



# Bovine TB: Why badger culling is not the answer

## Key facts...

- ★ The current badger culling policy to control bovine TB (bTB) was introduced by the Government in 2011. There are now 32 cull areas operating in England.
- ★ In 2016 the Government relaxed the parameters that culls need to meet before being licensed, moving further away from the recommendations of a meeting of independent scientific experts convened in April 2011. The culls are now so distant from the original scientific parameters that it is difficult to assess the impact on bTB in cattle, the badger population or the spread of the disease.
- ★ The Government's own Independent Expert Panel stated that at least 7% of badgers were killed inhumanely in 2013; the Government disbanded the Panel in 2014 but data from subsequent culls indicates the situation has not improved.
- ★ Research shows that close contact between badgers and cattle is rare, so the likelihood of direct transmission of the disease is low. Indirect transmission remains possible through the soil and dung but is also probably low. This calls into question the very reason to cull.
- ★ The prevalence of bTB in cull areas has not changed despite the incidence rate apparently decreasing. Costs of the cull to the taxpayer have also been greatly underestimated.
- ★ The Westminster Government is currently awaiting a review by Charles Godfray on the current bovine TB strategy. We are not hopeful that it will lead to the major change required.

## Introduction

The Government introduced a new policy on bovine TB (bTB) and badger control in England<sup>1</sup> in 2011, by offering farmers and landowners the opportunity to conduct badger culling within licensed zones across substantial areas of the west and south west of England. Under this policy two pilot culls were approved in 2013. This policy was reviewed in 2014 under the Government's 25 year strategy on bovine TB free status for England which divided the country into three zones of Low Risk, Edge and High Risk. The High Risk zone covers an area of south west England, up the Welsh border to Cheshire and east to Derbyshire, Wiltshire and Dorset with an enclave in East Sussex<sup>2</sup>. Disease management in these areas includes culling badgers. The Government declared the pilot culls a success in 2014 (although the data suggests otherwise). In December 2015 the Government relaxed the criteria for culling by introducing three new changes to the licensing criteria, despite seven out of ten responses to the consultation opposing these changes. The changes included reducing the land area required to 100 km<sup>2</sup> and removing the minimum amount of land being required for the cull (from 70% of total available land). In 2018, the number of licensed cull areas was increased to 32. This includes the two original areas in Gloucestershire and Somerset, where the badger cull is now maintained at a low level using 'supplementary culling', a process that has no scientific evidence to support is continuation. It also includes an area of Cumbria, where no numbers have been set and no details provided with regards how the cull will operate. There is scientific evidence that this is unlikely to work, based on the cull policies in place from 1975 to 1996. In September 2018 a statement was released claiming culls in the original cull areas had contributed to a decline in bTB - a claim which is not supported

<sup>1</sup> [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/69463/pb13691-bovinetb-policy-state-ment.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69463/pb13691-bovinetb-policy-state-ment.pdf) (accessed 05.09.18)

<sup>2</sup> [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/300447/pb14088-bovine-tb-strategy-140328.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300447/pb14088-bovine-tb-strategy-140328.pdf) (accessed 05.09.18)

by the data due to a lack of control (non-cull) areas and no apparent decrease in prevalence of the disease in cattle.

## The science

The Government in England (and indeed the Government in Wales which has introduced selective culls in certain farms but has a pro vaccination policy) rely on the report of the Government appointed Independent Scientific Review Group (ISG). Their Randomised Badger Culling Trial (RBCT), conducted from 1998 to 2006, found overall benefits from culling badgers were modest with an average reduction of just 12-16% in the incidence of infection over a period of several years and concluded that '*badger culling can make no meaningful contribution to cattle TB control in Britain*'<sup>3</sup>. The ISG agreed that any proposed criteria for badger culling to reduce the incidence of bovine TB needed to include:

1. boundaries impermeable to badgers
2. be conducted over an area at least 150 km<sup>2</sup> and perhaps as much as 500 km<sup>2</sup>
3. be conducted simultaneously - the ISG found that the rise in TB in badgers that had been repeatedly culled was particularly pronounced in four culls that were undertaken piecemeal over a period of several months rather than a single operation<sup>4</sup>; the 16% reduction in bovine TB was found on culls carried out over only 8-11 days
4. a commitment to culling for a period of at least four years
5. to remove 70% of the animals but not to cause local extinctions which would contravene the Bern Convention criteria and assumed to be over 80% of the population

The policy was further informed during a meeting of scientific experts convened by Defra in April 2011<sup>5</sup>, which concluded that any culling should be conducted in a coordinated, sustained and simultaneous way over a short time period (less than six weeks) in order to minimise the potential impacts of perturbation (badgers moving from inside the cull area to other areas and vice-versa). The meeting noted that the more any culling policy deviates from the conditions of the RBCT, the more likely that the effects of that policy will differ. The Government's policy was based on the key conclusions from this meeting, but the first pilot culls in 2013 tested this policy when they were extended beyond the six weeks. The Government has since proceeded to move further away from these scientific conditions by the change in licensing criteria adopted in 2015 which changed criteria 2, 3 and 5 above. The Government changed the rules again to allow culling beyond the four year period and in 2018 to allow culling in Cumbria, a low risk area.

Scientific research published in August 2016<sup>6</sup>, supporting earlier work in Ireland published in 2013<sup>7</sup>, now questions the route by which bovine TB may be transmitted from badger to cattle and vice-versa. This research shows that badgers tend to avoid areas where cattle are present, thereby reducing the risk of transmitting the disease by direct contact. Bovine TB may be spread indirectly through contamination of badgers' and cattle's shared environment. This calls into question, if the environment is contaminated, not just the importance of culling badgers whilst leaving the disease in the environment but spreading the disease between cattle and pasture and from cattle by spreading slurry. Further modelling research showed that contribution of the disease from infected badgers to cattle is considerably smaller than from other cattle<sup>8</sup>.

<sup>3</sup> ISG Final Report 'Bovine TB: The Scientific Evidence' June 2007.

<sup>4</sup> ISG Final Report 'Bovine TB: The Scientific Evidence' June 2007 para 4.27

<sup>5</sup>

[http://webarchive.nationalarchives.gov.uk/20130403105820/http://archive.defra.gov.uk/foodfarm/farmanimal/diseases/atoz/tb/documents/bovine\\_tsb\\_scientificexperts-110404.pdf](http://webarchive.nationalarchives.gov.uk/20130403105820/http://archive.defra.gov.uk/foodfarm/farmanimal/diseases/atoz/tb/documents/bovine_tsb_scientificexperts-110404.pdf) (accessed 05.09.18)

<sup>6</sup> <http://onlinelibrary.wiley.com/doi/10.1111/ele.12654/full> (accessed 05.09.18)

<sup>7</sup> <http://www.sciencedirect.com/science/article/pii/S0168159113000361> (accessed 05.09.18)

<sup>8</sup> <https://arxiv.org/abs/1609.08896> (accessed 05.09.18)

Finally research on humaneness of the cull from the Government’s Independent Expert Panel (IEP) estimated in 2013 that between 7.4% and 22.8% of badgers shot at were still alive after 5 minutes, and at risk of experiencing marked pain, so failing the test for humaneness<sup>9</sup>. In addition, Compliance Reports from Natural England’s badger cull monitors in west Somerset and west Gloucestershire found in a third of observed incidents, badgers were shot in the wrong body area including the head, or were wounded and had to be shot a second time - these animals would likely have experienced significant suffering. The Government no longer collects data on humaneness but a small number of badgers were examined post mortem each year and monitors estimated that 9.5% of badgers were shot and not retrieved<sup>10</sup>.

### How have the culls gone?

The original aim of the culls was to reduce badger populations within the zones by at least 70% over a 6 week culling period in the first year, and maintaining the population at or below the new reduced level for a minimum of 4 years. It was hoped that this would in turn result in an average net reduction of 16% in the number of new confirmed cattle herd TB incidents across the culled area and adjacent ring over a nine year period. These figures are based on the outcomes of the Randomised Badger Culling Trial<sup>11</sup>. However the changes implemented by the Government in 2015 and 2017, such as extending the duration of the culls to longer than 6 weeks, has moved the methodology for the current culls far beyond that used in the RBCT and so relying on RBCT data is dubious at best.

To date seven culls did not meet their targets and ten did. The tables below summarise the culls to date and the numbers culled:

	2013 target	2013 actual	2014 target	2014 actual	2015 target	2015 actual	2016 target	2016 actual	2017 target	2017 actual	2018 target
West Gloucestershire	1650	921	615-1091	274 21.3% inhumane	679	432	228-642	252	160-580		
West Somerset	1015	940	785	341 10.8% inhumane	55-524	279	75-544	217	140-610		
North Dorset					615-835	756	390-610	502	184-404	257	109-329
Dorset 16									2950-4004	3450	1733-3363
West Dorset							2571-3489	3000	764-1964	1166	617-1826
Cornwall 5							730-991	851	93-403	358	20-330
Cornwall 4							588-798	711	43-292	213	15-264
Cornwall 22											3432-4658
Devon 6							1502-2038	2038	719-1598	727	706-1585
Devon 7							717-973	833	113-425	246	195-504
Devon 12									1702-2039	1874	1210-2170
Devon 13									1060-1439	1237	426-956

<sup>9</sup> [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/300382/independent-expert-panel-report.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300382/independent-expert-panel-report.pdf) (accessed 05.09.18)

<sup>10</sup> <https://www.gov.uk/government/publications/hovine-tb-summary-of-badger-control-monitoring-during-2015> (accessed 05.09.18)

<sup>11</sup> [http://webarchive.nationalarchives.gov.uk/20090330154646/www.defra.gov.uk/animalh/tb/isg/pdf/final\\_report.pdf](http://webarchive.nationalarchives.gov.uk/20090330154646/www.defra.gov.uk/animalh/tb/isg/pdf/final_report.pdf)

Devon 14					604-820	708		374-714		
Devon 15					689-935	763		0-170		
Devon 23								1602-2175		
Devon 24								840-1140		
Devon 25								817-1109		
Devon 26								817-1109		
Devon 27								566-768		
Devon 28								523-709		
Glos 9			1844-2503	1858	1007-1906	1012		28-927		
Glos 29								1163-1579		
Somerset 17					872-1174	1123		946-1535		
Somerset 18					391-531	489		320-570		
Somerset 30								1679-2276		
Hereford			566-770	624	218-487	394		165-433		
Cheshire					647-878	736		147-434		
Wiltshire 19					1888-2561	2252		959-1976		
Wiltshire 20					863-1172	1040		333-772		
Wiltshire 21					1013-1375	1229		831-1471		
Stafford								3184-4321		
Cumbria								?		
TOTALS		1861		615		1467		10886		19275

The then CVO admitted in 2016 that the seven new cull areas had not achieved an acceptable level of population reduction (only after the population estimates were revised, after four cull areas failed to meet their targets) but could give no reassurance it had any impact on the disease benefits<sup>12</sup>. His advice in 2015 was to continue though the level of badger removal needed to be confirmed from sett surveys in early 2016<sup>13</sup> and this was repeated in 2016 and 2017.

### What impact have the culls had?

The culls are part of a programme to reduce incidence of bTB by an estimated 16% if all the parameters of the cull are met, so severe caution should be applied to any interpretation of data relating disease incidence at the early stages of this programme, but detailed results from the original two 'pilot' areas should be available in 2019. A preliminary release of data suggested that the culls had reduced incidence in cattle by about 5% in Gloucester and 10% in Somerset. This is a bold conclusion to draw since no comparison has been made with similar areas outside the cull zones and the reduction is not mirrored in the prevalence of the disease (suggesting new cases are reducing but the level of disease in the population is unchanged). The former CVO has admitted that there is a need to address the issue of disease spread

<sup>12</sup> [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/578356/cvo-advice-2016-cull.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/578356/cvo-advice-2016-cull.pdf) (accessed 05.09.18)

<sup>13</sup> <https://www.gov.uk/government/publications/bovine-tb-chief-veterinary-officers-advice-on-the-outcome-of-the-2015-badger-culls> (accessed 05.09.18)

through perturbation (badgers moving from the cull area into another area and vice-versa) and if any further cull areas are agreed, policy should be informed by monitoring disease in the badgers as well as their population<sup>11</sup>. As far as we are aware, there has been limited testing of the disease in badgers from cull areas and this showed that less than 5% of badgers were confirmed to have the disease<sup>14</sup>

In Wales, where a proposed culling programme was cancelled in 2010 and replaced by better testing regime for cattle and improved movement restrictions, latest figures show 94.6% of herds are TB free and number of new incidences of only a 4% increase on previous year<sup>15</sup>. For badgers, an intensive vaccination programme was set up in an Intensive Action Area (IAA) in Pembrokeshire with over 5,000 badger trapped and vaccinated between 2012 and 2015<sup>16</sup>. Since then, the Welsh Government has also introduced culling, although in a much more limited scale, with only three licences granted in 2017 for culling at certain farms with a long-term history of TB problems.

## Costs

While official figures showing the total costs of three years culling, to both taxpayers and farmers have never been published, the first two years of the two pilot culls in Somerset and Gloucester cost the Government over £14 million, which included policing costs, or £5,766 per badger killed. This compares to an estimated cost of £717 per badger vaccinated in the IAA in Wales. In 2016, the Minister admitted that full costs of the 2015 cull had not been worked out but policing costs for the three areas were £1,803,247 compared to £1,392,000 for two cull areas in 2014<sup>17</sup>. These do not account for the costs to farmers of conducting the cull which have never been released. They also do not account for the work done to complete the badger population estimates that the CVO has said must be done before any further cull.

The high cost of culling makes a mockery of Government claims made in 2014, that *“It [culling by controlled shooting] will also be far less costly [than vaccinating badgers], with badger vaccination costing £662 per badger or £3900 per square km in Wales in 2012”*.<sup>18</sup>

While this cost is high, it is considerably lower than the estimates for the cost of the pilot culls on a per-badger basis. A centrally coordinated comprehensive badger vaccination policy in high-risk areas for bTB in England, involving all stakeholder groups, represents a far more progressive policy option than culling.

A recent analysis by the Zoological Society of London has shown that a vaccination scheme run by volunteers could be operated at £592 per km<sup>2</sup>, as opposed to £2247 per km<sup>2</sup> for widespread culling. Further analysis by ZSL<sup>19</sup> has also shown that industry led culling is nine times more expensive to the taxpayer than estimated by Defra in their value-for-money analysis<sup>20</sup>.

## Policy by Other Governments in the British Isles

The Republic of Ireland has been culling badgers for 32 years, killing over 60,000 badgers. In 2014 the Government there started a four year vaccination programme and reviewed this in 2017, looking to phase out culling in favour of vaccination<sup>21</sup>. They have already purchased TB vaccines from Canada to ensure they

<sup>14</sup>[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/681386/tb-surveillance-wildlife-england-2017.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/681386/tb-surveillance-wildlife-england-2017.pdf)

<sup>15</sup>[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/599784/bovinetb-statsnotice-quarterly-15Mar17.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/599784/bovinetb-statsnotice-quarterly-15Mar17.pdf) (accessed 05.09.18)

<sup>16</sup><http://gov.wales/docs/drah/publications/160404-bovine-tb-iaa-report-4.pdf> (accessed 05.09.18)

<sup>17</sup><http://www.parliament.uk/business/publications/written-questions-answers-statements/written-question/Commons/2016-02-19/27249/> (accessed 05.09.18)

<sup>18</sup> Letter from Defra to Angela Smith MP

<sup>19</sup> [https://www.zsl.org/sites/default/files/media/2018-09/ZSL\\_Eradicating\\_TB\\_Report\\_final\\_24Sep18.pdf](https://www.zsl.org/sites/default/files/media/2018-09/ZSL_Eradicating_TB_Report_final_24Sep18.pdf)

<sup>20</sup>[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/643599/bovine-tb-vfm-2017-badger-control.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/643599/bovine-tb-vfm-2017-badger-control.pdf)

<sup>21</sup> <http://www.discoverwildlife.com/news/irish-badger-cull-end> (accessed 05.09.18)

have enough to continue. Furthermore they have successfully trialled an oral bait vaccine for badgers which demonstrated that oral baits can be used to reduce the disease incidence rates in badgers<sup>22</sup> under experimental conditions. In Wales the Government announced a reversal of its policy from culling to vaccination from May 2012 and in four years have vaccinated 5,192 badgers<sup>23</sup>. The programme stopped in 2016 due to the shortage of vaccines and only resumed in 2017. They reviewed their TB eradication policy in 2017. In October 2017 they brought in their refreshed programme which allows culling in chronic breakdown herds where evidence of infection in the badger is seen. Culling occurs after trapping and testing the badgers, a widespread culling policy has been ruled out.<sup>24</sup> In Northern Ireland the Government started a trap, vaccinate and release (TVR) programme in 2014. This required badgers to be trapped and tested and only badgers testing positive for TB were killed. Work is ongoing to assess the impacts of this work, but the RSPCA remains cautious as we are not aware of an effective test that can be used in this way. This targeted programme was welcomed by Northern Irish welfare groups<sup>25</sup>. There are no plans to cull badgers in Scotland which currently enjoys officially TB free status.

## Recommendations

The RSPCA has concerns that:

- The changes made by Defra to the culling criteria in 2015 mean that the culls have now moved so far away from the original recommendations of the expert scientific meeting that it is impossible to know the impact of the current policy on bovine TB incidence or badger populations.
- The policy tightrope that the cull has always had, namely that culling less than 70% of the badger population would not have the desired impact on the disease but more than 70% and it risks eradicating the badger population in that area, has been broken as less than 70% of badgers were culled in seven of the seventeen culls to date.
- The Government's independent expert panel (IEP) reported that the 2013 'pilot' culls were inhumane with 7-24% of badgers still alive after 5 minutes. The Government then scrapped the panel but reports from Natural England monitors in 2014 and 2015 show that a similar number (9%) of badgers were shot at and escaped.
- There is a financial incentive for the cull operators to use free shooting over cage trapping but this increases the potential for inhumaneness - in 2016 52% of badgers killed were shot by free shooting.
- The continued emphasis on badgers is diverting attention from the main problem of the disease in cattle. More evidence is accumulating demonstrating there is an underlying prevalence of the disease in cattle and it would be better to tackle the disease in cattle rather than kill the badger.
- New scientific evidence has questioned whether bovine TB is transmitted, as previously thought, by direct contact between the badger and cattle as such events are rare. However bovine TB may be excreted by either species and remain in the soil, dung or urine to be passed between cattle and badgers.
- Over half bovine TB cases are the result of transmission from cattle to cattle. Therefore any policy on bovine TB needs to focus on cattle husbandry and welfare, controlling cattle movements and removing the potential for the disease to spread through the environment. Measures should be looked at to limit this such as cattle grazing of fields after silage cuts have been taken, slurry spreading and controlling the disease when cattle are housed indoors in close proximity in the winter.
- Badger culling is not sustainable. The culling in north Cornwall in 2016 highlights this as this area was subject to badger culls in the 1970s and 80s and as part of the RBCT. If bovine TB continues to

<sup>22</sup> <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0168851> (accessed 05.09.18)

<sup>23</sup> <http://gov.wales/topics/environmentcountryside/ahw/disease/bovinetuberculosis/intensive-action-area/badger-vaccination-iaa/?lang=en> (accessed 05.09.18)

<sup>24</sup> <http://www.bbc.co.uk/news/uk-northern-ireland-33370942> (accessed 05.09.18)

<sup>25</sup> <http://www.bbc.co.uk/news/uk-northern-ireland-33370942>

be a problem in this area, it would appear that previous culls have failed to address this and implies that other factors are to blame for maintaining the disease

- The costs of the culls far outweigh the costs of vaccination, notwithstanding that the Government does not actually pay for the cost of the culls themselves, although the burden on the taxpayer is much greater than Government estimates.
- Other Governments are reversing their policies on culling - Ireland is now prioritising vaccination.
- No research has been done on numbers of badgers culled in the pilot culls that have bTB.
- The Government is making bold statements on preliminary data which is not giving the full picture to the general public.

The RSPCA recommends that the Government reconsiders its bovine TB eradication policy by:

1. Placing more emphasis on the importance of cattle husbandry, high biosecurity and improved testing regimes to reduce the risks of cattle to cattle transmission and improve cattle welfare on farm;
2. Ensuring that scientific information is properly considered and interpreted and that specialist expert opinion is appropriately reviewed;
3. Introducing a centrally coordinated comprehensive badger vaccination policy, once vaccines become more widely available, in high-risk areas for bTB in England which involves all stakeholder groups. This would represent a far more progressive policy option than culling.