

Defra Consultation
“Bovine TB: Supplementary badger disease control”
<https://consult.defra.gov.uk/bovine-tb/supplementary-badger-disease-control/>
Response from the Zoological Society of London

Introduction

The Zoological Society of London (ZSL) is a science-based organisation and hence its response to this consultation is based on scientific evidence. As an organisation actively involved in research on the control of bovine tuberculosis, ZSL recognises the impact that this disease has upon farmers’ lives and livelihoods, and seeks a sustainable, evidence-based solution to the problem.

Our response is based on the three specific questions posed in the Defra consultation.

A: Proposed approach to licensing – including the conditions of licensing, the discretion in Natural England’s decision-taking and the licence period.

ZSL has three main concerns about Defra’s proposed approach to licensing further badger culls in areas which have already experienced four years of culling.

A1 Defra’s plan to license further culls moves away from the empirical evidence that it used to justify its culling policy. In the Randomised Badger Culling Trial, the greatest reductions in cattle TB were observed after culling ended¹. At the time, scientists tentatively linked these improvements to the cessation of culling, and how this was likely to have affected the behaviour of the remaining badger population¹. In considering whether prolonged culling might have achieved the same reductions, they emphasised that *“It is... not possible to predict how culling over different periods of time, or at different intervals, would have influenced the results”*¹. On the basis of the available evidence, prolonging culling might deliver prolonged benefits, or it might prevent the benefits of stopping culling observed in the RBCT. Moreover, as licensed culls have not yet delivered any measurable benefits², the possibility remains that prolonged culling might deliver no benefits at all, or even prolonged harm. There is thus no evidence to support Defra’s claim that *“To prolong the disease control benefits it is necessary to maintain a steady badger population at the level achieved at the end of the licensed culls”* (para 1.3).

Furthermore, Defra’s original cost-benefit analyses were based upon the assumption that the costs of culling would be borne for four years, but the benefits would last for several years after the end of culling. Extending the culling period will certainly increase costs with an uncertain impact on benefits, a point which is not addressed in Defra’s cursory cost-benefit analysis (paras 5.1-5.4). Plans to extend the culls in this way nullify the original cost-benefit analysis.

A2 Defra’s plan to abandon restrictions on the proportion of accessible land (para 4.6) risks patchy culls. This is a cause for concern because there is strong evidence that patchy culls risk worsening cattle TB rather than reducing it³.

Defra justifies its proposal on the basis that the risk of increasing cattle TB through patchy culls *“... should be much lower during supplementary badger control”* because *“perturbation effects as a result of disturbed badger social groups... are expected to have been manifested primarily in the first year”* (para 3.11). This statement indicates

a misunderstanding of perturbation. In the first year, RBCT proactive culls increased cattle TB on land outside trial areas⁴. However, inside the trial areas, disruption of badger behaviour, and increased disease prevalence among badgers, persisted for the entire culling period⁵⁻⁷, probably undermining the benefits of large-scale culling⁸. Likewise, inside RBCT reactive areas, patchy culls increased cattle TB throughout the culling period^{9,10}. Defra's optimism that patchy culling will not increase cattle TB inside licensed culling areas is thus inconsistent with the available evidence.

A3 Defra proposes that Natural England should issue further licences "*only... if the prior cull was judged effective in achieving a population reduction likely to reduce disease transmission to cattle*" (para 4.4). Using the best available methods, the Independent Expert Panel found the initial culls to be ineffective at reducing badger population size to the intended level¹¹. As noted below in response to question C, Natural England cannot estimate the reduction in badger numbers achieved by culling using the methods adopted since the Independent Expert Panel was disbanded. Asking for licensing decisions based on judgement without evidence is likely to generate great difficulty for a science-based organisation like Natural England.

B: Proposed plans to ensure badger welfare is maintained, including views on the most appropriate time limit for badger control within the open season.

ZSL notes that Defra proposes to continue licensing the use of controlled shooting to kill badgers, even though the British Veterinary Association has concluded that this approach is inhumane and should be discontinued¹². The former Chair of Defra's Independent Expert Panel, Prof Randal Munro, has stated publicly that safeguards to badger welfare in cull zones do not reach the standard set by the Animals in Scientific Procedures Act. ZSL is therefore disappointed that Defra plans to continue licensing this method of killing badgers.

C: How Natural England should evaluate the effectiveness of supplementary badger control over the five-year licence period to ensure that it meets the aim of keeping the population at the level required to ensure effective disease control benefits are prolonged.

ZSL has grave concerns that Natural England cannot evaluate whether licensed culls have met Defra's stated criteria for "effectiveness". There are two reasons for this.

C1 Defra has repeatedly defined an "effective" cull as one which reduces badger numbers by "*at least 70%*" (e.g., Annex A, para 9.d.i). However, an accurate estimate of population reduction demands an accurate estimate of pre-cull population size. Unfortunately, Defra's current methods for estimating badger numbers have proven highly inaccurate. For example, in 2016 Defra was forced to revise its cull targets for all seven new culling areas when some cull companies easily killed more than double their target while others killed barely a half¹³. Where companies killed fewer than expected, it is impossible to be sure whether badger populations were low or culling effort inadequate. Likewise, where more badgers than expected were killed, it is clear that the initial population estimates were too low, but impossible to estimate the true population size. These concerns arise because Defra attempted to estimate badger numbers without conducting any field surveys in the cull zones¹⁴; hence there were no data to assess, for example, whether culling effort targeted all the setts in the accessible

area. Without reliable estimates of initial population size, any estimate of population size reduction is likewise unreliable. Unfortunately, now that culls have commenced in these areas the initial badger population size is unknowable.

We caution that Defra's recent claims of successful culls are equally unreliable. Defra has claimed success because certain culls met the minimum targets linked to their licences¹⁵. However, these targets are unreliable indicators of success, not only because they are based on unreliable estimates of initial badger population size, but also because they contain a statistical error. While Defra defines an effective cull as one which reduces badger numbers by "at least 70%" (e.g., Annex A, para 9.d.i), cull targets are set as 70% of the lower 95% confidence interval of estimated population size¹⁴. Hence, if the population estimate was accurate, reaching the minimum target would be likely to achieve a population reduction of at most 70%¹⁶. Using the minimum targets as indicators of success will thus systematically over-estimate culling effectiveness.

Indeed, it is not at all clear how Natural England could be expected to set target numbers of badgers to be killed in follow-up culls (para 3.13) without reliable estimates of pre-cull population size, and potentially without annual field surveys of badger activity (para 3.15).

C2 The effectiveness of badger culling would be better measured as the reduction in cattle TB it delivers, rather than the reduction in badger numbers it achieves. The latter is a measure of management implementation, but the former is a measure of management outcomes, and hence a better indicator of success.

Unfortunately, Defra has undermined its own ability to use this measure, by deciding to use the IFN γ test on cattle only in areas where badger culling has been undertaken (para 3.3). Hence, ongoing attempts to estimate the impact of badger culling on cattle TB will be confounded by improvements in cattle testing in cull (but not comparison) areas.

Additional comments

ZSL is deeply concerned by the way that evidence is presented in the consultation document. Such documents should equip the reader to provide informed comment on the government's proposals. In our view, this document does not facilitate informed comment because it misrepresents the level of certainty associated with the action proposed. For example, it states definitively that "*To prolong the disease control benefits it is necessary to maintain a steady badger population at the level achieved at the end of the licensed culls*" (para 1.3) and "*Supplementary licensed badger control preserves the disease control benefits of a net reduction in cattle TB breakdowns from the prior culls*" (para 5.2). In contrast with these definitive statements, there is thus far no evidence of any disease control benefits from industry-led culling², and no evidence as to whether continued culling would prolong such anticipated benefits¹. Such statements contrast with government guidelines which emphasise the need to communicate uncertainty when dealing with scientific evidence in policy making¹⁷.

As a science-based conservation organisation, ZSL is also concerned that Defra envisions a scale of badger culling that will have marked impacts not only on populations of this protected species, but on ecological communities in farmland, without strong evidence of any benefits.

Conclusions

In conclusion, ZSL is concerned that Defra's proposed changes are not based upon the best available evidence, and moreover cannot inform future policy decisions because their effectiveness cannot be monitored.

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