



Spring diet of badgers (*Meles meles*) in two contrasting habitats in the Netherlands

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Introduction

Biogeographic variation in the badgers diet is explained as variation in abundance and availability of earthworms (1). In Northern parts of Europe the badgers use earthworms as a primary food (>50% of the diet) and are described as food specialists (2). However, in the Mediterranean where earthworms are less available, the badgers feed as generalists (3) on insects and fruit with earthworms as a minor food source (<20% of the diet) (4).

Objective

To test whether the diet of badgers in Northern Europe reflects strongly contrasting earthworm availability in two neighbouring habitats.

Expectations

- The badger diet in the earthworm-rich habitat contains more earthworms.
- The badger diet in the earthworm-poor habitat has a wider niche-breadth.
- The badger diet in the earthworm-rich habitat shows a higher similarity in composition.

Methods

Study area

NP 'Veluwezoom' earthworm-rich (74.9 kg ha⁻¹)

NP 'Hoge Veluwe' earthworm-poor (7.3 kg ha⁻¹)

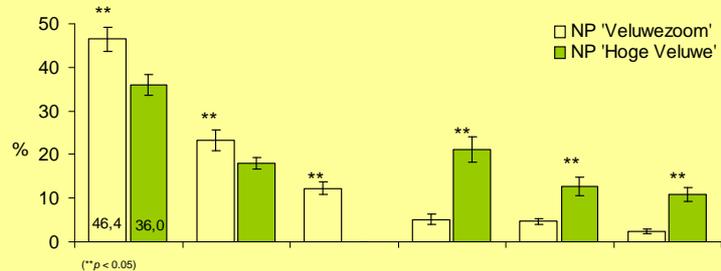


- Collection of fresh faecal samples on a weekly basis → March - May 2007 (n_{VZ}=85, n_{HV}=79).
- Faecal analyses to determine frequency of occurrence (FO) and estimated fresh volume (EV) of each food item (2).
- Diet breadth is calculated by Levins' standardised niche breadth (B_A) and similarity by using the simplified Morisita index (C_H), based on relative volume (= FO*EV).

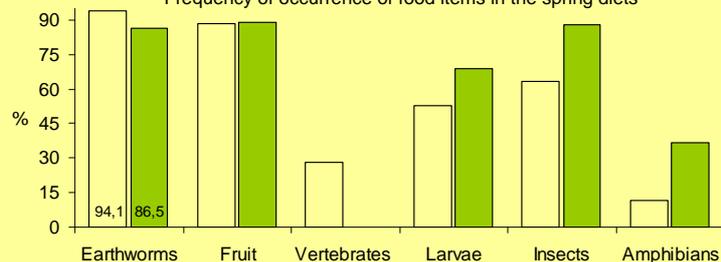
Results

- The earthworm-rich habitat has a higher relative volume earthworms (46.4% against 36.0%), fruit and vertebrates (*Oryctolagus*)
- The diet in the poor habitat contains more larvae (*Melolontha* and *Tipula*), insects (*Geotrupes*) and amphibians (*Rana*)
- Diet in the earthworm-poor area has a wider niche breadth and lower similarity

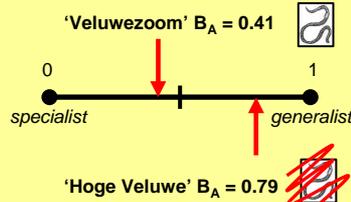
Difference in relative volume (mean±SE) of food items between habitats



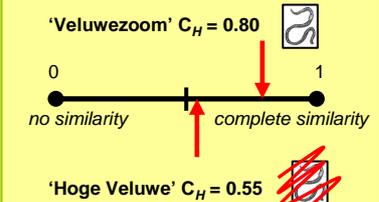
Frequency of occurrence of food items in the spring diets



Levins' standardised niche breadth (B_A)



Simplified Morisita index (C_H)



Conclusion

- The diet in the earthworm-rich habitat only contains 1.3X more earthworms despite a 10X larger availability compared to the earthworm-poor habitat.
- Badgers in both habitats still use earthworms as primary food and depending on availability, supplemented with seasonal (beetles, larvae) and local (rabbits) resources.
- The spring diet of badgers in the earthworm-poor habitat has a more generalized character (wider niche breadth, lower similarity).
- We submit that earthworm availability is not the primary factor creating the large contrast between Northern and Southern European badger diets.

Literature

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