

Bestion, E., Cucherousset, J., Teyssier, A. and Cote, J. 2015. Non-consumptive effects of a top-predator decrease the strength of the trophic cascade in a four-level terrestrial food web. – Oikos doi: 10.1111/oik.02196

Appendix 1

Methods for the preliminary experiment

A preliminary experiment was conducted in May 2012 to determine the effect of the presence of top-predator cues on lizard consumption without considering the subsequent effects on lower levels of the food web. Lizards were introduced into six mesocosms (11 individuals per mesocosm) for one month. Every week, 100 crickets *Acheta domesticus* and 200 mealworms *Tenebrio molitor* were added in each mesocosm. Half of the mesocosms received top-predator cues. At the end of the experiment, the numbers of remaining crickets and mealworms were determined. While there was no evidence of an impact of top-predator cues treatment on mealworm consumption ($F_{1,4} = 4.215$, $p = 0.11$), cricket abundance at the end of the experiment was significantly higher in P+ ($F_{1,4} = 128$, $p < 0.001$).

Appendix 2

Determination of the number of crickets added in the mesocosms

To determine the number of cricket added in each mesocosm, we calculated the average daily consumption of crickets by lizard from the functions determined by Avery (1971) from wild common lizards' faecal output:

$$F = 21.8 W^{0.74} \text{ for days of sunny weather}$$

$$F = 12.4 W^{0.70} \text{ for days of changeable weather}$$

where F is the estimated food consumption in $\text{mg dry mass}\cdot\text{day}^{-1}$ against live body mass in grams, and W is lizards' mass in grams.

As the mean body mass of lizards in the present experiment was 3.03 g, estimated food consumption was $F = 49.57$ mg on sunny days and $F = 26.97$ mg on days of changeable weather.

The average cricket dry mass from several batches was 17.39 mg. Therefore, the estimated number of crickets consumed over one month by four lizards in a mesocosm was:

$$N = F \times 4 \times 30 / 17.39$$

This led to an estimate number of 342 crickets consumed in one month of sunny weather by four lizards, and 186 crickets consumed in one month of changeable weather. We expected cricket consumption to fall within these two values (changeable weather in September) and therefore introduced 340 lizards per mesocosms, as we expected that such densities would have allowed the final number of crickets to remain relatively high to avoid any food shortage for lizards and to account for natural mortality of crickets.

Reference

Avery, R. A. 1971 Estimates of food consumption by the lizard *Lacerta vivipara* Jacquin. – J. Anim. Ecol. 40: 351–365.