

Scottish badgers highlight the complexity of species responses to environmental change

May 8 2017



Heat- and motion-activated camera-traps were used to document badger presence in Northern Scotland. Credit: Kerry Kilshaw / WildCRU

In a new study researchers have found that although warmer weather should benefit badger populations, the predicted human population increase in the Scottish highlands is likely to disturb badgers and counteract that effect. These results emphasise the importance of interactive effects and context-dependent responses when planning conservation management under human-induced rapid environmental change.

The new findings, published in the scientific journal *Diversity and Distributions*, result from a collaboration between researchers from Uppsala University in Sweden and Oxford's Wildlife Conservation Research Unit. Building on data from 168 camera trap stations actually collected originally to look at Scottish wildcat distributions, the team was also able to detect local badger (*Meles meles*) presence and absence. They found that different factors, such as weather conditions, land cover type and human disturbance interact to determine which locations badgers choose to populate across the Scottish Highlands.

Overall, badger occupancy was more likely at sites with higher minimum winter [temperature](#) and lower elevation. But when study areas of similar temperature and elevation were grouped together, more complex patterns emerged. Specifically, in less favourable cooler upland areas badger occupancy was associated with higher availability of agricultural patches, possibly due to the additional food resources they provide. This pattern was, however, not found in warmer lowland areas. These lowland [areas](#) typically provide more favourable foraging conditions, but also include more human infrastructures (farms, roads, villages, etc) that constrained badger occurrence; badgers were more often found further away from settlements and roads.

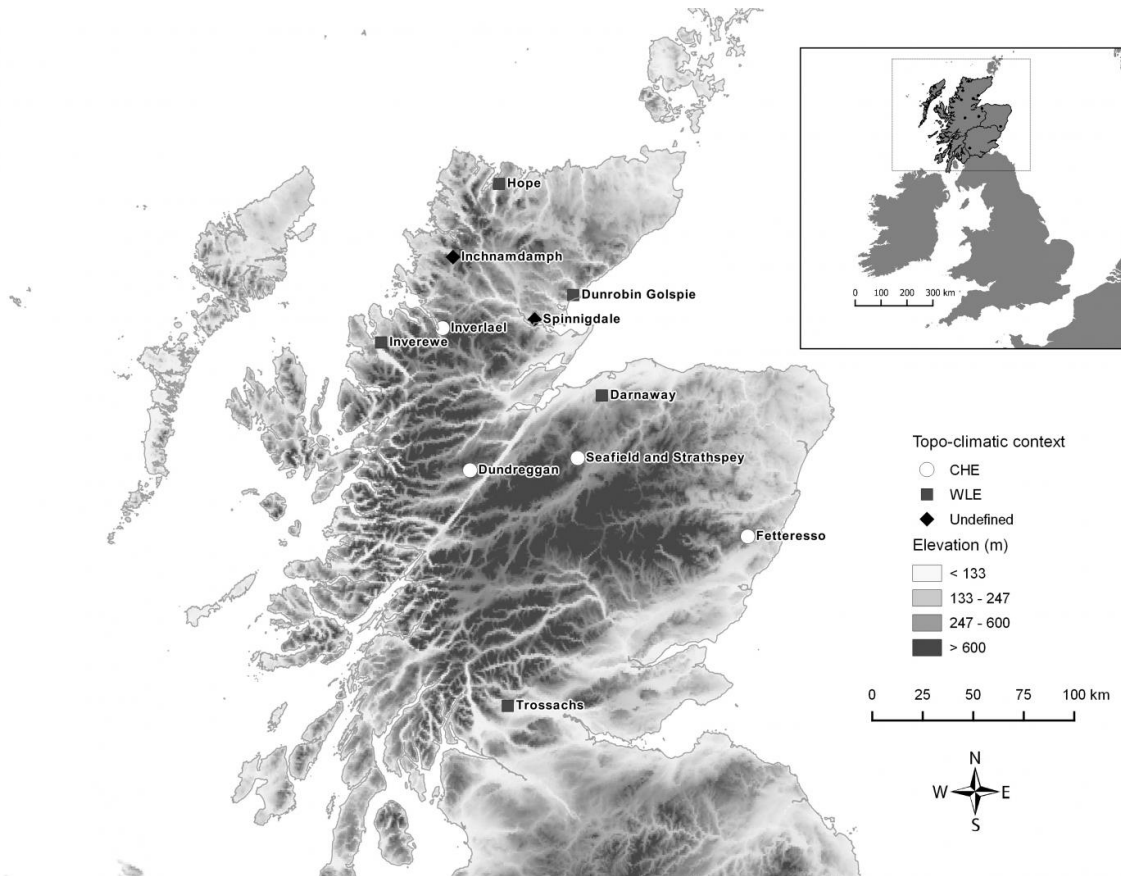


Heat- and motion-activated camera-traps were used to document badger presence in Northern Scotland. Credit: Kerry Kilshaw / WildCRU.

While medium estimates of a 1-3°C increase in mean minimum winter temperature for Northern Scotland by the 2050s would lead to better conditions for badgers in Highland Scotland, forecasts based on this factor alone are likely to prove simplistic and naïve. Disturbances associated with a predicted parallel 5% increase in human population in the Scottish Highlands by 2037 may counteract the benefits of increasing temperatures.

It may therefore prove faulty or superficial to assume that species will

simply benefit from warming [conditions](#) along the former cold-edge of their distribution if other environmental factors are not considered.



In a new study researchers have found that although warmer weather should benefit badger populations, the predicted human population increase in the Scottish highlands is likely to disturb badgers and counteract that effect. These results emphasize the importance of interactive effects and context-dependent responses when planning conservation management under human-induced rapid environmental change. Credit: Silva A.P. et al.

More information: André P. Silva et al, Climate and anthropogenic

factors determine site occupancy in Scotland's Northern-range badger population: implications of context-dependent responses under environmental change, *Diversity and Distributions* (2017). DOI: [10.1111/ddi.12564](https://doi.org/10.1111/ddi.12564)

Provided by Uppsala University

Citation: Scottish badgers highlight the complexity of species responses to environmental change (2017, May 8) retrieved 26 April 2024 from <https://phys.org/news/2017-05-scottish-badgers-highlight-complexity-species.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.