

Bovine TB: Consultation on revised guidance for licensing badger control areas

Response from the Zoological Society of London

The Zoological Society of London (ZSL) has a long history of scientific engagement with the management of bovine tuberculosis (TB) in British cattle and wildlife. ZSL is both a scientific research institution and a conservation NGO. As such, for this consultation we have commented on both the scientific and the conservation issues relating to the expansion of badger culling to a larger number of areas of England.

ZSL does not support the government's policy of culling badgers in an attempt to control cattle TB. While recognising that badgers can and do transmit TB to cattle, we note that the best estimates indicate that approximately 6% of TB-affected cattle herds become infected from badgers, with the remaining 94% acquiring infection from other herds¹. We therefore consider the management of cattle-to-cattle transmission to have the highest priority for TB control. We recognise that TB eradication requires clearing infection from the badger population as well as from cattle herds, but suggest that for this purpose vaccination (which reduces TB prevalence in badger populations^{2,3}) is more promising than culling (which consistently increases TB prevalence in UK badger populations⁴⁻⁶). Badger culling has the capacity to increase cattle TB as well as reducing it^{7,8}, making it an unsatisfactory tool for TB control. Primary analyses have so far revealed no significant reduction in cattle TB from farmer-led culls⁹. Moreover, large-scale badger culling entails killing thousands of members of a protected species which plays an important role in farmland ecosystems¹⁰⁻¹².

In addition to these general concerns, ZSL has four specific concerns about Defra's proposal to accelerate the recruitment of large badger culling areas.

(1) *Impact on the assessment of whether farmer-led culling changes cattle TB*

Recruiting cull areas more rapidly would compromise efforts to assess whether badger culling is reducing cattle TB as intended. Government scientists are assessing the effects of culling on cattle TB using a "stepped wedge" study design, in which areas which have not yet been culled serve as comparison areas for the cull areas⁹. If culling has the intended effect, these not-yet-culled areas would be expected to show higher cattle TB incidence than areas where culling has started. Recruiting cull areas more rapidly would curtail each area's time as a comparison area, making it more difficult to determine whether or not culling is contributing to TB control. If farmer-led culling was certain to be a cost-effective control measure, and if additional culls could be implemented without compromising existing culls, then reducing farms' time in the "not-yet-culled" comparison areas would accelerate TB control. However, to date primary analyses have revealed no significant evidence that culling is reducing cattle TB⁹, and secondary analyses on preliminary data are not robust enough to yield policy conclusions¹³. Limiting the statistical power of further analyses by culling the comparison areas might thus leave farmers, government, and taxpayers without reliable evidence to evaluate the cost-effectiveness of a control tool which is strategically important, but also costly and controversial. Moreover, a lack of evidence that culling is reducing cattle TB makes it increasingly difficult to justify the destruction of a protected species, in the eyes of the law (which requires that culls be conducted "*for the purposes of preventing the spread of disease*"¹⁴), and in the eyes of the public who mostly oppose badger culling¹⁵.

(2) Impact on review of Defra's TB policy

Defra has recently commissioned a scientific review of its TB control policy, which is scheduled to report in September 2018. Defra has stated publicly that this review will consider the future role of badger culling in Defra's TB strategy¹⁶. However, any new cull licences granted in 2018 would have to be issued before completion of the scientific review, to avoid forcing culls to operate entirely in the late autumn when trapping success is typically low¹⁷. Issuing large numbers of new licences just before the review is published would pre-judge the outcome of the review, constraining its ability to influence Defra's TB policy, and raising questions about Defra's commitment to the principle of the review.

(3) Impact on the implementation of other TB control tools

Defra ministers have repeatedly stated the need to deploy "*every tool in the box*" to combat TB. Consistent with its remit of stewarding the natural environment while overseeing food production, and its long-term plan of reforming farm subsidies to reward wildlife-friendly farming, Defra would be expected to explore ways to promote the coexistence of cattle and wildlife. Badger vaccination in particular has been proposed as a TB control tool which is more sustainable, cheaper, and more publicly acceptable than culling. However, vaccination is increasingly sidelined in Defra's TB policy, as culls are proposed or implemented throughout the high-risk, low-risk and edge areas. Defra's vision of culling badgers across the high-risk area, which covers the entire western side of England, would remove the option of implementing or even exploring badger vaccination as a cheaper, less controversial, and potentially more sustainable approach.

(4) Environmental impact

Badger culling has impacts on farmland ecosystems¹⁰⁻¹², as would be expected from the removal of the largest native carnivore remaining in Britain. Defra's consultation implies that the environmental impact of badger culling is not a concern because culling does not cause local extinction of badgers. However, Natural England formerly advised limiting the geographical extent of badger culling on conservation grounds¹⁸, noting that "*reducing the badger population to the extent and on the scale permitted under this policy has not previously been sanctioned for any protected native mammal species in modern times*".

Concerns about environmental impact do not relate only to the risk of localised badger extinction (*i.e.* a 100% reduction in badger density). Multiple ecological consequences were evident from a 70% reduction in badger density in the Randomised Badger Culling Trial (RBCT)¹⁰⁻¹², and the proposed policy change is likely to have greater impacts because the current and proposed culls are both more extensive and more prolonged. Defra's original plan was to recruit up to 10 areas per year, with each area being culled over four successive years and then allowed to recover. This arrangement would have meant that, over time, some areas would be newly culled while others would be recovering from culling. However, Defra is now encouraging culls to be continued indefinitely after the initial four years. Moreover, the establishment of multiple contiguous large-scale culling areas means that cull zones now encompass a greater diversity of ecological settings than were sampled in the RBCT, and sites within the cull zones are increasingly distant from the edges. The ecological consequences of reducing badger densities over huge geographical scales and prolonged periods are thus likely to be greater than those documented in the RBCT, and impacts may occur which were either not investigated or not detectable in the RBCT. Impacts of extensive badger culling on nature conservation, including impacts on other protected species, thus need to be seriously considered.

On a broader scale, there may be wider environmental consequences of expanding badger culling to the extent envisioned. Defra ministers are planning to restructure farm subsidies post-Brexit to reward environmentally-friendly farming. Simultaneously

encouraging widespread culling is inconsistent with this plan and sends a mixed message to both farmers and the public.

On a still broader scale, Defra is seeking to portray Britain as a world leader in wildlife conservation, for example introducing tough new laws on ivory trading and hosting the 2018 conference on the Illegal Wildlife Trade. It may be more difficult for the UK to encourage other, poorer, countries to find ways to coexist with dangerous wildlife such as elephants and tigers, while itself failing to even explore sustainable ways for its own farmers to coexist with what is essentially a large weasel.

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