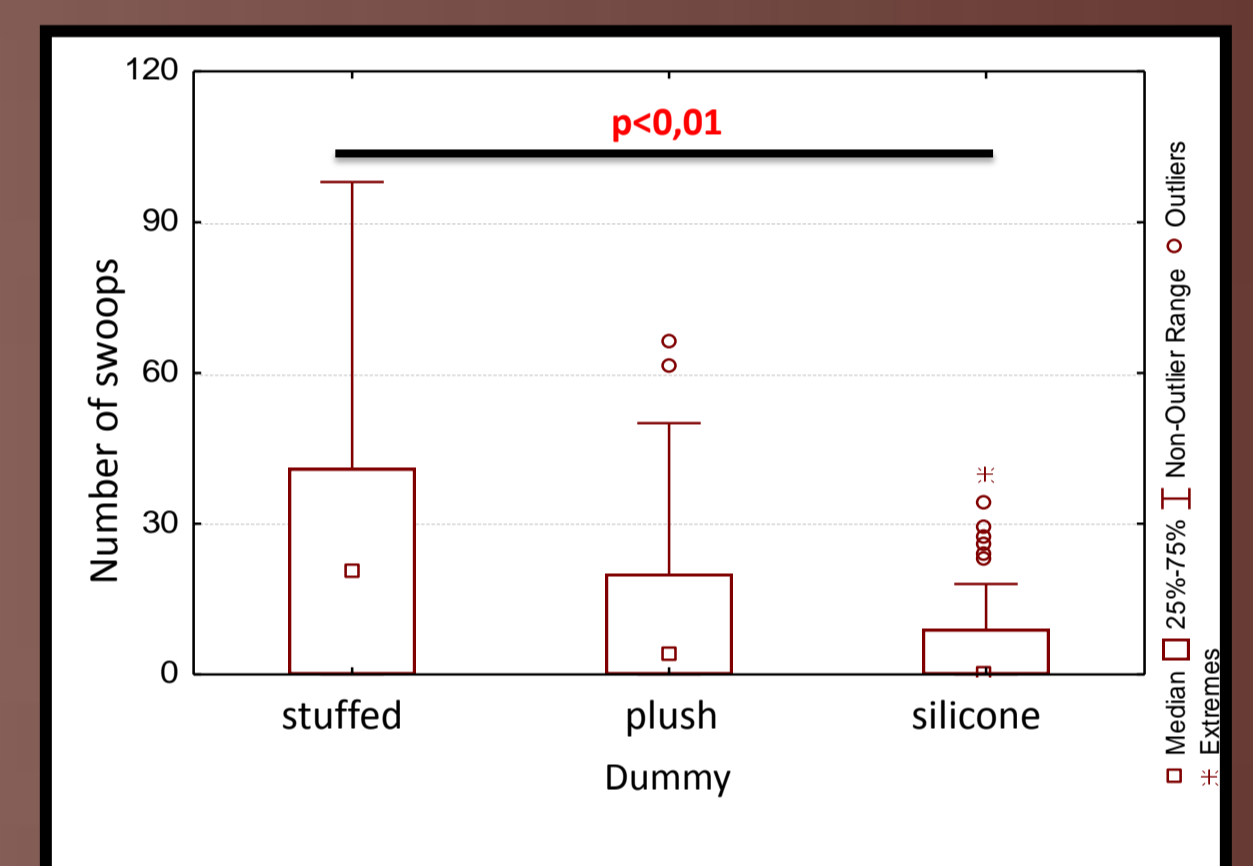


Fig. 2 – Intensity of active mobbing against the tested dummies (n = 27).



Fig. 3 – Intensity of active mobbing against silicone dummy dependent on previous trial (silicone after: nothing (n = 8), stuffed (n = 10), plush (n = 9)).