

Badger behavior inside the cull zone

October 9 2019



A European badger. Credit: Seth Jackson

A study led by researchers at international conservation charity ZSL (Zoological Society of London) and Imperial College London has found that culling drives badgers to roam 61% further afield—helping to explain why the practice, intended to reduce bovine TB transmission, can sometimes exacerbate the problem instead.

Published in the *Journal of Applied Ecology* today, the paper reveals that, after a population was culled, surviving [badgers](#) covered 61% more land each month than they had before the cull began, leading researchers to conclude that badgers explore new areas as individuals are removed from neighbouring groups and territories open up.

Badgers were also found to visit 45% more fields each month, and the odds of a badger visiting neighbouring territories each night increased 20-fold—potentially increasing the risk of TB transmission both to cattle and to other badgers. These changes were witnessed as soon as culling began, meaning even badgers that were killed may have first spread the infection over wider areas while management was being implemented.

Badgers however spent less time outside of their setts in culled areas—spending on average 91 minutes less per night out and about. ZSL scientists believe this could be linked to reduced competition and increased [food availability](#) as badgers are removed from the population.



Cally Ham, ZSL PhD student vaccinating badgers. Credit: Seth Jackson

The research group from ZSL's Institute of Zoology, and Imperial's MRC Centre for Global Infectious Disease Analysis, studied 67 badgers across 20 cattle farms in areas with and without farmer-led culling in Cornwall, collecting GPS-collar data between 2013 and 2017.

Lead author and ZSL-Imperial Ph.D. researcher, Cally Ham explained: "Badgers spend a large proportion of the night foraging for food above-ground, and as culling reduces the size of the population, competition for food will also be reduced. We believe this accounts for the reduced activity levels, as well as bold individuals becoming obvious targets for culling and being quickly removed from the population.

"Because culling partly relies on shooting badgers moving around at night, the fact that badgers were active for fewer hours per night could actually be undermining culling efforts to further control badger numbers."



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Professor Rosie Woodroffe at ZSL's Institute of Zoology, said: "As badger-to-cattle transmission is likely to occur through contamination of

their shared environment, and TB bacteria can remain viable for long periods of time in the environment, the effects of increases in ranging behaviour could create a source of infection for several months—long after the individual badger has been culled. In contrast, studies have shown that vaccination prompts no changes in badgers' ranging behaviour."

Since the UK Government implemented the culling policy in 2011, ZSL scientists have been working to understand whether badger vaccination—a non-lethal alternative to culling—could be used to reduce the infection of TB in the UK's badger [population](#), and so help control TB in cattle.

More information: Cally Ham et al, Effect of culling on individual badger *Meles meles* behaviour: Potential implications for bovine tuberculosis transmission, *Journal of Applied Ecology* (2019). [DOI: 10.1111/1365-2664.13512](#)

To find out more about ZSL's research into badger vaccination please visit: <https://www.zsl.org/blogs/science/its-badger-culling-season-again-in-england>

Provided by Zoological Society of London

Citation: Badger behavior inside the cull zone (2019, October 9) retrieved 19 April 2024 from <https://phys.org/news/2019-10-badger-behavior-cull-zone.html>

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