

New research into badger dispersal could minimize bovine tuberculosis spread

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Zoology researchers from Trinity, working with the Department of Agriculture, Food and The Marine (DAFM) and the National Parks and Wildlife Service (NPWS), have unlocked the secrets of dispersing badgers.

Their research, reported today, has major implications for implementing

vaccination programs to limit the spread of bovine tuberculosis (TB).

The findings come at an opportune time, as DAFM has commenced rolling out a national program to vaccinate badgers in its efforts to eradicate TB.

Badgers are a [protected species](#) and are one of Ireland's most iconic wild creatures, but they can harbor TB and inadvertently transfer it to cattle. Infected cattle must be culled, which results in the loss of millions of euro each year in the agricultural sector, which can devastate individual farmers and their families.

Vaccinating badgers against TB provides an excellent option to mitigating these risks, but to do that effectively, it is imperative to understand how badgers move around in the wild and to target those most likely to spread disease. Badgers are social animals, living together in a shared territory.

In the research, just published in leading international journal *Ecology and Evolution*, the zoologists describe the process of dispersal in greater detail than ever before after trapping and vaccinating 139 badgers, and monitoring their movements closely.

Aoibheann Gaughran, Postdoctoral Researcher in Trinity's School of Natural Sciences, was the lead author on the paper.

She said: "We found that only 17% of the badgers we tracked dispersed, so it's fair to say most badgers don't leave home—they remain living in the territory where they are born. However, some of those that did move away went on unexpectedly long and complex journeys.

By using GPS satellite trackers to take a uniquely personal look at the nightly comings and goings of 80 of these badgers in the wild, we

discovered that some—particularly the females—could cover over 100km while wandering around large areas looking for their new home. Our record-holder was a female that settled down only 1.5km away from where she was born, but traveled 308km back and forth before she joined her new social group. Male badgers, on the other hand, liked to stay close to their Mammy, and typically just moved next door.

Dispersal begins when badgers are aged one year or older, but by vaccinating them as cubs we can avoid the disease-spreading implications of this behavior."

The zoologists hope that by better understanding when and how [badgers](#) move between territories, they will be able to pinpoint where the greater risks for TB transmission lie, which would be extremely valuable information from a disease control perspective.

Nicola Marples, Professor of Zoology at Trinity, said: "This research on badger movement should help to maximize the efficiency and effectiveness of the impending badger vaccination program, which is great news. From both conservation and disease-control perspectives, a well-designed vaccination program should provide a win-win situation."

More information: Aoibheann Gaughran et al. Dispersal patterns in a medium-density Irish badger population: Implications for understanding the dynamics of tuberculosis transmission, *Ecology and Evolution* (2019). [DOI: 10.1002/ece3.5753](https://doi.org/10.1002/ece3.5753)

Provided by Trinity College Dublin

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